Cisco Unified CDR Analysis and Reporting Administration Guide

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Preface

This preface describes the purpose, audience, organization, and conventions of this guide, and provides information on how to obtain related documentation.

Note This document may not represent the latest available Cisco product information. You can obtain the most current documentation by accessing the Cisco product documentation page at this URL: http://www.cisco.com/en/US/products/sw/voicesw/tsd_products_support_category_home.html

The preface covers these topics:

- Purpose, page xi
- Audience, page xii
- Organization, page xii
- Related Documentation, page xiv
- Conventions, page xiv
- Obtaining Documentation and Submitting a Service Request, page xv
- Cisco Product Security Overview, page xvi

Purpose

The *CDR Analysis and Reporting Administration Guide* describes how to configure and use Cisco Unified Communications Manager CDR Analysis and Reporting (CAR), a tool that is used to create user, system, device, and billing reports. Use this guide in conjunction with the following documents:

- *Cisco Unified Serviceability Administration Guide*—This document provides descriptions and procedures for configuring alarms, traces, SNMP, and so on, through Cisco Unified Serviceability.
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*—This document provides definitions and examples of Call Detail Records (CDRs) and Call Management Records (CMRs).
- *Cisco Unified Cisco Unified Real-Time Monitoring Tool Administration Guide*—This document describes how to use RTMT, a tool that allows you to monitor many aspects of the system (critical services, alerts, performance counters, and so on).
- *Cisco Unity Connection Serviceability Administration Guide*—This document provides descriptions and procedures for using alarms, traces, reports, and so on, through Cisco Unity Connection Serviceability.

Audience

The *CDR Analysis and Reporting Administration Guide* provides information for administrators who are responsible for managing and supporting CAR and call detail records (CDRs). Network engineers, system administrators, or telecom engineers use this guide to learn about, and administer, CAR features. CAR administrators, managers, and end users use CAR to generate certain reports.

Organization

The following table shows how this guide is organized.

Chapter	Description
Overview	
Chapter 1, "CDR Analysis and Reporting Overview"	Provides an overview of CDR Analysis and Reporting, a tool that is used to create user, system, device, and billing reports.
Chapter 2, "Configuring the CDR Analysis and Reporting Tool"	Provides the procedures for configuring the CDR Analysis and Reporting (CAR), CDR service and enterprise parameters and for logging in and out of CAR.
User Reports	
Chapter 3, "Understanding CAR User Reports"	Assists the user in understanding the purpose of CAR User reports and how they are organized.
Chapter 4, "Configuring Bills User Reports"	Provides procedures for configuring Individual Bills and Department Bills CAR User reports.
Chapter 5, "Configuring Top N User Reports"	Provides procedures for configuring Top N by Charge, Top N by Duration, and Top N by Number of Calls CAR User reports.
Chapter 6, "Configuring Cisco Unified Communications Manager Assistant User Reports"	Provides procedures for configuring Cisco Unified Communications Manager Assistant Usage CAR User reports.
Chapter 7, "Configuring Cisco IP Phone Service User Reports"	Provides procedures for configuring Cisco IP Phone CAR User reports.
Chapter 8, "Reviewing User Reports Results"	Describes the results of CAR User reports and provides examples of each report.
System Reports	
Chapter 9, "Understanding CAR System Reports"	Assists the user in understanding the purpose of CAR System reports and how they are organized.
Chapter 10, "Configuring QoS System Reports"	Provides procedures for configuring the QoS Detail, QoS Summary, QoS by Gateway, and QoS by Call Types CAR system reports.
Chapter 11, "Configuring Traffic System Reports"	Provides procedures for configuring the Traffic Summary and Traffic Summary by Extensions CAR system reports.
Chapter 12, "Configuring FAC/CMC System Reports"	Provides procedures for configuring the Client Matter Code, Authorization Code Name, and Authorization Level CAR System reports.
Chapter 13, "Configuring Malicious Call Details System Reports"	Provides procedures for configuring the Malicious Call Details CAR System report.

Chapter	Description
Chapter 14, “Configuring Precedence Call Summary System Reports”	Provides procedures for configuring the Precedence Call Summary CAR System report.
Chapter 15, “Configuring System Overview System Reports”	Provides procedures for configuring the System Overview CAR System reports.
Chapter 16, “Configuring CDR Error System Reports”	Provides procedures for configuring the CDR Error CAR System report.
Chapter 17, “Reviewing System Reports Results”	Describes the results of the CAR System reports and provides examples of each report.
Device Reports	
Chapter 18, “Understanding CAR Device Reports”	Assists the user in understanding the purpose of CAR Device reports and how they are organized.
Chapter 19, “Configuring Gateway Device Reports”	Provides procedures for configuring the Gateway Detail, Gateway Summary, and Gateway Utilization CAR Device reports.
Chapter 20, “Configuring Route Plan Device Reports”	Provides procedures for configuring the Route and Line Group Utilization, Route/Hunt List Utilization, and Route Pattern/Hunt Pilot Utilization CAR Device reports.
Chapter 21, “Configuring Conference Bridge Device Reports”	Provides procedures for configuring the Conference Call Details and Conference Bridge Utilization CAR Device reports.
Chapter 22, “Configuring Voice Messaging Utilization Device Reports”	Provides procedures for configuring the Voice Messaging Utilization CAR Device report.
Chapter 23, “Reviewing CAR Device Reports Results”	Describes the results of the CAR Device reports and provides examples of each report.
CDRs	
Chapter 24, “Understanding CDRs”	Assists the user in understanding Call Detail Records (CDRs) and how they are created.
Chapter 25, “Configuring CDR Search”	Provides procedures for configuring CAR CDR Search by User Extension, by Gateway, by Cause for Call Termination, by Call Precedence Levels, and by Malicious Calls.
Chapter 26, “Configuring the Export of CDR/CMR Records”	Provides procedures for exporting CDR and CMR records and viewing the results of the exported records.
Chapter 27, “Reviewing CDR Search Results”	Assists the user in understanding the results of CDR Search.
System	
Chapter 28, “Configuring CAR System Parameters”	Provides procedures for configuring the Mail Server Parameters, the Dial Plan, the Gateways, and the CAR System Preferences.
Chapter 29, “Configuring the CAR System Scheduler”	Provides procedures for configuring the CDR Load Schedule and scheduling daily, weekly, and monthly reports.
Chapter 30, “Configuring the CAR System Database”	Provides procedures for manually purging or reloading the CAR system database and configuring the automatic system database purge.
Chapter 31, “Generating the CAR System Event Log”	Provides procedures for generating the CAR system Event Log.
Report Configuration	

Chapter	Description
Chapter 32, “Understanding the CAR Reports Configurations”	Assists the user in understanding the purpose of CAR reports and how they are configured.
Chapter 33, “Configuring the CAR Rating Engine”	Provides procedures for setting the base rate and duration and factoring the time of day and voice quality into the call cost.
Chapter 34, “Configuring the CAR Reports QoS Values”	Provides procedures for configuring the quality of service parameters, including lost packets, jitter, and latency values for CAR reports.
Chapter 35, “Configuring the Automatic Generation of CAR Reports and Alerts”	Provides a list of all reports that are available for automatic generation, the procedures for configuring the automatic generation of CAR reports, and how to enable and disable alerts by e-mail.
Chapter 36, “Configuring CAR Reports Notification Limits”	Provides procedures for configuring the QoS and daily charge notification limits for administrator e-mail alerts for various CAR reports.

Related Documentation

See the *Cisco Unified Communications Manager Documentation Guide* for additional Cisco Unified Communications Manager documentation. The following URL shows an example of the path to the documentation guide:

http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/<release #>/doc_gd/index.htm.

For additional Cisco Unity Connection documentation, see the *Cisco Unity Connection Documentation Guide* at http://www.cisco.com/en/US/products/ps6509/products_documentation_roadmaps_list.html.

Conventions

This document uses the following conventions:

Convention	Description
boldface font	Commands and keywords are in **boldface**.
italic font	Arguments for which you supply values are in *italics*.
[ ]	Elements in square brackets are optional.
{ x | y | z }	Alternative keywords are grouped in braces and separated by vertical bars.
[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
`screen` font	Terminal sessions and information the system displays are in `screen` font.
`boldface screen` font	Information you must enter is in **`boldface screen`** font.
italic screen font	Arguments for which you supply values are in *italic screen* font.
——→	This pointer highlights an important line of text in an example.

Convention	Description
^	The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords, are in angle brackets.

Notes use the following conventions:

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.

Timesavers use the following conventions:

Timesaver Means *the described action saves time*. You can save time by performing the action described in the paragraph.

Tips use the following conventions:

Tip Means *the information contains useful tips.*

Cautions use the following conventions:

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Warnings use the following conventions:

Warning **This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, you must be aware of the hazards involved with electrical circuitry and familiar with standard practices for preventing accidents.**

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop by using a reader application. You receive the RSS feeds as a free service, and Cisco currently supports RSS version 2.0.

Cisco Product Security Overview

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

Further information regarding U.S. export regulations may be found at http://www.access.gpo.gov/bis/ear/ear_data.html.

PART 1

Overview

CHAPTER 1

CDR Analysis and Reporting Overview

Cisco Unified Serviceability supports CDR Analysis and Reporting (CAR) under the Tools menu. CAR generates reports for Quality of Service (QoS), traffic, and billing information.

CAR is not intended to replace call accounting and billing solutions that third-party companies provide. You can find the companies that provide these solutions and that are members of the Cisco Technology Developer Program by searching the home page of the Cisco Developer Community at this URL: http://developer.cisco.com/web/cdc/home.

Note CAR does not handle iDivert calls (feature that diverts calls to a voice-messaging system) and treats them as normal calls. The part of the call after the iDivert feature gets activated may not get charged to the correct party.

This chapter contains the following topics:

- Understanding CDR Analysis and Reporting, page 1-1
- Understanding the Role of CAR Administrators, Managers, and Users, page 1-5
- Understanding CAR Reports, page 1-5
- Audit Logging, page 1-6
- Customized Log-on Message, page 1-7
- Internationalization for CDR Analysis and Reporting, page 1-7
- Web Browsers, page 1-8
- Accessing CAR Documentation Online Help, page 1-9
- Upgrading Cisco Unified Communications Manager, page 1-9
- Backup of CAR Database, page 1-9
- CPU Utilization, page 1-10
- Related Topics, page 1-11

Understanding CDR Analysis and Reporting

As its primary function, CAR generates reports about the users of Cisco Unified Communications Manager and generates reports on the system status with respect to call processing. CAR also performs CAR database management activities. You can perform these tasks in one of the following ways:

- Automatically configure the required tasks to take place.

- Manually perform the tasks by using the web interface.

You access CAR from the Tools menu of Cisco Unified Serviceability after you activate the appropriate services as described in the "Activating CAR" section on page 2-3.

All CAR reports use CDR data. CAR processes the CDRs from flat files that the CDR Repository service places in the CDR repository folder structure. CAR processes CDRs at a scheduled time and frequency. By default, CDR data loads continuously 24 hours per day and seven days per week; however, you can set the loading time, interval, and duration as needed. In addition, the default setting loads only CDR records. CMR records do not get loaded by default.

Note An option allows you to uncheck the "Load CDR Only" check box in the CAR System Scheduler window to allow CMR records to load. See "Configuring the CDR Load Schedule" section on page 29-1 for additional information.

CAR retrieves information that is required for various reports from CDRs, CMRs, and the Cisco Unified Communications Manager database.

Scheduling Reports

After CAR is activated on your system, you can schedule CAR reports to generate automatically at a regular time. Each report that can be scheduled has its own report generation interval. You can make the report generation interval be daily, weekly, or monthly. Scheduling Daily reports schedules all the reports that have report generation intervals of daily. Similarly, scheduling Weekly or Monthly reports would schedule the reports that have report generation intervals of weekly or monthly. You can also specify the time to keep a report before it gets automatically deleted.

By default, CAR uses the following report generation and deletion schedule:

- Daily reports run at 1 a.m. every day. These reports get purged after two days.
- Weekly reports run at 4 a.m. every Sunday. These reports get purged after four weeks.
- Monthly bill reports run at 3 a.m. on the first day of every month. These reports get purged after two months.
- Other monthly reports run at 2 a.m. on the first day of every month. These reports get purged after two months.

Note If you upgrade your system to a new version of Cisco Unified Communications Manager, you must disable the CAR reports that generate automatically, so you conserve system resources during the upgrade process.

For a list of reports and the default generation schedule, see the "Enabling or Customizing Reports for Automatic Generation" section on page 35-3.

For system monitoring, automatically generate various reports, such as QoS reports, and review them at regular intervals, perhaps every day if you have a very large system, or every week or every two weeks for smaller systems. QoS reports help you determine the quality of calls that run on your network and judge whether you need additional hardware to improve performance. You can use utilization reports for gateways, voice messaging, conference bridge, route groups, route lists, and route patterns to provide a picture of the usage to help with system handling.

You can also customize the report parameters and enable a mailing option, so reports get e-mailed when they are created. The Customize Parameters option allows you to customize the report parameters for particular reports in the Customize Parameters window. For each individual report, you can customize the parameters for that report.

Setting Up Alerts

CAR provides e-mail alerts for various events, including the following events:

- Charge Limit Notification indicates when the daily charge limit for a user exceeds the specified maximum. You can set the maximum in the **Report Config > Notification Limits** window.
- QoS Notification indicates when the percentage of good calls drops below a specified range or the percentage of poor calls exceeds a specified limit. You can set the range in the **Report Config > Notification Limits** window.

Enabling the system for e-mail alerts comprises a two-step process. First, you must specify the mail server configuration information (**System > System Parameters > Mail Parameters**). CAR uses the configuration information to successfully connect to the e-mail server. Next, you must enable the e-mail alerts on the Automatic Report Generation/Alert window (**Report Config > Automatic Generation/Alert**). By default, CAR enables e-mail alerts for some, but not all, reports.

Be sure to disable the automatic e-mail alerts to conserve system resources while you upgrade your system to a later version of Cisco Unified Communications Manager.

Note The system does not provide e-mail alerts to application users because no mail ID exists for an application user.

Purging CAR Data

This section contains information on the following topics:

- Automatic purging
- Manual purging
- Event log purging

CAR provides automatic and manual purging of the CAR database. By default, the system enables automatic purging. Before and after loading CDRs/CMRs, CAR checks the size of the CAR database and invokes automatic purging, if necessary, to control the CAR database size.

With automatic purging, CAR continuously monitors the number of days that the CDRs are kept in the CAR database; when the CDR age exceeds the maximum number of days as configured in the maximum age setting in the Configure Automatic Database Purge window, CAR deletes all CDRs that are older than the number of days that you configured.

In the Configure Automatic Database Purge window, you specify the percentages of the CAR database that you want to allot for CAR data; the system maintains the CAR database size between the high water mark and low water mark that you specify. When the CAR database size exceeds the low water mark, CAR sends an e-mail to all CAR administrators. When the database size exceeds the high water mark or the number of CDRs in the CAR database exceeds the maximum allowed records, CAR deletes CDRs that are older than the number of days that you specified for the CDR minimum age in the Configure Automatic Database Purge window; then, an e-mail gets sent to all CAR administrators. If the high water mark gets breached again or if the number of CDRs exceeds the maximum allowed records even after automatic purging completes, CAR triggers auto purging, does not load the CDRs/CMRs, and sends another e-mail.

Table 1-1 Maximum Size of CDR Database

Version	Maximum Number of CDR Records	Maximum Size of Database	Maximum Aggregate Busy Hour Call Attempts (BHCA)
Cisco Unified Communications Manager	2 million records	6 GB	10,000
Cisco Unified Communications Manager Business Edition	1 million records	3 GB	5,000

Tip To disable automatic purging to the minimum age when the high water mark gets breached or when the CDRs exceed the maximum number of records, configure the CDR minimum age to equal the CDR maximum age in the Configure Automatic Database Purge window.

Configure manual database purge when you want to delete records that are older than a particular date or that fall in a specific date range, but you do not want to change the automatic purging schedule. You can also reload the CAR database with CDR records by clicking the Reload button in the Manual Purge window. You may want to reload the database to reclassify calls after dial-plan updates, user-device association changes, call rate changes, and so on. After the system loads the new records, the system loads the records according to the schedule in the configured CDR load schedule. By default, CDR data loads 24 hours per day, 7 days per week.

Event log purging, which is a daily scheduled job that monitors the tbl_event_log table, automatically deletes the tbl_event_ log records to keep the latest 3 days of daily jobs, the latest 3 weeks of weekly jobs, and the latest 3 months of monthly jobs; that is, if more than 1500 rows exist in the tbl_event_log table, CAR automatically enables event log purging and does not send an e-mail when event log purging occurs.

Call Costs

You can use CAR to set a base monetary rate for the cost of calls on the basis of a time increment. Then, you can further qualify the cost by applying the time-of-day and voice-quality factors. Service providers who must account for service to subscribers use this feature. Some organizations also use this information to establish billing costs for users and departments in the organization for accounting or budgeting purposes.

Reports that use these rating parameters include Individual Bill, Department Bill, Top N by Charge, Top N by Number, and Top N by Duration.

Note If you do not change the default value for charge base/block, the cost will always remain zero because the default base charge per block equals zero.

Note If you do not want to increase call cost by voice quality, you can use the default values. The default multiplication factor specifies 1.00, so no increase in call cost for voice quality occurs.

For more information on setting call rates, see Chapter 33, "Configuring the CAR Rating Engine,".

Tracking Activity

CAR provides logs that can track the status of the various activities. The event log tracks events that the CAR Scheduler triggers, such as automatically generated reports, loading of CDRs, notifications, report deletions, database purging and monitoring, and event tracking.

Understanding the Role of CAR Administrators, Managers, and Users

CAR provides reporting capabilities for three levels of users:

- Administrators use all the features of CDR Analysis and Reporting; for example, they can generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers can generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users can generate a billing report for calls.

Any user can act as a CAR administrator. Users who have been identified as CAR administrators have full control over the CAR system. The administrator can modify all the parameters that relate to the system and the reports.

CAR requires a minimum of one administrator.

You set up administrators, managers, and users in Cisco Unified Communications Manager Administration. For more information, see the "Configuring CAR Administrators, Managers, and Users" section on page 2-8.

Understanding CAR Reports

From CAR, you can generate reports on demand, or if you are an administrator, you can schedule reports for automatic generation. You can view reports in comma separated values (CSV) format or portable document format (PDF). If you choose PDF, you must have Adobe Acrobat Reader installed on your PC.

This section contains the following topics:

- CAR Reports General Information, page 1-5
- Automatically Generated Reports Schedule, page 1-6

CAR Reports General Information

For all CAR reports that show the pattern for Hour of Day, Day of Week, and Day of Month, the charts and tables get shown according to the following conditions:

- When no records match the time range that is specified (hour of day, day of week, or day of month) in the search criteria, the report displays a value of 0.00 for all of the days/hours.
- If all records that are returned have a value of 0.00, CAR does not display the charts. CAR displays the charts if any record contains a non-zero value.

- When records get generated (for at least one day in the chosen date range) and the number of days that is chosen is more than the number of days that the report can show (more than seven for weekly and more than 31 for monthly), the chart displays all the days (with 0 value for the days that do not generate records). A table displays for all the days with relevant value and 0.00 for the days that do not contain data.
- When records generate (for at least one day in the chosen date range) and the number of days that is chosen is less than the number of days that the report can show (less than 7 for weekly and less than 31 for monthly), the chart displays all the days (with 0 value for the days that do not generate records). A table displays all the days with relevant value and 0.00 for the days that do not contain data.

In all the CAR reports that display username, userid displays if CAR cannot retrieve the username. This situation can occur when the report gets generated for prior data where the user that was involved in a call at that time no longer exists in the system (Cisco Unified Communications Manager database).

Additional Information

See the "Related Topics" section on page 1-11.

Automatically Generated Reports Schedule

Automatically generating reports comprises a two-step process. First, you must enable the reports that you want to have generated. Second, you must schedule the reports for the day and time that you want them to generate. CAR provides a default schedule, so if the default schedule is acceptable, you need only enable the reports that you want to automatically generate.

Reports and e-mail alerts do not automatically get enabled on a new installation. You must enable the reports that you want to automatically generate. To enable or disable report generation, see the "Enabling or Customizing Reports for Automatic Generation" section on page 35-3 for instructions on how to generate reports and e-mails automatically.

To change the specific time each day, week, or month that reports get generated and get purged from the system, see Chapter 29, "Configuring the CAR System Scheduler".

Additional Information

See the "Related Topics" section on page 1-11.

Audit Logging

With audit logging, any configuration change to the Cisco Unified Communications Manager system gets logged in separate log files for auditing. An audit event is any event that is required to be logged. Cisco Unified CDR Analysis and Reporting creates audit logs for these events:

- Scheduling the CDR Loader.
- Scheduling the daily, weekly, and monthly user reports, system reports, and device reports.
- Mail parameters configurations.
- Dial plan configurations.
- Gateway configurations.
- System preferences configurations.
- Autopurge configurations.

- Rating engine configurations for duration, time of day, and voice quality.
- QoS configurations.
- Automatic generation/alert of pregenerated reports configurations.
- Notification limits configurations.

Note Refer to the "Configuring the Audit Log" chapter in the *Cisco Unified Serviceability Administration Guide* for information on how to configure the Audit Log. Refer to the "Working With Trace and Log Central" chapter in the *Cisco Unified Real-Time Monitoring Tool Administration Guide* for information on how to view the audit logs.

Customized Log-on Message

You can upload a text file that contains a customized log-on message that appears on the initial Cisco Unified Communications Manager CDR Analysis and Reporting window.

For more information and the procedure for uploading your customized log-on message, see Chapter 7 in the *Cisco Unified Communications Operating System Administration Guide*.

Additional Information

See the "Related Topics" section on page 1-11.

Internationalization for CDR Analysis and Reporting

CAR, designed to be internationalized to handle any locale (or language), includes a database that can also handle any locale.

Note CAR supports all Latin-1 language and Unicode language locales as Cisco Unified Communications Manager help specifies. Latin-1 languages include English and Western European languages. Unicode languages include Japanese and Chinese.

Two types of locale exists: user and network. Each locale comprises a set of locale files. The following definitions describe the two types of files:

- User—Files that relate to user-related functions, such as phone display text, user applications, and user web pages.
- Network—Files that relate to network-related functions, such as phone and gateway tones. Country names designate network locales.

CAR supports the locales only if the Locale Installer has installed locales.

Note For Cisco Unified Communications Manager, make sure that you have first installed the Cisco Unified Communications Manager Locale Installer on every server in the cluster. For Cisco Unified Communications Manager Business Edition, make sure that you have first installed the Cisco Unified Communications Manager Locale Installer on the server. Installing the Locale Installer ensures that you

have the latest translated text available for CAR. For more information on the Cisco Unified Communications Manager Locale Installer, see the *Cisco Unified Communications Operating System Administration Guide*.

Only User and Manager windows support multiple locales. Administrator windows display in English.

In the Cisco Unified Communications Manager Administration, set the user-preferred locale in the Cisco Unified Communications Manager database. You do this when you create a user from the End User Configuration window. Specify the preferred locale along with the user name, user ID, and so on. The Cisco Unified Communications Manager database stores this information. See the *Cisco Unified Communications Manager Administration Guide* for more detailed information.

These sections describe the elements that make up the internationalization of CAR.

Logon Page

When the client (browser) requests the logon information, the logon window header includes the most preferred locale of the client. The CAR system checks whether the CAR UI supports this locale. If the CAR UI does not support the locale, or if the locale is not installed in the system, the logon window displays in the Cisco Unified Communications Manager system default locale that is set in the Cisco Communications Manager Enterprise parameter. If CAR does not also support this locale, or the locale is not installed in the system, the locale gets set to English_United_States.

Authenticate and Show CAR Pages for Post Logon Windows

User credentials (in any language) get authenticated through the Cisco Unified Communications Manager database, and then CAR windows for non-administrative users (users or managers) display the user preferred locale. If the CAR UI does not support this locale, or if the locale is not installed in the system, the Cisco Unified Communications Manager system default locale gets used. If this locale is not supported by CAR, or is not installed in the system, windows display in the most preferred locale of the browser. When the browser-preferred locale is also not supported or not installed, the locale gets set to English_United_States. All information on the UI windows, including labels, number formats, and so on., displays based on the locale. The administrator windows always display in English.

Reports

Reports, which are generated in both CSV and PDF formats, display in the user preferred locale for non-administrative users (users or managers). However, the dynamic data (like the Company Name shown in the report header) displays in the same language as was used to enter it in the database. The locale provides the basis for the header, footers, number formats, and some static data (like call classification). Reports for administrators display in English.

Additional Information

See the "Related Topics" section on page 1-11.

Web Browsers

The CAR program supports the following web browsers:

- Netscape Communicator Release 7.1
- Microsoft Internet Explorer Release 6.0 and Release 7.0

From any user PC in your network, browse into a server where CDR Analysis and Reporting displays in Cisco Unified Serviceability and log in as a CAR administrator, manager, or user.

Additional Information

See the "Related Topics" section on page 1-11.

Accessing CAR Documentation Online Help

To access CAR documentation online help, choose **Help > Contents and Index** (for a list of contents) or **Help > For this page** (for information that is specific to the page that displays.)

Additional Information

See the "Related Topics" section on page 1-11.

Upgrading Cisco Unified Communications Manager

When you upgrade from an earlier version of Cisco Unified Communications Manager to a later version of Cisco Unified Communications Manager, you may not be able to upgrade all your CDR data. For additional information about the limitations that affect the amount of CDR data that may be available after upgrade, see the "Upgrading the CAR Database" section on page 24-2. You may also need to refer to the latest *Data Migration Assistant User Guide*. Find these documents at http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_installation_guides_list.html

Additional Information

See the "Related Topics" section on page 1-11.

Backup of CAR Database

The CAR and CDR Disaster Recovery Service (DRS) now integrates into the Cisco Unified Communications Manager DRS. The DRS includes the backup of the CAR database, pregenerated reports, and the CDR preserved flat files.

The CAR Web Service and CAR Scheduler automatically stop before the backup and restore process begin, and automatically restart after the backup and restore process is complete.

Table 1-2 displays the features and components that the Disaster Recovery System can back up and restore. For each feature that you choose, the system backs up all its components automatically.

Table 1-2 Cisco Unified CM Features and Components

Feature	Components
CCM—Cisco Unified Communications Manager	Cisco Unified Communications Manager database
	Platform
	Serviceability
	Music On Hold (MOH)
	Cisco Emergency Responder
	Bulk Tool (BAT)
	Preference
	Phone device files (TFTP)
	syslogagt (SNMP syslog agent)
	cdpagent (SNMP cdp agent)
	tct (trace collection tool)
	Call Detail Records (CDRs)
	CDR Reporting and Analysis (CAR)

For more information, see the latest release of the *Disaster Recovery System Administration Guide* at http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html.

Additional Information

See the "Related Topics" section on page 1-11.

CPU Utilization

Cisco has performed basic testing to measure CPU utilization when CDRs and/or CMRs are enabled. The CPU utilization testing was measured on subscribers and was not measured on the publishers. Your actual results can vary because of the CDR Loader settings and the CDR Management settings for external billing servers. Table 1-3 displays the results of these tests.

Note Be aware that these tests were performed with Cisco Unified Communications Manager Release 7.0(1).

Table 1-3 CDR and CMR CPU Utilization

CDRs and CMRs Enabled/Disabled	Average % Increase in Cisco Unified CM CPU Utilization	Average % Increase in Total CPU Utilization	Average % I/O wait	% Increase in Cisco Unified CM CPU	% Increase in Total CPU	% Increase I/O wait
CDRs disabled, CMRs disabled	6.5	9.7	0.41	-	-	-
CDRs enabled, CMRs disabled	6.7	10.0	0.44	3.2	4.2	8.1

Table 1-3 CDR and CMR CPU Utilization

CDRs and CMRs Enabled/Disabled	Average % Increase in Cisco Unified CM CPU Utilization	Average % Increase in Total CPU Utilization	Average % I/O wait	% Increase in Cisco Unified CM CPU	% Increase in Total CPU	% Increase I/O wait
CDRs disabled, CMRs enabled	6.7	10.0	0.43	2.5	3.3	5.2
CDRs enabled, CMRs enabled	6.9	10.4	0.45	6.3	7.8	12.1

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- "Activating CAR" section on page 2-3
- Chapter 29, "Configuring the CAR System Scheduler"

Additional Cisco Documentation

- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Real-Time Monitoring Tool Administration Guide*
- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Communications Manager Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*
- *Data Migration Assistant User Guide*
- *Disaster Recovery System Administration Guide*

CHAPTER 2

Configuring the CDR Analysis and Reporting Tool

The Cisco Unified Communications Manager CDR Analysis and Reporting (CAR) tool generates reports of information for quality of service, traffic, user call volume, billing, and gateways.

This chapter contains the following topics:

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Activating CAR, page 2-3
- Configuring the CDR Repository Manager, page 2-4
- Configuring CDR Enterprise Parameters, page 2-5
- Configuring CDR Service Parameters, page 2-6
- CAR System Settings, page 2-7
- Configuring CAR Administrators, Managers, and Users, page 2-8
- Logging On to CAR, page 2-9
- Logging Out of CAR, page 2-12
- Related Topics, page 2-12
- Additional Cisco Documentation, page 2-12

CDR Analysis and Reporting Configuration Checklist

Table 2-1 provides an overview of the steps for configuring CDR Analysis and Reporting.

Table 2-1 CAR Configuration Checklist

Configuration Steps		Related Procedures and Topics
Step 1	Activate the CDR services on the appropriate servers.	Activating CAR, page 2-3
Step 2	Configure the CDR Repository Manager.	See the "Configuring CDR Repository Manager" chapter in the *Cisco Unified Serviceability Administration Guide*.

Table 2-1 CAR Configuration Checklist (continued)

Configuration Steps		Related Procedures and Topics
Step 3	Enable the following Cisco Unified Communications Manager enterprise parameters: • CDR File Time Interval • Cluster ID • Allowed CDRonDemand get_file Queries Per Minute • Allowed CDRonDemand get_file_list Queries Per Minute	Configuring CDR Enterprise Parameters, page 2-5
Step 4	Enable the Cisco Unified Communications Manager service parameters, CDREnabled Flag and CallDiagnosticsEnabled, to ensure that the CDR records write to flat files and that CMR records are created. Enable any of the following service parameters that are required for your specific installation: Add Incoming Number Prefix to CDR, CDR Log Calls with ZeroDurationFlag, Display FAC in CDR, and Show Line Group Member DN in finalCalledPartyNumber CDR Field.	Configuring CDR Service Parameters, page 2-6
Step 5	Set up CAR administrators, managers, and users in Cisco Unified Communications Manager Administration.	Configuring CAR Administrators, Managers, and Users, page 2-8
Step 6	Configure CAR system parameters for report generation: • Configure mail server. • Configure dial plan. • Configure gateway. • Set system preferences.	• Configuring Mail Server Parameters, page 28-1 • Configuring the Dial Plan, page 28-2 • Configuring the Gateway, page 28-4 • Configuring System Preferences, page 28-5
Step 7	Specify the value ranges that you consider good, acceptable, fair, and poor for jitter, latency, and lost packets.	Chapter 34, “Configuring the CAR Reports QoS Values”
Step 8	If desired, set a base monetary rate for the cost of calls on the basis of a time increment. You can further qualify the cost by applying the time-of-day and voice-quality factors.	Chapter 33, “Configuring the CAR Rating Engine”
Step 9	Enable the reports that you want to automatically generate by using the Automatic Generation/Alert Option window.	Chapter 35, “Configuring the Automatic Generation of CAR Reports and Alerts”
Step 10	Configure the CAR system scheduler to schedule when CAR loads CDRs as well as daily, weekly, and monthly reports.	Chapter 29, “Configuring the CAR System Scheduler”
Step 11	Set the parameters for automatic purging of the CAR database. You can set the percentage of the CAR database that you want the system to use for CAR data and the age of CAR data that you want to delete when the CAR data exceeds the database size limit. You can disable automatic database purging, but the system enables purging by default.	Chapter 30, “Configuring the CAR System Database”
Step 12	Set up the generation of event logs.	Generating the Event Log, page 31-1

Table 2-1 CAR Configuration Checklist (continued)

Configuration Steps		Related Procedures and Topics
Step 13	Set the charge limit notification that indicates when the daily charge limit for a user exceeds the specified maximum and the QoS notification that indicates when the percentage of good calls drops below a specified range or the percentage of poor calls exceeds a specified limit.	Chapter 36, "Configuring CAR Reports Notification Limits"
Step 14	If your users want to view localized user and manager reports, install the proper locales.	*Cisco Unified Communications Operating System Administration Guide available at* http://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html
Step 15	Back up CAR, including the database and the pregenerated reports. Use the Cisco Unified Communications Manager Disaster Recovery System (DRS).	"Backup of CAR Database" section on page 1-9

Additional Information

See the "Related Topics" section on page 2-12.

Activating CAR

CAR comprises a group of complementary services, which you can activate in the Service Activation window in Cisco Unified Serviceability. Before you can launch CAR from the Tools menu in Cisco Unified Serviceability, you must activate the CAR services by using the following procedure.

Procedure

Step 1 Choose **Tools > Service Activation**.

The Service Activation window displays.

Step 2 Go to the Servers drop-down list box.

Cisco Unified Communications Manager	Choose the first node of the cluster server name.
Cisco Unified Communications Manager Business Edition	Choose the server name.

The window displays the service names for the server that you chose, the service type, and the activation status of the services.

Step 3 Check the check boxes next to the following CDR Services:

- Cisco SOAP-CDROnDemand Service (optional). If you are using a third-party billing application that accesses CDR data via an HTTPS/SOAP interface, activate this service.
- Cisco CAR Web Service

Tip Unchecking the check boxes next to the CDR Services and clicking **Update** deactivates the services. If you deactivate the Cisco CAR Web Service, the system removes CAR from the Tools menu in Cisco Unified Serviceability.

Step 4 After you have finished making the appropriate changes, click **Update**.

Additional Information

See the "Related Topics" section on page 2-12.

Configuring the CDR Repository Manager

The CDR Repository Manager sends CDR files to up to three preconfigured destinations (billing servers) using FTP/SFTP. It also maintains files on disk to make sure the storage usage does not exceed predefined limits. If you exceed the predefined limits, the CDR Repository Manager deletes old files to reduce the disk usage to the preconfigured low mark. Files get preserved for a certain number of days based on configuration. Files that are old enough to fall outside of the preservation window get automatically deleted.

Cisco allows you to use any SFTP server product but recommends SFTP products that have been certified with Cisco through the Cisco Technology Developer Partner program (CTDP). CTDP partners, such as GlobalSCAPE, certify their products with specified version of Cisco Unified Communications Manager. For information on which vendors have certified their products with your version of Cisco Unified Communications Manager, refer to the following URL:

http://www.cisco.com/pcgi-bin/ctdp/Search.pl

For information on using GlobalSCAPE with supported Cisco Unified Communications versions, refer to the following URL:

http://www.globalscape.com/gsftps/cisco.aspx

Cisco uses the following servers for internal testing. You may use one of the servers, but you must contact the vendor for support:

- Open SSH (refer to http://sshwindows.sourceforge.net/)
- Cygwin (refer to http://www.cygwin.com/)
- Titan (refer to http://www.titanftp.com/)

Note For issues with third-party products that have not been certified through the CTDP process, contact the third-party vendor for support.

Cisco has tested and will support the following versions of FTP or SFTP for CAR billing servers:

- Linux/Unix
  - FTP: Unix (SunOS 5.6 Generic_105181-10) and Linux server (2.4.21-47.ELsmp and 2.6.9-42.7.ELsmp)
  - SFTP: Unix (SunOS 5.6 Generic_105181-10) and Linux server (2.4.21-47.ELsmp and 2.6.9-42.7.ELsmp)

- Windows
  - FTP: Microsoft FTP service (Windows 2000 5.00.2195 sp4, IIS 5.0) and WAR FTP Daemon (1.82.0.10)

Use the CDR Management configuration window in Cisco Unified Serviceability to configure the following items:

- Set the amount of disk space to allocate to call detail record (CDR) and call management record (CMR) files.
- Configure the high water mark (HWM) and low water mark (LWM).
- Configure the number of days to preserve CDR/CMR files before deletion.
- Disable CDR/CMR files deletion based on the HWM.

To access the CDR Repository Manager configuration window, open Cisco Unified Serviceability and choose **Tools -> CDR Management**.

See the "CDR Repository Manager" chapter in the *Cisco Unified Serviceability Administration Guide* for additional information.

Additional Information

See the "Related Topics" section on page 2-12.

Configuring CDR Enterprise Parameters

Configure these CDR parameters on the Enterprise Parameters Configuration window in Cisco Communications Manager Administration. To access the Enterprise Parameters Configuration window, open Cisco Unified Communications Manager and choose **System -> Enterprise Parameters**.

- CDR Parameters
  - **CDR File Time Interval**—This parameter specifies the time interval for collecting CDR data. For example, if this value is set to 1, each file will contain 1 minute of CDR data (CDRs and CMRs, if enabled). The CDR database will not receive the data in each file until the interval has expired, so consider how quickly you want access to the CDR data when you decide what interval to set for this parameter. For example, setting this parameter to 60 means that each file will contain 60 minutes of data, but that data will not be available until the 60-minute period elapses, and the records are written to the CDR database. The default value specifies 1. The minimum value specifies 1, and the maximum value specifies 1440. The unit of measure for this required field represents a minute.
  - **Cluster ID**—This parameter provides a unique identifier for the server or cluster. Because the parameter gets used in CDRs, collections of CDRs from multiple clusters can be traced to the sources. The default value specifies StandAloneCluster. The maximum length comprises 50 characters and provides a valid cluster ID that comprises any of the following characters: A-Z, a-z, 0-9, . -.
- CCM Web Services Parameters
  - **Allowed CDROnDemand get_file Queries Per Minute**—This parameter specifies the maximum number of CDROnDemand get_file queries that are allowed per minute for the system. For this required field, the default value specifies 10. The minimum value equals 1, and the maximum value equals 20.

– **Allowed CDROnDemand get_file_list Queries Per Minute**—This parameter specifies the maximum number of CDROnDemand get_file_list queries that are allowed per minute for the system. For this required field, the default value specifies 20. The minimum value equals 1, and the maximum value equals 40.

Additional Information

See the "Related Topics" section on page 2-12.

Configuring CDR Service Parameters

CAR relies on the data in the CDR and CMR records to generate both the CAR and CDR reports. CAR requires that the CDRs be available in flat files on the server where you access CAR. To ensure that the CDR records are generated, and generated in the manner you can use for your particular system, you must enable certain Cisco Unified Communications Manager service parameters:

You can configure these parameters on the Service Parameters Configuration window in Cisco Unified Communications Manager Administration. To access the Service Parameters Configuration window, open Cisco Unified Communications Manager Administration and choose **System -> Service Parameters**. Choose the **Advanced** button to display the complete list of Service Parameters. The following list of service parameters can affect CDR/CMR records:

- System Parameters
  - **CDR Enabled Flag—**This parameter determines whether CDRs are generated. Valid values specify True (CDRs are generated) or False (CDRs are not generated). For this required field, the default value specifies False. Enable this parameter on all servers.
  - **CDR Log Calls With Zero Duration Flag—**This parameter enables or disables the logging of CDRs for calls which were never connected or which lasted less than 1 second. Cisco Unified Communications Manager logs unsuccessful calls (calls that result in reorder, such as might occur because of a forwarding directive failure or calls that attempt to go through a busy trunk) regardless of this flag setting. This represents a required field. The default value specifies False.
- Clusterwide Parameters (Device - General)
  - **Call Diagnostics Enabled—**This parameter determines whether the system generates call management records (CMRs), also called diagnostic records. Valid values specify Disabled (do not generate CMRs), Enabled Only When CDR Enabled Flag is True (generate CMRs only when the CDR Enabled Flag service parameter is set to True), or Enabled Regardless of CDR Enabled Flag (generates CMRs without regard to the setting in the CDR Enabled Flag service parameter). This represents a required field. The default value specifies Disabled.
  - **Display FAC in CDR**—This parameter determines whether the Forced Authorization Code (FAC) that is associated with the call displays in the CDR. Valid values specify True (display authorization code in CDRs) or False (do not display authorization code in CDRs) for this required field. The default value specifies False.
  - **Show Line Group Member DN in finalCalledPartyNumber CDR Field**—This parameter determines whether the finalCalledPartyNumber field in CDRs shows the directory number (DN) of the line group member who answered the call or the hunt pilot DN. Valid values specify True (the finalCalledPartyNumber in CDRs will show the DN of the phone that answered the call) or False (the finalCalledPartyNumber in CDRs will show the hunt pilot DN). This parameter applies only to basic calls that are routed through a hunt list without feature interaction such as transfer, conference, call park, and so on. If a feature is involved in the call, the hunt pilot DN will show in the

finalCalledPartyNumber field regardless of the setting in this parameter. This parameter does not apply to Cisco Unified Communications Manager Attendant Console. The default value for this required field specifies False.

- Clusterwide Parameters (Device - Phone)
  - **Add Incoming Number Prefix to CDR** —This parameter determines whether Cisco Unified Communications Manager adds the incoming prefix (as specified in the National Number Prefix, International Number Prefix, Subscriber Number Prefix, and Unknown Number Prefix service parameters) to the calling party number in the CDRs for that call. If the prefix is applied on the inbound side of the call, it always will be added to the calling party number in the CDRs for that call, even if this parameter is set to False. If the prefix is applied on the outbound side, the prefix will be added to the calling party number in the CDR(s) for that call, only if this parameter is set to True. If the destination of the call is a gateway, Cisco Unified Communications Manager will not add the prefix to the CDRs even if this parameter is enabled. This parameter applies cluster wide. The default value for this required field specifies False.
  - Table 2-2 displays an example of how this service parameter works. The following table shows values of the prefix that are applied on the inbound and outbound side of the call.

Table 2-2 Add Incoming Number Prefix to CDR Example

	Inbound Side of Call	Outbound Side of Call
National Number Prefix	1214	
International Number Prefix		011
Subscriber Number Prefix	214	
Unknown Number Prefix		972

If the service parameter **applyIncomingPrefixToCDR** is disabled, the CDR will contain the prefix that is added to the calling party number when the type of number for the call is

- National number.
- Subscriber number.

If the service parameter **applyIncomingPrefixToCDR** is enabled, the CDR will contain the prefix that is added to the calling party number when the type of number for the call is

- National number.
- International number only when the destination is not a gateway.
- Subscriber number.
- Unknown number only when the destination is not a gateway.

Additional Information

See the "Related Topics" section on page 2-12.

CAR System Settings

CDR Analysis and Reporting sets default values for all system parameters. Before you generate any reports in CAR, Cisco recommends that you customize several system parameters. Because default values are provided for all system parameters, Cisco recommends customizing but does not require it.

Note The following system parameters refer to the CAR system parameters. Be aware that they are separate and distinct from the Cisco Unified Communications Manager enterprise and service parameters that are discussed in the previous sections.

CAR allows you to set the following parameters:

- Mail server criteria—CAR uses this information to successfully connect to the e-mail server to send alerts and reports by e-mail. If you do not want to send alerts or reports by e-mail, you do not need to specify this information.
- Dial plan—The default dial plan in CAR specifies the North American numbering plan (NANP). Ensure the dial plan is properly configured, so call classifications are correct in the reports. If you have modified the default NANP that Cisco Unified Communications Manager Administration provides, or if you are outside the NANP, be sure to configure the dial plan according to your Cisco Unified Communications Manager dial plan.
- Gateways—To utilize the gateway reports, you need to configure gateways in CAR. You should do this after installation of any existing gateways in your Cisco IP telephony system and when you add gateways to the system. If the system deletes any gateways, CAR gets the latest list of gateways, and any configuration that is specified in CAR for the deleted gateways gets deleted. CAR uses the area code information to determine whether calls are local or long distance. You must provide the Number of Ports information for each gateway to enable CAR to generate the Utilization reports.
- System preferences—You can set CAR system preferences for the Company Name parameter.

Additional Information

See the "Related Topics" section on page 2-12.

Configuring CAR Administrators, Managers, and Users

Any user can act as a CAR administrator (including application users); however, you must add the end user to the Cisco CAR Administrators User Group in Cisco Unified Communications Manager Administration (Standard CAR Admin Users). End users who have been identified as CAR administrators have full control over the CAR system. The administrator can modify all the parameters that relate to the system and the reports. End users who have not been identified as CAR administrators can access only designated CAR reports.

Note An application user that acts as a CAR administrator can configure all reports except the Individual Bill report. An application user that acts as a CAR administrator cannot access end user (CCM user) windows. CAR notifications do not get sent to the application user because no mail ID exists for the application user.

Tip To use CAR, ensure at least one CAR administrator exists in the Cisco Unified Communications Manager database.

Before you log in to CAR, you must configure at least one CAR user that has administrative privileges in CAR. To configure CAR administrators, managers, and users, perform the following procedure:

Procedure

Step 1 In Cisco Unified Communications Manager Administration, add an end user by choosing **User Management > End User**. For additional information on how to perform this task, see the *Cisco Unified Communications Manager Administration Guide*. To create a manager, make sure that you enter a value in the Manager User ID field.

Note After creating the End User, edit the user password credentials by clicking the button **Edit Credentials** near the password text box. Uncheck the **User Must Change at Next Login** check box. If this action is not taken, you will get IMS_ERROR_CODE_5 (See Table 2-3 for the "CAR Invalid Logon Messages") and will not be allowed to log in to CAR. Then, you must log in to Cisco Unified Communications Manager Administration to manually reset the password.

Tip Cisco recommends that you configure at least one CAR user that has administrative privileges in CAR before you start using CAR. If you have not configured a CAR administrator or want to configure another CAR administrator, continue with this procedure.

Step 2 Choose **User Management > User Group**; click **Find**.

The Find and List User Groups window displays.

Step 3 Click **Standard CAR Admin Users**.

The CAR User Group window displays.

Step 4 Click the **Add End Users to Group** button.

Step 5 Check the check box(es) for the users that you want to add to the group and click **Add Selected**.

The user displays in the Users in Group group box.

Tip To revoke CAR administrative privileges, check the check box of the user in Users in Group group box and click **Delete Selected**. When the warning message displays, click **OK**. The system revokes the privileges immediately.

Additional Information

See the "Related Topics" section on page 2-12.

Logging On to CAR

Only CAR administrators and normal end users can log on to the CAR web interface. Users do not need to be a member of a standard CAR administrator group to be a CAR administrator. Any user who has the role "Standard Admin Rep Tool Admin" associated with the user ID can access CAR as a CAR administrator. The user ID role association gets done by adding the user to a user group that has the role associated with it. "Standard CAR Admin Group" and "Standard CCM Super Users" comprise two groups that have the role "Standard Admin Rep Tool Admin" associated with them. The default

application user that gets created at installation, who is a member of the "Standard CCM Super Users" group, can log in to CAR as a CAR administrator but only as an application user. This user cannot access the Individual Bills report.

CAR supports custom CAR Admin groups. Any custom group that has the role "Standard CAR Admin Group" associated with it can add users who are considered to be CAR administrators when logging into the CAR web interface.

End users who are not CAR administrators can log in to CAR only if they have the role "Standard CCM End Users" associated with them. You can do this user ID—role association by adding the end user to the "Standard CCM End Users" group or any other group that has the specified role associated. Any end user without the "Standard CCM End Users" group association cannot log in to the CAR web interface.

Any user without the "Standard CCM End Users" or "Standard Admin Rep Tool Admin" role cannot log in to CAR. An attempt by this user to log in to CAR generates a 403 error, and the user gets redirected to the login window with no error message. CAR Web Service traces will log the username of the user who tried to access the application.

CAR facilitates users to change their password by using a Change Password window if the user password has expired. When a user with an expired password tries to log into CAR, he/she receives IMS_Error_Code 5,6 or 8. CAR uses the ChangePasswordFilter of ccmadmin to redirect the user to change-password.jsp when any of the preceding error codes are received.

If an error occurs while you are resetting the user password, the following message displays on the Change-Password window: "System error while changing password for user. Please contact system administrator."

Even though the CAR Administrator status extends to any user with the role "Standard Admin Rep Tool Admin," CAR notifications, alerts, and pregen reports only get sent to users who are members of the group "Standard CAR Admin Group" and not all CAR administrators.

Note Accessing CAR windows by using the URL https://<ip>:8443/car/Logon.jsp results in the error "Invalid direct reference to login page." The URL should not include any reference to the login page.

To log on to CAR, perform the following procedure:

Before you Begin

Perform the following tasks:

- Before you can log in to CAR, verify that the Cisco CAR Web Service and the Cisco CAR Scheduler service run on the first server.After you activate the services, the option CDR Analysis and Reporting displays under the Tools menu in Cisco Unified Serviceability. For information on how to activate services, see the "Activating CAR" section on page 2-3.
- Configure CAR administrators, managers, and users as described in "Configuring CAR Administrators, Managers, and Users" section on page 2-8.

Procedure

Step 1 To log on to CAR, perform one of the following tasks:

- For CAR system administrators only—From Cisco Unified Serviceability, choose **Tools > CDR Analysis and Reporting**.
- For CAR users or administrators—From the web browser, enter **https://<Server-ip/name>:8443/car/Logon.jsp**.

Step 2 After the CAR logon window displays, enter your user ID in the User Name field.

Step 3 In the Password field, enter your password. Click **Login**.

The CAR window displays.

If the user ID or password is invalid, CAR displays one of the Identity Management System (IMS) messages that are listed in Table 2-3.

Table 2-3 CAR Invalid Logon Messages

Error Code	Message
IMS_ERROR_CODE 1	Either the User Name or the Password entered is invalid. Ensure that you are logging into CAR as a CAR administrator or a regular End User.
IMS_ERROR_CODE 2	The account has been locked by System Administrator. Please contact the administrator.
IMS_ERROR_CODE 3	The account has been temporarily locked. Please contact the System Administrator or try after sometime.
IMS_ERROR_CODE 4	The account has been deactivated due to lack of activity. Please contact the System Administrator.
IMS_ERROR_CODE 5	The account has been locked as the password has expired. Please reset the password or contact the System Administrator.
IMS_ERROR_CODE 6	The account has been locked as the password has expired. Please contact the System Administrator.
IMS_ERROR_CODE 7 = ERROR: LDAP_INACTIVE	The system has changed over to using LDAP authentication and the user is still in the old database. Please contact the System Administrator. This error code is not used for Cisco Unified Communications Manager Business Edition.
IMS_ERROR_CODE 8	The account has been locked as the user needs to log in manually and change the credential first. Please reset the password from the Cisco Unified Communications Manager Administration page or contact the System Administrator.
IMS_ERROR_CODE UNKNOWN	System error. Please contact the System Administrator.
IMS_EXCEPTION (any exception returned by IMS) = AUTHENTICATION FAILURE	Unable to Authenticate User due to System Error. Please contact System Administrator.

Additional Information

See the "Related Topics" section on page 2-12.

Logging Out of CAR

This section describes how to log out of CAR.

Procedure

Step 1 At the CAR window, choose **Logout**.

Step 2 A prompt message "For security reasons, it is advisable to close the browser window on Logout. Do you want to close the browser window?" displays. To close the CAR window (browser), click **OK**; clicking Cancel displays the CAR Logon window.

Additional Information

See the "Related Topics" section on page 2-12.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 1, "CDR Analysis and Reporting Overview"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

PART 2

User Reports

CHAPTER 3

Understanding CAR User Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for their calls.

This chapter contains the following topics:

- User Reports Summary Description, page 3-1
- Mailing a Report, page 3-3
- Searching for Users, page 3-4
- Related Topics, page 3-4
- Additional Cisco Documentation, page 3-4

Note Depending on your job function, you may not have access to every report that is described in this chapter.

User Reports Summary Description

Users, managers, and CAR administrators can generate user reports. CAR includes the following user reports:

- Bills
  - Individual—Available for users, managers, and CAR administrators. Individual bills provide call information for the date range that you specify. You can generate, view, or mail summary or detail information about your individual phone bills. Those CAR administrators who are also application users cannot get this report.
  - Department—Available for managers and CAR administrators. Department bills provide call information and quality of service (QoS) ratings. If you are a manager, you can generate a summary or detailed report of the calls that are made by all users who report to you, or only those users that you choose. If you are a CAR administrator, you can generate a summary or detailed report of the calls that some or all users in the system make. This report helps you to keep track of all calls on a user-level basis for the entire system.

- Top N
  - By Charge—Available for managers and CAR administrators. The Top N by Charge reports list the top number of users that incurred a maximum charge for calls during a period that you specify. Reports that are generated by destinations list the destinations that incurred the maximum charges. Reports that are generated by all calls list the calls that incurred the maximum charges. If you are a manager, the report includes the top charges for all calls that are made by users who report to you during the specified period. If you are a CAR administrator, the report includes the top charges for all calls that are made by all users on the system for the specified period.
  - By Duration—Available for managers and CAR administrators. The Top N by Duration reports list the top number of users that incurred a maximum time on calls during a period that you specify. Reports that are generated by destinations list the destinations that incurred the maximum duration. Reports that are generated by all calls list the calls that incurred the maximum duration. If you are a manager, the report lists the top number of users who report to you who incurred a maximum time for calls that are made during the chosen date range, starting with the longest. If you are a CAR administrator, the report lists the top number of users that incurred a maximum time for calls that were made during the chosen date range, starting with the longest.
  - By Number of Calls—Available for managers and CAR administrators. The Top N by Number of Calls reports list the users who incurred the maximum number of calls. Reports that extensions generate list the extensions that placed or received the greatest number of calls during a period that you specify. If you are a manager, the report lists the top number of calls by user or extension, among the users who report to you, for the chosen date range. If you are a CAR administrator, the report lists the top number of calls for each user or extension in the system. Reports that are generated By Individual Users lists the users who incurred the maximum number of calls. Reports that are generated By Extensions lists the extensions that have placed or received the greatest number of calls in the group (for a manager) or in the system (for the CAR administrator).
- Cisco Unified Communications Manager Assistant
  - Manager Call Usage—Available for CAR administrators. The Cisco Unified Communications Manager Assistant (IPMA) summary and detail reports provide call completion usage details for IPMA managers. The manager reports can include calls that managers handle for themselves only, calls that assistants handle for managers only, or calls that both managers and assistants handle for managers.
  - Assistant Call Usage—Available for CAR administrators. The Cisco IPMA summary and detail reports provide call completion usage details for IPMA assistants. The assistant reports can include calls that assistants handle for themselves only, calls that assistants handle for managers, calls that assistants handle for themselves and for managers.
- Cisco IP Phone Services—Available for CAR administrators. The Cisco IP Phone Services report shows selected Cisco IP Phone services, the number of users that are subscribed to each of the selected services, and the utilization percentage for each of the selected services. You can create services for a wide variety of business and entertainment uses. If you have revenue tied to a service, such as for advertising, you can use this report to determine the number of users who have subscribed to the service. You can also use this report to indicate the popularity of selected services.

Additional Information

See the "Related Topics" section on page 3-4.

Mailing a Report

You can e-mail all reports in CAR. You can send a report by mail from any report window in CAR. You can also view the report first and then send it.

Before You Begin

To e-mail reports, first configure valid mail parameters. The mail parameters allow CAR to send e-mail by using the e-mail server in your system. See the "Configuring Mail Server Parameters" section on page 28-1, for more information. Also, set up the details of the report that you want generated.

The following procedure describes how to mail a CAR report.

Procedure

Step 1 Within any CAR Reports window or after viewing the report, click the **Send Report** button.

The Mail To window displays.

Step 2 Enter the e-mail ID for the user to whom you want to send the report.

Step 3 You can search for a user by clicking the **To** button.

A User Search window displays.

Step 4 In the First Name and Last Name fields, enter characters of the first or last name of the user and click the **Search** button.

A User Search Results window displays in the same page and lists all users who matched the search criteria that you entered.

Step 5 In the row for the user to whom you want to send the report, click the **Select** link.

The user that you chose gets added to the To field of the Mail To window. Repeat this step to add more users to the list of people who will be e-mailed a copy of this report.

Step 6 When you have added all users, click the **Close** button in the User Search window.

The users who are listed in the Search Users window get copied to the To field of the Mail To window.

Step 7 To add a user to the Cc field, click the **Cc** button and follow the same instructions as described in Step 4 through Step 6.

Step 8 In the Subject field, enter a subject message (optional).

Step 9 In the Message area, enter a message (optional).

Step 10 To send the report, click the **Send** button.

Note When you click on the **Send Report** button on any result page, a maximum of 20 records in that page is emailed to the recipient. For performance reasons in cdr search, the number of records have been truncated to 100 deliberately.

Additional Information

See the "Related Topics" section on page 3-4.

Searching for Users

Many reports in CAR provide a search function, so you can look for users. The following CAR User reports support search by user: Department and individual bills, Top N by charge, duration, and number of calls, Cisco Unified Communications Manager Assistant, and Cisco Unified IP Phone. You can mail all reports that can be generated via the Send Report button.

Before You Begin

You must use the window in User Reports that allows you to search for users.

This section describes how to search for a user.

Procedure

Step 1 Click the **Search Users** link.

A User Search window displays.

Step 2 In the First Name and Last Name fields, enter characters of the first or last name of the user and click the **Search** button.

A User Search Results window displays in the same window and lists all users who matched the search criteria that you entered.

Step 3 In the row for the user that you want, click the **Select** link.

The user that you chose gets added to the List of Users in the User Search window. Repeat this step to add more users.

Step 4 When you have added all users, click the **Close** button in the User Search window.

Additional Information

See the "Related Topics" section on page 3-4.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 4, "Configuring Bills User Reports"
- Chapter 5, "Configuring Top N User Reports"
- Chapter 6, "Configuring Cisco Unified Communications Manager Assistant User Reports"
- Chapter 7, "Configuring Cisco IP Phone Service User Reports"
- Chapter 8, "Reviewing User Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*

- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 4

Configuring Bills User Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for their calls.

This chapter contains the following topics:

- Configuring Individual Bills Reports, page 4-2
- Configuring Department Bills Reports, page 4-3
- Related Topics, page 4-5
- Additional Cisco Documentation, page 4-5

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Configuring Bills Reports

Individual bills provide call information for the date range that you specify. You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. If you are an administrator, see Chapter 35, "Configuring the Automatic Generation of CAR Reports and Alerts" for more information.

Department bills provide call information and QoS ratings. If you are a manager, you can generate a summary or detailed report of the calls that all users who report to you made, or only those users that you choose.

If you are a CAR administrator, you can generate a summary or detailed report of the calls that some or all users in the system made. This report helps you keep track of all calls on a user-level basis for the entire system.

This section contains the following procedures:

- Configuring Individual Bills Reports, page 4-2
- Configuring Department Bills Reports, page 4-3

Configuring Individual Bills Reports

This section describes how to view, or mail, summary or detail information reports about users, managers, and administrators. Administration users do not get access to this report.

Before you can configure the Individual Bills report, you must ensure a device with an assigned Owner User ID exists in Cisco Unified Communications Manager Administration for each user that is included in the report. Use the following procedure to create the Owner User IDs:

Procedure for Adding Owner User ID

Step 1 In Cisco Unified Communications Manager Administration, choose **Device > Phone > Add a New Phone > Phone Configuration**.

Step 2 Add the information for the device and the user.

Note If the Extension Mobility feature is enabled on the device and the user logs in to the phone and places a call, the User ID that gets recorded in the CDRs matches the logged in User ID. If extension mobility is not enabled on the device, the User ID that gets recorded in the CDRs equals the "Owner User ID" that is configured for the device. In the situation where neither the User ID nor the Owner User ID is configured (that is, extension mobility is not enabled, and the Owner User ID is not configured), the User ID field in the CDRs gets recorded as blank. In this situation, CAR uses the default User ID of "_unspecified user" when it loads the CDRs, and the CDRs do not appear in the Individual Bills User reports because no user by the name "_unspecifieduser" exists in the Cisco Unified CM database. If you look for the reports for a particular end user in the directory, either the User ID for the particular end user must be configured as the Owner User ID for the device, or the particular end user must have logged in to the device with the extension mobility feature enabled.

You are now ready to configure the Individual Bills report.

Procedure

Step 1 Perform one of the following tasks:

- If you are a user or manager, choose **Bills > Individual**.
- If you are a CAR administrator, choose **User Reports > Bills > Individual**.

The Individual Bill window displays.

Step 2 In the Report Type field, choose **Summary** or **Detail**.

Summary reports provide a summary of all calls for a chosen period, including the call classification (Internal, Local, Long Distance, International, or On Net), the QoS information, the total number of calls that were made, and the charges that were incurred. Detailed reports provide the date of the call, origination time of the call, origination number (calling number), destination number (called number), call classification (On Net, Internal, Local, Long Distance, International, or Others), QoS information, duration of time for which the call lasted (in seconds), and the charge for the call, based on the rating engine configuration in CAR for all calls over a chosen period.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 6 or use the default Generate New Report and go to Step 4.

Note You can only choose the automatically generated report if you are logged in as CAR administrator. The automatically generated reports do not display in the drop-down list box if you are logged in as a manager or individual user.

Step 4 Choose the date range for the period for which you want to see call information.

Step 5 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 6 Click the **View Report** button.

The report displays**.**

Step 7 If you want to mail the report, click the **Send Report** button. To send the report, follow the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 4-5.

Configuring Department Bills Reports

This section describes how to generate, view, or mail summary or detail information about departmental bills. Application users do not get access to this report.

Before you can configure the Department Bills report, you must ensure a device with an assigned Owner User ID and Manager User ID exists in Cisco Unified Communications Manager Administration for each user that is included in the report. Use the following procedure to add the device, Owner User ID, and the associated Manager User ID for each user:

Procedure for Adding Owner User ID and Manager ID

Step 1 In Cisco Unified Communications Manager Administration, choose **Device > Phone > Add a New Phone > Phone Configuration**.

Step 2 Add the information for the device and the user.

Step 3 In Cisco Unified Communications Manager Administration, choose **User Management > End User > Add**.

Step 4 Add the Manager User ID information to the end user information.

Note If the Extension Mobility feature is enabled on the device and the user logs into the phone and places a call, the User ID that gets recorded in the CDRs is the logged in User ID. If extension mobility is not enabled on the device, the User ID that gets recorded in the CDRs specifies the "Owner User ID" that is configured for the device. In the situation where neither the User ID nor the Owner User ID is configured (that is, extension mobility is not enabled, and the Owner User ID is not configured), the User ID field in the CDRs gets recorded as blank. In this situation, CAR uses the default User ID of "_unspecified user" when it loads the CDRs, and the CDRs are not seen in the Department Bills User reports because no user by the name "_unspecifieduser" exists in the Cisco Unified CM database. If you look for the reports for a particular end user in the directory, either the User ID for the particular end user must be configured as the Owner User ID for the device or the particular end user must have logged in to the device with the Extension Mobility feature enabled.

You are now ready to configure the Department Bills reports.

Procedure

Step 1 Perform one of the following tasks:

- If you are a manager, choose **Bills > Department**.
- If you are a CAR administrator, choose **User Reports > Bills > Department**.

The Department Bill window displays.

Step 2 In the Report Type field, choose **Summary** or **Detail**.

Summary reports provide a summary of all calls for a chosen period, including the call classification (On Net, Internal, Local, Long Distance, International, Incoming, Tandem, or Others), the QoS information, the total number of calls that were made, and the charges that were incurred. Detailed reports provide the date of the call, origination time of the call, origination number (calling number), destination number (called number), call classification (On Net, Internal, Local, Long Distance, International, or Others), QoS information, duration for which the call lasted (in seconds), and the charge for the call, based on the rating engine configuration in CAR for all calls over a chosen period.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 13 or use the default Generate New Report and go to Step 4.

Note You can only choose the automatically generated report if you are logged in as a CAR administrator. The automatically generated reports do not display in the drop-down list box if you are logged in as a manager.

Step 4 Choose the date range for the period for which you want to see call information.

Step 5 If you are a manager, continue with Step 6; otherwise, if you are a CAR administrator, continue with Step 10.

Step 6 To choose all of your direct reports, check the **Select All Reportees** check box.

The List of Reportees shows your direct reports.

Note Click the **Down** button to view your direct reports. Use the **Up** and **Down** buttons to move up and down the report chain information.

Step 7 To choose individual reportees, choose the reports that are shown in the List of Reportees.

Step 8 Click the **Add** button.

The department bill includes only users who are listed in the Selected Reportees box.

Step 9 To see the reportees under a particular user, choose the user and click the Down button.

All reportees to the chosen user display.

Step 10 If you are a CAR administrator, check the **Select All Users** check box to include all users. If you are a manager, proceed to Step 12.

Step 11 To specify individual users, enter the user ID of the individual that you want to include in the report in the User ID field. Click the **Add** button.

You can also use a provided user search function. See the "Searching for Users" section on page 3-4, for instructions on using the search feature.

Step 12 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 13 Click the **View Report** button.

The report displays**.**

Step 14 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 4-5.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 3, "Understanding CAR User Reports"
- Chapter 5, "Configuring Top N User Reports"
- Chapter 6, "Configuring Cisco Unified Communications Manager Assistant User Reports"
- Chapter 7, "Configuring Cisco IP Phone Service User Reports"
- Chapter 8, "Reviewing User Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 5

Configuring Top N User Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for their calls.

This chapter contains the following topics:

- Configuring Top N Reports, page 5-1
- Related Topics, page 5-8
- Additional Cisco Documentation, page 5-8

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Configuring Top N Reports

Top N Charge reports the users who made the maximum charge for the specified date range. If you are a manager, the report includes the top charges for all calls that users who report to you made during the specified period. If you are a CAR administrator, the report includes the top charges for all calls that all users on the system made for the specified period. You can generate each Top N Charge report with options to show the information by individual users, by destinations, or by all calls.

Top N Duration reports the top number of users that incurred a maximum time on calls during a period that you specify. If you are a manager, the report lists the top number of users who report to you that incurred a maximum time for calls that were made during the chosen date range, starting with the longest. If you are a CAR administrator, the report lists the top number of users that incurred a maximum time for calls that were made during the chosen date range, starting with the longest. You can generate each Top N Duration report with options to show the information by individual users, by destinations, or by all calls.

Top N Number of Calls reports the top number of calls that were made and received by users during a period that you specify. If you are a manager, the report lists the top number of calls by users among the users who report to you for the chosen date range. If you are a CAR administrator, the report lists the top number of calls for each user in the system. You can generate each Top N Number of Calls report with options to show the information by individual users and by extensions.

This section contains the following topics:

- Configuring Top N by Charge Reports, page 5-2
- Configuring Top N by Duration Reports, page 5-4
- Configuring Top N by Number of Calls Reports, page 5-6

Configuring Top N by Charge Reports

This section describes how to generate, view, or mail reports about the top calls when classified by cost.

Procedure

Step 1 Perform one of the following tasks:

- If you are a manager, choose **Top N > By Charge**.
- If you are a CAR administrator, choose **User Reports > Top N > By Charge**.

The Top N Charge window displays.

Step 2 In the Select Call Types area, check the check boxes for the types of calls that you want the report to include. These boxes display only when you choose Generate New Report from the Available Reports drop-down list box, as described in Step 4. Table 5-1 describes the call types.

Tip To check all check boxes, click **Select All**; to uncheck the check boxes, click **Clear All**.

Table 5-1 Top N by Charge Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network going out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.

Table 5-1 Top N by Charge Call Types (continued)

Call Type	Description
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network and enter the Cisco Unified Communications Manager network through a gateway.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and transfer outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Step 3 In the Report Type field, choose a report type as described in Table 5-2.

Table 5-2 Top N by Charge Report Types

Report Type	Description
By Individual Users	This report lists the users who incurred the maximum charges.
By Destinations	This report lists the destinations that incurred the maximum charges.
By All Calls	This default report lists the calls that incurred the maximum charges.

Note Top N Destination by Charge reports display the top destinations based on the charge incurred. If the same destination number comprises different call classifications (for example, some are Internal, and some are Incoming), they get treated and listed separately in these reports.

Step 4 In the Available Reports field, choose an automatically generated report (if available) and go to Step 8 or use the default setting, Generate New Report, and go to Step 5.

Note You can only choose the automatically generated report if you are logged in as CAR administrator. The automatically generated reports do not display in the drop-down list box if you are logged in as a manager.

Step 5 Enter the number (n) of records to display in the report in the No of Records field. The default designates five.

Step 6 Choose the date range for the period for which you want to generate the report.

Step 7 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 8 Click the **View Report** button.

The report displays**.**

Step 9 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 5-8.

Configuring Top N by Duration Reports

This section describes how to generate, view, or mail reports about the top calls when they are classified by duration.

Procedure

Step 1 Perform one of the following tasks:

- If you are a manager, choose **Top N > By Duration.**
- If you are a CAR administrator, choose **User Reports > Top N > By Duration**.

The Top N by Duration window displays.

Step 2 In the Select Call Types area, check the check boxes for the types of calls that you want included in the report. These boxes display only when you choose Generate New Report from the Available Reports drop-down list box, as described in Step 4. Table 5-3 describes the call types.

Table 5-3 Top N by Duration Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network going out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.

Table 5-3 Top N by Duration Call Types (continued)

Call Type	Description
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and then are transferred outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Step 3 In the Report Type field, choose a report type as described in Table 5-4.

Table 5-4 Top N by Duration Report Types

Report Type	Description
By Individual Users	This report lists the users who incurred the maximum duration.
By Destinations	This report lists the destinations that incurred the maximum duration.
By All Calls	This report lists the calls that incurred the maximum duration.

Note Top N Destinations by Duration reports display the top destinations based on the duration of the calls. If the same destination number comprises different call classifications (for example, some are Internal and some are Incoming), they get treated and listed separately in these reports.

Step 4 In the Available Reports field, choose an automatically generated report (if available) and go to Step 8 or use the default setting, Generate New Report and go to Step 5.

Note You can only choose the automatically generated report if you are logged in as a CAR administrator. The automatically generated reports do not display in the drop-down list box if you are logged in as a manager.

Step 5 Enter the number (n) of records to display in the report in the No of Records field. The default designates five.

Step 6 Choose the date range for the period for which you want to generate the report.

Step 7 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 8 Click the **View Report** button.

The report displays**.**

Step 9 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 5-8.

Configuring Top N by Number of Calls Reports

This section describes how to generate, view, or mail reports about the top calls when classified by volume.

Procedure

Step 1 Perform one of the following tasks:

- If you are a manager, choose **Top N > By Number of Calls**.
- If you are a CAR administrator, choose **User Reports > Top N > By Number of Calls**.

The Top N by Number of Calls window displays.

Step 2 In the Select Call Types area, check the check boxes for the types of calls that you want included in the report. These boxes display only when you choose Generate New Report from the Available Reports drop-down list box, as described in Step 4. Table 5-5 describes the call types.

Table 5-5 Top N by Number of Calls Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network going out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.

Table 5-5 Top N by Number of Calls Call Types (continued)

Call Type	Description
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and transfer outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Step 3 In the Report Type field, choose a report type as described in Table 5-6.

Table 5-6 Top N by Number of Calls Report Types

Report Type	Description
By Individual Users	This report lists the users who incurred the maximum number of calls.
By Extensions	This report lists the extensions that have placed or received the greatest number of calls in your group (managers) or the system (CAR administrators).

Step 4 In the Available Reports field, choose an automatically generated report (if available) and go to Step 8 or use the default Generate New Report and go to Step 5.

Note You can only choose the automatically generated report if you are logged in as a CAR administrator. The automatically generated reports do not display in the drop-down list box if you are logged in as a manager.

Step 5 Enter the number (n) of records that display in the report in the No of Records field. The default designates five.

Step 6 Choose the date range for the period for which you want to generate the report.

Step 7 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 8 Click the **View Report** button.

The report displays**.**

Step 9 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 5-8.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 3, “Understanding CAR User Reports”
- Chapter 4, “Configuring Bills User Reports”
- Chapter 6, “Configuring Cisco Unified Communications Manager Assistant User Reports”
- Chapter 7, “Configuring Cisco IP Phone Service User Reports”
- Chapter 8, “Reviewing User Reports Results”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 6

Configuring Cisco Unified Communications Manager Assistant User Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for their calls.

This chapter contains the following topics:

- Configuring Cisco Unified Communications Manager Assistant Usage Reports, page 6-1
- Related Topics, page 6-4
- Additional Cisco Documentation, page 6-4

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Configuring Cisco Unified Communications Manager Assistant Usage Reports

CAR provides call completion usage reports for the following Cisco Unified Communications Manager Assistant users: manager(s) and the configured/assigned assistant(s) that manage the calls of the manager(s). Only CAR administrators can generate Cisco Unified Communications Manager Assistant reports. The Cisco Unified Communications Manager Assistant menu allows you to choose all or a subset of managers or assistants by using simple search functionality that is based on partial or complete first or last name. You can generate these reports on demand in either PDF or CSV format and e-mail them. In addition, you can choose the time range and generate either detailed or summary level reports.

The manager reports can include calls that only managers handle for themselves, calls that only assistants handle for managers, and calls that qualify in either case. The summary report for a manager shows the number of calls of each call classification type, the total number of calls, and the total duration of all calls (in seconds) for each manager and/or assistant. The detail report for a manager shows the date, origination time, origination number (calling number), destination (called number), call classification, and duration (in seconds) for each call for each manager and/or assistants, and the cumulative duration total for the manager.

The assistant reports can include calls that only assistants handle for themselves, or calls that only assistants handle for managers, and calls that qualify in either case. The summary report for an assistant shows the number of calls of each type and total of them apart from duration for each manager (and/or assistant). The detail assistant report shows the date, origination time, origination (calling number), destination (called number), call classification, and duration (in seconds) for each call for all the managers (and/or assistant) and the cumulative duration total for the assistant.

This section contains the following procedures:

- Configuring Manager Call Usage for Cisco Unified Communications Manager Assistant Reports, page 6-2
- Configuring Assistant Call Usage for Cisco Unified Communications Manager Assistant Reports, page 6-3

Configuring Manager Call Usage for Cisco Unified Communications Manager Assistant Reports

This section describes how to generate a manager call usage report for Cisco Unified Communications Manager Assistant. Only CAR administrators can generate Cisco Unified Communications Manager Assistant reports.

Procedure

Step 1 Choose **User Reports > Cisco Unified Communications Manager Assistant > Manager Call Usage**.

The Call Usage for Manager window displays.

Step 2 From the Report Type drop-down list, choose either **Summary** or **Detail**.

Step 3 From the Calls handled by drop-down list, choose **Manager**, **Assistant for Manager**, or **Manager & Assistant for Manager**.

Step 4 Choose the date range for the period for which you want to see call information.

Step 5 In the Select Manager(s) box, either check the **Select All Manager(s)** check box and enter a manager ID or click the **Select Manager(s)** link to search for a manager ID and enter the ID(s) in the Manager Id field.

Step 6 Click **Add**.

The ID that you chose displays in the Selected Manager(s) box.

Step 7 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

The report displays**.**

Step 8 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Note To remove a manager from the Selected Manager(s) list, highlight the ID and click **Remove**. To remove all managers from the list, click **Remove All**.

Additional Information

See the "Related Topics" section on page 6-4.

Configuring Assistant Call Usage for Cisco Unified Communications Manager Assistant Reports

This section describes how to generate an assistant call usage report for Cisco Unified Communications Manager Assistant. Only CAR administrators can generate these reports.

Procedure

Step 1 Choose **User Reports > Cisco Unified Communications Manager Assistant> Assistant Call Usage**.

The Call Usage for Assistant window displays.

Step 2 From the Report Type drop-down list, choose either **Summary** or **Detail**.

Step 3 From the Calls handled by drop-down list, choose **Assistant**, **Assistant for Manager**, or **Assistant & Assistant for Manager**.

Step 4 Choose the date range for the period for which you want to see call information.

Step 5 In the Select Assistant(s) box, either check the **Select All Assistant(s)** check box and enter an assistant ID or click the **Select Assistant(s)** link to search for an assistant ID and enter the ID(s) in the Assistant Id field.

Step 6 Click **Add**.

The ID that you chose displays in the Selected Assistant(s) box.

Step 7 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 8 Click the **View Report** button.

The report displays**.**

Step 9 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Note To remove a manager from the Selected Assistant(s) list, highlight the ID and click **Remove**. To remove all assistants from the list, click **Remove All**.

Step 10 When you have added all users, click the **Close** button in the User Search window.

Additional Information

See the "Related Topics" section on page 6-4.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 3, “Understanding CAR User Reports”
- Chapter 4, “Configuring Bills User Reports”
- Chapter 5, “Configuring Top N User Reports”
- Chapter 7, “Configuring Cisco IP Phone Service User Reports”
- Chapter 8, “Reviewing User Reports Results”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 7

Configuring Cisco IP Phone Service User Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for their calls.

This chapter contains the following topics:

- Configuring Cisco IP Phone Services Reports, page 7-1
- Related Topics, page 7-2
- Additional Cisco Documentation, page 7-2

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Configuring Cisco IP Phone Services Reports

Only CAR administrators can generate the Cisco Unified IP Phone Services report. You can generate a report that shows chosen Cisco Unified IP Phone services, the number of users who are subscribed to each of the chosen services, and the subscription percentage for each of the chosen services.

Use the following instructions to generate a report that shows the usage of one of the following specific Cisco Unified IP Phone services:

- Missed calls
- Received calls
- Placed calls
- Intercom calls
- Personal directory
- Corporate directory
- Extension mobility

Procedure

Step 1 Choose **User Reports > Cisco Unified IP Phone**.

The Cisco Unified IP Phone window displays a list of all Cisco Unified IP Phone services that have been configured in the system.

Step 2 In the List of Cisco Unified IP Phone area, choose the services that you want to include in the report.

Step 3 Click the right arrow to add the chosen service to the Selected Cisco Unified IP Phone box.

The report will include all services that are listed in this box when you generate it.

Step 4 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

The report displays**.**

Step 5 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 7-2.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 3, "Understanding CAR User Reports"
- Chapter 4, "Configuring Bills User Reports"
- Chapter 5, "Configuring Top N User Reports"
- Chapter 6, "Configuring Cisco Unified Communications Manager Assistant User Reports"
- Chapter 8, "Reviewing User Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 8

Reviewing User Reports Results

This chapter describes report output information for each CAR user report. The chapter contains the following topics:

- Bill Summary Report Results, page 8-2
- Bill Detail Report Results, page 8-4
- Top N By Charge or Duration Report Results, page 8-7
- Top N By Number of Calls Report Results, page 8-9
- Call Usage for Assistant—Detail Report Results, page 8-10
- Call Usage for Assistant—Summary Report Results, page 8-11
- Call Usage for Manager—Detail Report Results, page 8-13
- Call Usage for Manager—Summary Report Results, page 8-14
- Cisco IP Phone Services Report Results, page 8-16
- Related Topics, page 8-16
- Additional Cisco Documentation, page 8-17

Bill Summary Report Results

The report combines information in groups by the user name in ascending order. The summary report includes the following fields (see Table 8-1).

Table 8-1 Summary Report Fields

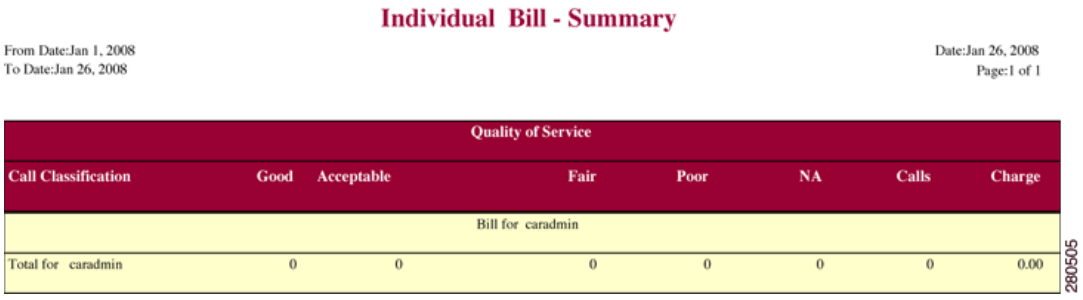
Field	Description
Call Classification—Call categories specify classes.	
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network that go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Table 8-1 Summary Report Fields (continued)

Field	Description
QOS	The number of calls for each Quality of Service category. Parameters that the CAR administrator sets provide the basis for the following QoS categories: • Good—QoS for these calls designates the highest possible quality. • Acceptable—QoS for these calls shows them slightly degraded but still within an acceptable range. • Fair—QoS for these calls, that although degraded, still fall within a usable range. • Poor—QoS for these calls get categorized as unsatisfactory. • NA—These calls do not match any criteria for the established QoS categories. See the "Configuring QoS Values" section on page 34-1 and the "Configuring QoS by Gateway Reports" section on page 10-6.
Calls	Indicates the number of calls for each call classification.
Charge	Indicates the charge that is associated with each call. Call charge information that the CAR administrator provides for the CAR rating engine provides basis for charges. See Chapter 33, "Configuring the CAR Rating Engine".

Figure 8-1 and Figure 8-2 display sample output from the Individual Bill and Department Bill Summary reports.

Figure 8-1 Individual Bill Summary Report Sample


Individual Bill - Summary

From Date:Jan 1, 2008
To Date:Jan 26, 2008

Date:Jan 26, 2008
Page:1 of 1

Call Classification	Quality of Service						
	Good	Acceptable	Fair	Poor	NA	Calls	Charge
Bill for caradmin							
Total for caradmin	0	0	0	0	0	0	0.00

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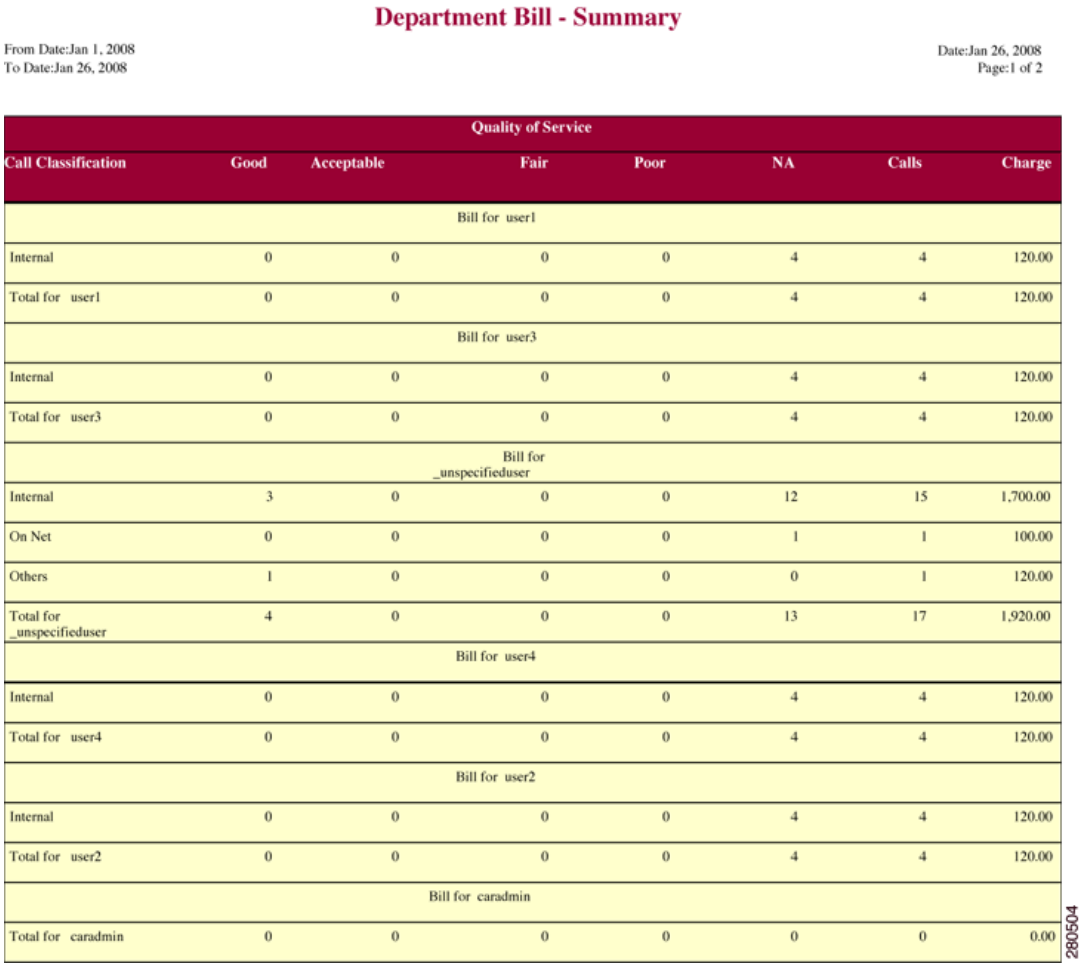
Figure 8-2 Department Bill Summary Report Sample



Department Bill - Summary

From Date:Jan 1, 2008
To Date:Jan 26, 2008

Date:Jan 26, 2008
Page:1 of 2

Call Classification	Quality of Service						
	Good	Acceptable	Fair	Poor	NA	Calls	Charge
Bill for user1							
Internal	0	0	0	0	4	4	120.00
Total for user1	0	0	0	0	4	4	120.00
Bill for user3							
Internal	0	0	0	0	4	4	120.00
Total for user3	0	0	0	0	4	4	120.00
Bill for _unspecifieduser							
Internal	3	0	0	0	12	15	1,700.00
On Net	0	0	0	0	1	1	100.00
Others	1	0	0	0	0	1	120.00
Total for _unspecifieduser	4	0	0	0	13	17	1,920.00
Bill for user4							
Internal	0	0	0	0	4	4	120.00
Total for user4	0	0	0	0	4	4	120.00
Bill for user2							
Internal	0	0	0	0	4	4	120.00
Total for user2	0	0	0	0	4	4	120.00
Bill for caradmin							
Total for caradmin	0	0	0	0	0	0	0.00

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Bill Detail Report Results

The report places information in groups by the user name in ascending order. The detail report includes the following fields (see Table 8-2).

Table 8-2 Detail Report Fields

Field	Description
Date	The date that the call originated.
Orig. Time	The time that the call originated.
Orig.	The originating number from which the call was placed.
Dest.	The destination number to which the call was directed.
Call Classification—Call categories specify classes.	

Table 8-2 Detail Report Fields (continued)

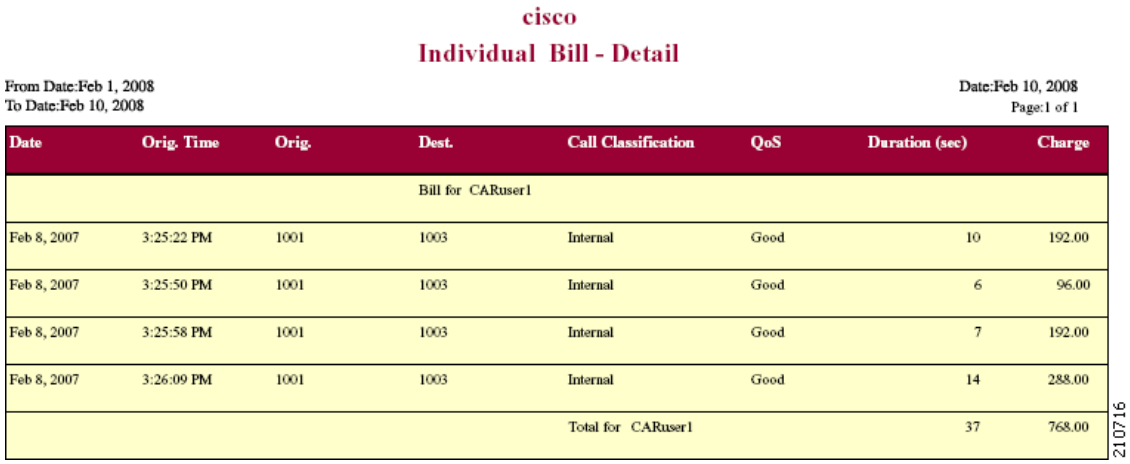
Field	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network that go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.
QOS	The number of calls for each Quality of Service category. Parameters that the CAR administrator sets provide the basis for the following QoS categories: • Good—QoS for these calls designates the highest possible quality. • Acceptable—QoS for these calls shows them slightly degraded but still within an acceptable range. • Fair—QoS for these calls, that although degraded, still fall within a usable range. • Poor—QoS for these calls get categorized as unsatisfactory. • NA—These calls do not match any criteria for the established QoS categories. See the "Configuring QoS Values" section on page 34-1 and the "Configuring QoS by Gateway Reports" section on page 10-6.

Table 8-2 Detail Report Fields (continued)

Field	Description
Duration(s)	The time, in seconds, that the call remains connected.
Charge	The charge that is associated with each call. Call charge information that the CAR administrator provided for the CAR rating engine provides the basis for charges. See the "Configuring QoS Values" section on page 34-1.

Figure 8-3 and Figure 8-4 display sample output from the Individual Bill and Department Bill Detail reports.

Figure 8-3 Individual Bill Detail Sample Report



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Individual Bill - Detail

From Date:Feb 1, 2008
To Date:Feb 10, 2008

Date:Feb 10, 2008
Page:1 of 1

Date	Orig. Time	Orig.	Dest.	Call Classification	QoS	Duration (sec)	Charge
			Bill for CARuser1				
Feb 8, 2007	3:25:22 PM	1001	1003	Internal	Good	10	192.00
Feb 8, 2007	3:25:50 PM	1001	1003	Internal	Good	6	96.00
Feb 8, 2007	3:25:58 PM	1001	1003	Internal	Good	7	192.00
Feb 8, 2007	3:26:09 PM	1001	1003	Internal	Good	14	288.00
				Total for CARuser1		37	768.00

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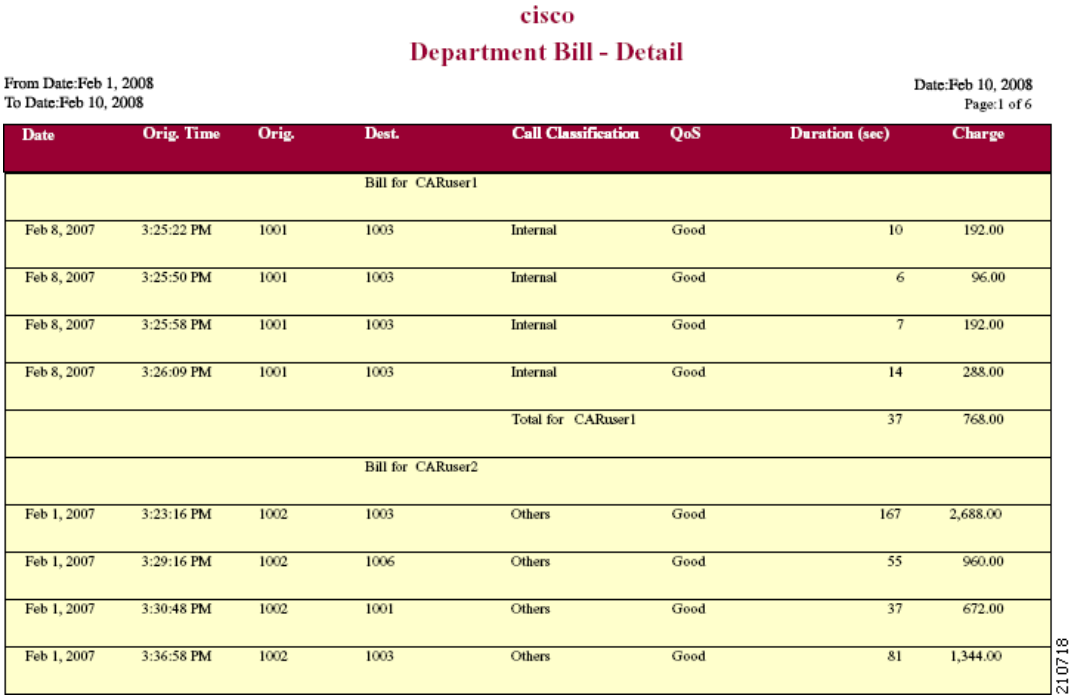
Figure 8-4 Department Bill Detail Sample Report



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Department Bill - Detail

From Date:Feb 1, 2008
To Date:Feb 10, 2008

Date:Feb 10, 2008
Page:1 of 6

Date	Orig. Time	Orig.	Dest.	Call Classification	QoS	Duration (sec)	Charge
			Bill for CARuser1				
Feb 8, 2007	3:25:22 PM	1001	1003	Internal	Good	10	192.00
Feb 8, 2007	3:25:50 PM	1001	1003	Internal	Good	6	96.00
Feb 8, 2007	3:25:58 PM	1001	1003	Internal	Good	7	192.00
Feb 8, 2007	3:26:09 PM	1001	1003	Internal	Good	14	288.00
				Total for CARuser1		37	768.00
			Bill for CARuser2				
Feb 1, 2007	3:23:16 PM	1002	1003	Others	Good	167	2,688.00
Feb 1, 2007	3:29:16 PM	1002	1006	Others	Good	55	960.00
Feb 1, 2007	3:30:48 PM	1002	1001	Others	Good	37	672.00
Feb 1, 2007	3:36:58 PM	1002	1003	Others	Good	81	1,344.00

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Top N By Charge or Duration Report Results

The fields for the Top N by Charge and the Top N by Duration vary depending on the report type. The reports show only outgoing calls. See Table 8-3.

Table 8-3 Top N by Charge and by Duration Report Fields

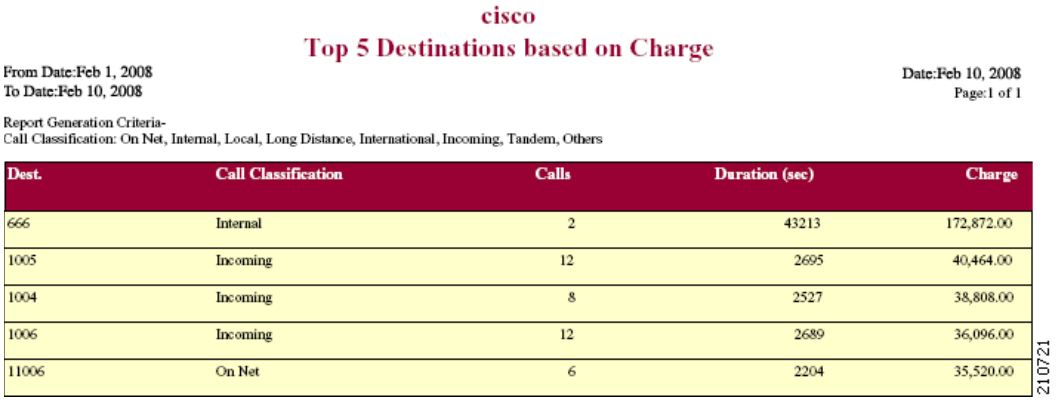
Field	Description
By Individual Users	
User	User names.
Calls	Total number of calls.
Duration(s)	The time, in seconds, that the call was connected.
Charge	The charge that is associated with each call. Call charge information that the CAR administrator provided for the CAR rating engine provides basis for charges. See the "Configuring QoS Values" section on page 34-1.
By Destinations	
Dest	The destination of the calls.
Call Classification	The total number of calls for each call classification.
Calls	Total number of calls.

Table 8-3 Top N by Charge and by Duration Report Fields (continued)

Field	Description
Duration	The time, in seconds, that the call was connected.
Charge	The charge that is associated with each call. Call charge information that the CAR administrator provided for the CAR rating engine provides basis for charges. See Chapter 33, "Configuring the CAR Rating Engine".
By Number of Calls	
User	User names.
Date	Date that the call occurred.
Orig Time	Time that the call originated.
Orig	Origin of the call.
Dest	Destination of the call.
Call Classification	The total number of calls for each call classification.
Duration	The time, in seconds, that the call was connected.
Charge	The charge that is associated with each call. Call charge information that the CAR administrator provided for the CAR rating engine provides basis for charges. See Chapter 33, "Configuring the CAR Rating Engine".

Figure 8-5 and Figure 8-6 display sample reports.

Figure 8-5 Top N Charge by Destinations Sample Report


cisco

Top 5 Destinations based on Charge

From Date:Feb 1, 2008
To Date:Feb 10, 2008

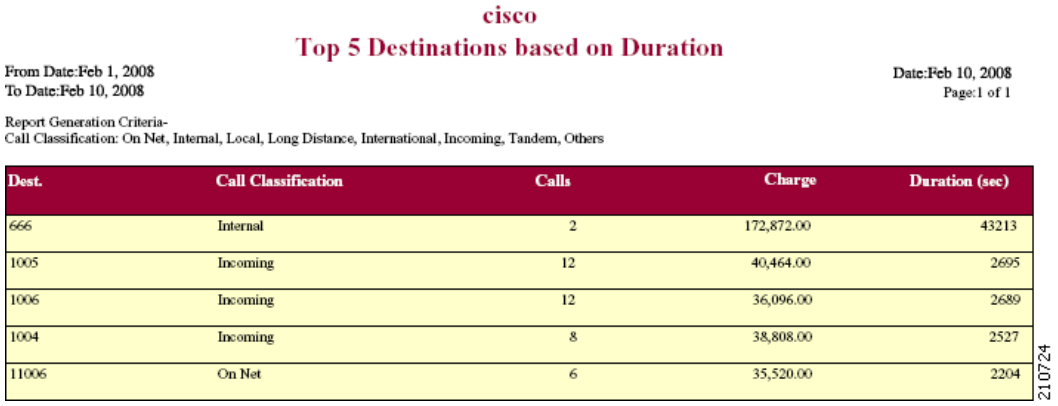
Date:Feb 10, 2008
Page:1 of 1

Report Generation Criteria-
Call Classification: On Net, Internal, Local, Long Distance, International, Incoming, Tandem, Others

Dest.	Call Classification	Calls	Duration (sec)	Charge
666	Internal	2	43213	172,872.00
1005	Incoming	12	2695	40,464.00
1004	Incoming	8	2527	38,808.00
1006	Incoming	12	2689	36,096.00
11006	On Net	6	2204	35,520.00

210721

Figure 8-6 Top N Duration by Destinations Sample Report



cisco

Top 5 Destinations based on Duration

From Date:Feb 1, 2008
To Date:Feb 10, 2008

Date:Feb 10, 2008
Page:1 of 1

Report Generation Criteria-
Call Classification: On Net, Internal, Local, Long Distance, International, Incoming, Tandem, Others

Dest.	Call Classification	Calls	Charge	Duration (sec)
666	Internal	2	172,872.00	43213
1005	Incoming	12	40,464.00	2695
1006	Incoming	12	36,096.00	2689
1004	Incoming	8	38,808.00	2527
11006	On Net	6	35,520.00	2204

210724

Top N By Number of Calls Report Results

The fields for the Top N by Number of Calls report vary depending on the report type. The report shows both incoming and outgoing calls. See Table 8-4.

Table 8-4 Top N by Number of Calls Report Fields

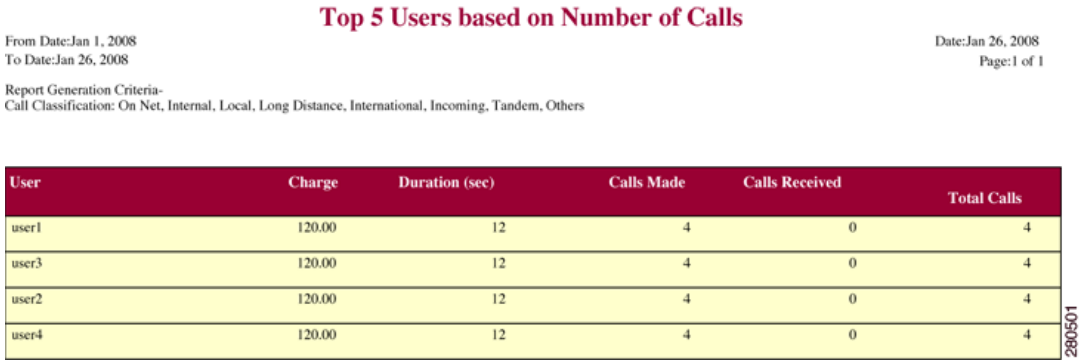
Field	Description
By Individual Users	
Users	User names.
Charge	The total amount of billing charges for all calls to that user. Call charge information that the CAR administrator provided for the CAR rating engine provides basis for charges. See Chapter 33, "Configuring the CAR Rating Engine".
Duration(s)	The time, in seconds, that the call connected.
Calls Made	The total number of calls that the user placed.
Calls Received	The total number of calls that the user received.
Total Calls	The total number of incoming and outgoing calls.
By Extensions	
Extension No	The extension that originated/placed and received the call.
Charge	The total amount of billing charges for all calls to that user. Call charge information that the CAR administrator provided for the CAR rating engine provides basis for charges. See Chapter 33, "Configuring the CAR Rating Engine".
Duration	The time, in seconds, that the call was connected.
Calls Made	The total number of calls that the user placed.

Table 8-4 Top N by Number of Calls Report Fields (continued)

Field	Description
Calls Received	The total number of calls that the user received.
Total Calls	The total number of incoming and outgoing calls.

Figure 8-7 displays sample report output of Top N by Number of Calls by Individual Users in PDF format.

Figure 8-7 Top N by Number of Calls Report Sample Output



Top 5 Users based on Number of Calls

From Date:Jan 1, 2008
To Date:Jan 26, 2008

Date:Jan 26, 2008
Page:1 of 1

Report Generation Criteria-
Call Classification: On Net, Internal, Local, Long Distance, International, Incoming, Tandem, Others

User	Charge	Duration (sec)	Calls Made	Calls Received	Total Calls
user1	120.00	12	4	0	4
user3	120.00	12	4	0	4
user2	120.00	12	4	0	4
user4	120.00	12	4	0	4

280501

Call Usage for Assistant—Detail Report Results

The report, which supports Cisco Unified Communications Manager Assistant, shows the number of calls that assistants handled for themselves, that the assistant handled for each manager, and the total number of calls that the assistant handled. The report places information in groups about calls that the assistant handled and calls that the assistant handled for the manager. The detail report includes the following fields (see Table 8-5).

Table 8-5 Detail Report Fields

Field	Description
Date	The date that the call originated.
Orig. Time	The time that the call originated.
Orig.	The originating number from which the call was placed.
Dest.	The destination number to which the call was directed.
Call Classification	The type of call (internal, incoming, and so on.)
Duration (sec)	The time, in seconds, that the call connected.

Figure 8-8 displays sample output from a Call Usage for Assistant Detail report in PDF format.

Figure 8-8 Call Usage for Assistant Detail Report

From Date:Mar 1, 2008
To Date:Mar 15, 2008
Report for Calls Handled by Assistant

cisco
Call Usage for Assistant - Detail

Date:Mar 15, 2008
Page:1 of 2

Date	Orig. Time	Orig.	Dest.	Call Classification	Duration (sec)
	Usage for Assistant				
14-3-2007	01:03:11	10001	66	Internal	17
14-3-2007	03:33:31	10001	66	Internal	32
14-3-2007	03:34:07	10001	66	Internal	24
14-3-2007	03:34:35	10001	66	Internal	19
14-3-2007	03:34:57	10001	66	Internal	31
14-3-2007	03:35:32	10001	66	Internal	17
14-3-2007	04:20:03	1234	10001	Internal	49
14-3-2007	04:21:03	1234	10001	Internal	54
14-3-2007	04:22:05	1234	10003	Internal	85
14-3-2007	04:24:41	1234	10001	Internal	36
14-3-2007	04:25:40	66	10001	Internal	45
14-3-2007	04:26:36	66	10001	Internal	42
14-3-2007	04:27:29	66	10001	Internal	27
14-3-2007	04:28:07	66	10003	Internal	44

201404

Call Usage for Assistant—Summary Report Results

The report, which supports Cisco Unified Communications Manager Assistant, shows information about calls that the assistant handled for themselves and that the assistant handled for the manager. The reports place call information by groups by attendant name. The summary report includes the following fields (see Table 8-6).

Table 8-6 Summary Report Fields

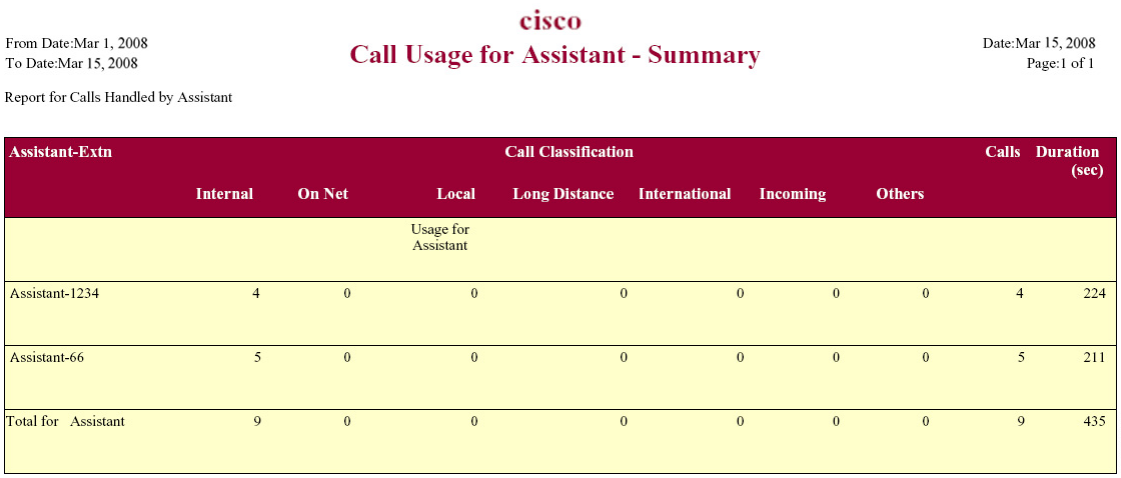
Field	Description
Assistant-Extn/Manager	Shows the assistant name and directory number. If the assistant handles a call for a manager, the manager name displays.
Call Classification—Call categories specify classes.	

Table 8-6 Summary Report Fields (continued)

Field	Description
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network that go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.
Calls	The number of calls that the assistant handled or that the assistant handled for the manager.
Duration (sec)	The total duration for all the calls for the particular call classification.

Figure 8-9 displays sample output of the Call Usage for Assistant Summary report in PDF format.

Figure 8-9 Call Usage for Assistant Summary Report



cisco

From Date:Mar 1, 2008
To Date:Mar 15, 2008

Call Usage for Assistant - Summary

Date:Mar 15, 2008
Page:1 of 1

Report for Calls Handled by Assistant

Assistant-Extn	Call Classification							Calls	Duration (sec)
	Internal	On Net	Local	Long Distance	International	Incoming	Others		
			Usage for Assistant						
Assistant-1234	4	0	0	0	0	0	0	4	224
Assistant-66	5	0	0	0	0	0	0	5	211
Total for Assistant	9	0	0	0	0	0	0	9	435

201405

Call Usage for Manager—Detail Report Results

The report, which supports Cisco Unified Communications Manager Assistant, provides information about calls that managers handle for themselves and that assistants handle for managers. The report places information in groups by the assistant name and shows the total number of calls that the manager handles and that the assistant handles for the manager. The detail report includes the following fields (see Table 8-7).

Table 8-7 Detail Report Fields

Field	Description
Date	The date that the call originates.
Orig. Time	The time that the call originates.
Orig.	The originating number from which the call is placed.
Dest.	The destination number to which the call is directed.
Call Classification	The type of call (internal, incoming, and so on.)
Duration (sec)	The time, in seconds, that the call connects.

Figure 8-10 displays sample output from the Call Usage for Manager Detail report.

Figure 8-10 Call Usage for Manager Detail Report

cisco
Call Usage For Manager - Detail

From Date:Feb 1, 2008
To Date:Feb 10, 2008

Date:Feb 10, 2008
Page:1 of 4

Report for Calls Handled by Manager

Date	Orig. Time	Orig.	Dest.	Call Classification	Duration (sec)
	Usage for CARuser1				
1-2-2007	15:23:10	1001	1004	Others	170
1-2-2007	15:23:13	1001	1004	Incoming	170
1-2-2007	15:26:24	1001	1002	Others	142
1-2-2007	15:26:31	1001	1002	Incoming	142
1-2-2007	15:29:26	1001	1004	Others	41
1-2-2007	15:29:31	1001	1004	Incoming	41
1-2-2007	15:30:48	1002	1001	Others	37
1-2-2007	15:30:50	1002	1001	Incoming	37

210730

Call Usage for Manager—Summary Report Results

The report, which supports Cisco Unified Communications Manager Assistant, shows information about calls that the managers handle for themselves and that the assistants handle for the managers. The report places information in groups by the manager name and shows the total number of calls that are handled for each manager. The report includes the following fields (see Table 8-8).

Table 8-8 Summary Report Fields

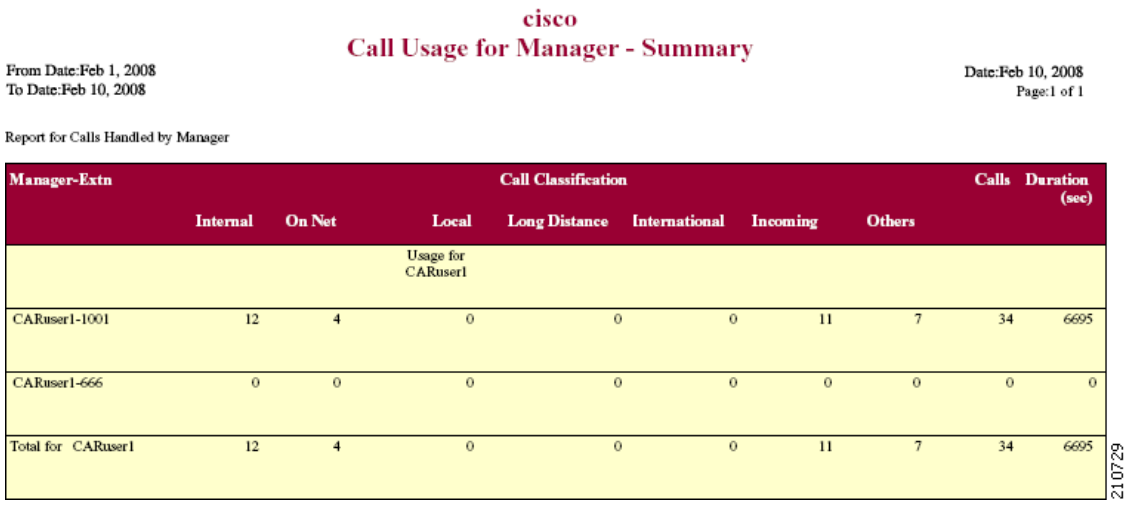
Field	Description
Manager-Extn/Assistant	Shows the manager name and directory number. If the assistant handles a call for a manager, the assistant name displays.
Call Classification—Call categories specify classes.	
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network that go out through the PSTN.

Table 8-8 Summary Report Fields (continued)

Field	Description
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.
Calls	The number of calls that the assistant or the manager handles.
Duration	The total duration for all the calls for the particular call classification.

Figure 8-11 displays sample output of the Call Usage for Manager Summary report in PDF format.

Figure 8-11 Call Usage for Manager Summary Report



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Call Usage for Manager - Summary

From Date:Feb 1, 2008
To Date:Feb 10, 2008

Date:Feb 10, 2008
Page:1 of 1

Report for Calls Handled by Manager

Manager-Extn	Call Classification							Calls	Duration (sec)
	Internal	On Net	Local	Long Distance	International	Incoming	Others		
			Usage for CARuser1						
CARuser1-1001	12	4	0	0	0	11	7	34	6695
CARuser1-666	0	0	0	0	0	0	0	0	0
Total for CARuser1	12	4	0	0	0	11	7	34	6695

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Cisco IP Phone Services Report Results

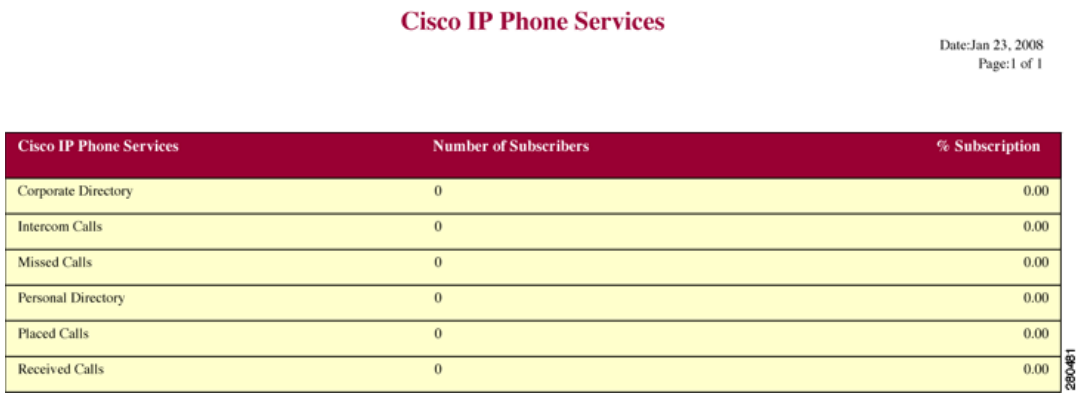
The Cisco IP Phone Services report includes the following fields (see Table 8-9).

Table 8-9 Cisco Unified IP Phone Services Report Fields

Field	Description
Cisco IP Phone Services	The name of the selected service.
Number of Subscribers	The total number of subscribers for a given service.
% Subscription	The percentage of users who are subscribed to a given service, out of the total number of subscriptions for all services.

Figure 8-12 displays sample output from the Cisco IP Phone Services Report in PDF format.

Figure 8-12 Cisco IP Phone Services Report Sample Output



Cisco IP Phone Services

Date:Jan 23, 2008
Page:1 of 1

Cisco IP Phone Services	Number of Subscribers	% Subscription
Corporate Directory	0	0.00
Intercom Calls	0	0.00
Missed Calls	0	0.00
Personal Directory	0	0.00
Placed Calls	0	0.00
Received Calls	0	0.00

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Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 4, “Configuring Bills User Reports”
- Chapter 5, “Configuring Top N User Reports”
- Chapter 6, “Configuring Cisco Unified Communications Manager Assistant User Reports”
- Chapter 7, “Configuring Cisco IP Phone Service User Reports”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

PART 3

System Reports

CHAPTER 9

Understanding CAR System Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for calls of each user.

This chapter contains the following topics:

- System Reports Summary Description, page 9-1
- Searching for Users, page 9-3
- Related Topics, page 9-4
- Additional Cisco Documentation, page 9-4

Note Depending on your job function, you may not have access to every report that is described in this chapter.

System Reports Summary Description

CDR Analysis and Reporting provides system reports for managers and CAR administrators. Managers or CAR administrators can access the QoS summary report. Only CAR administrators can access all other reports. This section describes the following reports:

- QoS
  - Detail—Available for CAR administrators. The QoS detail report provides the QoS ratings that are attributed to inbound and outbound calls on the Cisco Unified Communications Manager network for the period that you specify. Use this report to help monitor the voice quality of all calls on a user-level basis for the entire system. The call details in CDRs and CMRs and the QoS parameters that you choose provide the basis for assigning a particular voice-quality category to a call.
  - Summary—Available for managers and CAR administrators. This report provides a two-dimensional pie chart that shows the distribution of QoS grades that are achieved for the specified call classifications and period. The report also provides a table that summarizes the calls for each QoS. The call details in CDRs and CMRs and the QoS parameters that you choose provide the basis for assigning a call to a particular voice-quality category. Use this report to monitor the voice quality of all calls through the network.

  - By Gateway—Available for CAR administrators. This report shows the percentage of the calls for each of the chosen gateways that meet the QoS criteria that the user chooses. You can generate this report on an hourly, daily, or weekly basis.
  - By Call Types—Available for CAR administrators. This report shows the percentage of the calls for each chosen call type that meet the QoS criteria that the user chooses. You can generate this report on an hourly, daily, or weekly basis.
- Traffic
  - Summary—Available for CAR administrators. This report provides information about the call volume for a period that you specify and include only those call types and QoS voice-quality categories that you choose. Use this report to determine the number of calls that are being made on an hourly, weekly, or daily basis. This report helps you identify high- and low-traffic patterns for capacity planning.
  - Summary by Extension—Available for CAR administrators. This report provides information about the call volume for a period and set of extensions that you specify. It includes only those call types and extensions that you choose. You can generate the report on an hourly, weekly, or daily basis. This report helps you determine high-usage users or groups by aggregating the usage level across the users that you specify.
- FAC/CMC
  - Client Matter Code—Available for CAR administrators. This report allows administrators to view the originating and destination numbers, the date and time that the call originated, the call duration in seconds, and the call classification for calls that relate to each chosen client matter code.
  - Authorization Code Name—Available for CAR administrators. This report allows administrators to view the originating and destination numbers, the date and time that the call originated, the call duration in seconds, the call classification, and the authorization level for calls that relate to each chosen authorization code name.
  - Authorization Level—Available for CAR administrators. This report allows administrators to view the originating and destination numbers, the date and time that the call originated, the call duration in seconds, the authorization code name, and the call classification for calls that relate to each chosen authorization level.
- Malicious Call Details—Available for CAR administrators. The Cisco Unified Communications Manager Malicious Call Identification (MCID) service tracks malicious calls. The Malicious Call Details report displays the details of malicious calls for a given date range.
- Precedence Call Summary—Available for CAR administrators. The Cisco Unified Communications Manager Call Precedence service allows authenticated users to preempt lower priority phone calls. The PDF version of the CAR Precedence Call Summary report displays the Call Summary for the precedence values in the form of a bar chart, on an hour of day, day of week, or day of month basis, for each of the precedence levels that you choose. CAR generates one chart for each precedence level, a table for each precedence level that lists the number of call legs, and a subtable that summarizes the percentage distribution for each precedence level. CAR makes the report available on-demand; the report does not get autogenerated.
- System Overview—Available for CAR administrators. Use the System Overview report to see a high-level picture of the Cisco Unified Communications Manager network. The System Overview provides the following reports:
  - Top 5 Users Based on Charge
  - Top 5 Destinations Based on Charge
  - Top 5 Calls Based on Charge

  - Top 5 Users Based on Duration
  - Top 5 Destinations Based on Duration
  - Top 5 Calls Based on Duration
  - Traffic Summary Hour of Day—Incoming, Internal, International, Local, Long Distance, On Net, Others, Tandem, and Total calls
  - Traffic Summary Day of Week—Incoming, Internal, International, Local, Long Distance, On Net, Others, Tandem, and Total calls
  - Traffic Summary Day of Month—Incoming, Internal, International, Local, Long Distance, On Net, Others, Tandem, and Total calls
  - QoS Summary
  - Gateway Summary
- CDR Error—Available for CAR administrators. This report provides statistics for the number of error records in the CAR Billing_Error table and the reason for the errors. Use this report to determine whether CAR incurred any errors with CDR data while the CDR data was loaded. This report lists the percentage of CDRs that are invalid and the reason that these CDRs have been classified as invalid.

Additional Information

See the "Related Topics" section on page 9-4.

Searching for Users

Many reports in CAR provide a search function, so you can look for users. The following CAR System reports support search by user: QoS Details and Traffic Summary by Extension. You can mail all reports that can be generated by using the Send Report button.

Before You Begin

You must use the window in System Reports that allows you to search for users.

This section describes how to search for a user.

Procedure

Step 1 Click the **Search Users** link.

A User Search window displays.

Step 2 In the First Name and Last Name fields, enter characters of the first or last name of the user and click the **Search** button.

A User Search Results window displays in the same window and lists all users who matched the search criteria that you entered.

Step 3 In the row for the user that you want, click the **Select** link.

The user that you chose gets added to the List of Users in the User Search window. Repeat this step to add more users.

Step 4 When you have added all users, click the **Close** button in the User Search window.

Additional Information

See the "Related Topics" section on page 9-4.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 10, "Configuring QoS System Reports"
- Chapter 11, "Configuring Traffic System Reports"
- Chapter 12, "Configuring FAC/CMC System Reports"
- Chapter 13, "Configuring Malicious Call Details System Reports"
- Chapter 14, "Configuring Precedence Call Summary System Reports"
- Chapter 15, "Configuring System Overview System Reports"
- Chapter 16, "Configuring CDR Error System Reports"
- Chapter 17, "Reviewing System Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 10

Configuring QoS System Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for calls by each user.

Note Depending on your job function, you may not have access to every report that is described in this chapter.

This chapter contains the following topics:

- Configuring QoS Detail Reports, page 10-2
- Configuring QoS Summary Reports, page 10-4
- Configuring QoS by Gateway Reports, page 10-6
- Configuring QoS by Call Types Reports, page 10-8
- Related Topics, page 10-10
- Additional Cisco Documentation, page 10-10

Only CAR administrators generate the QoS detail report. The report details the QoS ratings that are attributed to inbound and outbound calls on the Cisco Unified Communications Manager network for the period that is specified.

Managers or CAR administrators generate the QoS summary report. The report provides a two-dimensional pie chart that shows the distribution of QoS grades that are achieved for the specified call classifications and period. The report also provides a table that summarizes the calls for each QoS. The call details in CDRs and CMRs and the QoS parameters that are provided in the "Configuring QoS Values" section on page 34-1 provide a basis for assigning a particular voice-quality category to a call.

You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. See Chapter 35, "Configuring the Automatic Generation of CAR Reports and Alerts", for more information.

QoS Parameter Operators

Table 10-1 describes the QoS parameter operators that you use in generating the QoS reports.

Table 10-1 QoS Parameter Operators

Operator	Description
>=	Choose this operator to generate jitter, latency, or lost packet data that is greater than or equal to the specified value.
=	Choose this operator to generate jitter, latency, or lost packet data that is equal to the specified value.
<=	Choose this operator to generate jitter, latency, or lost packet data that is less than or equal to the specified value.
N.A.	Choose this operator to preclude jitter, latency, or lost packet data.
Between	Choose this operator to generate jitter, latency, or lost packet data that occurs between one value and another value. When you choose this operator, a second field displays, so you can set the start and end values.

Configuring QoS Detail Reports

This section describes how to generate, view, or mail detailed information about the system QoS.

Procedure

Step 1 Choose **System Reports > QoS > Detail**.

The QoS Detail window displays.

Step 2 In the Select Call Types area, check the check boxes for the types of calls that you want the report to include. Table 10-2 describes the call types.

Table 10-2 QoS Detail Report Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).

Table 10-2 QoS Detail Report Call Types (continued)

Call Type	Description
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and are transferred outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Step 3 In the Select QoS area, check the check boxes for the voice-quality categories that you want included in the report. The parameters set in the "Configuring QoS Values" section on page 34-1 provide the basis for all voice-quality categories.

Table 10-3 QoS Detail Report Voice Quality

Voice Quality	Description
Good	QoS for these calls represents the highest possible quality.
Acceptable	QoS for these calls, although slightly degraded, still fall within an acceptable range.
Fair	Although QoS for these calls is degraded, calls still fall within a usable range.
Poor	QoS for these calls designates unsatisfactory quality.
NA	These calls did not match any criteria for the established QoS categories.

Step 4 Choose the date range for the period for which you want to see QoS information.

Step 5 In the Select Users field, you can either choose all users or search for particular users. To choose all users, check the **Select All Users** check box. To choose individual users, enter the user ID of the individual in the User ID field and click the **Add** button.

Note You can also use a provided search function. See the "Searching for Users" section on page 9-3.

Step 6 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 7 Click the **View Report** button.

The report displays**.**

Step 8 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 10-10.

Configuring QoS Summary Reports

This section describes how to generate, view, or mail summary information about the system QoS.

Procedure

Step 1 Perform one of the following steps:

- If you are a manager, choose **QoS > Summary**.
- If you are a CAR administrator, choose **System Reports > QoS > Summary**.

The QoS Summary window displays.

Step 2 In the Available Reports field, choose an automatically generated report (if available) and go to Step 6, or use the default setting, Generate New Report, and go to Step 3.

Note You can only choose the automatically generated report if you are logged in as a CAR administrator. The automatically generated reports do not display in the drop-down list box if you are logged in as a manager.

Step 3 In the Select Call Types area, check the check boxes for the types of calls that you want the report to include. Table 10-4 describes the call types.

Table 10-4 QoS Summary Report Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and transfer outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Step 4 If you chose Generate New Report in Step 2, choose the date range for the period for which you want to generate the report.

Step 5 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 6 Click the **View Report** button.

The report displays**.**

Step 7 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Configuring QoS by Gateway Reports

Only CAR administrators generate the QoS by Gateway report. The report provides the percentage of calls that satisfy the selected QoS criteria for a period that is specified for the selected gateways.

Caution Use CAR only during off-peak hours. Otherwise, data collection and report generation could cause performance degradation on the Cisco Unified Communications Manager system.

This section describes how to generate, view, or mail QoS information about all chosen gateways.

Before You Begin

Configure the gateway by using the procedures in the "Configuring the Gateway" section on page 28-4.

Procedure

Step 1 Choose **System Reports > QoS > By Gateways**.

The QoS based on Gateways window displays.

Step 2 In the Generate Reports field, choose a time as described in Table 10-5.

Table 10-5 Generate Report Fields

Parameter	Description
Hour of Day	Displays the percentage of the calls, for each selected gateway, that satisfies the QoS criteria for the period that you specify in Step 6. The percentage results show for hour of day.
Day of Week	Displays the percentage of the calls, for each selected gateway, that satisfies the QoS criteria for the period that you specify in Step 6. The percentage results show for day of week.
Day of Month	Displays the percentage of the calls, for each selected gateway, that satisfies the QoS criteria for the period that you specify in Step 6. The percentage results show for day of month.

Step 3 In the Jitter field, choose the operator that you want to use and enter the value for jitter. See the "QoS Parameter Operators" section on page 10-1, for descriptions of operators.

Step 4 In the Latency field, choose the operator that you want to use and enter the value for latency. See the QoS Parameter Operators, page 10-1, for descriptions of operators.

Step 5 In the Lost Packets field, choose the operator that you want to use and enter the value for number of lost packets. See the QoS Parameter Operators, page 10-1, for descriptions of operators.

Step 6 Choose the date range of the period for which you want to see call information.

Step 7 To choose the type of gateway that you want included in the report, perform one of the following tasks:

- To display all the gateways that are configured in the system, click **Gateway Types** in the column on the left side of the window.
- To expand the tree structure and display the type of gateway from which you can choose, click the icon next to Gateway Types.
- To choose a gateway that uses a particular route pattern/hunt pilot, rather than a gateway type, click **Route Patterns/Hunt Pilots** in the column on the left side of the window. The tree structure expands and displays the gateways that are associated with the configured Route Patterns/Hunt Pilots.
- To expand the tree structure and display route pattern/hunt pilot for you to choose, click the icon next to Route Patterns/Hunt Pilots.

Note You can also search for specific route patterns/hunt pilots by entering part of the name of the route pattern(s)/hunt pilot(s) in the Route Patterns/Hunt Pilots box in the column on the left side of the window. CAR searches for the route pattern(s)/hunt pilot(s) that matches the search string.

Step 8 From the list, choose a gateway type.

The gateway name displays in the List of Gateways box.

Note The List of Gateways box will display up to 200 gateways that are configured for the chosen gateway type.

Step 9 In the List of Gateways box, select the gateways that you want to include in the report.

Note You can generate a report for up to 15 gateways at a time. If you select more than 15 gateways, you will see the message “Select 15 or fewer gateways to generate new report.”

Step 10 Click the down arrow icon to move the chosen gateway to the list of Selected Gateways box.

The gateway that you chose displays in the Selected Gateways box.

Step 11 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 12 Click the **View Report** button.

The report displays**.**

Step 13 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the “Mailing a Report” section on page 3-3.

Additional Information

See the “Related Topics” section on page 10-10.

Configuring QoS by Call Types Reports

Only CAR administrators generate the QoS by Call Types report. The report provides jitter, latency, and lost packet information for a period that is specified for all calls of a chosen type.

This section describes how to generate, view, or mail QoS information about all calls of a certain type.

Caution Use CAR only during off-peak hours. Otherwise, data collection and report generation could cause performance degradation on the Cisco Unified Communications Manager system.

Procedure

Step 1 Choose **System Reports > QoS > By Call Types**.

The QoS based on Call Types window displays.

Step 2 In the Generate Report field, choose a time as described in Table 10-6.

Table 10-6 Generate Report Fields

Parameter	Description
Hour of Day	Displays the percentage of the calls, for each call type, that satisfies the QoS criteria for the period that you specify in Step 7. The percentage results show for hour of day.
Day of Week	Displays the percentage of the calls, for each call type, that satisfies the QoS criteria for the period that you specify in Step 7. The percentage results show for day of week.
Day of Month	Displays the percentage of the calls, for each call type, that satisfies the QoS criteria for the period that you specify in Step 7. The percentage results show for day of month.

Step 3 In the Jitter field, choose the operator that you want to use and enter the value for jitter. See the "QoS Parameter Operators" section on page 10-1 for descriptions of operators.

Step 4 In the Latency field, choose the operator that you want to use and enter the value for latency. See the "QoS Parameter Operators" section on page 10-1 for descriptions of operators.

Step 5 In the Lost Packets field, choose the operator that you want to use and enter the value for number of lost packets. See the "QoS Parameter Operators" section on page 10-1 for descriptions of operators.

Step 6 In the Select Call Types area, check the check boxes for the types of calls that you want the report to include. Table 10-7 describes the call types.

Table 10-7 QoS Parameters by Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and transfer outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Step 7 Choose the date range for the period for which you want to see call information.

Step 8 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 9 Click the **View Report** button.

The report displays**.**

Step 10 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 10-10.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 9, "Understanding CAR System Reports"
- Chapter 11, "Configuring Traffic System Reports"
- Chapter 12, "Configuring FAC/CMC System Reports"
- Chapter 13, "Configuring Malicious Call Details System Reports"
- Chapter 14, "Configuring Precedence Call Summary System Reports"
- Chapter 15, "Configuring System Overview System Reports"
- Chapter 16, "Configuring CDR Error System Reports"
- Chapter 17, "Reviewing System Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 11

Configuring Traffic System Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for calls by each user.

This chapter contains the following topics:

- Configuring Traffic Summary Reports, page 11-2
- Configuring Traffic Summary by Extensions Reports, page 11-4
- Related Topics, page 11-7
- Additional Cisco Documentation, page 11-7

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Only CAR administrators can generate the traffic summary report. The report provides information about the call volume for a period that you specify. It includes only those call types and QoS voice-quality categories that you chose.

Tip When you configure CAR to generate a traffic summary report, you can choose different call types (On Net, Internal, Local, Long Distance, and so on). CAR compares the traffic volume for every hour interval and identifies the hour with the highest traffic volume (the Busy Hour Call Completion [BHCC] number). To obtain the overall BHCC number, choose all call types when you configure CAR. Under the report title, a separate line displays the BHCC number for that day.

Only CAR administrators can generate the traffic summary by extensions report. The report provides information about the call volume for a period and set of extensions that you specify, and includes only those call types and extensions that you choose.

Tip You can use this report to track call usage by a specified group of users, by a department, or by another criteria, such as lobby phones or conference room phones. You can set up this report to generate on a weekly basis. This report helps you determine high-usage users or groups by aggregating the usage level across the users that you specify.

Configuring Traffic Summary Reports

Only CAR administrators generate the Traffic Summary report. The report provides information about the call volume for a period that you specify.

You can either view reports that the system automatically generates or generate new reports. See Chapter 29, "Configuring the CAR System Scheduler", for more information.

This section describes how to generate, view, or mail summary information about system traffic.

Procedure

Step 1 Choose **System Reports > Traffic> Summary**.

The Traffic Summary window displays.

Step 2 In the Generate Report field, choose a time as described in Table 11-1.

Table 11-1 Generate Report Fields

Parameter	Description
Hour of Day	Displays the average number of calls in the system for the period that you specify in Step 4, the call types that you specify in Step 5, and the QoS values that you specify in Step 6 for hour of day. If the period that you specify in Step 4 is within one day, the system compares the traffic volume for every hour interval and identifies the hour with the highest traffic volume as the BHCC number for that day.
Day of Week	Displays the average number of calls in the system for the period that you specify in Step 4, the call types that you specify in Step 5, and the QoS values that you specify in Step 6 for day of the week.
Day of Month	Displays the average number of calls in the system for the period that you specify in Step 4, the call types that you specify in Step 5, and the QoS values that you specify in Step 6 for day of month.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 8 or use the default setting, Generate New Report and go to Step 4.

Step 4 Choose the date range for the period for which you want to generate the report.

Step 5 In the Select Call Types area, check the check boxes for the types of calls that you want to include in the report. To obtain the overall BHCC number for a particular hour or 24-hour period, choose all call types. Table 11-2 describes the call types.

Table 11-2 Traffic Summary by Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that route through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Note The calls that the chart/table shows comprise an average number of calls per day. If the data that is generated is less and you have chosen a wide date range, the report shows negligible values that are treated as 0, and the graph does not display. For example, if a Day of Week report gets generated for eight days that comprise two Mondays, the data that is shown for Monday represents the average number of calls for both the Mondays (the sum of all the calls in each Monday divided by 2). Similarly, in an Hour of Day report, the data that displays against 05-06 will designate the average number of calls per day between the time 05 and 06 of the date range that was chosen for the report.

Step 6 In the Select QoS area, check the check boxes for the voice-quality categories that you want to include in the report. The parameters that are set in the "Configuring QoS Values" section on page 34-1 provide the basis for all voice-quality categories.

Table 11-3 QoS Detail Report Voice Quality

Voice Quality	Description
Good	QoS for these calls represents the highest possible quality.
Acceptable	QoS for these calls, although slightly degraded, still falls within an acceptable range.
Fair	QoS for these calls, although degraded, still remains within a usable range.
Poor	Poor voice quality indicates that QoS for these calls is unsatisfactory.
NA	These calls did not match any criteria for the established QoS categories.

Step 7 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 8 Click the **View Report** button.

The report displays**.**

Step 9 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 11-7.

Configuring Traffic Summary by Extensions Reports

Only CAR administrators generate the Traffic Summary by Extensions report. The report provides information about the call volume for a period and set of extensions that you specify.

This section describes how to generate, view, or mail a traffic summary report based on user extensions.

Procedure

Step 1 Choose **System Reports > Traffic > Summary By Extension**.

The Traffic Summary that is based on Extension(s) window displays.

Step 2 In the Generate Report field, choose a time as described in Table 11-4.

Table 11-4 Generate Report Fields

Parameter	Description
Hour of Day	Displays the average number of calls in the system for the chosen extension numbers for the date range that was chosen for hour of day. **Note** Ensure that the date and time range does not exceed one month.
Day of Week	Displays the average calls in the system for the selected extension numbers for the date range that was chosen for day of week. **Note** Ensure that the date and time range does not exceed one month.
Day of Month	Displays the average calls in the system for the selected extension numbers for the date range that was chosen for day of month. **Note** Ensure that the date and time range does not exceed one month.

Step 3 In the Select Call Types area, check the check boxes for the types of calls that you want to include in the report. Table 11-5 describes the call types.

Table 11-5 Traffic Summary (Extn) by Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.

Table 11-5 Traffic Summary (Extn) by Call Types (continued)

Call Type	Description
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Note The calls that the chart/table shows comprise an average number of calls per day. If the data that is generated is less and you have chosen a wide date range, the report shows negligible values that are treated as 0, and the graph does not display. For example, if a Day of Week report gets generated for eight days that comprise two Mondays, the data that is shown for Monday represents the average number of calls for both the Mondays (the sum of all the calls in each Monday divided by 2). Similarly, in an Hour of Day report, the data that displays against 05-06 will represent the average number of calls per day between the time 05 and 06 of the date range that was chosen for the report.

Step 4 In the Select Extensions group box, you can either choose all extensions or search for extensions based on users.

Note You can enter a wildcard pattern like "!" or "X" to search on extensions. The "!" represents any n digit that has 0-9 as each of its digits, and the "X" represents a single digit in the range 0-9.

To choose all extensions, check the **Select All Extensions** check box. To choose extensions based on users, enter the extension number of the individual in the Extension field and click the **Add Extension** button. You can also use a provided search function, as described in the "Searching for Users" section on page 9-3.

Step 5 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 6 Click the **View Report** button.

The report displays**.**

Step 7 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 11-7.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 9, “Understanding CAR System Reports”
- Chapter 10, “Configuring QoS System Reports”
- Chapter 12, “Configuring FAC/CMC System Reports”
- Chapter 13, “Configuring Malicious Call Details System Reports”
- Chapter 14, “Configuring Precedence Call Summary System Reports”
- Chapter 15, “Configuring System Overview System Reports”
- Chapter 16, “Configuring CDR Error System Reports”
- Chapter 18, “Understanding CAR Device Reports”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 12

Configuring FAC/CMC System Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for calls by each user.

This chapter contains the following topics:

- Configuring Client Matter Code Reports, page 12-1
- Configuring Authorization Code Name Reports, page 12-2
- Configuring Authorization Level Reports, page 12-3
- Related Topics, page 12-4
- Additional Cisco Documentation, page 12-4

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Only CAR administrators can generate Forced Authorization Code (FAC)/Client Matter Code (CMC) reports.

The following sections describe how to configure FAC/CMC reports:

Configuring Client Matter Code Reports

Only CAR administrators can generate the Client Matter Code report. You can generate a report that shows the origination (calling number), destination (called number), origination date time (the date and time that the call originated), duration (call duration in seconds), and the call classification that relates to each CMC.

The following procedure describes how to generate a report that shows the usage of specific client matter codes.

Procedure

Step 1 Choose **System Reports > FAC/CMC > Client Matter Code**.

The Call Details for Client Matter Code window displays a list of all client matter codes that are configured in the system.

Step 2 In the List of Client Matter Codes box, choose the codes that you want included in the report.

Note You can choose up to 100 Client Matter Codes.

Step 3 To add the chosen code(s) to the Selected Client Matter Codes box, click the down arrow.

The report will include all codes, for which data is available, that are listed in this box.

Step 4 In the From Date and To Date pull-down list boxes, enter the date range of the period for which you want to see Client Matter Code information.

Step 5 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 6 Click **View Report**.

The report displays.

Step 7 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in "Mailing a Report" section on page 3-3.

Configuring Authorization Code Name Reports

Only CAR administrators can generate the Authorization Code Name report. You can generate a report that shows the origination (calling number), destination (called number), origination date time (the date and time that the call originated), duration (call duration in seconds), and the call classification that relates to each chosen authorization code name.

Note For security purposes, the authorization code does not display; instead, the authorization code name (description) displays.

The following procedure describes how to generate a report that shows the usage of specific authorization code names.

Procedure

Step 1 Choose **System Reports > FAC/CMC > Authorization Code Name**.

The Call Details for Authorization Code Name window displays a list of all authorization code names that are configured in the system.

Step 2 In the List of Authorization Code Names box, choose the code names that you want included in the report.

Note You can choose up to 30 code names.

Step 3 To add the chosen code name(s) to the Selected Authorization Code Names box, click the down arrow.

The report will include all code names, for which data is available, that are listed in this box.

Step 4 In the From Date and To Date drop-down list boxes, enter the date range of the period for which you want to see authorization code name information.

Step 5 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 6 Click **View Report**.

The report displays.

Step 7 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 12-4.

Configuring Authorization Level Reports

Only CAR administrators can generate the Authorization Level report. You can generate a report that shows the origination (calling number), destination (called number), origination date time (the date and time that the call originated), duration (call duration in seconds), and the call classification that relate to each chosen authorization level.

The following procedure describes how to generate a report that shows the usage of specific authorization levels.

Procedure

Step 1 Choose **System Reports > FAC/CMC > Authorization Level**.

The Call Details by Authorization Level window displays a list of all authorization levels that are configured in the system.

Step 2 In the List of Authorization Levels box, choose the levels that you want included in the report.

Step 3 To add the chosen level(s) to the Selected Authorization Levels box, click the down arrow.

The report will include all levels, for which data is available, that are listed in this box.

Note Only FAC authorization levels reports that are associated with Route Patterns will get generated.

Step 4 In the From Date and To Date drop-down list boxes, enter the date range of the period for which you want to see authorization level information.

Step 5 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 6 Click **View Report**.

The report displays.

Step 7 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 12-4.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 9, "Understanding CAR System Reports"
- Chapter 10, "Configuring QoS System Reports"
- Chapter 11, "Configuring Traffic System Reports"
- Chapter 13, "Configuring Malicious Call Details System Reports"
- Chapter 14, "Configuring Precedence Call Summary System Reports"
- Chapter 15, "Configuring System Overview System Reports"
- Chapter 16, "Configuring CDR Error System Reports"
- Chapter 17, "Reviewing System Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 13

Configuring Malicious Call Details System Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for calls by each user.

This chapter contains the following topics:

- Configuring Malicious Call Details Reports, page 13-1
- Related Topics, page 13-2
- Additional Cisco Documentation, page 13-2

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Configuring Malicious Call Details Reports

Only CAR administrators generate the Malicious Call Details report. The report displays the following details about malicious calls for a particular date range: origination time, termination time, duration (in seconds), origination (calling number), destination (called number), origination device, destination device, and call classification.

This section describes how to generate, view, or mail a Malicious Call Detail report.

Procedure

Step 1 Choose **System Reports > Malicious Call Details**.

The Malicious Call Details window displays.

Step 2 In the From Date drop-down list boxes, choose the month, day, and year from which you want malicious call details.

Step 3 In the To Date drop-down list boxes, choose the month, day, and year to which you want malicious call details.

Step 4 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 5 To view the report, click **View Report**.

The report displays**.**

Step 6 To mail the report to an e-mail recipient, see the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 13-2.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 9, "Understanding CAR System Reports"
- Chapter 10, "Configuring QoS System Reports"
- Chapter 11, "Configuring Traffic System Reports"
- Chapter 12, "Configuring FAC/CMC System Reports"
- Chapter 14, "Configuring Precedence Call Summary System Reports"
- Chapter 15, "Configuring System Overview System Reports"
- Chapter 16, "Configuring CDR Error System Reports"
- Chapter 17, "Reviewing System Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*
- *Cisco Unified Communications Manager Features and Services Guide*

CHAPTER 14

Configuring Precedence Call Summary System Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for calls by each user.

This chapter contains the following topics:

- Configuring Precedence Call Summary Reports, page 14-1
- Related Topics, page 14-3
- Additional Cisco Documentation, page 14-3

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Configuring Precedence Call Summary Reports

Only CAR administrators generate the Call Summary by Precedence report. The report displays the Call Summary for the precedence values that you choose by Hour of Day, Day of Week, or Day of Month.

This section describes how to generate, view, or mail a Call Summary by Precedence report.

Procedure

Step 1 Choose **System Reports > Precedence Call Summary**.

The Call Summary by Precedence window displays.

Step 2 In the Generate Reports field, choose a time as described in Table 14-1.

Table 14-1 Generate Report Fields

Parameter	Description
Hour of Day	Displays the average number of calls in the system for the chosen extension numbers for the date range that was chosen for hour of day. **Note** Ensure that the date and time range does not exceed one month.
Day of Week	Displays the average number of calls in the system for the chosen extension numbers for the date range that was chosen for day of week. **Note** Ensure that the date and time range does not exceed one month.
Day of Month	Displays the average number of calls in the system for the chosen extension numbers for the date range that was chosen for day of month. **Note** Ensure that the date and time range does not exceed one month.

Step 3 In the Select Precedence Levels field, check a precedence level that you want in the report or click **Select All** to check all precedence levels.

Table 14-2 Call Precedence Levels

Voice Quality	Description
Flash Override	Highest precedence setting for MLPP calls.
Flash	Second highest precedence setting for MLPP calls.
Immediate	Third highest precedence setting for MLPP calls.
Priority	Forth highest precedence setting for MLPP calls.
Routine	Lowest precedence setting for MLPP calls.

Note To uncheck the precedence level check boxes, click **Clear All**.

Step 4 In the From Date drop-down list boxes, choose the month, day, and year from which you want precedence summary information.

Step 5 In the To Date drop-down list boxes, choose the month, day, and year for which you want precedence summary information.

Step 6 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 7 To view the report, click **View Report**.

The report displays**.**

Step 8 To mail the report to an e-mail recipient, see the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 14-3.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 9, "Understanding CAR System Reports"
- Chapter 10, "Configuring QoS System Reports"
- Chapter 11, "Configuring Traffic System Reports"
- Chapter 12, "Configuring FAC/CMC System Reports"
- Chapter 13, "Configuring Malicious Call Details System Reports"
- Chapter 15, "Configuring System Overview System Reports"
- Chapter 16, "Configuring CDR Error System Reports"
- Chapter 17, "Reviewing System Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 15

Configuring System Overview System Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for each calls by each user.

This chapter contains the following topics:

- Configuring System Overview Reports, page 15-1
- Related Topics, page 15-2
- Additional Cisco Documentation, page 15-3

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Configuring System Overview Reports

Only CAR administrators generate the System Overview report that provides the entire set of system reports in one report.

The System Overview report includes the following information:

- Top five users based on charge.
- Top five destinations based on charge.
- Top five calls based on charge.
- Top five users based on duration.
- Top five destinations based on duration.
- Top five calls based on duration.
- Traffic summary—Hour of day for incoming, internal, international, local, long distance, on net, others, tandem, and total calls.
- Traffic summary—Day of week for incoming, internal, international, local, long distance, on net, others, tandem, and total calls.

- Traffic summary—Day of month for incoming, internal, international, local, long distance, on net, others, tandem, and total calls.
- Quality of service summary.
- Gateway summary.

For additional information about the System Overview reports, see the "System Overview Report Results" section on page 17-17.

You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. See Chapter 29, "Configuring the CAR System Scheduler" for more information.

This section describes how to generate, view, or mail summary information about the Cisco Unified Communications Manager system.

Procedure

Step 1 Choose **System Reports > System Overview**.

The System Overview window displays.

Step 2 In the Available Reports field, select an automatically generated report (if available) and go to Step 6, or use the default setting, Generate New Report, and go to Step 3.

Step 3 Choose the date range for the period for which you want to generate the report.

Step 4 From the List of Reports, select the reports that you want generated by highlighting the report and clicking the right arrow.

The reports that you select appear in the Selected Reports list box.

Tip You can highlight more than one report at a time by pressing the **Ctrl** key on your keyboard while clicking the reports.

Step 5 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 6 Click the **View Report** button.

The report displays**.**

Step 7 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in Mailing a Report, page 3-3.

Additional Information

See the "Related Topics" section on page 15-2.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 9, "Understanding CAR System Reports"

- Chapter 10, “Configuring QoS System Reports”
- Chapter 11, “Configuring Traffic System Reports”
- Chapter 12, “Configuring FAC/CMC System Reports”
- Chapter 13, “Configuring Malicious Call Details System Reports”
- Chapter 14, “Configuring Precedence Call Summary System Reports”
- Chapter 16, “Configuring CDR Error System Reports”
- Chapter 17, “Reviewing System Reports Results”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 16

Configuring CDR Error System Reports

CAR provides reporting capabilities for three levels of users:

- Administrators—Generate system reports to help with load balancing, system performance, and troubleshooting.
- Managers—Generate reports for users, departments, and QoS to help with call monitoring for budgeting or security purposes and for determining the voice quality of the calls.
- Individual users—Generate a billing report for calls by each user.

This chapter contains the following topics:

- Configuring CDR Error Reports, page 16-1
- Related Topics, page 16-3
- Additional Cisco Documentation, page 16-3

Note Depending on your job function, you may not have access to every report that is described in this chapter.

Configuring CDR Error Reports

Only CAR administrators generate the CDR Error report. The report provides statistics for the number of error records in the CAR Billing Error (tbl_billing_error) table for a particular time period.

In order to determine why the error records failed the CDR Load, you must review the information in the tbl_error_id_map table.

Table 16-1 lists the CDR error codes and the definition of the error.

Table 16-1 CDR Error Codes

Error Code	Definition
CDRs	
31101	CDR globalCallID_callManagerId <= 0
31102	CDR globalCallID_callId <= 0
31103	CDR origLegCallIdentifier <= 0
31105	CDR dateTimeOrigination <= 0
31108	CDR destLegIdentifier <= 0

Table 16-1 CDR Error Codes (continued)

Error Code	Definition
31110	CDR dateTimeConnect <= 0
31111	CDR dateTimeDisconnect <= 0
31119	CDR originalCalledPartyNumber is empty
31120	CDR finalCalledPartyNumber is empty
31122	CDR duration < 0
31137	CDR LDAP error while retrieving UserID or ManagerID
31139	CDR callingPartyNumber is empty
31147	CDR origDeviceName is empty
31148	CDR destDeviceName is empty
31151	CDR origCallTerminationOnBehalfOf < 0
31152	CDR destCallTerminationOnBehalfOf < 0
31153	CDR lastRedirectRedirectOnBehalfOf < 0
31155	CDR destConversationId < 0
31156	CDR globalCallId_ClusterID is empty
Orig CMR	
31123	Orig CMR globalCallID_callManagerId <= 0
31124	Orig CMR globalCallID_callId <= 0
31125	Orig CMR numberPacketsSent < 0
31126	Orig CMR numberPacketsReceived < 0
31127	Orig CMR jitter < 0
31129	Orig CMR callIdentifier <= 0
31149	Orig CMR deviceName is empty
31157	Orig CMR globalCallId_ClusterID is empty
Dest CMR	
31140	Dest CMR globalCallID_callManagerId <= 0
31141	Dest CMR globalCallID_callId <= 0
31142	Dest CMR numberPacketsSent < 0
31143	Dest CMR numberPacketsReceived < 0
31144	Dest CMR jitter < 0
31145	Dest CMR callIdentifier <= 0
31150	Dest CMR deviceName is empty
31158	Dest CMR globalCallId_ClusterID is empty

This section describes how to generate, view, or mail information about the CDR Error report.

Procedure

Step 1 Choose **System Reports > CDR Error**.

The CDR Error window displays.

Step 2 Choose the date range of the period for which you want to generate the report.

Step 3 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 4 Click the **View Report** button.

The report displays**.**

Step 5 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 16-3.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 9, "Understanding CAR System Reports"
- Chapter 10, "Configuring QoS System Reports"
- Chapter 11, "Configuring Traffic System Reports"
- Chapter 12, "Configuring FAC/CMC System Reports"
- Chapter 13, "Configuring Malicious Call Details System Reports"
- Chapter 14, "Configuring Precedence Call Summary System Reports"
- Chapter 15, "Configuring System Overview System Reports"
- Chapter 17, "Reviewing System Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 17

Reviewing System Reports Results

This chapter describes report output information for each CAR system report. The chapter contains the following topics:

- QoS Detail Report Results, page 17-1
- QoS Summary Report Results, page 17-3
- QoS by Gateways Report Results, page 17-4
- QoS by Call Types Report Results, page 17-5
- Traffic Summary Report Results, page 17-7
- Authorization Code Name Call Details Report Results, page 17-11
- Authorization Level Call Details Report Results, page 17-12
- Client Matter Code Details Report Results, page 17-13
- Malicious Call Details Report Results, page 17-13
- Precedence Call Summary Report Results, page 17-15
- System Overview Report Results, page 17-17
- CDR Error Report Results, page 17-18
- Related Topics, page 17-19
- Additional Cisco Documentation, page 17-20

QoS Detail Report Results

The results of the QoS Detail report include the following fields. See Table 17-1.

Table 17-1 QoS Detail Report Fields

Field	Description
Orig. Time	The time that the call was placed, in 24-hour, minute, and second format.
Term. Time	The time that the call disconnected, in 24-hour, minute, and second format.
Duration(s)	The time, in seconds, that the call was connected.

Table 17-1 QoS Detail Report Fields (continued)

Field	Description
Orig.	The originating number from which the call was placed.
Dest.	The destination number to which the call was directed.
Call Classification—Call categories specify classes.	
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network that go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and are transferred outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.
Orig. Codec	The codec that the originating device uses.
Dest. Codec	The codec that the destination device uses.
Orig. Device	The name of the device that placed the call.

Table 17-1 QoS Detail Report Fields (continued)

Field	Description
Dest. Device	The name of the device that received the call.
Orig. QoS	The voice quality that the device that placed the call experienced.
Dest. QoS	The voice quality that the device that received the call experienced.

Figure 17-1 displays sample output of the QoS Detail report in PDF format.

Figure 17-1 QoS Detail Report

Quality of Service - Detail

From Date:Jan 17, 2008
To Date:Jan 17, 2008

Date:Jan 17, 2008
Page:1 of 52

Report Generation Criteria-
Call Classification: On Net, Internal, Local, Long Distance, International, Incoming, Tandem, Others
QoS: Good, Acceptable, Fair, Poor, NA

Orig. Time	Term. Time	Duration (sec)	Orig.	Dest.	Call Classification	Orig. Codec	Dest. Codec	Orig Device	Dest Device	Orig. QoS	Dest. QoS
Jan 17, 2008											
7:09:14 PM	7:09:17 PM	3	1002	1003	Internal	G711Ulaw 64k	G711Ulaw 64k	SEP000011110003	SEP000011110004	NA	NA
7:09:14 PM	7:09:17 PM	3	1000	1001	Internal	G711Ulaw 64k	G711Ulaw 64k	SEP000011110001	SEP000011110002	NA	NA
7:09:14 PM	7:09:17 PM	3	1004	1005	Internal	G711Ulaw 64k	G711Ulaw 64k	SEP000011110005	SEP000011110006	NA	NA
7:09:14 PM	7:09:17 PM	3	1008	1009	Internal	G711Ulaw 64k	G711Ulaw 64k	SEP000011110009	SEP00001111000A	NA	NA
7:09:14 PM	7:09:17 PM	3	1006	1007	Internal	G711Ulaw 64k	G711Ulaw 64k	SEP000011110007	SEP000011110008	NA	NA
7:09:18 PM	7:09:21 PM	3	1002	1003	Internal	G711Ulaw 64k	G711Ulaw 64k	SEP000011110003	SEP000011110004	NA	NA

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QoS Summary Report Results

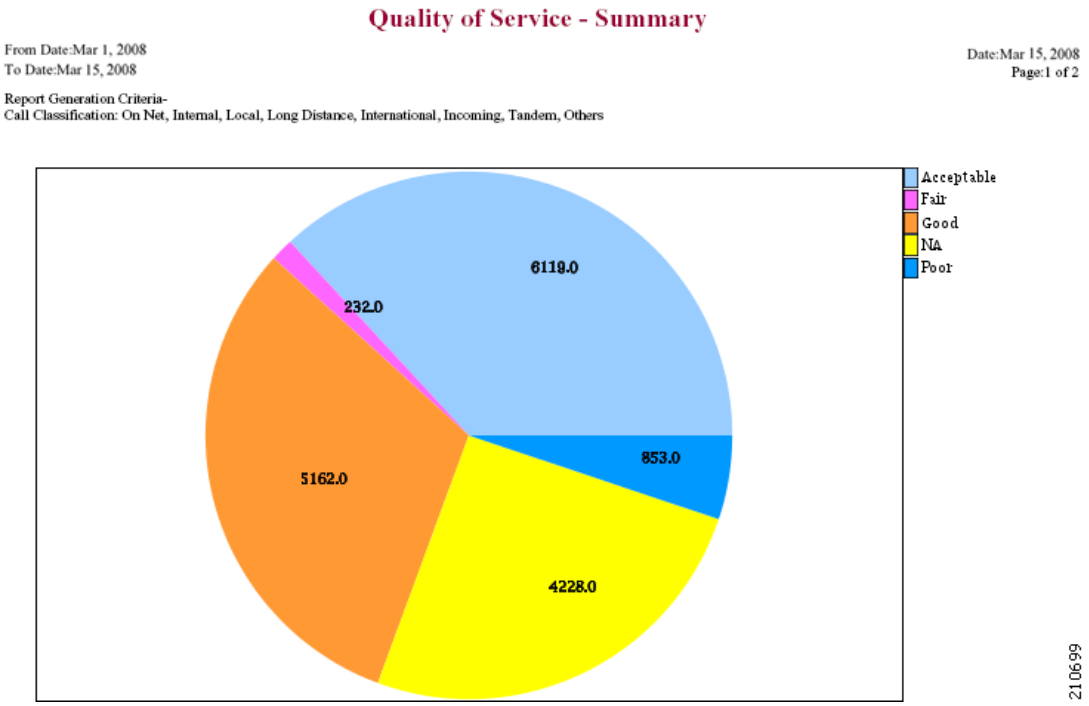
The QoS Summary report includes the following fields. See Table 17-2. If you select PDF format for the report output, the report shows a pie chart that displays the QoS of the total number of calls.

Table 17-2 QoS Summary Report Fields

Field	Description
Quality of Service	The quality of service of the calls.
Call Legs	Number of call legs with the quality of service that the Quality of Service field specified.

Figure 17-2 displays sample output of the QoS Summary Report in PDF format.

Figure 17-2 QoS Summary Report in PDF Format



QoS by Gateways Report Results

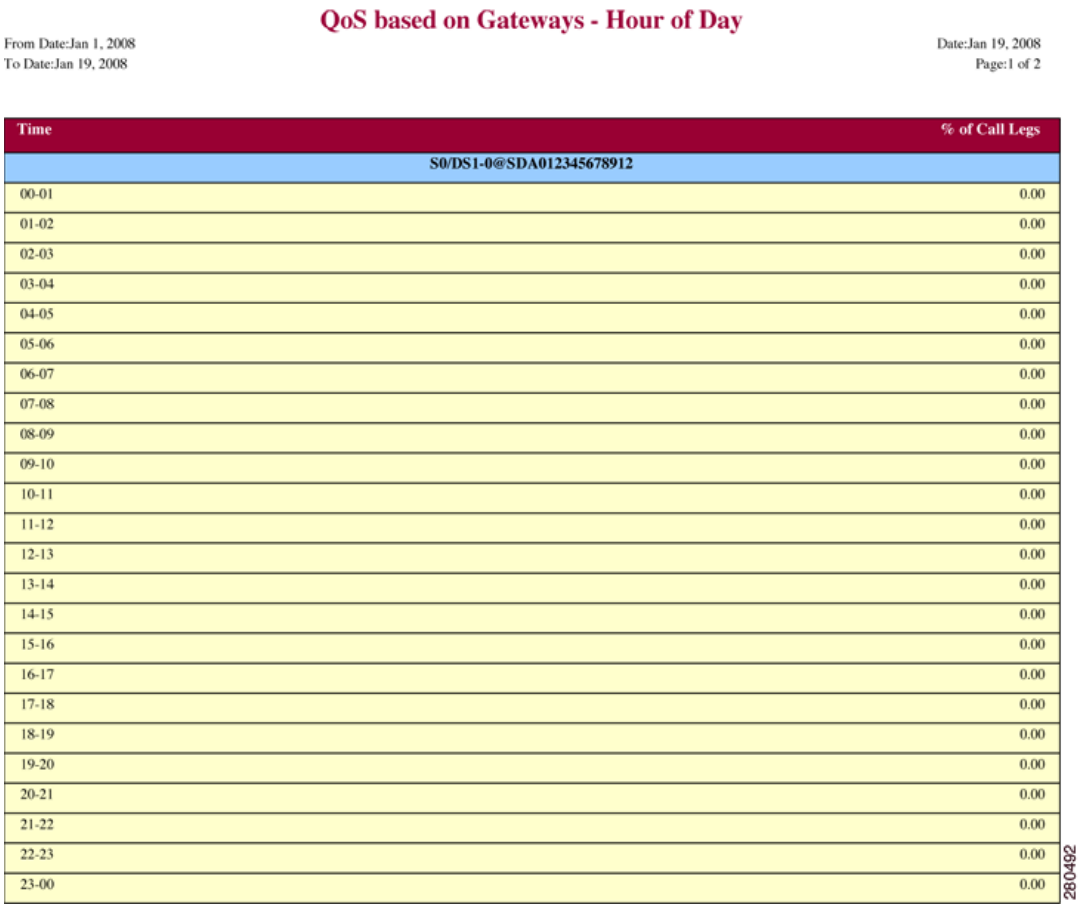
The QoS by Gateways report provides the following information. See Table 17-3.

Table 17-3 QoS by Gateways Report Fields

Field	Description
Time/Day	Indicates the cumulative hours of the day(s), the days of the week, or the days of the month for the selected date range.
% of Call Legs	Displays the percentage of calls for each gateway for the hours of the day, the days of the week, or the days of the month for the selected date range.

Figure 17-3 displays sample output of the QoS by Gateways report in PDF format.

Figure 17-3 QoS by Gateways Report



QoS based on Gateways - Hour of Day

From Date:Jan 1, 2008
To Date:Jan 19, 2008

Date:Jan 19, 2008
Page:1 of 2

Time	% of Call Legs
S0/DS1-0@SDA012345678912	
00-01	0.00
01-02	0.00
02-03	0.00
03-04	0.00
04-05	0.00
05-06	0.00
06-07	0.00
07-08	0.00
08-09	0.00
09-10	0.00
10-11	0.00
11-12	0.00
12-13	0.00
13-14	0.00
14-15	0.00
15-16	0.00
16-17	0.00
17-18	0.00
18-19	0.00
19-20	0.00
20-21	0.00
21-22	0.00
22-23	0.00
23-00	0.00

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QoS by Call Types Report Results

The QoS by Call Types report provides the following information. See Table 17-4.

Table 17-4 QoS by Call Types Report Fields

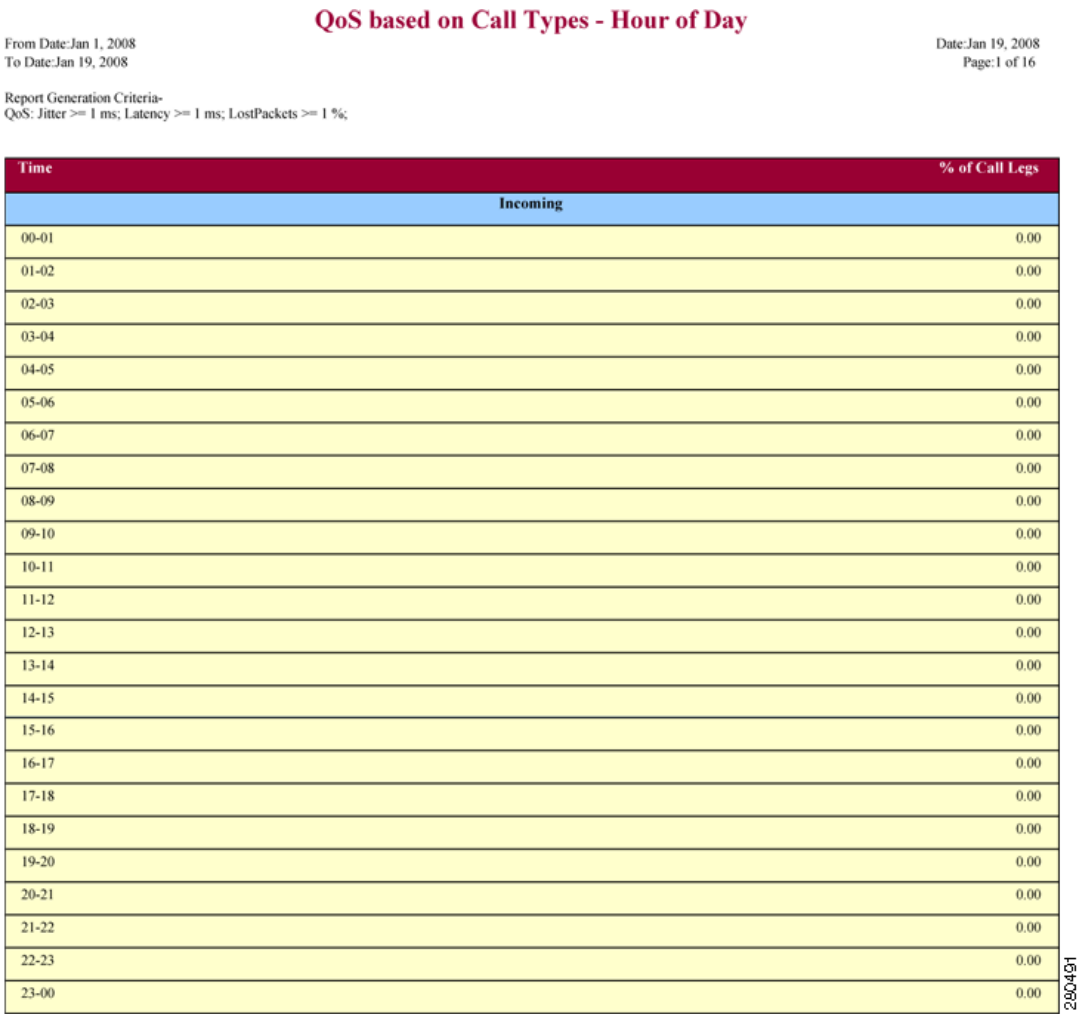
Field	Description
Time/Day	The cumulative hours of the day(s), the days of the week, or the days of the month for the selected date range.
% of Call Legs	The percentage of calls for each gateway for the hours of the day, the days of the week, or the days of the month for the selected date range.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).

Table 17-4 QoS by Call Types Report Fields (continued)

Field	Description
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network that go out through the PSTN.
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and are transferred outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Figure 17-4 displays sample output of the QoS by Call Types report in PDF format.

Figure 17-4 QoS by Call Types Report



QoS based on Call Types - Hour of Day

From Date:Jan 1, 2008
To Date:Jan 19, 2008

Date:Jan 19, 2008
Page:1 of 16

Report Generation Criteria-
QoS: Jitter >= 1 ms; Latency >= 1 ms; LostPackets >= 1 %;

Time	% of Call Legs
Incoming	
00-01	0.00
01-02	0.00
02-03	0.00
03-04	0.00
04-05	0.00
05-06	0.00
06-07	0.00
07-08	0.00
08-09	0.00
09-10	0.00
10-11	0.00
11-12	0.00
12-13	0.00
13-14	0.00
14-15	0.00
15-16	0.00
16-17	0.00
17-18	0.00
18-19	0.00
19-20	0.00
20-21	0.00
21-22	0.00
22-23	0.00
23-00	0.00

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Traffic Summary Report Results

The Traffic Summary and Traffic Summary by Extension reports contain the same information and include some or all the following fields. See Table 17-5. A separate line displays under the report title for the Busy Hour Call Completion (BHCC) number for that day.

\

Table 17-5 Traffic Summary Report Fields

Field	Description
Time/Day	The cumulative hours of the day(s), the days of the week, or the days of the month for the selected date range.
Average Number of Calls	The percentage of calls for each gateway for the hours of the day, the days of the week, or the days of the month for the selected date range.

Table 17-5 Traffic Summary Report Fields (continued)

Field	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network that go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and are transferred outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.
Total	The total number of calls for each hour or day.

Figure 17-5 and Figure 17-6 display sample output of the Traffic Summary and the Traffic Summary by Extension report results in PDF format.

Figure 17-5 Traffic Summary Report Results

Traffic Summary - Hour of Day

From Date:Jan 1, 2008
To Date:Jan 19, 2008

Date:Jan 19, 2008
Page:18 of 19

BHCC:19

Report Generation Criteria-
Call Classification: On Net, Internal, Local, Long Distance, International, Incoming, Tandem, Others
QoS: Good, Acceptable, Fair, Poor, NA

Time	Average Number Of Calls
Total	
00-01	0
01-02	0
02-03	0
03-04	0
04-05	0
05-06	0
06-07	0
07-08	0
08-09	0
09-10	0
10-11	0
11-12	0
12-13	0
13-14	0
14-15	0
15-16	0
16-17	4
17-18	1
18-19	0
19-20	19
20-21	0
21-22	0
22-23	0
23-00	0

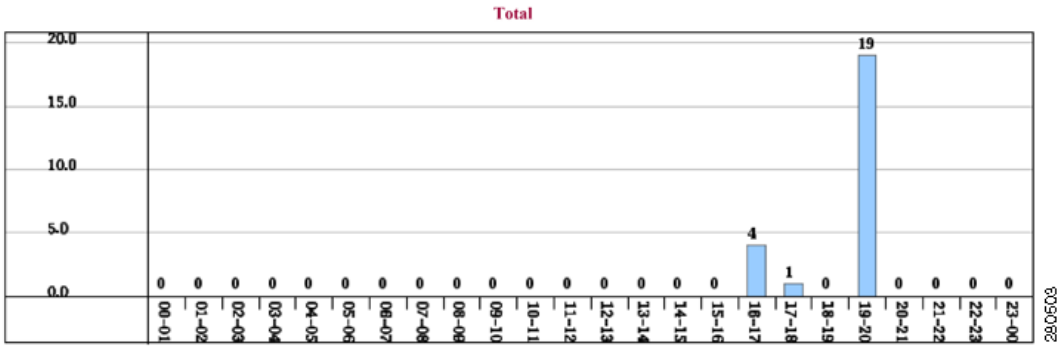


Figure 17-6 Traffic Summary By Extension Report Results

Traffic Summary based on Extension(s) - Hour of Day

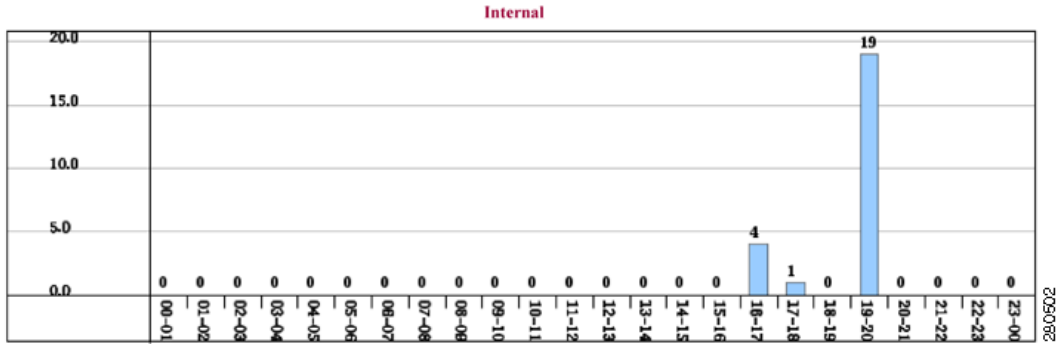
From Date:Jan 1, 2008
To Date:Jan 19, 2008

Date:Jan 19, 2008
Page:4 of 17

Call Classification: On Net, Internal, Local, Long Distance, International, Incoming, Others

BHCC:19

Time	Average Number Of Calls
Internal	
00-01	0
01-02	0
02-03	0
03-04	0
04-05	0
05-06	0
06-07	0
07-08	0
08-09	0
09-10	0
10-11	0
11-12	0
12-13	0
13-14	0
14-15	0
15-16	0
16-17	4
17-18	1
18-19	0
19-20	19
20-21	0
21-22	0
22-23	0
23-00	0



Authorization Code Name Call Details Report Results

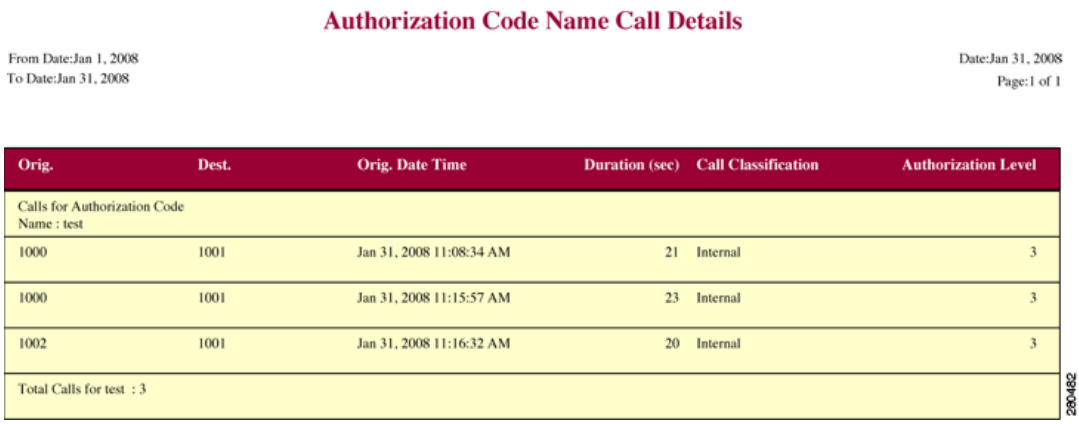
This report shows the usage of specific authorization code names. For security purposes, the authorization code name (description) displays and not the authorization code. The Authorization Code Name Call Details report includes the following fields (see Table 17-6).

Table 17-6 Authorization Code Name Call Details Report Fields

Field	Description
Orig.	The originating number from which the call was placed.
Dest.	The destination number to which the call was directed.
Orig. Date Time	The date and time that the call originated.
Duration (sec)	The time, in seconds, that the call connected.
Call Classification	The type of call (internal, incoming, on so on.)
Authorization Level	The authorization level for calls for each chosen authorization code name.

Figure 17-7 displays sample output of the Authorization Code Name Call Details report in PDF format.

Figure 17-7 Authorization Code Name Call Details Report



Authorization Code Name Call Details

From Date:Jan 1, 2008
To Date:Jan 31, 2008

Date:Jan 31, 2008
Page:1 of 1

Orig.	Dest.	Orig. Date Time	Duration (sec)	Call Classification	Authorization Level
Calls for Authorization Code Name : test					
1000	1001	Jan 31, 2008 11:08:34 AM	21	Internal	3
1000	1001	Jan 31, 2008 11:15:57 AM	23	Internal	3
1002	1001	Jan 31, 2008 11:16:32 AM	20	Internal	3
Total Calls for test : 3					

280482

Authorization Level Call Details Report Results

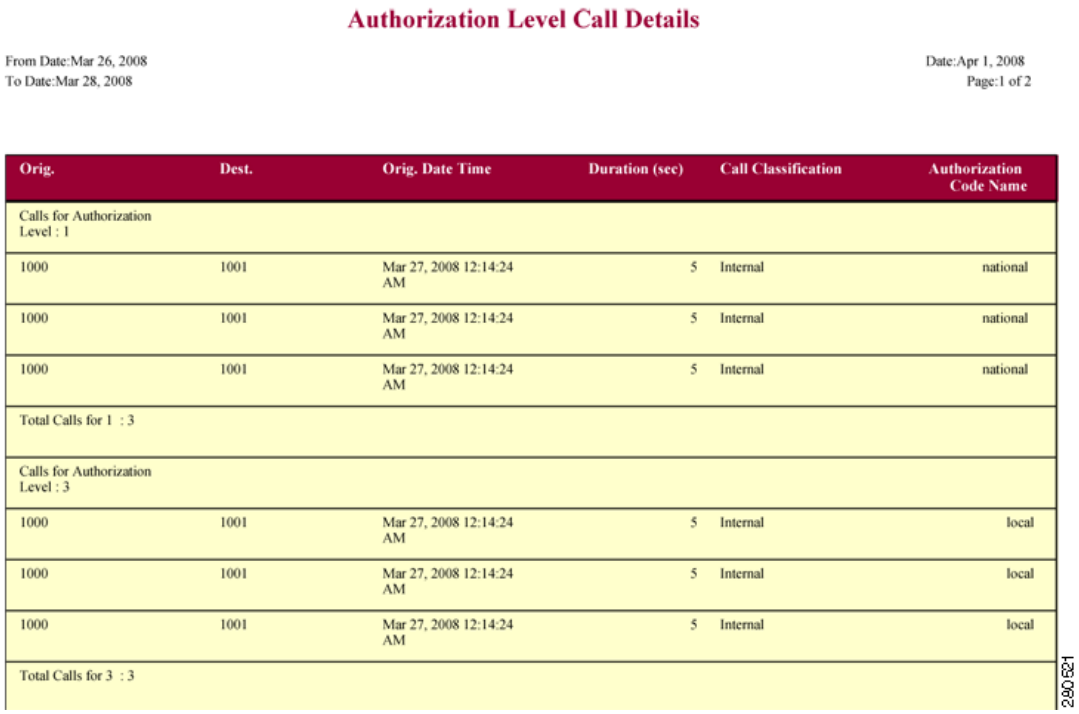
This report shows the usage of specific authorization levels. The Authorization Level Call Details report includes the following fields (see Table 17-7).

Table 17-7 Authorization Level Call Details Report Fields

Field	Description
Orig.	The originating number from which the call was placed.
Dest.	The destination number to which the call was directed.
Orig. Date Time	The date and time that the call originated.
Duration (sec)	The time, in seconds, that the call connected.
Call Classification	The type of call (internal, incoming, and so on.)
Authorization Code Name	The authorization code name for each authorization level that you chose.

Figure 17-8 displays sample output of the Authorization Level Call Details report in PDF format.

Figure 17-8 Authorization Level Call Details Report



Authorization Level Call Details

From Date:Mar 26, 2008
To Date:Mar 28, 2008

Date:Apr 1, 2008
Page:1 of 2

Orig.	Dest.	Orig. Date Time	Duration (sec)	Call Classification	Authorization Code Name
Calls for Authorization Level : 1					
1000	1001	Mar 27, 2008 12:14:24 AM	5	Internal	national
1000	1001	Mar 27, 2008 12:14:24 AM	5	Internal	national
1000	1001	Mar 27, 2008 12:14:24 AM	5	Internal	national
Total Calls for 1 : 3					
Calls for Authorization Level : 3					
1000	1001	Mar 27, 2008 12:14:24 AM	5	Internal	local
1000	1001	Mar 27, 2008 12:14:24 AM	5	Internal	local
1000	1001	Mar 27, 2008 12:14:24 AM	5	Internal	local
Total Calls for 3 : 3					

290521

Client Matter Code Details Report Results

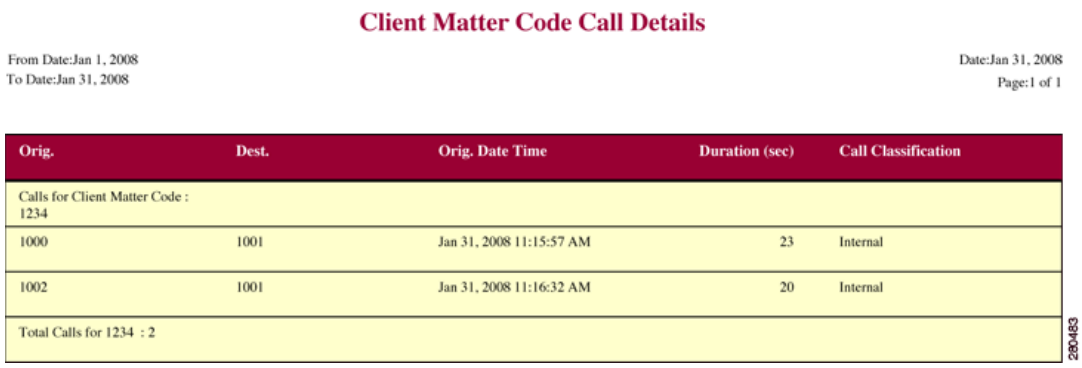
The report shows the usage of specific client matter codes. The Client Matter Code Details report includes the following fields (see Table 17-8).

Table 17-8 Detail Report Fields

Field	Description
Orig.	The originating number from which the call was placed.
Dest.	The destination number to which the call was directed.
Orig. Date Time	The date and time that the call originated.
Duration (sec)	The time, in seconds, that the call connected.
Call Classification	The type of call (internal, incoming, and so on).

Figure 17-9 displays sample output of the Client Matter Code Details report in PDF format.

Figure 17-9 Client Matter Code Details Report



Client Matter Code Call Details

From Date:Jan 1, 2008
To Date:Jan 31, 2008

Date:Jan 31, 2008
Page:1 of 1

Orig.	Dest.	Orig. Date Time	Duration (sec)	Call Classification
Calls for Client Matter Code : 1234				
1000	1001	Jan 31, 2008 11:15:57 AM	23	Internal
1002	1001	Jan 31, 2008 11:16:32 AM	20	Internal
Total Calls for 1234 : 2				

280483

Malicious Call Details Report Results

The Malicious Call Details report provides information about malicious calls. The report provides the following fields. See Table 17-9.

Table 17-9 Malicious Call Details Report Fields

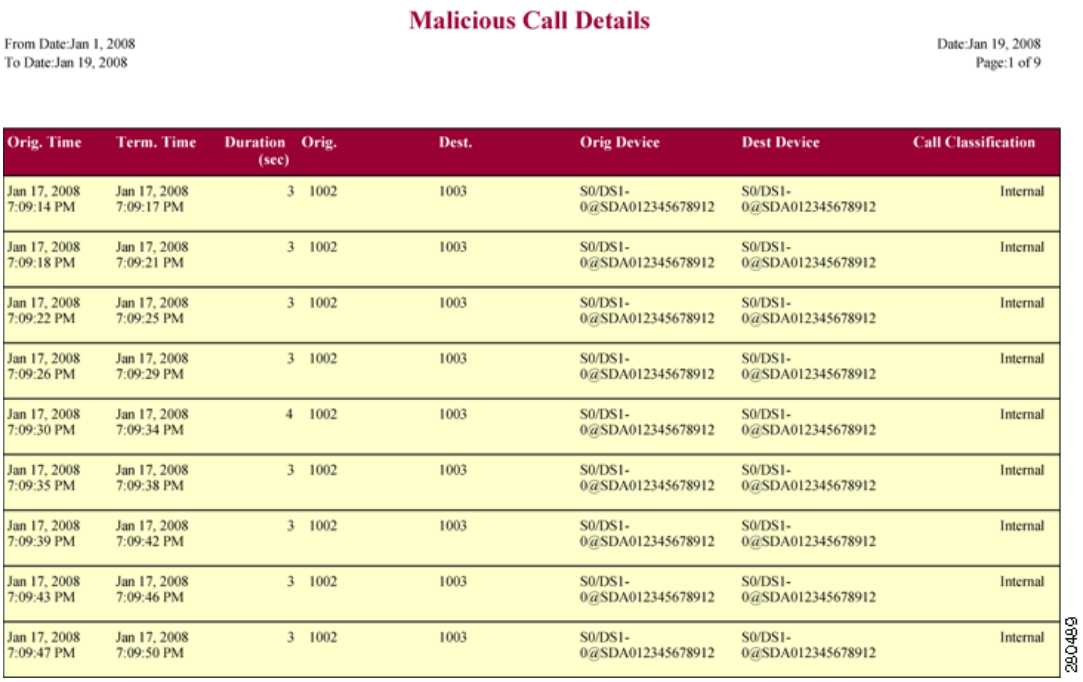
Field	Description
Orig. Time	Time at which the malicious call originated.
Term. Time	Time at which the malicious call terminated.
Duration	Total time of malicious call in seconds.
Orig.	Originating DN.
Dest.	Destination DN.

Table 17-9 Malicious Call Details Report Fields (continued)

Field	Description
Orig. Device	Name of the originating device.
Dest. Device	Name of the destination device.
Call Classification	Classification of the malicious call.

Figure 17-10 displays sample output of the Malicious Calls Detail report in PDF format.

Figure 17-10 Malicious Calls Detail Report



Malicious Call Details

From Date:Jan 1, 2008
To Date:Jan 19, 2008

Date:Jan 19, 2008
Page:1 of 9

Orig. Time	Term. Time	Duration (sec)	Orig.	Dest.	Orig Device	Dest Device	Call Classification
Jan 17, 2008 7:09:14 PM	Jan 17, 2008 7:09:17 PM	3	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal
Jan 17, 2008 7:09:18 PM	Jan 17, 2008 7:09:21 PM	3	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal
Jan 17, 2008 7:09:22 PM	Jan 17, 2008 7:09:25 PM	3	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal
Jan 17, 2008 7:09:26 PM	Jan 17, 2008 7:09:29 PM	3	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal
Jan 17, 2008 7:09:30 PM	Jan 17, 2008 7:09:34 PM	4	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal
Jan 17, 2008 7:09:35 PM	Jan 17, 2008 7:09:38 PM	3	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal
Jan 17, 2008 7:09:39 PM	Jan 17, 2008 7:09:42 PM	3	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal
Jan 17, 2008 7:09:43 PM	Jan 17, 2008 7:09:46 PM	3	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal
Jan 17, 2008 7:09:47 PM	Jan 17, 2008 7:09:50 PM	3	1002	1003	S0/DS1-0@SDA012345678912	S0/DS1-0@SDA012345678912	Internal

280499

Precedence Call Summary Report Results

The Precedence Call Summary report provides information about calls based on precedence levels. The report displays the call summary for the precedence values in the form of a bar chart on an "Hour of Day," "Day of Week," or "Day of Month" basis for each precedence level that you choose. If you choose to display the report in PDF format, two tables, one reflecting the bar chart, and the other listing the "Number of Calls" and "Percentage" for each precedence level that was chosen, display in the report. See Table 17-10.

Table 17-10 Precedence Call Summary Report Fields

Field	Description
Time/Day	Indicates the cumulative hours of the day(s), the days of the week, or the days of the month for the selected date range.
Call Legs	Number of calls for each precedence level by time/day.
Precedence Level	Precedence level value of the call.
No. of Call Legs	Number of call legs per each precedence level.
Percentage	Percentage of calls per each precedence level.

Figure 17-11 displays sample output of the Precedence Call Summary by Hour of Day report in PDF format.

Figure 17-11 Precedence Call Summary Report

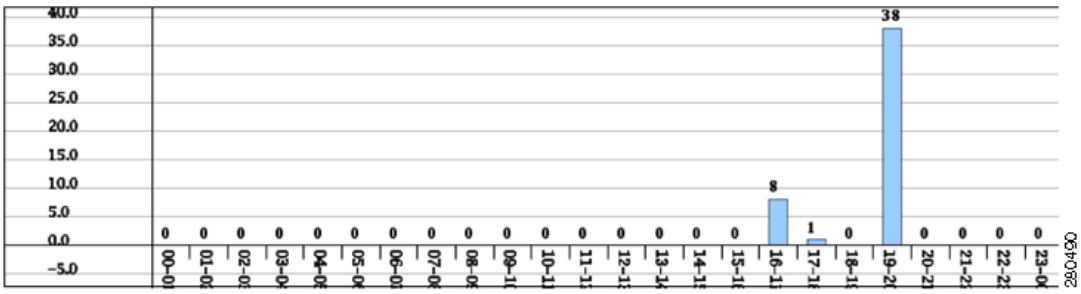
Call Summary by Precedence - Hour of Day

From Date:Jan 1, 2008
To Date:Jan 19, 2008

Date:Jan 19, 2008
Page:10 of 14

Report Generation Criteria-
Call Precedence Levels: FLASH OVERRIDE, FLASH, IMMEDIATE, PRIORITY, ROUTINE

Time	Average Call Legs
ROUTINE	
00-01	0
01-02	0
02-03	0
03-04	0
04-05	0
05-06	0
06-07	0
07-08	0
08-09	0
09-10	0
10-11	0
11-12	0
12-13	0
13-14	0
14-15	0
15-16	0
16-17	8
17-18	1
18-19	0
19-20	38
20-21	0
21-22	0
22-23	0
23-00	0



System Overview Report Results

The system overview provides information about all parts of the Cisco Unified Communications Manager network. The report provides the following sections. See Table 17-11.

Table 17-11 System Overview Report

Field	Description
Top 5 Users based on Charge	Details the five users who have incurred the highest charges for calls that occurred during the specified date range. See the "Top N By Charge or Duration Report Results" section on page 8-7 for details about this section of the system overview report.
Top 5 Destinations based on Charge	Details the five called numbers that have incurred the highest charges for calls during the specified date range. See the "Top N By Charge or Duration Report Results" section on page 8-7 for details about this section of the system overview report.
Top 5 Calls based on Charge	Details the five calls that have incurred the highest charges for calls during the specified date range. See the "Top N By Charge or Duration Report Results" section on page 8-7 for details about this section of the system overview report.
Top 5 Users based on Duration	Details the five users who have spent the most time on calls during the specified date range. See Top N By Charge or Duration Report Results, page 8-7 for details about this section of the system overview report.
Top 5 Destinations based on Duration	Details the five called numbers that have been engaged in calls for the longest time during the specified date range. See the "Top N By Charge or Duration Report Results" section on page 8-7 for details about this section of the system overview report.
Top 5 Calls based on Duration	Details the five longest calls for the specified date range. See the "Top N By Charge or Duration Report Results" section on page 8-7 for details about this section of the system overview report.
Traffic Summary Report - Hour of Day	Shows the volume of calls during the specified date range based on each hour of the day. If the date range is within one day, the system identifies the hour with the highest traffic volume (the BHCC number). See the "Traffic Summary Report Results" section on page 17-7 for details about this section of the system overview report.

Table 17-11 System Overview Report (continued)

Field	Description
Traffic Summary Report - Day of Week	Shows the volume of calls during the specified date range based on each day of the week. See the "Traffic Summary Report Results" section on page 17-7 for details about this section of the system overview report.
Traffic Summary Report - Day of Month	Shows the volume of calls during the specified date range based on each day of the month. See the "Traffic Summary Report Results" section on page 17-7 for details about this section of the system overview report.
Quality of Service Report - Summary	Shows the number of calls that fell within each voice-quality category during the specified date range. See the "QoS Summary Report Results" section on page 17-3 for details about this section of the system overview report.
Gateway Summary Report	Shows the summary of the call classification for each gateway along with the QoS, the number of calls, and the duration for each classification for the gateway during the specified date range. See the "QoS by Gateways Report Results" section on page 17-4 for details about this section of the system overview report.

CDR Error Report Results

The CDR Error report provides the following information. See Table 17-12.

Table 17-12 CDR Error Report Fields

Field	Description
Time	The hour of the specified day that the error occurred.
No of Error CDRs	The total number of CDR records that were not processed during the CAR load because of an error.
No of Valid CDRs	The total number of CDR records that were successfully loaded into CAR.
% of Error CDRs	The percentage of failed CDR data records out of all the CDR data records to be loaded.

Figure 17-12 displays sample output of the CDR Error report in PDF format.

Figure 17-12 CDR Error Report

CDR Error

From Date:Jan 1, 2008
To Date:Jan 26, 2008

Date:Jan 26, 2008
Page:1 of 2

Time	No. of Error CDRs	No. of valid CDRs	% of Error CDRs
00-01	0	0	0.00
01-02	0	0	0.00
02-03	0	0	0.00
03-04	0	0	0.00
04-05	0	0	0.00
05-06	0	0	0.00
06-07	0	0	0.00
07-08	0	0	0.00
08-09	0	0	0.00
09-10	0	0	0.00
10-11	0	0	0.00
11-12	0	3	0.00
12-13	0	2	0.00
13-14	0	0	0.00
14-15	0	2	0.00
15-16	0	0	0.00
16-17	0	23	0.00
17-18	0	4	0.00
18-19	0	0	0.00
19-20	0	0	0.00
20-21	0	0	0.00
21-22	0	0	0.00
22-23	0	0	0.00
23-00	0	0	0.00

280480

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 10, “Configuring QoS System Reports”
- Chapter 11, “Configuring Traffic System Reports”
- Chapter 12, “Configuring FAC/CMC System Reports”
- Chapter 13, “Configuring Malicious Call Details System Reports”
- Chapter 14, “Configuring Precedence Call Summary System Reports”
- Chapter 15, “Configuring System Overview System Reports”
- Chapter 16, “Configuring CDR Error System Reports”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

PART 4

Device Reports

CHAPTER 18

Understanding CAR Device Reports

CAR provides reporting capabilities for three levels of users: administrators, managers, and individual users. Only administrators generate device reports.

Device reports track the load and performance of Cisco Unified Communications Manager related devices, such as conference bridges, voice-messaging servers, and gateways.

This chapter contains the following topics:

- Device Reports Summary Descriptions, page 18-1
- Related Topics, page 18-3
- Additional Cisco Documentation, page 18-3

Device Reports Summary Descriptions

Device reports help CAR administrators track the load and performance of Cisco Unified Communications Manager-related devices, such as conference bridges, voice-messaging server, and gateways. This section describes the device reports:

- Gateway
  - Detail—Available for CAR administrators. Use the Gateway Detail report to track issues with specific gateways. The report provides a list of calls that used the specified gateways. Use this report to review detailed information about chosen gateways. You can specify gateways by type, such as all or some of the VG200 gateways in your system, or by only those gateways that use a particular route pattern. You can also specify search criteria based on call types and QoS values.
  - Summary—Available for CAR administrators. The Gateway Summary report provides a summary of all the calls that went through the gateways. It also provides the total number of calls and duration for each of the categories, namely Incoming, Tandem, and Outgoing (Long Distance, Local, International, Others, OnNet), and, also, the total calls for each QoS value for each gateway in the system. Use this report to track the functionality of the system on a daily basis. If you discover issues that need to be studied further, use the gateway detail report.
  - Utilization—Available for CAR administrators. The Gateway Utilization report provides an estimate of the utilization percentage of the gateway(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each gateway that is chosen. Use this report for load balancing or capacity planning (to evaluate the need for adding or removing gateways, depending on their utilization). You can specify gateways by type, such as all or some of the VG200 gateways in your system, or by only those gateways that use a particular route pattern.

- Route Plan
  - Route and Line Group Utilization—Only CAR administrators can generate the Route and Line Group Utilization report. This report provides an estimated utilization percentage of the chosen route and line group(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each chosen route and line group. Use the report to analyze whether the route and line group capacity is sufficient to meet the usage requirements. Based on the results, you can decide whether additions are required. If you are load balancing gateways by using different route and line groups or route patterns and hunt lists that are assigned to the gateways, you can use this report to see the load for the whole grouping. This report also provides a convenient way of generating utilization information for a grouping of gateways by a particular route and line group; the group will also include any H.323 fallback gateways that are using the specified route and line group.
  - Route/Hunt List Utilization—Available for CAR administrators. The Route/Hunt List Utilization report provides an estimated utilization percentage of the chosen route/hunt list(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each chosen route/hunt list. Use the report to analyze whether the route and line group capacity is sufficient to meet the usage requirements. Based on the results, you can decide whether additions are required. If you are load balancing gateways by using different route/hunt lists that are assigned to the gateways, you can use this report to see the load for the whole grouping. This report also provides a convenient way of generating utilization information for a grouping of gateways by a particular route/hunt list; the group will also include any H.323 fallback gateways that are using the chosen route/hunt list.
  - Route Pattern/Hunt Pilot Utilization—Available for CAR administrators. The Route Pattern/Hunt Pilot Utilization report provides an estimated utilization percentage of the chosen route pattern(s)/hunt pilot(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each chosen route pattern/hunt pilot. Use the report to analyze system usage on the chosen route pattern/hunt pilot.
- Conference Call Details—Available for CAR administrators. The Conference Call Details report allows you to generate and view details about conference calls and conference bridges. The Summary Report displays the summary information of conference calls within a chosen date/time range but does not contain information about each individual conference participant call leg. The Detailed Report displays the detailed information about the conference calls within a chosen date/time range and includes information about each individual conference participant call leg.
- Conference Bridge Utilization—Available for CAR administrators. The Conference Bridge Utilization report provides an estimate of the utilization percentage of the conference bridge(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Generate reports for all the conference bridges in the system. Use this report to determine the activity on the conference bridge(s) and whether you need to add additional resources. This report helps you identify usage patterns, so you can plan capacity when you discover recurring peaks in the usage pattern.
- Voice Messaging Utilization—Available for CAR administrators. The Voice Messaging Utilization report provides an estimate of the utilization percentage of the voice-messaging device(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each voice-messaging device. Use this report to determine the activity on the voice messaging device(s) and whether you need to add additional resources. This report helps you to identify usage patterns, so you can plan capacity when you discover recurring peaks in the usage pattern.

Additional Information

See the "Related Topics" section on page 18-3.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 19, “Configuring Gateway Device Reports”
- Chapter 20, “Configuring Route Plan Device Reports”
- Chapter 21, “Configuring Conference Bridge Device Reports”
- Chapter 22, “Configuring Voice Messaging Utilization Device Reports”
- Chapter 23, “Reviewing CAR Device Reports Results”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 19

Configuring Gateway Device Reports

CAR provides reporting capabilities for three levels of users: administrators, managers, and individual users. Only administrators generate device reports.

Device reports track the load and performance of Cisco Unified Communications Manager related devices, such as conference bridges, voice-messaging servers, and gateways.

This chapter contains the following topics:

- Configuring Gateway Detail Reports, page 19-1
- Configuring Gateway Summary Reports, page 19-4
- Configuring Gateway Utilization Reports, page 19-6
- Related Topics, page 19-8
- Additional Cisco Documentation, page 19-8

Only CAR administrators generate the gateway reports. The following sections describe how to configure Gateway Detail, Gateway Summary, and Gateway Utilization reports.

Configuring Gateway Detail Reports

Only CAR administrators generate the Gateway Detail report. Use the Gateway Detail report to track issues with specific gateways.

This section describes how to generate, view, or mail detailed information about selected gateways.

Procedure

Step 1 Choose **Device Reports > Gateway > Detail**.

The Gateway Detail window displays.

Step 2 To display the list of gateways that you can include in the report, in the List of Gateways box perform one of the following tasks:

- To display all gateways in the List of Gateways box, click **Gateway Types** in the column on the left side of the window.
- To display gateways for a particular gateway type in the List of Gateways box, click the icon next to **Gateway Types** in the column on the left side of the window. The tree structure expands, and a list of gateway types displays. Choose a gateway type from the list, and the gateway name displays in the List of Gateways box.

Note The List of Gateways box will list up to 200 gateways that are configured for the chosen gateway type.

- To display all gateways that are associated with configured route patterns/hunt pilots, click the **Route/Patterns/Hunt Pilots** in the column on the left side of the window.
- To display gateways that use a particular route pattern, rather than a gateway type, click the icon next to **Route Patterns/Hunt Pilots** in the column on the left side of the window. The tree structure expands and displays a list of route patterns/hunt lists. Choose a route pattern/hunt pilot from the list, and the gateway name displays in the List of Gateways box.

Note You can also search for specific route patterns/hunt lists by entering part of the name of the route pattern(s)/hunt list(s) in the Route Patterns/Hunt Pilots box in the column on the left side of the window. CAR searches for the route pattern(s)/hunt list(s) that matches the search string.

Step 3 In the List of Gateways box, choose the gateways that you want to include in the report.

Note You can generate a report for up to five gateways at a time.

Step 4 To move the chosen gateway to the list of Selected Gateways box, click the down arrow.

The gateway(s) that you chose displays in the Selected Gateways box.

Step 5 In the Select Call Types area, check the check boxes for the types of calls that you want to include in the report. Table 19-1 describes the call types.

Table 19-1 Gateway Details by Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.

Table 19-1 Gateway Details by Call Types (continued)

Call Type	Description
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and transfer outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Step 6 In the Select QoS area, check the check boxes for the voice-quality categories that you want to include in the report. The parameters that are set in the "Configuring QoS Values" section on page 34-1 provide the basis for all voice-quality categories.

Table 19-2 Gateway Detail Voice Quality

Voice Quality	Description
Good	QoS for these calls represents the highest possible quality.
Acceptable	QoS for these calls, although slightly degraded, still falls within an acceptable range.
Fair	QoS for these calls represents degraded quality but still within a usable range.
Poor	QoS for these calls represents unsatisfactory quality.
NA	These calls do not match any criteria for the established QoS categories.

Step 7 Choose the date range for the period for which you want to see call information.

Note Ensure the date and time range does not exceed one month.

Step 8 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 9 Click the **View Report** button.

The report displays**.**

Step 10 If you want to mail the report, click the **Send Report** button. To send the report, follow the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 19-8.

Configuring Gateway Summary Reports

Only CAR administrators generate the Gateway Summary report. This report provides a summary of all the calls that went through the gateways. You can use this information for monitoring the traffic and QoS for calls through the gateways.

You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. See the "Configuring CAR System Parameters" section on page 28-1, for more information.

This section describes how to generate, view, or mail summary information about gateways.

Procedure

Step 1 Choose **Device Reports > Gateway > Summary**.

The Gateway Summary window displays.

Step 2 In the Available Reports field, choose an automatically generated report (if available) and go to Step 6 or use the default setting, Generate New Report and go to Step 3.

Step 3 In the Select Call Types area, check the check boxes for the types of calls that you want to include in the report. Table 19-3 describes the call types.

Tip To check all check boxes, click **Select All**; to uncheck the check boxes, click **Clear All**.

Table 19-3 Gateway Summary by Call Types

Call Type	Description
On Net	Outgoing calls that originate on one Cisco Unified Communications Manager network, go out through a trunk, and terminate on a different Cisco Unified Communications Manager network. For CAR purposes, be aware that any outgoing call can be classified as an On Net call if it is configured as such in the CAR dial plan configuration window. See "Configuring the Dial Plan" section on page 28-2.
Internal	Calls, including intracluster calls, that originate in the Cisco Unified Communications Manager network and end in the same Cisco Unified Communications Manager network (no gateways or trunks are used).

Table 19-3 Gateway Summary by Call Types (continued)

Call Type	Description
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or that include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
International	International calls that originate in the Cisco Unified Communications Manager network and go out through the PSTN.
Incoming	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter through a gateway, and go into the Cisco Unified Communications Manager network.
Tandem	Inbound calls that originate outside the Cisco Unified Communications Manager network, enter the Cisco Unified Communications Manager network through a gateway, and transfer outbound from the Cisco Unified Communications Manager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Step 4 If you chose Generate New Report, choose the date range of the period for which you want to generate the report.

Step 5 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 6 Click the **View Report** button.

The report displays**.**

Step 7 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 19-8.

Configuring Gateway Utilization Reports

Only CAR administrators generate the Gateway Utilization report. The report provides an estimate of the utilization percentage of the gateway for the period and not the exact utilization. For example, the system calculates the utilization of a gateway between 11hrs-12hrs, as the (sum of the duration of the calls that used the gateway in that hour / (maximum duration seconds in an hour * maximum number of ports in a gateway * number of days between the fromDate and toDate selected) * 100). Similarly, to get a utilization for the whole day, the system calculates the utilization as mentioned for each hour. You can examine the usage based on each hour of a day or on a specified number of days for each week or month.

In the case of weekly utilization reports, the system calculates the utilization as ((sum of the duration of the calls that used the gateway in a day) / (maximum duration seconds in each day * number of each day between the fromDate and toDate selected * maximum number of ports in a gateway) * 100).

In case of monthly utilization reports, the system calculates the utilization as ((sum of the duration of the calls that used the gateway in a day) / (maximum duration seconds in each day * number of each day between the fromDate and toDate selected * maximum number of ports in a gateway) * 100).

Reports generate for each gateway that is chosen.

For calculation of the utilization of H.323 gateways, the system uses the port numbers from the CAR Gateway Configuration window. To find this window, choose **System > System Parameters > Gateway Configuration**. You cannot take port details for H.323 gateways from the Cisco Unified Communications Manager database because the H.323 port number always equals zero in the database. The user must update H.323 gateway ports information in the CAR Gateway Configuration window.

Be aware that the only port detail information that is taken from the CAR Gateway Configuration window is only for those gateways that do not have port details that are available or that show zero in the Cisco Unified Communications Manager database.

You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. See the "Configuring CAR System Parameters" section on page 28-1, for more information.

This section describes how to generate, view, or mail Gateway Utilization reports.

Procedure

Step 1 Choose **Device Reports > Gateway > Utilization**.

The Gateway Utilization window displays.

Step 2 In the Generate Reports field, choose a time as described in Table 19-4.

Table 19-4 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative utilization for each hour in a 24-hour period for the period that you specify in Step 8.
Day of Week	Displays the cumulative utilization for the days of the week that occur within the period that you specify in Step 8.
Day of Month	Displays the cumulative utilization for the days of the month that occur within the period that you specify in Step 8.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 10 or use the default Generate New Report and go to Step 4.

Step 4 To display the list of gateways that you can include in the report in the List of Gateways box, perform one of the following tasks:

- To display all gateways in the List of Gateways box, click **Gateway Types** in the column on the left side of the window.
- To display gateways for a particular gateway type in the List of Gateways box, click the icon next to **Gateway Types** in the column on the left side of the window. The tree structure expands, and a list of gateway types displays. Choose a gateway type from the list, and the gateway name displays in the List of Gateways box.

Note The List of Gateways box will list up to 200 gateways that are configured for the chosen gateway type.

- To display all gateways that are associated with configured route patterns/hunt pilots, click the **Route Patterns/Hunt Pilots** in the column on the left side of the window.
- To display gateways that use a particular route pattern, rather than a gateway type, click the icon next to **Route Patterns/Hunt Pilots** in the column on the left side of the window. The tree structure expands and displays a list of route patterns/hunt lists. Choose a route pattern/hunt pilot from the list, and the gateway name displays in the List of Gateways box.

Note You can also search for specific route patterns/hunt lists by entering part of the name of the route pattern(s)/hunt list(s) in the Route Patterns/Hunt Pilots box in the column on the left side of the window. CAR searches for the route pattern(s)/hunt list(s) that matches the search string.

Step 5 Choose a gateway type from the list.

The gateway name displays in the List of Gateways box.

Note The List of Gateways box will display up to 200 gateways that are configured for the chosen gateway type.

Step 6 In the List of Gateways box, choose the gateways that you want to include in the report.

Note You can generate a report for up to five gateways at a time.

Step 7 To move the chosen gateway to the list of Selected Gateways box, click the down arrow.

The gateway(s) that you chose displays in the Selected Gateways box.

Step 8 If you chose Generate New Report, enter the date range of the period for which you want to see call information.

Note Ensure the date and time range does not exceed one month.

Step 9 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 10 Click the **View Report** button.

The report displays**.**

Step 11 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 19-8.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 18, "Understanding CAR Device Reports"
- Chapter 20, "Configuring Route Plan Device Reports"
- Chapter 21, "Configuring Conference Bridge Device Reports"
- Chapter 22, "Configuring Voice Messaging Utilization Device Reports"
- Chapter 23, "Reviewing CAR Device Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 20

Configuring Route Plan Device Reports

CAR provides reporting capabilities for three levels of users: administrators, managers, and individual users. Only administrators generate the route plan device reports.

Device reports track the load and performance of Cisco Unified Communications Manager related devices, such as conference bridges, voice-messaging servers, and gateways.

This chapter contains the following topics:

- Configuring Route and Line Group Utilization Reports, page 20-1
- Configuring Route/Hunt List Utilization Reports, page 20-3
- Configuring Route Pattern/Hunt Pilot Utilization Reports, page 20-4
- Related Topics, page 20-6
- Additional Cisco Documentation, page 20-6

Configuring Route and Line Group Utilization Reports

Only CAR administrators generate the Route and Line Group Utilization report. This report provides an estimate of the maximum utilization percentage of the route and line group (cumulative utilization of all the gateways under the route and line group) for the period and not the exact utilization. The system calculates the utilization in the same manner as is done for Gateway Utilization, but this calculation gives cumulative utilization of all the gateways under the route groups and all the lines under the line groups. You can examine the usage based on each hour of a day or on a specified number of days for each week or month. Reports generate for each of the selected route and line groups.

You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. See the "Configuring CAR System Parameters" section on page 28-1, for more information.

This section describes how to generate, view, or mail Route and Line Group Utilization reports.

Procedure

Step 1 Choose **Device Reports > Route Plan > Route and Line Group Utilization**.

The Route and Line Group Utilization window displays.

Step 2 In the Generate Reports field, choose a time as described in Table 20-1.

Table 20-1 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative utilization for each hour in a 24-hour period for the period that you specify in Step 8.
Day of Week	Displays the cumulative utilization for the days of the week that occur within the period that you specify in Step 8.
Day of Month	Displays the cumulative utilization for the days of the month that occur within the period that you specify in Step 8.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 10, or use the default setting, Generate New Report, and go to Step 4.

Step 4 To choose only those route and line groups that use a particular route pattern, click **Route Patterns/Hunt Pilots** in the column on the left side of the window.

The tree structure expands and displays the route patterns/hunt lists that you chose.

Note You can also search for specific route patterns/hunt lists by entering part of the name of the route pattern(s)/hunt list(s) in the Route Patterns/Hunt Pilots box in the column on the left side of the window. CAR searches for the route pattern(s)/hunt list(s) that matches the search string.

Step 5 Choose a route pattern/hunt list from the list.

The route and line groups for this route pattern/hunt list display in the List of Route/Line Groups box.

Note The List of Route/Line Groups box will display up to 200 route groups.

Step 6 In the List of Route/Line Groups box, choose the route/line groups that you want to include in the report.

Note You can generate a report for up to five route/line groups at a time.

Step 7 To move the chosen gateway to the list of Selected Route/Line Groups box, click the down arrow.

The route/line groups that you chose display in the Selected Route Groups box.

Step 8 If you chose Generate New Report, enter the date range of the period for which you want to see call information.

Note Ensure the date and time range does not exceed one month.

Step 9 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 10 Click the **View Report** button.

The report displays**.**

Step 11 If you want to mail the report, click the **Send Report** button. To send the report, follow the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 20-6.

Configuring Route/Hunt List Utilization Reports

Only CAR administrators generate the Route/Hunt List Utilization report. The Route/Hunt List Utilization report provides an estimate of the maximum utilization percentage of the route/hunt list (cumulative utilization of all the gateways under the route/hunt list) for the period and not the exact utilization. The system calculates the cumulative utilization of all the gateways under the route lists and all the lines under the hunt lists.

You can examine the usage based on each hour of a day or on a specified number of days for each week or month. Reports generate for each of the selected route/hunt lists.

You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. See Chapter 29, "Configuring the CAR System Scheduler", for more information.

This section describes how to generate, view, or mail the Route/Hunt List Utilization reports.

Procedure

Step 1 Choose **Device Reports > Route Plan > Route/Hunt List Utilization**.

The Route/Hunt List Utilization window displays.

Step 2 In the Generate Report field, choose a time as described in Table 20-2.

Table 20-2 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative utilization for each hour in a 24-hour period for the period that you specify in Step 8.
Day of Week	Displays the cumulative utilization for the days of the week that occur within the period that you specify in Step 8.
Day of Month	Displays the cumulative utilization for the days of the month that occur within the period that you specify in Step 8.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 10 or use the default setting, Generate New Report, and go to Step 4.

Step 4 To choose the route/hunt lists that you want to include in the report, click **Route Patterns/Hunt Pilots** in the column on the left side of the window. The tree structure expands and displays the route patterns/hunt pilots that you chose.

Note You can also search for specific route patterns/hunt lists by entering part of the name of the route pattern(s)/hunt lists in the Route Patterns/Hunt Pilots box in the column on the left side of the window. CAR searches for the route pattern(s)/hunt list(s) that matches the search string.

Step 5 Choose a route/hunt list from the list.

The route/hunt list name displays in the List of Route/Hunt Lists box.

Note The List of Route/Hunt Lists box will display up to 200 route/hunt lists.

Step 6 In the List of Route/Hunt Lists box, choose the route/hunt lists that you want to include in the report.

Note You can generate a report for up to five route/hunt lists at a time.

Step 7 To move the chosen route/hunt lists to the list of Selected Route/Hunt Lists box, click the down arrow.

The route/hunt lists that you chose display in the Selected Route/Hunt Lists box.

Step 8 If you chose Generate New Report, enter the date range of the period for which you want to see call information.

Note Ensure the date and time range does not exceed one month.

Step 9 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 10 Click the **View Report** button.

The report displays**.**

Step 11 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 20-6.

Configuring Route Pattern/Hunt Pilot Utilization Reports

Only CAR administrators generate the Route Pattern/Hunt Pilot Utilization report. The report provides an estimate of the maximum utilization percentage of the route pattern/hunt pilot (cumulative utilization of all the gateways under the route pattern/hunt pilot) for the period and not the exact utilization. The system calculates the utilization of all the gateways under the route patterns and all the lines under the hunt pilots. You can examine the usage based on each hour of a day or on a specified number of days for each week or month. Reports generate for each of the selected route patterns/hunt pilots.

You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. See Chapter 29, "Configuring the CAR System Scheduler", for more information.

This section describes how to generate, view, or mail Route Pattern/Hunt Pilot Utilization reports.

Procedure

Step 1 Choose **Device Reports > Route Plan > Route Pattern/Hunt Pilot Utilization**.

The Route Pattern/Hunt Pilot Utilization window displays.

Step 2 In the Generate Report field, choose a time as described in Table 20-3.

Table 20-3 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative utilization for each hour in a 24-hour period for the period that you specify in Step 8.
Day of Week	Displays the cumulative utilization for the days of the week that occur within the period that you specify in Step 8.
Day of Month	Displays the cumulative utilization for the days of the month that occur within the period that you specify in Step 8.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 10 or use the default Generate New Report and go to Step 4.

Step 4 To choose the route pattern(s)/hunt list(s) that you want to include in the report, click **Route Patterns/Hunt Pilots** in the column on the left side of the window.

The tree structure expands and displays the route pattern(s)/hunt list(s) that you chose.

Note You can also search for specific route patterns/hunt lists by entering part of the name of the route pattern(s)/hunt list(s) in the Route Patterns box in the column on the left side of the window. CAR searches for the route pattern(s)/hunt list(s) that matches the search string.

Step 5 Choose a route pattern/hunt pilot from the list.

The route pattern/hunt pilot name displays in the List of Route Patterns/Hunt Pilots box.

Note The List of Route Patterns/Hunt Pilots box will display up to 200 route patterns/hunt lists.

Step 6 In the List of Route Patterns/Hunt Pilots box, choose the route patterns/hunt lists that you want to include in the report.

Note You can generate a report for up to five route patterns/hunt pilots at a time.

Step 7 Click the down arrow to move the chosen route pattern/hunt pilot to the list of Selected Route Patterns/Hunt Pilots box.

The route pattern/hunt pilot that you chose displays in the Selected Route Patterns/Hunt Pilots box.

Step 8 If you chose Generate New Report, enter the date range of the period for which you want to see call information.

Note Ensure the date and time range does not exceed one month.

Step 9 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 10 Click the **View Report** button.

The report displays**.**

Step 11 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 20-6.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 18, "Understanding CAR Device Reports"
- Chapter 19, "Configuring Gateway Device Reports"
- Chapter 21, "Configuring Conference Bridge Device Reports"
- Chapter 22, "Configuring Voice Messaging Utilization Device Reports"
- Chapter 23, "Reviewing CAR Device Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 21

Configuring Conference Bridge Device Reports

CAR provides reporting capabilities for three levels of users: administrators, managers, and individual users. Only CAR administrators generate the conference bridge device reports.

Device reports track the load and performance of Cisco Unified Communications Manager related devices, such as conference bridges, voice-messaging servers, and gateways.

This chapter contains the following topics:

- Configuring Conference Call Details, page 21-1
- Configuring Conference Bridge Utilization Reports, page 21-2
- Related Topics, page 21-4
- Additional Cisco Documentation, page 21-4

Configuring Conference Call Details

Only CAR administrators generate the Conference Call Details report. The Conference Call Details report allows you to generate and view details about conference calls.

This section describes how to generate, view, or mail a Conference Call Details report.

Procedure

Step 1 Choose **Device Reports > Conference Bridge > Call Details**.

The Conference Call Details window displays.

Step 2 In the Report Type drop-down menu, choose either **Summary** or **Detail**.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 7 or use the default setting, Generate New Report, and go to Step 4.

Step 4 In Select Conference Types, check the check box of the conference type that you want to include in the report as described in Table 21-1.

Table 21-1 Conference Calls Detail Fields

Parameter	Description
Ad-Hoc	Ad hoc conferences allow the conference controller to let only certain participants into the conference.
Meet-Me	Meet-me conferences allow users to dial in to a conference.

Step 5 If you chose Generate New Report, enter the date range of the period for which you want to see conference call details.

Note Ensure the date and time range does not exceed one month.

Step 6 If you want the report in CSV format, choose CSV (comma separated value) in the Report Format area. Be aware that the CSV-format report is limited to 20,000 records. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. Be aware that the PDF-format report is limited to 5000 records.

Step 7 Click the **View Report** button.

The report displays**.**

Step 8 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 21-4.

Configuring Conference Bridge Utilization Reports

Only CAR administrators generate the Conference Bridge Utilization report. The report provides an estimate of the utilization percentage of the conference bridges (cumulative utilization of all the conference bridges that are selected for OnDemand reports) for the period and not the exact utilization. For example, the system calculates the utilization of a conference bridge between 11hrs and 12hrs as the ((Sum of duration of the calls that used the conference bridge in that hour) / (Number of days between the fromDate and toDate selected * Maximum number of streams in the conference bridge * Maximum number of duration in seconds in an hour) * 100)). The value that is calculated will display in the report as the utilization for the time between 11hrs and 12hrs. You can examine the usage based on each hour of a day or on a specified number of days for each week or month.

You can either view reports that the system automatically generates or generate new reports. Only CAR administrators can schedule reports for automatic generation. See Chapter 29, "Configuring the CAR System Scheduler", for more information.

This section describes how to generate, view, or mail Conference Bridge Utilization reports for each conference bridge type.

Procedure

Step 1 Choose **Device Reports > Conference Bridge > Utilization**.

The Conference Bridge Utilization window displays.

Step 2 In the Generate Report field, choose a time as described in Table 21-2.

Table 21-2 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative utilization for each hour in a 24-hour period for the period that you specify in Step 6.
Day of Week	Displays the cumulative utilization for the days of the week that occur within the period that you specify in Step 6.
Day of Month	Displays the cumulative utilization for the days of the month that occur within the period that you specify in Step 6.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 8 or use the default, Generate New Report, and go to Step 4.

Step 4 From the Conference Bridge Types column in the left pane, choose the conference bridge type(s) that you want to include in the utilization report.

The conference bridges of the particular conference bridge type that you chose display in the List of Devices box.

Note For this report, choose a maximum of five conference bridges.

Step 5 When you have chosen all the conference bridges that you want to include in the report, click the down arrow to add them to the Selected Devices box.

Step 6 If you chose Generate New Report, enter the date range of the period for which you want to see call information.

Note Ensure the date and time range does not exceed one month.

Step 7 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 8 Click the **View Report** button.

The report displays**.**

Step 9 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 21-4.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 18, "Understanding CAR Device Reports"
- Chapter 19, "Configuring Gateway Device Reports"
- Chapter 20, "Configuring Route Plan Device Reports"
- Chapter 22, "Configuring Voice Messaging Utilization Device Reports"
- Chapter 23, "Reviewing CAR Device Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 22

Configuring Voice Messaging Utilization Device Reports

CAR provides reporting capabilities for three levels of users: administrators, managers, and individual users. Only administrators generate device reports.

Device reports track the load and performance of Cisco Unified Communications Manager related devices, such as conference bridges, voice-messaging servers, and gateways.

This chapter contains the following topics:

- Configuring Voice Messaging Utilization Reports, page 22-1
- Related Topics, page 22-3
- Additional Cisco Documentation, page 22-3

Configuring Voice Messaging Utilization Reports

Only CAR administrators generate the Voice Messaging Utilization report. The report provides an estimate of the maximum utilization percentage of the voice-messaging devices for the period and not the exact utilization. For example, the system calculates the utilization of a voice-messaging port/voice-messaging DNs between 11hrs and 12hrs by using the duration of the calls that used the voice-messaging port/voice messaging DNs. The system calculates utilization for the voice-messaging port as the (sum of duration of calls that used the voice-messaging port in that hour*100) / (maximum duration seconds in an hour * number of days between the fromDate and toDate selected). The utilization calculation for voice-messaging DNs represents the (sum of duration of calls that used the voice-messaging DNs in that hour * 100) / (maximum duration seconds in an hour * number of days between the fromDate and toDate selected * maximum number of ports in a gateway that is connected to the voice-messaging DN). The same value will display in the report as the utilization for the time between 11hrs and 12hrs.

You can review the Voice Messaging Utilization report for Voice Messaging Ports only as a newly generated report and not as a report that the system automatically generates.

You can automatically generate the Voice Messaging Utilization report for Voice Messaging DNs, or you can generate it as a new report. Only CAR administrators can schedule reports for automatic generation. See Chapter 29, “Configuring the CAR System Scheduler” for more information.

Note The CAR Voice Messaging Utilization report supports the Cisco Unity and Cisco Unity Connection voice-messaging systems.

This section describes how to generate, mail, or view Voice Messaging Utilization reports.

Procedure

Step 1 Choose **Device Reports > Voice Messaging > Utilization**.

The Voice Messaging Utilization window displays.

Step 2 In the Generate Report field, choose a time as described in Table 22-1.

Table 22-1 Generate Report Fields

Parameter	Description
Hour of Day	Displays the utilization results for each hour in a 24-hour period for the period that you specify in Step 10.
Day of Week	Displays the utilization for the days of the week that occur within the period that you specify in Step 10.
Day of Month	Displays the utilization for the days of the month that occur within the period that you specify in Step 10.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 12 or use the default setting, Generate New Report, and go to Step 4.

Step 4 To choose a voice-messaging DN, click **Voice Messaging DNs** in the Voice Utilization pane.

The previously configured voice-messaging DN displays.

Note The Voice Messaging DN that displays in this window represents the Voice Messaging DN that you configure in the VoiceMailDn service parameter, which supports the Cisco Messaging Interface service. Set the parameter name VoiceMailDn to the routing pattern that you have created on the machine. Configure this by opening Cisco Unified Communications Manager Administration and clicking **System.** Click **Service Parameters**; then, select the service **Cisco Messaging Interface**.

Step 5 Choose the voice-messaging DN.

The DN that you chose displays in the List of DNs/Ports list box.

Step 6 To choose a voice-messaging port, click **Voice Messaging Ports** in the Voice Utilization pane.

A list of configured voice-messaging ports displays.

Step 7 From the list of ports, choose a voice-messaging port.

The port that you chose displays in the List of DNs/Ports list box.

Step 8 In Select Voice Messaging DNs/Ports, click the down arrow.

The port that you chose displays in the Selected DNs/Ports list box.

Step 9 Repeat Step 7 and Step 8 until you have chosen the ports that you want to include in the report.

Note For this report, you can choose a maximum of five Voice Messaging Ports/Voice Messaging DNs. You can choose the default Voice Messaging DN and four Voice Messaging Ports, or you can choose five Voice Messaging Ports.

Step 10 If you chose Generate New Report, enter the date range of the period for which you want to see call information.

Note Ensure the date and time range does not exceed one month.

Step 11 If you want the report in CSV format, choose **CSV** (comma separated value) in the Report Format area. If you want the report in PDF format, choose **PDF** (portable document format) in the Report Format area.

Step 12 Click the **View Report** button.

The report displays**.**

Step 13 If you want to mail the report, click the **Send Report** button. To send the report, perform the procedure described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 22-3.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 18, "Understanding CAR Device Reports"
- Chapter 19, "Configuring Gateway Device Reports"
- Chapter 20, "Configuring Route Plan Device Reports"
- Chapter 21, "Configuring Conference Bridge Device Reports"
- Chapter 23, "Reviewing CAR Device Reports Results"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 23

Reviewing CAR Device Reports Results

This chapter describes report output information for each device report. The chapter contains the following topics:

- Gateway Detail Report Results, page 23-1
- Gateway Summary Report Results, page 23-3
- Gateway and Route Utilization Report Results, page 23-4
- Conference Call Detail Report Results, page 23-8
- Conference Bridge Utilization Report Results, page 23-10
- Voice Messaging Utilization Report Results, page 23-12
- Related Topics, page 23-14
- Additional Cisco Documentation, page 23-14

Gateway Detail Report Results

The Gateway Detail report includes the following fields. See Table 23-1.

Table 23-1 Gateway Detail Report Fields

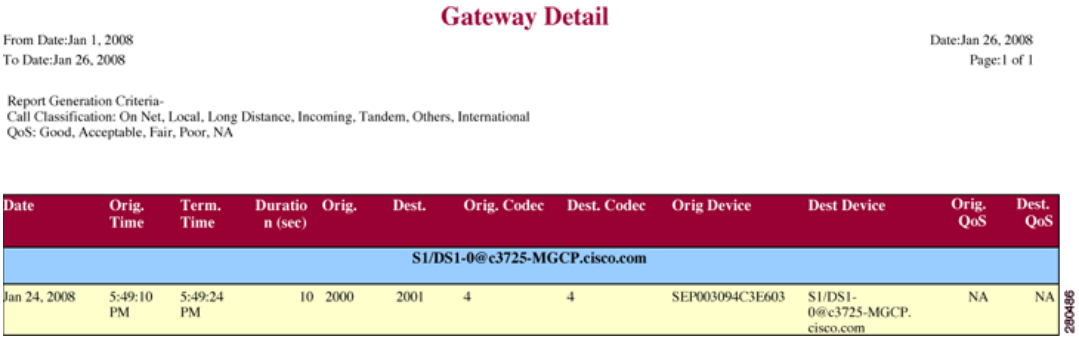
Field	Description
Date	The date when the call went through the gateway.
Orig. Time	The time when the call went through the gateway.
Term. Time	The time that the call terminated.
Duration(s)	The duration, in seconds, that the call was connected. The duration specifies the difference between the Dest Connect and the Dest Disconnect times.
Orig	The directory number from which the call was placed.

Table 23-1 Gateway Detail Report Fields (continued)

Field	Description
Dest	The directory number to which the call was originally placed. If the call was not forwarded, this directory number should match the Final Destination number. If the call was forwarded, this field contains the original destination number of the call before it was forwarded.
Orig. Codec	The codec code (compression or payload code) that the call originator used on its sending side during this call. This code may differ from the codec code that was used on its receiving side.
Dest. Codec	The codec code (compression or payload code) that the destination used on its sending side during this call. This code may differ from the codec code that was used on its receiving side.
Orig. Device	The device name of the device that placed the call. For incoming and tandem calls, this field specifies the device name of the gateway.
Dest Device	The device name of the device that received the call. For outgoing and tandem calls, this field specifies the device name of a gateway. For conference calls, this field specifies the device name of the conference bridge.
Orig QoS	QoS depicts the voice-quality grade that was achieved for the calls.
Dest QoS	The QoS category that was experienced by the receiver of the call.

Figure 23-1 displays sample output of the Gateway Detail Report in PDF format.

Figure 23-1 Gateway Detail Report



Gateway Detail

From Date:Jan 1, 2008
To Date:Jan 26, 2008

Date:Jan 26, 2008
Page:1 of 1

Report Generation Criteria-
Call Classification: On Net, Local, Long Distance, Incoming, Tandem, Others, International
QoS: Good, Acceptable, Fair, Poor, NA

Date	Orig. Time	Term. Time	Duration (sec)	Orig.	Dest.	Orig. Codec	Dest. Codec	Orig Device	Dest Device	Orig. QoS	Dest. QoS
S1/DS1-0@c3725-MGCP.cisco.com											
Jan 24, 2008	5:49:10 PM	5:49:24 PM	10	2000	2001	4	4	SEP003094C3E603	S1/DS1-0@c3725-MGCP.cisco.com	NA	NA

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Gateway Summary Report Results

The Gateway Summary report includes the following fields. See Table 23-2.

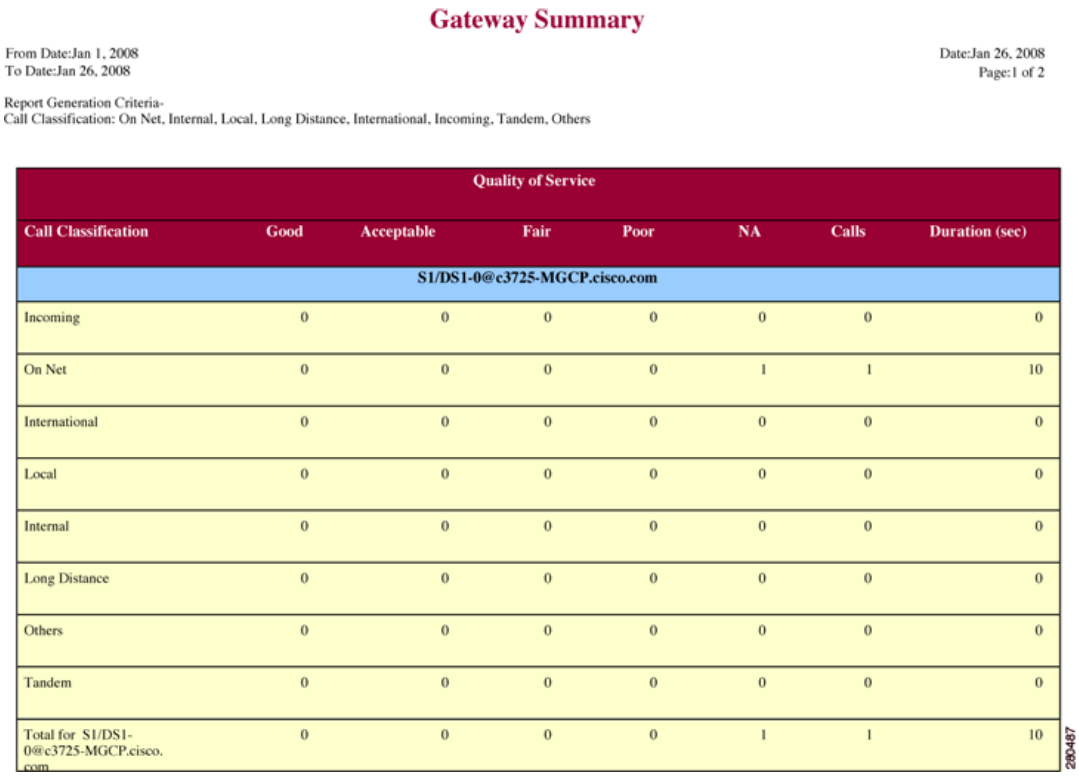
Note The Gateway Summary report segregates calls for each call classification that the user selects and divides the calls based on QoS type.

Table 23-2 Gateway Summary Report Fields

Field	Description
Call Classification	Shows the type of call (internal, incoming, and tandem.)
Quality of Service	Shows a summary of the performance of the various gateways with the total number of calls for each voice-quality category. The parameters set in the "Configuring QoS Values" section on page 34-1 provide the basis for all voice-quality categories. • Good—QoS for these calls specifies the highest possible quality. • Acceptable—QoS for these calls, although slightly degraded, still falls within an acceptable range. • Fair—QoS for these calls, although degraded, still falls within a usable range. • Poor—QoS for these calls was unsatisfactory. • NA—These calls did not match any criteria for the established QoS categories.
Calls	Shows the total calls for the particular call classification.
Duration (sec)	Shows the total duration for all the calls for the particular call classification.

Figure 23-2 displays sample output of the Gateway Summary Report in PDF format.

Figure 23-2 Gateway Summary Report



Gateway Summary

From Date:Jan 1, 2008
To Date:Jan 26, 2008

Date:Jan 26, 2008
Page:1 of 2

Report Generation Criteria-
Call Classification: On Net, Internal, Local, Long Distance, International, Incoming, Tandem, Others

Call Classification	Quality of Service						
	Good	Acceptable	Fair	Poor	NA	Calls	Duration (sec)
S1/DS1-0@c3725-MGCP.cisco.com							
Incoming	0	0	0	0	0	0	0
On Net	0	0	0	0	1	1	10
International	0	0	0	0	0	0	0
Local	0	0	0	0	0	0	0
Internal	0	0	0	0	0	0	0
Long Distance	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0
Tandem	0	0	0	0	0	0	0
Total for S1/DS1-0@c3725-MGCP.cisco.com	0	0	0	0	1	1	10

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Gateway and Route Utilization Report Results

The Gateway, Route Group, Route List, and Route Pattern Utilization reports provide similar output. If you choose to display the report in PDF format, the report shows the utilization as a bar chart. A graph displays for each selected gateway or route group. See Table 23-3.

Table 23-3 Gateway and Route Utilization Report Fields

Field	Description
Time/Day	Time in one-hour blocks if you chose Hourly or one-day blocks if you chose weekly or monthly. The results show the utilization for each hour or day for the entire period that is shown in the from and to dates.
%	Gateway, route group, route list, or route pattern utilization percentage. This field gives the estimated utilization percentage of the gateways or route groups or route lists or route patterns relative to the total number of calls that all the gateways put together can support at any one time.

Figure 23-3 displays sample output of the Gateway Utilization Report in PDF format.

Figure 23-3 Gateway Utilization Report

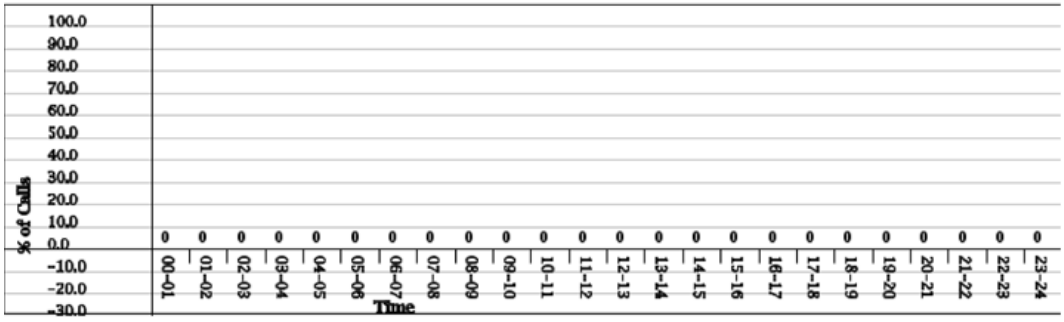
Gateway Utilization - Hour of Day

From Date:Jan 1, 2008
To Date:Jan 26, 2008

Date:Jan 26, 2008
Page:1 of 4

Time	%
S1/DS1-0@c3725-MGCP.cisco.com	
00-01	0.00
01-02	0.00
02-03	0.00
03-04	0.00
04-05	0.00
05-06	0.00
06-07	0.00
07-08	0.00
08-09	0.00
09-10	0.00
10-11	0.00
11-12	0.00
12-13	0.00
13-14	0.00
14-15	0.00
15-16	0.00
16-17	0.00
17-18	0.00
18-19	0.00
19-20	0.00
20-21	0.00
21-22	0.00
22-23	0.00
23-24	0.00

Report for S1/DS1-0@c3725-MGCP.cisco.com



Gateway Name {Port Number}	Max No. of Ports
S1/DS1-0@c3725-MGCP.cisco.com	24

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Figure 23-4 displays sample output of the Route/Hunt List Utilization report in PDF format.

Figure 23-4 Route/Hunt List Utilization Report

Route/Hunt List Utilization - Hour of Day

From Date:Jan 1, 2008
To Date:Jan 31, 2008

Date:Jan 31, 2008
Page:1 of 3

Time	%
testRL	
00-01	0.00
01-02	0.00
02-03	0.00
03-04	0.00
04-05	0.00
05-06	0.00
06-07	0.00
07-08	0.00
08-09	0.00
09-10	0.00
10-11	0.00
11-12	0.00
12-13	0.00
13-14	0.00
14-15	0.00
15-16	0.00
16-17	0.00
17-18	0.00
18-19	0.00
19-20	0.00
20-21	0.00
21-22	0.00
22-23	0.00
23-24	0.00

Route List Name	Gateway Name {Port Number}	Max No. of Ports
testRL	S1/DS1-0@c3725-MGCP.cisco.com	24
	Total number of Ports for testRL	24

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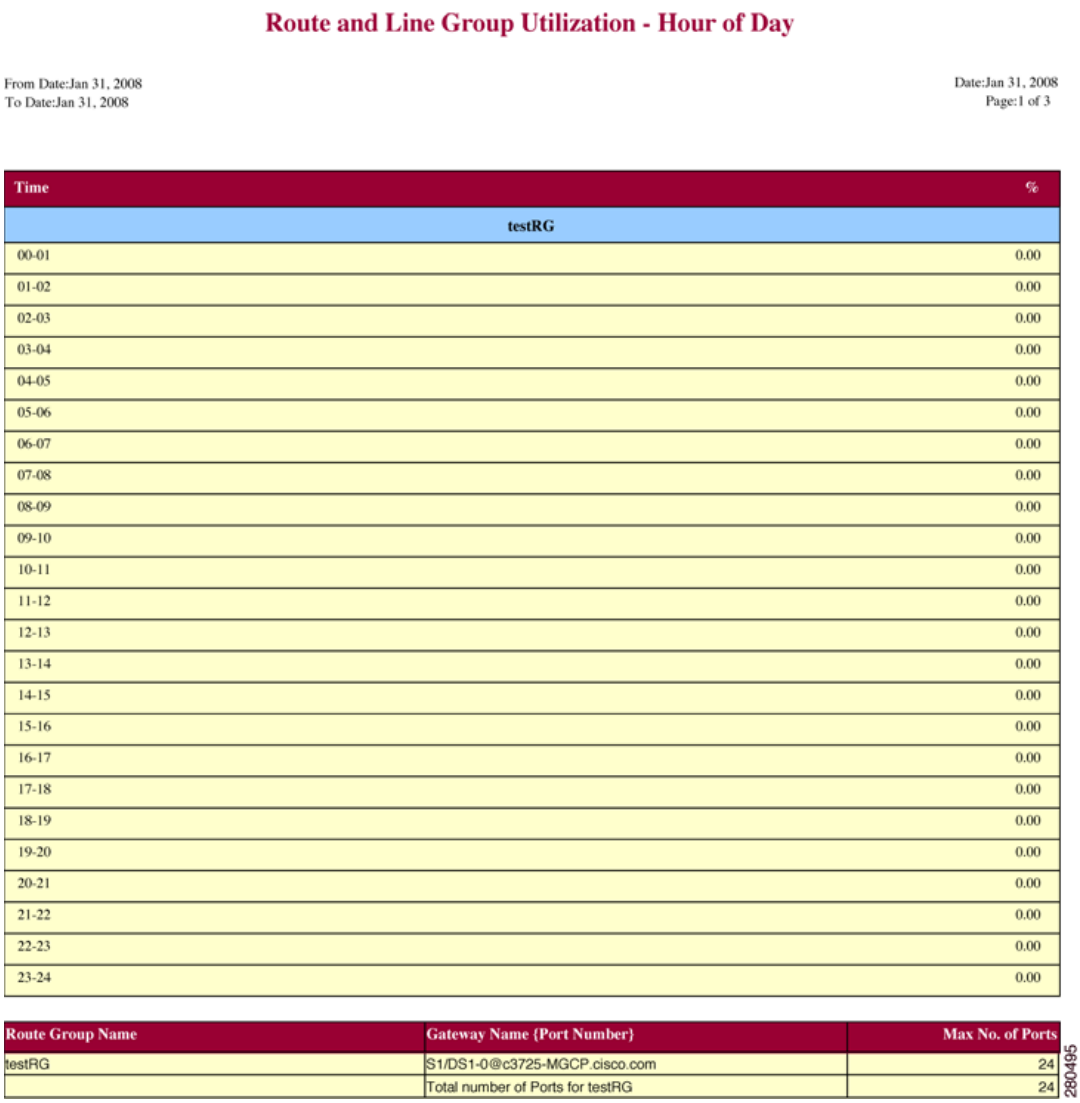
Figure 23-5 displays sample output from the Route and Line Group Utilization report in PDF format.

Figure 23-5 Route and Line Group Utilization Report



Route and Line Group Utilization - Hour of Day

From Date:Jan 31, 2008
To Date:Jan 31, 2008

Date:Jan 31, 2008
Page:1 of 3

Time	%
testRG	
00-01	0.00
01-02	0.00
02-03	0.00
03-04	0.00
04-05	0.00
05-06	0.00
06-07	0.00
07-08	0.00
08-09	0.00
09-10	0.00
10-11	0.00
11-12	0.00
12-13	0.00
13-14	0.00
14-15	0.00
15-16	0.00
16-17	0.00
17-18	0.00
18-19	0.00
19-20	0.00
20-21	0.00
21-22	0.00
22-23	0.00
23-24	0.00

Route Group Name	Gateway Name {Port Number}	Max No. of Ports
testRG	S1/DS1-0@c3725-MGCP.cisco.com	24
	Total number of Ports for testRG	24

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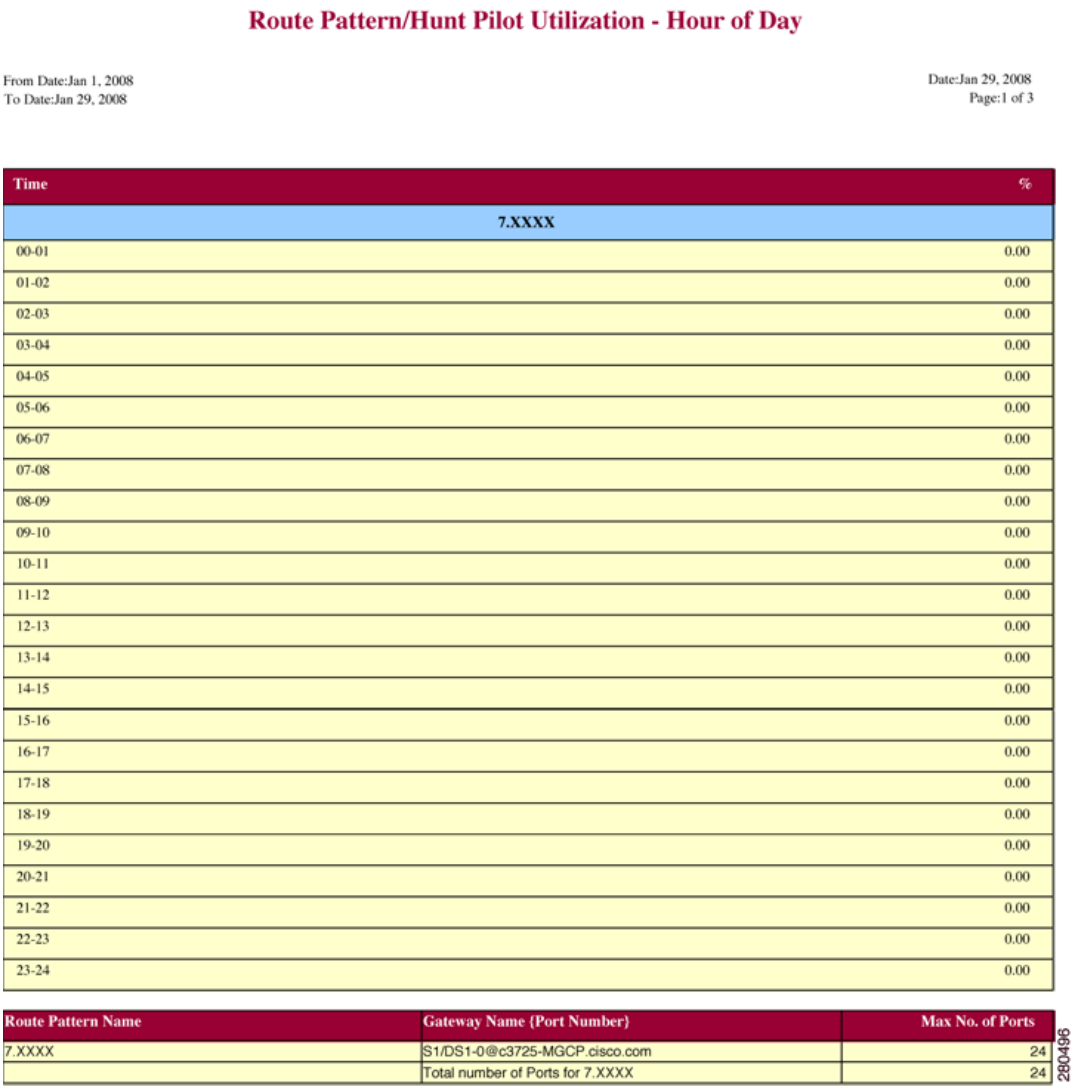
Figure 23-6 displays sample output of the Route Pattern/Hunt Path Utilization report in PDF format.

Figure 23-6 Route Pattern/Hunt Path Utilization Report



Route Pattern/Hunt Pilot Utilization - Hour of Day

From Date:Jan 1, 2008
To Date:Jan 29, 2008

Date:Jan 29, 2008
Page:1 of 3

Time	%
7.XXXX	
00-01	0.00
01-02	0.00
02-03	0.00
03-04	0.00
04-05	0.00
05-06	0.00
06-07	0.00
07-08	0.00
08-09	0.00
09-10	0.00
10-11	0.00
11-12	0.00
12-13	0.00
13-14	0.00
14-15	0.00
15-16	0.00
16-17	0.00
17-18	0.00
18-19	0.00
19-20	0.00
20-21	0.00
21-22	0.00
22-23	0.00
23-24	0.00

Route Pattern Name	Gateway Name {Port Number}	Max No. of Ports
7.XXXX	S1/DS1-0@c3725-MGCP.cisco.com	24
	Total number of Ports for 7.XXXX	24

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Conference Call Detail Report Results

You can choose to generate Conference Call information in either a summary or a detailed report. The reports display the call details in a table when you generate the report in PDF format. The following tables show the fields in the Conference Call Detail and Summary reports. See Table 23-4 and Table 23-5.

Note The report criteria include the type of conference (ad hoc and/or meet-me) and the From and To date range.

Table 23-4 Conference Call Detail Summary Report Fields

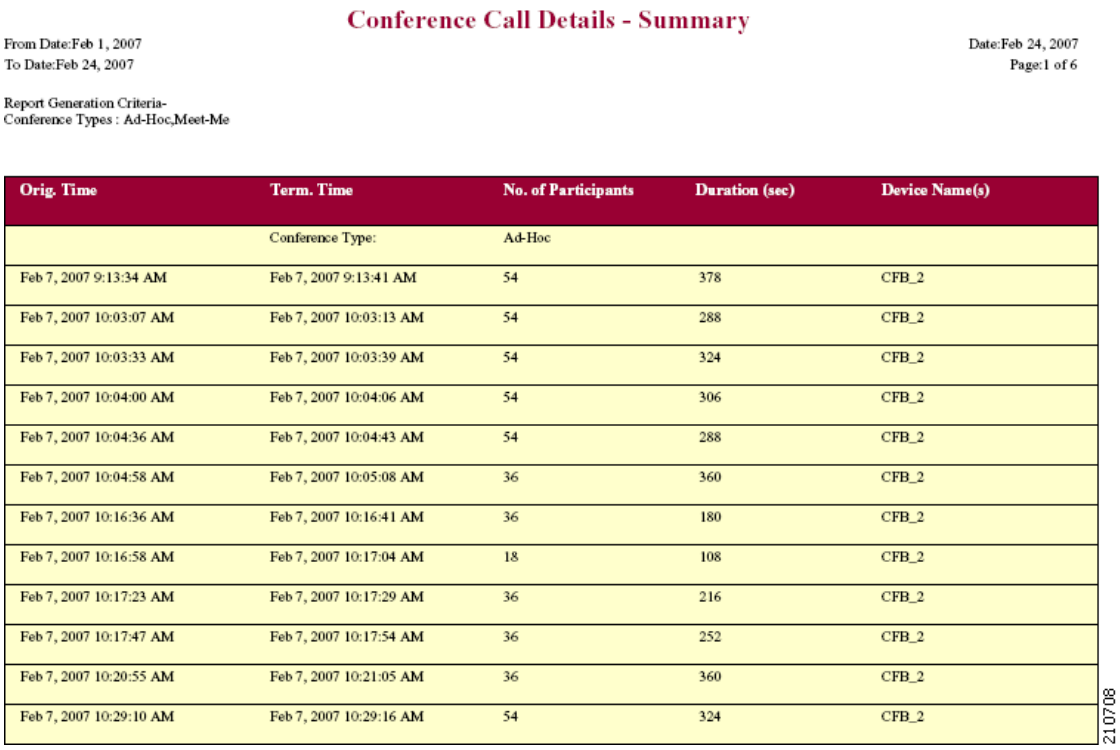
Field	Description
Orig. Time	Time that the first participant enters the conference.
Term. Time	Time that the last participant leaves the conference.
No. of Participants	Number of participants in the conference.
Duration	Sum of the duration of individual participants in the conference in seconds.
Device Name	Names of the conference devices that were used.

Table 23-5 Conference Call Detail Report Fields

Field	Description
Conference Start Time	Time at which conference started.
Conference End Time	Time at which conference ended.
Connect Time	Time at which conference participants connected to conference.
Disconnect Time	Time at which conference participants disconnected from conference.
Duration	Total time of conference.
Directory Number	Directory number of participants.
Call Classification	Call types of conference (internal, incoming, and so on.)
Device Name	Names of the conference devices that were used.
QoS	Quality of service.

Figure 23-7 displays sample output of the Conference Call Details Summary report in PDF format.

Figure 23-7 Conference Call Details Summary Report



Conference Call Details - Summary

From Date:Feb 1, 2007
To Date:Feb 24, 2007

Date:Feb 24, 2007
Page:1 of 6

Report Generation Criteria-
Conference Types : Ad-Hoc,Meet-Me

Orig. Time	Term. Time	No. of Participants	Duration (sec)	Device Name(s)
	Conference Type:	Ad-Hoc		
Feb 7, 2007 9:13:34 AM	Feb 7, 2007 9:13:41 AM	54	378	CFB_2
Feb 7, 2007 10:03:07 AM	Feb 7, 2007 10:03:13 AM	54	288	CFB_2
Feb 7, 2007 10:03:33 AM	Feb 7, 2007 10:03:39 AM	54	324	CFB_2
Feb 7, 2007 10:04:00 AM	Feb 7, 2007 10:04:06 AM	54	306	CFB_2
Feb 7, 2007 10:04:36 AM	Feb 7, 2007 10:04:43 AM	54	288	CFB_2
Feb 7, 2007 10:04:58 AM	Feb 7, 2007 10:05:08 AM	36	360	CFB_2
Feb 7, 2007 10:16:36 AM	Feb 7, 2007 10:16:41 AM	36	180	CFB_2
Feb 7, 2007 10:16:58 AM	Feb 7, 2007 10:17:04 AM	18	108	CFB_2
Feb 7, 2007 10:17:23 AM	Feb 7, 2007 10:17:29 AM	36	216	CFB_2
Feb 7, 2007 10:17:47 AM	Feb 7, 2007 10:17:54 AM	36	252	CFB_2
Feb 7, 2007 10:20:55 AM	Feb 7, 2007 10:21:05 AM	36	360	CFB_2
Feb 7, 2007 10:29:10 AM	Feb 7, 2007 10:29:16 AM	54	324	CFB_2

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Conference Bridge Utilization Report Results

The Conference Bridge Utilization report provides the following fields. If you choose PDF format, the report shows the utilization as a table. See Table 23-6.

Table 23-6 Conference Bridge Utilization Report Fields

Field	Description
Time/Day	Time in one-hour blocks if you chose Hourly or one-day blocks if you chose day of week or daily.
% Usage	Conference bridge utilization percentage.
Conf. Bridge	The conference bridge device that is used to hold conference calls.
Type	Either hardware or software conference bridge.
Max Streams	The number of conferences that can be held at a time along with the number of people per conference.

Figure 23-8 displays sample output of the Conference Bridge Utilization report in PDF format.

Figure 23-8 Conference Bridge Utilization Report

Conference Bridge Utilization - Hour of Day

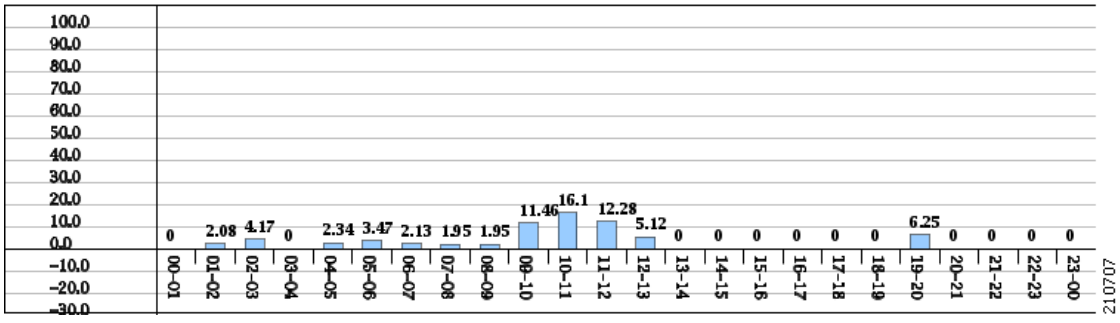
From Date:Feb 1, 2007
To Date:Feb 24, 2007

Date:Feb 24, 2007
Page:1 of 2

Time	% Usage
00-01	0.00
01-02	2.08
02-03	4.17
03-04	0.00
04-05	2.34
05-06	3.47
06-07	2.13
07-08	1.95
08-09	1.95
09-10	11.46
10-11	16.10
11-12	12.28
12-13	5.12
13-14	0.00
14-15	0.00
15-16	0.00
16-17	0.00
17-18	0.00
18-19	0.00
19-20	6.25
20-21	0.00
21-22	0.00
22-23	0.00
23-00	0.00

The Total Number of Streams is 96

Conf. Bridge	Type	Max. Streams
CFB_2	Cisco Conference Bridge Software	48
CFB_3	Cisco Conference Bridge Software	48
	Total Capacity:	96



Voice Messaging Utilization Report Results

The Voice Messaging Utilization report provides the following fields. See Table 23-7.

Table 23-7 Voice Messaging Utilization Report Fields

Field	Description
Time/Day	Time in one-hour blocks if you chose Hourly or one-day blocks if you chose day of week or daily.
% Usage	Voice-messaging percentage.
Voice Messaging Ports	The sum of the maximum number of ports for all the gateways under the route patterns that are configured for the voice-messaging systems and the entries in the Device table of Cisco Unified Communications Manager that have type Class as 8.
Voice Messaging Gateways	The originating or destination device name of the gateways under the route patterns that are configured for the voice-messaging systems.
Number of Ports	The number of ports that the voice-messaging gateway supports.

Figure 23-9 displays sample output of the Voice Messaging Utilization report in PDF format.

Figure 23-9 Voice Messaging Utilization Report

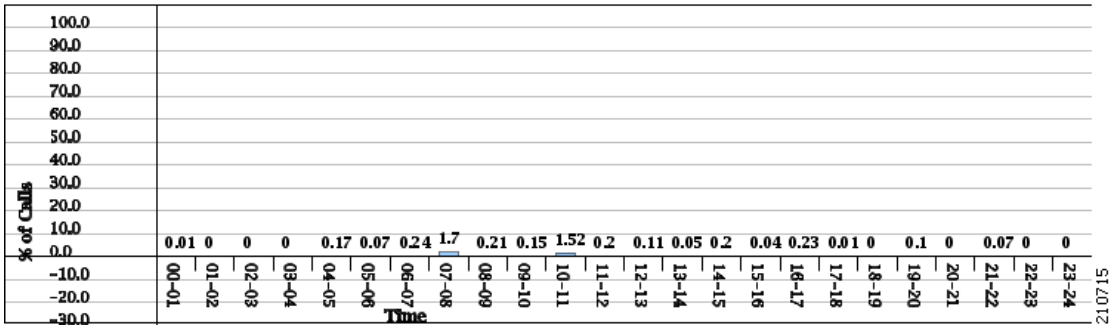
Voice Messaging Utilization - Hour of Day

From Date:Nov 4, 2006
To Date:Nov 11, 2006

Date:Feb 14, 2007
Page:1 of 8

Time	% Usage
7.XXXX	
00-01	0.01
01-02	0.00
02-03	0.00
03-04	0.00
04-05	0.17
05-06	0.07
06-07	0.24
07-08	1.70
08-09	0.21
09-10	0.15
10-11	1.52
11-12	0.20
12-13	0.11
13-14	0.05
14-15	0.20
15-16	0.04
16-17	0.23
17-18	0.01
18-19	0.00
19-20	0.10
20-21	0.00
21-22	0.07
22-23	0.00
23-24	0.00

Report for 7.XXXX



Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 18, “Understanding CAR Device Reports”
- Chapter 19, “Configuring Gateway Device Reports”
- Chapter 20, “Configuring Route Plan Device Reports”
- Chapter 21, “Configuring Conference Bridge Device Reports”
- Chapter 22, “Configuring Voice Messaging Utilization Device Reports”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

PART 5

CDR

CHAPTER 24

Understanding CDRs

This chapter contains the following topics:

- Defining CDR Data, page 24-1
- Upgrading the CAR Database, page 24-2
- Related Topics, page 24-4
- Additional Cisco Documentation, page 24-4

Defining CDR Data

Call detail records (CDRs) detail the called number, the number that places the call, the date and time that the call starts, the time that the call connects, and the time that the call ends. Call management records (CMRs), or diagnostic records, detail the jitter, lost packets, the amount of data sent and received during the call, and latency. CDR data comprises CDRs and CMRs collectively. A single call can result in the generation of several CDRs and CMRs. Cisco Unified Communications Manager records information regarding each call in CDRs and CMRs. CDRs and CMRs, known collectively as CDR data, serve as the basic information source for CAR.

The Cisco CDR Agent service transfers CDR and CMR files that Cisco Unified Communications Manager generates from the local host to the CDR repository node, where the CDR Repository Manager service runs over a SFTP connection. If the SFTP connection fails, the Cisco CDR Agent services continue to make connection attempts to the CDR repository node until a connection is made. The Cisco CDR Agent service sends any accumulated CDR files when the connection to the CDR Repository node resumes. The CDR Repository Manager service maintains the CDR and CMR files, allocates the amount of disk space for use by CMRs and CDRs, sends the files to up to three configured destinations, and tracks the delivery result for each destination. CAR accesses the CDR/CMR files in the directory structure that the CDR Repository Manager service creates.

The high and low water mark settings that you configure specify percentages of the total disk space that are allocated for the CDR repository. Although the preserved folder under the CDR repository folder contributes to the high and low water mark percentages, Log Partition Monitoring never deletes the folder if the high water mark gets reached. If the high water mark gets reached, the CDR Repository Manager deletes processed CDR files until the low water mark is reached or all processed files are deleted, whichever comes first. If all processed CDR files are deleted but the low water mark has not been reached, the deletion stops. The CDRHighWaterMarkExceeded alarm gets generated until the system reaches the maximum disk allocation. If the maximum disk allocation gets reached, the system deletes undelivered files, and files within the preservation duration, starting with the oldest files, until

disk utilization falls below the high water mark. If you receive the CDRMaximumDiskSpaceExceeded alarm repeatedly for this scenario, either increase the disk allocation or lower the number of preservation days.

Information on these alarms is found in the CDR Repository Alarm Catalog (CDRRepAlarmCatalog). Table 24-1 displays the alarms/alerts in this catalog.

To configure these alarms, go to **Cisco Unified Serviceability > Alarm > Configuration > CDR Services**.

Table 24-1 CDR Repository Alarm Catalog

Name	Severity	Description
CDRFileDeliveryFailed	ERROR_ALARM	SFTP delivery of CDR files to the outside billing server failed.
CDRAgentSendFileFailed	ERROR_ALARM	The CDR Agent cannot send CDR files from the Cisco Unified CM node to the CDR Repository node within the Cisco Unified Communications Manager cluster.
CDRHWMExceeded	WARNING_ALARM	The high water mark (HWM) for CDR files was reached; some successfully delivered CDR files have been deleted.
CDRMaximumDiskSpaceExceeded	CRITICAL_ALARM	The CDR files disk usage exceeded the maximum disk allocation. Some undelivered files may have been deleted to bring disk usage down.
CDRFileDeliveryFailureContinues	ERROR_ALARM	SFTP delivery of CDR files failed on retries.
CDRAgentSendFileFailureContinues	ERROR_ALARM	The CDR Agent cannot send CDR files from the Cisco Unified CM node to the CDR Repository node on retries.

For additional information on these alarms and recommended action, see the alarm definitions at **Cisco Unified Serviceability > Alarm > Definitions > CDRRepAlarmCatalog**.

For more information on CDR services and alarms, see the *Cisco Unified Serviceability Administration Guide*.

Upgrading the CAR Database

If you upgrade from Cisco Unified Communications Manager 4.x, Cisco Unified Communications Manager saves the content of the Cisco Unified Communications Manager 4.x CAR database to CSV files. The Cisco Unified Communications Manager 4.x CAR database has part of the CDR information. The Cisco Unified Communications Manager 4.x CDR database stores the complete information about CDRs. This database does not migrate. The Data Migration Tool uses the CAR database CSV files to

migrate the CAR database. The system stores the CSV files in the /common/download/windows/car directory. The system stores the pregenerated reports in the /common/download/windows/pregenerated database. Because no corresponding CDR database exists in Cisco Unified Communications Manager 5.x and later releases, the complete CDR data does not migrate to the Cisco Unified Communications Manager 5.x, 6.x, or 7.x system. The Cisco Unified Communications Manager 5.x, 6.x, and 7.x CAR database schema gets extended to contain complete CDR information, but only for the new CDRs that are generated by the Cisco Unified Communications Manager 5.x, 6.x, and 7.x system.

Note The version of CAR that runs on Cisco Unified Communications Manager 5.x, 6.x, and 7.x does not retain CDRs that are older than the ART database age that gets configured in the Cisco Unified Communications Manager 4.x ART database. The ART database age gets configured in the **Configure Automatic Database Purge** window of ART. The default ART database age is 180 days. If the ART database age is greater than 180 days, the CAR database in Cisco Unified Communications Manager 5.x, 6.x, and 7.x will retain only 180 days of data. However, if the ART database age is less than 180 days, only data within the specified age limit get retained in the Cisco Unified Communications Manager 5.x, 6.x, or 7.x CAR database after migration. If you migrate records older than 180 days, the system deletes these records immediately after you upgrade.

The Cisco Unified Communications Manager installation program limits the time period for the migration of the CAR records from the CSV files in the Data Migration Assistant (DMA) TAR file to the CAR database on the upgraded system. The migration time period is 60 minutes. To allow the migration of the highest number of CSV files in the allotted time period, CAR record migration uses the following steps:

- Data migration begins with the migration of the billing records from the tbl_billing_data CSV file to the tbl_billing_data table of the CAR database. Data migration begins with the youngest record and proceeds toward the oldest record in the CSV file. The billing data migration stops when there are no more billing records to migrate or the migration time period reaches 60 minutes.
- If time remains after the billing data gets migrated, data migration proceeds with the migration of error records from the tbl_billing_error CSV file to the tbl_billing_error table of the CAR database. Data migration begins with the youngest record and proceeds toward the oldest record in the CSV file. For each error record that gets migrated, CAR migrates the data that corresponds to the error_record_id that is present in the tbl_error_id_map CSV file into the tbl_error_id_map table of the CAR database. This action ensures that error record data migration stays consistent with data in the tbl_error_id_map. The error record data migration stops when there are no more error records to migrate or the migration period reaches 60 minutes.

If the 60 minute migration time limit occurs at any point in the migration process, CAR data migration ceases and the tbl_system_preferences of the CAR database gets updated to reflect the data present in the upgraded system database.

Note You cannot upgrade from a Microsoft Windows version of Cisco Unified Communications Manager system to a Cisco Unified Communications Manager Business Edition system (that runs Linux). However, you can integrate a Windows version of Cisco Unified Communications Manager with a standalone Cisco Unity Connection system. In this particular situation, the CAR installation program will detect this option. CAR does not get supported on a Cisco Unity Connection system and will not get installed. When CAR is not installed, Cisco Unified Communications Manager Administration cannot activate, deactivate, start, stop, or restart CAR Web Service and CAR Scheduler from Cisco Unified Serviceability.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 25, “Configuring CDR Search”
- Chapter 26, “Configuring the Export of CDR/CMR Records”
- Chapter 27, “Reviewing CDR Search Results”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 25

Configuring CDR Search

CAR provides reporting capabilities for three levels of users: administrators, managers, and individual users. Only CAR administrators can use CDR Search.

This chapter contains the following topics:

- CDR Search, page 25-1
- Configuring CDR Search by User Extension, page 25-3
- Configuring CDR Search by Gateway, page 25-4
- Configuring CDR Search by Cause for Call Termination, page 25-6
- Viewing Call Termination Details, page 25-10
- Configuring CDR Search by Call Precedence Levels, page 25-11
- Configuring CDR Search for Malicious Calls, page 25-12
- Related Topics, page 25-14
- Additional Cisco Documentation, page 25-14

CDR Search

In all CDR Search reports, the system only displays the oldest 100 records that fall into the time and date range that you configure. The CDR Search reports generate only in HTML format.

You can configure CDR searches to verify the details of a call. The search forms groups of all the related legs of a call, which can be useful if the call involves a conference or transfer. This method helps you track the progress and quality of each part of an entire call.

This section describes the following features:

- CDR Search by User Extension—Available for CAR administrators. You can search CDRs by user or directory number (calling, original called, final called, or bridge number) to analyze call details for the first 100 records that satisfy the search criteria. You can search for calls by using specific numbers for the period that you specify, which helps you trace calls that are placed from or to any specific numbers for diagnostic or informational purposes. All associated records, such as transfer and conference calls, appear together as a logical group. If you do not specify an extension, the system returns the first 100 CDR records that match the date range that you specify.
- CDR Search by Gateway—Available for CAR administrators. You can search CDRs by gateways to analyze the call details of calls that are using specific gateways. This method helps you trace issues on calls through specific gateways.

- CDR Search by Cause for Call Termination—Available for CAR administrators. You can search CDRs by cause for call termination to get information about the cause for the termination of a call. You can choose from a list of causes for call termination and can generate the report for a particular date range. The generated report contains the report criteria, along with the total number of calls that were placed in the given time. In addition, a table displays with the fields Call Termination Cause Value and description, the total number of calls, and the percentage of calls for each Call Termination Cause, and an option to choose the CDRs.
- CDR Search by Call Precedence Level—Available for CAR administrators. You can search CDRs by call precedence level. The report that generates allows you to view the CDRs on the basis of precedence. You can choose the precedence level and date range for which to generate a report. The report displays the number of calls and the percentage of these calls for each precedence level that you choose. Report criteria display the precedence levels and date range for which the report generated information in the Call Precedence Details window. You can view the media information and the CDR-CMR dump from the CDR Search by Precedence Levels Result window. The media information and CDR-CMR dump information display in separate windows.
- CDR Search for Malicious Calls—Available for CAR administrators. You can search CDRs to get information about malicious calls. You can choose extensions and the date range for which to generate a report. The report displays the CDRs for all the malicious calls for a chosen extension and date range. Report criteria display the extensions and the date range for which the report generated information. You can view the media information and CDR-CMR dump from the CDR-CMR search results window. The media information and CDR-CMR dump information display in separate windows.
- Export CDR/CMR—Available for CAR administrators. With this feature, you can export CDR/CMR dump information, for a given date range in the CSV format, to a location that you choose on your computer. You can also view the file size of the dump information and delete CDR/CMR files.

Before You Begin

Make sure that you set the Cisco Unified Communications Manager service parameters CDR Enabled Flag and Call Diagnostics Enabled to **True** (enabled), so the system can generate CDR/CMR data. By default, the system disables these service parameters. For more information about these service parameters, see the "Configuring CDR Service Parameters" section on page 2-6.

All CAR reports use CDR data. Be sure to have the most current CDR data from which to build your reports. By default, CDR data loads continuously 24 hours a day, 7 days a week. However, you can set the loading time, interval, and duration as needed. See Chapter 29, "Configuring the CAR System Scheduler" for more information.

Note After you log in to the CAR main window, the following warning may display if Cisco Unified Communications Manager is also activated: "Warning: In some servers in this cluster the CDR Enabled Flag is false and so CDR entries may not be generated for all the calls made in this cluster."Some clusters have multiple nodes where some of the nodes do not run Cisco Unified Communications Manager services. This warning checks all nodes in the cluster regardless of Cisco Unified Communications Manager service activation status. Ignore the warning after manually checking the CDR Enabled Flag parameter settings for all the Cisco Unified Communications Manager service subscribers. If you have a Cisco Unified Communications Manager Business Edition installation, ignore this warning message.

Configuring CDR Search by User Extension

Only CAR administrators use the CDR Search by User Extension feature.

This section describes how to show the details of CDR data based on a user or extension. You can search CDR data by user or directory number (calling, original called, or final called) to analyze call details for the oldest 100 records that satisfy the search criteria. If more than 100 records are returned, the system truncates the results. You can search for calls by using specific numbers for the period that you specify, which helps you trace calls that are placed from or to any specific numbers for diagnostic or informational purposes. All associated records, such as transfer, mobility, silent monitoring and recording, and conference calls, appear together as a logical group.

Procedure

Step 1 Choose **CDR > Search > By User Extension**.

The CDR Search by User Extension window displays.

Note You can enter a wildcard pattern like "!" or "X" to search on extensions. The "!" represents any n digit that has 0-9 as each of its digits, and the "X" represents a single digit in the range 0-9.

Step 2 Perform one of the following tasks:

- To search CDRs based on extensions, enter the extension number in the Extension field and click the **Add Extension** button.
- To search CDRs based on user, click the **Search Extension(s) based on User(s)** link, enter the first few letters of the first and/or last name in the First Name and/or Last Name fields, and click the **Search** button. When the results display, click the **Select** link next to the result that you want to include. Click the **Close** button.

The extension displays in the Selected Extension(s) box.

Note To delete an item from the Report Criteria box, click the **Remove Extension(s)** button. You can delete all items from the Report Criteria box by clicking the **Remove All Extensions** button.

Step 3 Choose the date and time range of the period for which you want to see CDR data for the specified user or extension. Current time displays in both Coordinated Universal Time (UTC) and local time and uses the following rules:

- The UTC and local time comprises a numeric string of mmddyyyy hhmmss, as in January 15, 2007 12:00:00.
- The default FromDate and ToDate values display in UTC time.
- The default ToDate specifies the current time of the server in UTC time.
- The default FromDate value specifies the ToDate value minus 1 hour. For example, if ToDate = January 15, 2007 12:00:00, the FromDate default value = January 15, 2007 11:00:00 (all times in UTC).

Step 4 Choose whether to run the CDR Search report with grouping or without grouping. If you choose with grouping, check the check box beside **With Grouping**. The default value specifies Without Grouping.

Note With Grouping choice means that the system returns CDR records that match the date and time range for the search, and groups them with their associated records. Without Grouping returns all the CDR records that match the date and time range without grouping together all the associated records for each call.

Step 5 Click the **OK** button.

The CDR-CMR Search Results window displays. The system only displays the oldest 100 records that fall into the date range that you configured in Step 3.

Step 6 To view the CMR data, click the **Others** button. To view both the CDR and CMR data fields, click the **View** button.

Step 7 To mail the report to e-mail recipient(s), follow the steps in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 25-14.

Configuring CDR Search by Gateway

Only CAR administrators use the CDR Search by Gateway feature.

This section describes how to search CDR data based on a specific gateway type or on those gateways that use a chosen route pattern.

Procedure

Step 1 Choose **CDR > Search > By Gateway**.

The CDR Search by Gateway window displays.

Step 2 Perform one of the following tasks:

- To display all the gateways that are configured in the system, click **Gateway Types** in the Gateway Types and Route Patterns pane.
- To expand the tree structure and display the type of gateway from which you can choose, click the icon next to Gateway types.
- To choose a gateway that uses a particular route pattern/hunt pilot, rather than a gateway type, click **Route Patterns/Hunt Pilots** in the Gateway Types and Route Patterns pane. The gateways that are associated to the configured Route Patterns/Hunt Pilots display.
- To expand the tree structure and display route pattern/hunt pilot for you to choose, click the icon next to Route Patterns/Hunt Pilots.

Note You can also search for specific route patterns/hunt lists by entering part of the name of the route pattern(s)/hunt pilot(s) in the Route Patterns/Hunt Pilots box in the column on the left side of the window. CAR searches for the route pattern(s)/hunt list(s) that matches the search string.

Step 3 Choose a gateway type from the list.

The gateway name displays in the List of Gateways box.

Note The List of Gateways box will display up to 200 gateways that are configured for the chosen gateway type.

Step 4 In the List of Gateways box, choose the gateways that you want to include in the report.

Note You can generate a report for up to 15 gateways at a time. If you choose more than 15 gateways, you will receive a message that states "Select 15 or fewer gateways to generate new report."

Step 5 To move the chosen gateway to the list of Selected Gateways box, click the down arrow.

The gateway that you chose displays in the Selected Gateways box.

Step 6 Choose the date and time range of the period during which you want to search CDR data. Current time displays in both Coordinated Universal Time (UTC) and local time and uses the following rules:

- The UTC and local time comprise a numeric string of mmddyyyy hhmmss, as in January 15, 2007 12:00:00.
- The default FromDate and ToDate values display in UTC time.
- The default ToDate specifies the current time of the server in UTC time.
- The default FromDate value specifies the ToDate value minus 1 hour. For example, if ToDate = January 15, 2007 12:00:00, the FromDate default value = January 15, 2007 11:00:00 (all times in UTC).

Step 7 Choose whether to run the CDR Search report with grouping or without grouping. If you chose with grouping, check the check box beside **With Grouping**. The default specifies Without Grouping

Note With Grouping choice means that the system returns CDR records that match the date and time range for the search, and groups them with their associated records. Without Grouping returns all the CDR records that match the date and time range without grouping together all the associated records for each call.

Step 8 Click the **OK** button.

The CDR-CMR Results window displays. The system only displays the oldest 100 records that fall into the date and time range that you configured in Step 6. If more than 100 records are returned, the system truncates the results.

Step 9 To view the CMR data, click the **Others** button. To view both the CDR and CMR data fields, click the **View** button.

Step 10 To mail the report to e-mail recipient(s), follow the steps in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 25-14.

Configuring CDR Search by Cause for Call Termination

Only CAR administrators use the CDR Search by Cause for Call Termination feature. The following tables contain the call termination cause codes by which you may search:

- "Call Termination Cause Codes"
- "Cisco-Specific Call Termination Cause Codes"

Table 25-1 Call Termination Cause Codes

Code	Description
0	No error
1	Unallocated (unassigned) number
2	No route to specified transit network (national use)
3	No route to destination
4	Send special information tone
5	Misdialed trunk prefix (national use)
6	Channel unacceptable
7	Call awarded and being delivered in an established channel
8	Preemption
9	Preemption—circuit reserved for reuse
16	Normal call clearing
17	User busy
18	No user responding
19	No answer from user (user alerted)
20	Subscriber absent
21	Call rejected
22	Number changed
26	Non-selected user clearing
27	Destination out of order
28	Invalid number format (address incomplete)
29	Facility rejected
30	Response to STATUS ENQUIRY
31	Normal, unspecified
34	No circuit/channel available
38	Network out of order
39	Permanent frame mode connection out of service
40	Permanent frame mode connection operational
41	Temporary failure
42	Switching equipment congestion
43	Access information discarded

Table 25-1 Call Termination Cause Codes (continued)

Code	Description
44	Requested circuit/channel not available
46	Precedence call blocked
47	Resource unavailable, unspecified
49	Quality of Service not available
50	Requested facility not subscribed
53	Service operation violated
54	Incoming calls barred
55	Incoming calls barred within Closed User Group (CUG)
57	Bearer capability not authorized
58	Bearer capability not presently available
62	Inconsistency in designated outgoing access information and subscriber class
63	Service or option not available, unspecified
65	Bearer capability not implemented
66	Channel type not implemented
69	Requested facility not implemented
70	Only restricted digital information bearer capability is available (national use)
79	Service or option not implemented, unspecified
81	Invalid call reference value
82	Identified channel does not exist
83	A suspended call exists, but this call identity does not
84	Call identity in use
85	No call suspended
86	Call having the requested call identity has been cleared
87	User not member of CUG (Closed User Group)
88	Incompatible destination
90	Destination number missing and DC not subscribed
91	Invalid transit network selection (national use)
95	Invalid message, unspecified
96	Mandatory information element is missing
97	Message type nonexistent or not implemented
98	Message is not compatible with the call state, or the message type is nonexistent or not implemented
99	An information element or parameter does not exist or is not implemented
100	Invalid information element contents
101	The message is not compatible with the call state
102	Call terminated when timer expired; a recovery routine executed to recover from the error

Table 25-1 Call Termination Cause Codes (continued)

Code	Description
103	Parameter nonexistent or not implemented - passed on (national use)
110	Message with unrecognized parameter discarded
111	Protocol error, unspecified
122	Precedence Level Exceeded
123	Device not Preemptable
125	Out of bandwidth (Cisco specific)
126	Call split (Cisco specific)
127	Interworking, unspecified
129	Precedence out of bandwidth

Table 25-2 Cisco-Specific Call Termination Cause Codes

Decimal Value Code	Hex Value Code	Description
262144	0x40000	Conference Full (was 124)
393216	0x60000	Call split (was 126) This code applies when a call terminates during a transfer operation because it was split off and terminated (was not part of the final transferred call). This can help determine which calls terminated as part of a feature operation.
458752	0x70000	Conference drop any party/Conference drop last party (was 128)
16777257	0x1000029	CCM_SIP_400_BAD_REQUEST
33554453	0x2000015	CCM_SIP_401_UNAUTHORIZED
50331669	0x3000015	CCM_SIP_402_PAYMENT_REQUIRED
67108885	0x4000015	CCM_SIP_403_FORBIDDEN
83886081	0x5000001	CCM_SIP_404_NOT_FOUND
100663359	0x600003F	CCM_SIP_405_METHOD_NOT_ALLOWED
117440591	0x700004F	CCM_SIP_406_NOT_ACCEPTABLE
134217749	0x8000015	CCM_SIP_407_PROXY_AUTHENTICATION_REQUIRED
150995046	0x9000066	CCM_SIP_408_REQUEST_TIMEOUT
184549398	0xB000016	CCM_SIP__410_GONE
201326719	0xC00007F	CCM_SIP_411_LENGTH_REQUIRED
234881151	0xE00007F	CCM_SIP_413_REQUEST_ENTITY_TOO_LONG
251658367	0xF00007F	CCM_SIP_414_REQUEST_URI_TOO_LONG
268435535	0x1000004F	CCM_SIP_415_UNSUPPORTED_MEDIA_TYPE
285212799	0x1100007F	CCM_SIP_416_UNSUPPORTED_URI_SCHEME
83886207	0x1500007F	CCM_SIP_420_BAD_EXTENSION
369098879	0x1600007F	CCM_SIP_421_EXTENSION_REQUIRED

Table 25-2 Cisco-Specific Call Termination Cause Codes (continued)

Decimal Value Code	Hex Value Code	Description
402653311	0x1800007F	CCM_SIP_423_INTERVAL_TOO_BRIEF
419430421	0x19000015	CCM_SIP_424_BAD_LOCATION_INFO
1073741842	0x40000012	CCM_SIP_480_TEMPORARILY_UNAVAILABLE
1090519081	0x41000029	CCM_SIP_481_CALL_LEG_DOES_NOT_EXIST
1107296281	0x42000019	CCM_SIP_482_LOOP_DETECTED = 0x42000000 + EXCHANGE_ROUTING_ERROR
1124073497	0x43000019	CCM_SIP_483_TOO_MANY_HOOPS
1140850716	0x4400001C	CCM_SIP_484_ADDRESS_INCOMPLETE
1157627905	0x45000001	CCM_SIP_485_AMBIGUOUS
1174405137	0x46000011	CCM_SIP_486_BUSY_HERE
1191182367	0x4700001F	CCM_SIP_487_REQUEST_TERMINATED
1207959583	0x4800001F	CCM_SIP_488_NOT_ACCEPTABLE_HERE
1258291217	0x4B000011	CCM_SIP_491_REQUEST_PENDING
1291845649	0x4D000011	CCM_SIP_493_UNDECIPHERABLE
1409286185	0x54000029	CCM_SIP_500_SERVER_INTERNAL_ERROR
1442840614	0x56000026	CCM_SIP_502_BAD_GATEWAY
1459617833	0x57000029	CCM_SIP_503_SERVICE_UNAVAILABLE
-1493172161	0xA700003F	CCM_SIP_503_SERVICE_UNAVAILABLE_SER_OPTION_NOAVAIL
1476395110	0x58000066	CCM_SIP__504_SERVER_TIME_OUT
1493172351	0x5900007F	CCM_SIP_505_SIP_VERSION_NOT_SUPPORTED
1509949567	0x5A00007F	CCM_SIP_513_MESSAGE_TOO_LARGE
2701131793	0xA1000011	CCM_SIP_600_BUSY_EVERYWHERE
2717909013	0xA2000015	CCM_SIP_603_DECLINE
2734686209	0xA3000001	CCM_SIP_604_DOES_NOT_EXIST_ANYWHERE
2751463455	0xA400001F	CCM_SIP_606_NOT_ACCEPTABLE

This section describes how to search for information about the cause for termination of a call.

Procedure

Step 1 Choose **CDR > Search > By Cause for Call Termination**.

The Cause for Call Termination window displays.

Step 2 To search for the cause(s) of the termination of a call, highlight the cause(s) in the list of call termination causes.

Tip You can select more than one cause by clicking the causes that you want while holding down the Ctrl key on your keyboard. You can also select all causes in the list by holding down the Shift key while clicking all causes.

Step 3 With the desired cause(s) highlighted, click the down arrow above the Selected Call Termination Causes box.

The cause(s) that you selected displays in the Selected Call Termination Causes list box.

Note To view a complete list of Call Termination Causes, see the "Call Termination Cause Codes" section in the *Cisco Unified Communications Manager Call Detail Records Administration Guide*.

Step 4 Choose the date and time range of the period during which you want to search CDR data. When you configure the time range, use UTC.

Step 5 Choose whether to run the CDR Search report with grouping or without grouping. If you chose with grouping, check the box beside **With Grouping**. The default specifies Without Grouping

Note With Grouping choice means that the system returns CDR records that match the date and time range for the search and groups them with their associated records. Without Grouping returns all the CDR records that match the date and time range without grouping together all the associated records for each call.

Step 6 Click **OK**.

The Call Termination Details window displays the report criteria for which the report was generated, along with the total number of calls that were placed during the given time range as well as how many call legs and the percentage of call legs for each cause code that is selected. The system displays only the oldest 100 records that fall into the date and time ranges that you configured in Step 4. If more than 100 records are returned, the system truncates the results.

Step 7 To view CDRs, see the "Viewing Call Termination Details" section on page 25-10.

Additional Information

See the "Related Topics" section on page 25-14.

Viewing Call Termination Details

This section describes how to view the call termination details.

Before You Begin

Follow the steps in the "Configuring CDR Search by Cause for Call Termination" section on page 25-6 to display the Call Termination Details window.

Procedure

Step 1 In the Select CDRs field, check the check box beside the individual CDRs that you want to view or, if you want to view all CDRs in the list, check the **Select CDRs** check box.

Step 2 After you have chosen the CDRs that you want to view, click **View CDRs**.

The CDR-CMR Search Results window displays.

To view the media information and the CDR-CMR dump records, click the **Others** and **View** links. See the "Understanding the Results for CDR Search" section on page 27-1 for information on how to read CDR search results reports.

Step 3 To print information that displays on the window, click the **Edit** button in your browser. Right-click the **Select All** button to highlight the section of the report that you want to print. Click the **Print** button.

Step 4 To mail the report in an e-mail, click **Send Report** and follow the procedure that is described in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 25-14.

Configuring CDR Search by Call Precedence Levels

Only CAR administrators use the CDR Search by Call Precedence Levels feature.

This section describes how to search for calls according to call precedence.

Procedure

Step 1 Choose **CDR > Search > By Call Precedence Level**.

The CDR Search by Precedence Levels window displays.

Step 2 In Select Precedence Levels, check the check box(es) for the call precedence level(s) on which you want to search as described in Table 25-3.

Table 25-3 Call Precedence Levels

Voice Quality	Description
Flash Override	Highest precedence setting for MLPP calls.
Flash	Second highest precedence setting for MLPP calls.
Immediate	Third highest precedence setting for MLPP calls.
Priority	Fourth highest precedence setting for MLPP calls.
Routine	Lowest precedence setting for MLPP calls.

Note To check the check boxes of every precedence level, click **Select All**. To clear the check boxes, click **Clear All**.

Step 3 In the From Date field, choose the date and time from which you want CDRs searched. Current time displays in both Coordinated Universal Time (UTC) and local time and uses the following rules:

- The UTC and local time comprises a numeric string of mmddyyyy hhmmss, as in January 15, 2007 12:00:00.
- The default FromDate and ToDate values displays in UTC time.
- The default ToDate specifies the current time of the server in UTC time.
- The default FromDate value specifies the ToDate value minus 1 hour. For example, if ToDate = January 15, 2007 12:00:00, then the FromDate default value = January 15, 2007 11:00:00 (all times in UTC).

Step 4 In the To Date field, choose the date and time to which you want CDRs searched.

Step 5 Choose whether to run the CDR Search report With Grouping or Without Grouping. If you chose With Grouping, check the check box beside **With Grouping**. The default value specifies Without Grouping

Note With Grouping choice means that the system returns CDR records that match the date and time range for the search and groups them with their associated records. Without Grouping returns all the CDR records that match the date and time range without grouping together all the associated records for each call.

Step 6 Click **OK**.

The Call Precedence Details window displays and shows the call precedence levels and values, number of call legs, and percentage of call legs.

Step 7 In the Select CDRs column, check the check box(es) of the CDR(s) at which you want to look.

Step 8 Click **View CDRs**.

The CDR-CMR Search by Precedence Levels - CDR-CMR Search Results window displays. The system displays only the oldest 100 records that fall into the date and time ranges that you configured in Step 3 and Step 4. If more than 100 records are returned, the system truncates the results.

Step 9 To view the CMR data, click the **Others** button. To view both the CDR and CMR data fields, click the **View** button.

Step 10 To mail the report to e-mail recipient(s), click **Send Report** and follow the steps in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 25-14.

Configuring CDR Search for Malicious Calls

Only CAR administrators use the CDR Search for Malicious Calls feature.

This section describes how to search for malicious calls.

Procedure

Step 1 Choose **CDR > Search > Malicious Calls**.

The CDR Search for Malicious Calls window displays.

Step 2 Perform one of the following tasks:

- In the Select Extension(s) box, enter an extension in the Extension field and click **Add Extension**.

  The extension of the user displays in the Selected Extension(s) box.

- To search for a user extension, click the **Search Extension(s) based on User(s)** link, enter the first few letters of the first and/or last name in the First Name and/or Last Name fields, and click the **Search** button. When the results display, click the **Select** link next to the result that you want to include. The extension number that is associated with the user displays in the Selected Extension(s) box. Click the **Close** button.

Note To remove an extension, highlight the extension(s) that you want removed and click **Remove Extension(s)**. To remove all extensions, click **Remove All Extensions**.

Step 3 Choose the date and time range of the period when you want to search CDR data. Current time displays in both Coordinated Universal Time (UTC) and local time and uses the following rules:

- The UTC and local time comprises a numeric string of mmddyyyy hhmmss, as in January 15, 2007 12:00:00.
- The default FromDate and ToDate values display in UTC time.
- The default ToDate specifies the current time of the server in UTC time.
- The default FromDate value specifies the ToDate value minus 1 hour. For example, if ToDate = January 15, 2007 12:00:00, then the FromDate default value = January 15, 2007 11:00:00 (all times in UTC).

Step 4 Choose whether to run the CDR Search report With Grouping or Without Grouping. If you chose with grouping, check the box beside **With Grouping**. The default value specifies Without Grouping

Note With Grouping means that the system returns CDR records that match the date and time range for the search and groups them with their associated records. Without Grouping returns all the CDR records that match the date and time range without grouping all the associated records for each call together.

Step 5 Click **OK**.

The CDR-CMR Search Results window displays. The system only displays the oldest 100 records that fall into the date and time ranges that you configured in Step 3. If more than 100 records are returned, the system truncates the results.

Step 6 To view the CMR data, click the **Others** button. To view both the CDR and CMR data fields, click the **View** button.

Step 7 To mail the report to e-mail recipient(s), follow the steps in the "Mailing a Report" section on page 3-3.

Additional Information

See the "Related Topics" section on page 25-14.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 24, “Understanding CDRs”
- Chapter 26, “Configuring the Export of CDR/CMR Records”
- Chapter 27, “Reviewing CDR Search Results”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 26

Configuring the Export of CDR/CMR Records

This chapter describes how to export CDR/CMR records and how to view the exported records.

Use Export CDR/CMR in the CDR menu in Cisco Unified Communications Manager CDR Analysis and Reporting to export CDR/CMR dump information to the location of your choice on your computer. The CDR/CMR dump exists in the CSV format. You can also view the dump of the exported records.

This chapter contains the following topics:

- Exporting CDR/CMR Records, page 26-1
- Viewing Export CDR/CMR Records Results, page 26-2
- Related Topics, page 26-2
- Additional Cisco Documentation, page 26-3

Exporting CDR/CMR Records

The following procedure describes how to export CDR/CMR record results.

Procedure

Step 1 From CDR Analysis and Reporting, choose **CDR > Export CDR/CMR**.

The Export CDR/CMR records window displays.

Step 2 In the From Date and To Date drop-down list boxes, choose a date range for the CDR/CMR dump.

Step 3 In Select records, check the CDR records and/or CMR records check box.

Step 4 Click **Export to File**.

The Export CDR/CMR records Result window displays. See the "Viewing Export CDR/CMR Records Results" section on page 26-2.

Additional Information

See the "Related Topics" section on page 26-2.

Viewing Export CDR/CMR Records Results

The following procedure describes how to view Export CDR/CMR record results.

Before You Begin

Before you begin the following procedure, perform all the steps in the "Exporting CDR/CMR Records" section on page 26-1.

Procedure

Step 1 From the Export CDR/CMR Record Results window, right-click either the **CDR Dump** or **CMR Dump** link.

A popup window that comprises the following options displays:

- Open—This option allows you to open the window that contains the CDR/CMR dump in the same window.
- Open in a New Window—This option allows you to open the window that contains the CDR/CMR dump in a new window.
- Save Target As...—This option allows you to save the CDR/CMR dump to a location on your computer.
- Print Target—This option allows you to print the CDR/CMR dump information.
- Copy Shortcut—This option allows you to copy the window shortcut to paste in another file.
- Add to Favorites—This option allows you to add the CDR/CMR dump to your Favorites folder.
- Properties—This option provides the properties of the CDR/CMR dump file.

Step 2 From the popup window, choose one of the options.

Step 3 If you chose to save the CDR/CMR dump to your computer, choose a location in which to save the dump and click **Save**. After the download is complete, you can locate the file wherever you download it to open it.

Step 4 To delete the CDR and/or CMR dump, check the **Delete File** check box and click either **Back** or **Close**.

The files get deleted.

Note If you do not check the Delete File check box(es) (for example, if the CDR or CMR dump files get left undeleted), the background process deletes the files on a daily basis. Because the CDR and CMR dump files are large in size, Cisco recommends that you download the file to a local disk and delete them from the server to avoid disk usage on the server side.

Additional Information

See the "Related Topics" section on page 26-2.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1

- Chapter 24, “Understanding CDRs”
- Chapter 25, “Configuring CDR Search”
- Chapter 27, “Reviewing CDR Search Results”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 27

Reviewing CDR Search Results

This chapter describes CDR search results. The chapter contains the following topics:

- Understanding the Results for CDR Search, page 27-1
- Media Information, page 27-2
- CDR and CMR Dump Tables, page 27-3
- Related Topics, page 27-4
- Additional Cisco Documentation, page 27-4

Understanding the Results for CDR Search

The CDR search allows users to view the CDR/CMR fields as described in "CDR and CMR Dump Tables" section on page 27-3. The CDR search retrieves the CDR/CMR files from the tbl_billing_data and tbl_billing_error tables of the CAR database.

See Table 27-1.

Table 27-1 CDR Search Results

Field	Description
Sl No	This field specifies the serial or record number.
Call Type	This field specifies the type of call: simple, transfer, forward, pickup, conference, refer, replaces, or redirection.
GCID_CMId GCID_CallId	This field specifies the call identifiers that are associated with all the records for the entire call.
Orig Node Id Dest Node Id	This field specifies the server where the call originator/destination was registered at the time of the call.
Orig Leg Id Dest Leg Id	This field specifies the unique identifiers to the originating/destination leg of a call.
Calling No Calling No Partition	The calling number specifies the directory number where the call originated. The calling partition specifies the partition that is associated with the calling party.

Table 27-1 CDR Search Results (continued)

Field	Description
Called No Called No Partition	The called number specifies the directory number from which the call was initially placed and is the same as the Dest No when the call is not transferred or forwarded. The called partition specifies the partition that is associated with the called party.
Dest No Dest No Partition	The destination number specifies the directory number where the call finally terminated and is the same as the called number when the call is not transferred or forwarded. The destination number partition specifies the partition that is associated with the destination number.
Last Rd No Last Rd No Partition	The last redirected number specifies the directory number from which the call was finally redirected. The last redirected number partition specifies the partition that is associated with the last redirected number.
Media Info Orig Pkts Rcd Dest Pkts Rcd Orig Pkts Lost Dest Pkts Lost	This field specifies the packets that were received or lost for the origination or destination leg of a call and a link to the media information. See the "CDR and CMR Dump Tables" section on page 27-3 for information about the CDR and CMR Dump tables.
CDR - CMR Dump	This field specifies a link to the CDR and CDR dump tables. This link allows the users to view the values in the CDR/CMR fields. See the "CDR and CMR Dump Tables" section on page 27-3 for information about the CDR and CMR Dump tables.

Media Information

The media information table provides the following information. See Table 27-2.

Table 27-2 CDR Media Information

Field	Description
Origination Leg	A unique identifier for the originating leg of a call.
Destination Leg	A unique identifier for the destination leg of a call.

Table 27-2 CDR Media Information (continued)

Field	Description
Parameter	The media parameters MediaTransportAdd_Ip, PayLoadCapability, MediaCap_g723BitRate, Packets Sent, Octets Sent, Packets Received, Octets Received, Packets Lost, Jitter, Latency, QoS, VideoCap_Codec, VideoCap_Bandwidth, VideoCap_Resolution, VideoTransportAddress_IP, and VideoTransportAddress_Port
Origination	The value for all the preceding parameters for the origination leg of the call.
Destination	The value for all the preceding parameters for the destination leg of the call.

CDR and CMR Dump Tables

The CDR and CMR dump tables provide the following information. See Table 27-3.

Note You can view the content of the voice quality metrics field, varVQMetrics, in the Origination CMR and Destination CMR fields.

Table 27-3 CDR and CMR Dump Tables

Field	Description
CDR	This field specifies the call detail record fields.
Origination CMR	Only a single set of fields for origination and destination exists. You can find the origination or destination CMR by using the leg IDs. If the leg IDs of the CMR match the Orig/Dest leg ID of the CDR, the following record represents Orig/Dest CMR.
Destination CMR	Only a single set of fields for origination and destination exists. You can find the origination or destination CMR by using the leg IDs. If the leg IDs of the CMR match the Orig/Dest leg ID of the CDR, the following record represents Orig/Dest CMR.

The following example displays output from a CDR dump file:

CDR Dump File Output Example

```
cdrRecordType,globalCallID_callManagerId,globalCallID_callId,orignodeId,destnodeId,origle
gcallIdentifier,destlegidentifier,orignumberPacketsSent,orignumberOctetsSent,orignumberPa
cketsReceived,orignumberOctetsReceived,orignumberPacketsLost,destnumberPacketsSent,destnu
mberOctetsSent,destnumberPacketsReceived,destnumberOctetsReceived,destnumberPacketsLost,
```

```
origjitter,destjitter,origlatency,destlatency,pkid,origdeviceName,destdeviceName,origvar
VQMetrics,destvarVQMetrics,globalCallId_ClusterID,callingPartyNumber,finalCalledPartyNum
ber,callingPartyNumberPartition,finalCalledPartyNumberPartition
1,1,233,1,1,31565399,31565400,2159941,371509852,2158009,371177548,0,0,0,0,0,0,0,0,0,0,102
0e21e-111d-4171-b778-fd7e54c2283d,SEP001955098750,9.9.1.95,MLQK=4.5000;MLQKav=4.4270;MLQK
mn=3.6833;MLQKmx=4.5000;MLQKvr=0.95;CCR=0.0018;ICR=0.0000;ICRmx=0.0668;CS=3000;SCS=441,,
StandAloneCluster,1006,1002,,
1,1,234,1,1,31565401,31565402,2159930,371507960,2158063,371186836,2,0,0,0,0,0,0,0,0,0,16b
af132-4c6a-4ad9-bf4b-ac560d2a4cf1,SEP00192F74C18F,9.9.1.95,MLQK=4.4438;MLQKav=4.4274;MLQK
mn=3.7094;MLQKmx=4.5000;MLQKvr=0.95;CCR=0.0018;ICR=0.0000;ICRmx=0.0697;CS=2943;SCS=436,,S
tandAloneCluster,1005,1003,,
```

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 24, “Understanding CDRs”
- Chapter 25, “Configuring CDR Search”
- Chapter 26, “Configuring the Export of CDR/CMR Records”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

PART 6

System

CHAPTER 28

Configuring CAR System Parameters

Before you start generating reports with CAR, configure the system. In most cases, CAR provides default values; however, review the topics in this chapter to learn more about customizing CAR.

Unless you want to use the default values, you should customize a number of system parameters before you generate any reports. This section describes the system parameters that affect CAR. Because default values are provided for all system parameters, Cisco recommends customizing but does not require it.

This chapter contains the following topics:

- Configuring Mail Server Parameters, page 28-1
- Configuring the Dial Plan, page 28-2
- Restoring the Default Values for the CAR Dial Plan, page 28-3
- Configuring the Gateway, page 28-4
- Configuring System Preferences, page 28-5
- Related Topics, page 28-6
- Additional Cisco Documentation, page 28-6

Configuring Mail Server Parameters

To send e-mail alerts and reports by e-mail, you must specify the mail server configuration information. CAR uses the configuration information to successfully connect to the e-mail server.

This section describes how to specify e-mail server information.

Procedure

Step 1 Choose **System > System Parameters > Mail Parameters**.

The Mail Parameters window displays.

Step 2 In the Mail ID field, only enter the e-mail identifier that will be used in the From field when e-mails are sent (for example, smith1@abc.com, enter **smith1** in the Mail ID field.

Note CAR does not support SMTP authentication. You must disable authentication on the SMTP mail server.

Step 3 In the Mail Server Name field, enter the domain name for the server that runs the e-mail system (that is, **abc.com** from the example in Step 2).

Step 4 To make the changes, click the **Update** button.

Additional Information

See the "Related Topics" section on page 28-6.

Configuring the Dial Plan

The default dial plan in CAR specifies the North American numbering plan (NANP). Make sure that the dial plan is properly configured, so call classifications display correctly in the reports.

Note If you have modified the default NANP that is provided in Cisco Unified Communications Manager Administration, or if you are outside the NANP, be sure to configure the dial plan in CAR according to your Cisco Unified Communications Manager dial plan. At least one condition must exist to configure the Dial Plan. See the *Cisco Unified Communications Manager Administration Guide* and the *Cisco Unified Communications Manager System Guide* for dial plan information.

To configure the dial plan, define the parameters for the outgoing call classifications. Call classifications include International, Local, Long Distance, On Net, and so on. For example, if local calls in your area equal six digits in length, you would specify a row in the dial plan as follows:

Condition	No of Digits	Pattern	Call Type
=	6	!	Local

This section describes how to update the CAR dial plan configuration.

Procedure

Step 1 Choose **System > System Parameters > Dial Plan Configuration**.

The Dial Plan Configuration window displays.

Step 2 In the Toll Free Numbers field, enter the numbers in your dial plan that can be placed without a charge.

Step 3 Update the values in the table by using the following fields:

- Condition—Select the condition of the rule where **>** represents greater than, **<** represents less than, and **=** represents a value that is equal to the specified value in the No of Digits field.
- No of Digits—Choose the number of digits in the directory number to which this rule should be applied. If the number of digits does not impact the rule, specify NA.
- Pattern—Enter the pattern that is used for the call classification, where
  - G—Signifies classified as specified in the rule (G equals a wildcard for the gateway area code that is specified in the "Configuring the Gateway" section on page 28-4).
  - T—Retrieves the toll-free numbers that are configured in CAR.

  - !—Signifies multiple digits (any number that is more than 1 digit in length, such as 1234 or 5551234).
  - X—Signifies a single-digit number (such as 0, 1, or 9).
- Call Type—Choose the call type if the condition is satisfied.

Step 4 To add more rows, check the check box in the row below where you want to add rows and click the **Add Rows** link. The system adds a row above the row that you chose. To delete a row, check the check box by the row that you want to delete and click the **Delete Rows** link.

Note CAR classifies calls on the basis of the dialed number as stored in the CDRs. If the dialed digits differ from the digits that are written in CDRs (due to number transformations), configure the Dial Plan in CAR on the basis of how the digits show up in CDRs.

Step 5 To make the changes, click the **Update** button.

Additional Information

See the "Related Topics" section on page 28-6.

Restoring the Default Values for the CAR Dial Plan

If you have modified the default dial plan in CAR, you can restore the default values that are based on the North American numbering plan (NANP).

Table 28-1 provides the default NANP values.

Table 28-1 Default Values for CAR Dial Plan

Row	Condition	No of Digits	Pattern	Call Type
1	=	5	!	OnNet
2	=	7	!	Local
3	=	10	T!	Others
4	=	10	G!	Local
5	=	10	!	Long Distance
6	=	11	T!	Others
7	=	11	XG!	Local
8	=	11	!	Long Distance
9	>	3	011!	International

The following information explains the default table values in Table 28-1:

- Row 1—If the number of digits dialed equals 5 and the pattern is! (more than one digit, in this case, 5 digits), the call gets classified as On Net.
- Row 2—If the number of digits dialed equals 7 and the pattern is ! (more than one digit, in this case, 7 digits), the call gets classified as Local.

- Row 3—If the number of digits dialed equals 10 and the pattern is T! (more than one digit, in this case a 10-digit number that starts with a Toll Free number code), the call gets classified as Others.
- Row 4—If the number of digits dialed equals 10 and the pattern is G! (more than one digit, in this case a 10-digit number that starts with a gateway code), the call gets classified as Local.
- Row 5—If the number of digits dialed equals 10 and the pattern is ! (more than one digit, in this case a 10-digit number), the call gets classified as Long Distance.
- Row 6—If the number of digits dialed equals 11 and the pattern is T! (more than one digit, in this case an 11-digit number that starts with a toll-free number code), the call gets classified as Others.
- Row 7—If the number of digits dialed equals 11 and the pattern is XG! (more than one digit, in this case an 11-digit number that starts with any single digit followed by a gateway code), the call gets classified as Local.
- Row 8—If the number of digits dialed equals 11 and the pattern is ! (more than one digit, in this case an 11-digit number), the call gets classified as Long Distance.
- Row 9—If the number of digits dialed is greater than 3 and starts with 011, the call gets classified as International.

If none of the conditions gets satisfied, the call gets classified as Others. This section describes how to restore the NANP dial plan values in CAR.

Procedure

Step 1 Choose **System > System Parameters > Dial Plan Configuration**.

The Dial Plan Configuration window displays.

Step 2 Click the **Restore Defaults** button.

The restoration takes effect at midnight. To make changes take effect immediately, restart the Cisco CAR Scheduler service. For information on restarting services, see the *Cisco Unified Serviceability Administration Guide*.

Additional Information

See the "Related Topics" section on page 28-6.

Configuring the Gateway

Tip Configure the gateways in CAR for existing Cisco Unified Communications Manager system gateways. After you add gateways to Cisco Unified Communications Manager Administration, configure the new gateways in CAR. When gateways are deleted from the Cisco Unified Communications Manager system, the system automatically removes the gateways (and any configuration settings that you specified) from CAR.

CAR uses the area code information to determine whether calls are local or long distance. You must provide the Number of Ports information for each gateway to enable CAR to generate the Utilization reports.

Note "G" acts as a wildcard for the gateway area codes that are used in Dial Plan configuration.

This section describes how to configure gateways in CAR.

Procedure

Step 1 Choose **System > System Parameters > Gateway Configuration**.

The Gateway Configuration window displays.

Note If you have not configured gateways in Cisco Unified Communications Manager Administration, a message displays that indicates that you have not configured gateways for the system.

Step 2 Perform one of the following tasks:

- To update the area code for all gateways, enter the area code in the Area Code field and click the **Set Area Code** button.

  A message displays that indicates that you must click Update to save changes. Click **OK**.
- To update the area code for specific gateways, enter the area code for each gateway that you want to configure in the area code field for that gateway.

Step 3 In the Max No. of Ports field, enter the number of ports for each gateway that you want to configure. The Max No of Ports range goes from 1 to 1000.

Note CAR uses the values that were provided for the gateway when it was added in Cisco Unified Communications Manager Administration. Therefore, some gateways will already have an area code setting or have a zero for maximum number of ports, depending on the details that were specified when the gateway was added in Cisco Unified Communications Manager Administration. CAR does not accept 0 as a value for the maximum number of ports; you may be prompted to change the maximum number of ports for all gateways with a value of zero.

Step 4 To make the changes, click the **Update** button.

You can run reports in CAR on any or all of the configured gateways.

Additional Information

See the "Related Topics" section on page 28-6.

Configuring System Preferences

CAR provides default system preferences; however, you may customize the system by specifying values for the system parameters.

This section describes how to specify values for system preferences.

Procedure

Step 1 Choose **System > System Parameters > System Preferences.**

The System Preferences window displays. The list of available system parameters displays in the Parameter Name list.

Step 2 In the Parameter Value field, enter the desired value for the parameter as described in Table 28-2.

Table 28-2 System Preferences Parameter

Parameter	Description
COMPANY_NAME	Enter the company name that is used as header information in reports. The company name cannot exceed 64 characters in length.

Step 3 Click the **Update** button.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 29, “Configuring the CAR System Scheduler”
- Chapter 30, “Configuring the CAR System Database”
- Chapter 31, “Generating the CAR System Event Log”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 29

Configuring the CAR System Scheduler

The CAR System Scheduler allows you to configure the CDR load schedule and schedule daily, weekly, and monthly reports. This chapter contains the following topics:

- Configuring the CDR Load Schedule, page 29-1
- Scheduling Daily Reports, page 29-4
- Scheduling Weekly Reports, page 29-4
- Scheduling Monthly Reports, page 29-5
- Alarms and Alerts, page 29-7
- Related Topics, page 29-7
- Additional Cisco Documentation, page 29-8

Configuring the CDR Load Schedule

By default, CDR data loads continuously 24 hours a day, 7 days a week, and loads only CDR records.

Note The default batch size equals 600 CDR or CMR records. The default sleep time between each CDR batch equals 2500 ms and 3000 ms for each CMR batch. You can, however, configure the batch size from the tbl_system_preferences table "LOADER_BATCH" column to have any value between 50 and 2000.

This section describes how to customize the loading schedule, how to restore the default loading schedule if it is customized, and how to disable CDR loading.

Disable CDR loading when you are installing or upgrading the system. Of course, the CDR data does not get updated when CDR loading is disabled. Be sure to enable CDR loading again as soon as possible. The CAR tool does not affect the CDR generation in Cisco Unified Communications Manager.

Tip To manually delete the CAR data and reload the database with CDRs, see the "Manually Purging or Reloading the CAR Database" section on page 30-1.

Procedure

Step 1 Choose **System > Scheduler > CDR Load**.

The CDR Load window displays.

Step 2 Choose one of the following options:

a. Disable Loader—To disable CDR data loading, check the **Disable Loader** check box and click the **Update** button.

CDR data will not load into CAR until you enable CDR loading. Changes take effect at midnight. You can force the change to take effect immediately by stopping and restarting the CAR Scheduler service.

To enable CDR data loading, uncheck the **Disable Loader** check box and continue with Step 3 to configure the load parameters.

b. Continuous Loading 24/7—To enable the CDR Loader to run continuously 24 hours a day, 7 days a week to load CDRs into the CAR database, check the **Continuous Loading 24/7** check box and click the **Update** button. This choice represents the default setting for the CDR Load Scheduler.

Note Under the default setting, only CDR records continuously load. The CMR records do not load. You must manually uncheck the **Load CDR only** check box to force the CMR records to continuously load with the CDR records.

The CAR Scheduler service stops, and the CAR Loader, as configured, runs immediately (within 1 to 2 minutes). The CAR Scheduler service restarts. If no new files for processing exist, the CDR Loader sleeps and then checks periodically for new files to be loaded.

Note If this option is chosen, it takes precedence over and ignores the other CDR and CMR load parameters on the screen, such as Time, Loading Interval, Duration, and Uninhibited Loading.

c. Load CDR Only—To load only CDR records into the CAR database, check the **Load CDR only** check box and click the **Update** button. Continue to Step 3 to configure the load parameters. With this option, CMR records do not load into the CAR database. This choice represents the default setting for the CDR Load Scheduler.

Step 3 In the Load CDR & CMR area, complete the fields as described in Table 29-1.

Table 29-1 Load CDR & CMR Values

Field	Value
Time	Choose the hour and minute that you want CAR to begin loading CDR data from the CDR flat files.

Table 29-1 Load CDR & CMR Values (continued)

Field	Value
Loading Interval	Choose the interval at which you want records loaded. The interval can range from every 15 minutes to every 24 hours.
Duration	Enter the number of minutes that you want to allow CDR data to load. Depending on the size of the CDR flat files, CAR performance may degrade when CDRs load. You can limit the time that is allowed for loading, but in doing so, the possibility exists that only a portion of the CDR data will be loaded in the time that you set. Be sure to reconcile the duration limit that you place with the interval. For example, if you load CDR data every 15 minutes, the duration of loading cannot exceed 15 minutes.

Uninhibited loading allows you to set a time during which CDR data will load continuously. CDR data does not load **automatically** in the duration that is specified. The CDR data loads uninhibited in the specified duration only if loading starts at the duration that is specified in the Load CDR and CMR area settings. If CDR data loading starts at an uninhibited loading interval, loading continues to the end of the uninhibited loading interval, plus the time in the duration field that is set in the Load CDR and CMR area, or until no new files to process exist.

Uninhibited loading take precedence over any values that are set for scheduled loading. If you do not want uninhibited loading of CDR data, set the From and To values at 00:00.

Step 4 In the Uninhibited Loading of CDR area, complete the fields as described in Table 29-2:

Table 29-2 Uninhibited Loading of CDR Values

Field	Value
From	Choose the hour and minute that you want continuous loading of CDR data to begin.
To	Choose the hour and minute that you want continuous loading of CDR data to end.

Step 5 Click the **Update** button.

CAR will load CDR data based on the time, interval, and duration that you have specified. Changes take effect at midnight. You can force the change to take effect immediately by stopping and restarting the CAR Scheduler service.

Note If Continuous Loading 24/7 is selected, the CAR Scheduler service restarts automatically when the **Update** button is clicked. CAR will load CDR data immediately (within 1 to 2 minutes).

Additional Information

See the "Related Topics" section on page 29-7.

Scheduling Daily Reports

The Daily Report Scheduler schedules the time and duration of CAR daily reports.

Before You Begin

Specify the reports to be generated by using the Automatic Generation/Alert Option. See Chapter 35, "Configuring the Automatic Generation of CAR Reports and Alerts", for more information.

This section describes how to schedule the time and duration of the automatic daily reports.

Procedure

Step 1 Choose **System > Scheduler > Daily**.

The Daily Scheduler window displays.

Step 2 From the Time drop-down list box, choose the hour and minute when you want daily reports to be generated.

A 24-hour clock represents time, where 0 equals midnight, and 1 through 11 represent a.m. hours, and 12 through 23 represent the p.m. hours of 1 p.m. through 11 p.m., respectively.

Step 3 From the Life drop-down list box, choose the duration of the report from the range of 0 to 12 days.

Tip If you set the life of the report to 00, the report does not generate.

Step 4 Click the **Update** button.

Reports with report generation interval of Daily in the Automatic Generation/Alert Option and enabled automatically generate every day at the time that you specify and get deleted after the number of days that you specify.

Changes take effect at midnight. You can force the change to take effect immediately by stopping and restarting the CAR Scheduler service.

Tip To restore the defaults, click the **Restore Defaults** button. By default, the daily reports run at 1 a.m. every day and get purged after two days.

Additional Information

See the "Related Topics" section on page 29-7.

Scheduling Weekly Reports

The Weekly Report Scheduler schedules the day, time, and duration of the automatic weekly reports.

Before You Begin

Use the Automatic Generation/Alert Option to specify the reports to be generated. See Chapter 35, "Configuring the Automatic Generation of CAR Reports and Alerts", for more information.

This section describes how to schedule the day, time, and duration of the automatic weekly reports.

Procedure

Step 1 Choose **System > Scheduler > Weekly**.

The Weekly Scheduler window displays.

Step 2 From the Day of Week drop-down list box, choose the day that you want reports to be generated.

Step 3 From the Time drop-down list box, choose the hour and minute when you want reports to be generated.

A 24-hour clock represents time, where 0 equals midnight, and 1 through 11 represent a.m. hours, and 12 through 23 represent the p.m. hours of 1 p.m. through 11 p.m., respectively.

Step 4 From the Life drop-down list box, choose the duration of the report from the range of 00 to 12 weeks. The option that you choose indicates how many weeks the report remains on the disk before the report gets deleted.

Tip If you set the life of the report to 00, the report does not generate.

Step 5 Click the **Update** button.

Reports with report generation interval of Weekly in the Automatic Generation/Alert Option and enabled automatically generate every week at the time that you specify and get deleted after the number of weeks that you specify.

Changes take effect at midnight. For the changes to take effect immediately, stop and restart the CAR Scheduler service in the Control Center—Feature Services window.

Tip To restore the defaults, click the **Restore Defaults** button. By default, weekly reports run at 4 a.m. every Sunday and get purged after four weeks.

Additional Information

See the "Related Topics" section on page 29-7.

Scheduling Monthly Reports

The Monthly Report Scheduler schedules the day, time, and duration of CAR monthly reports.

Before You Begin

Use the Automatic Generation/Alert Option to specify the reports to be generated. See Chapter 35, "Configuring the Automatic Generation of CAR Reports and Alerts" for more information.

This section describes how to schedule the day, time, and duration of the automatic monthly reports.

Procedure

Step 1 Choose **System > Scheduler > Monthly**.

The Monthly Scheduler window displays.

Step 2 From the Day of Month drop-down list box in the Monthly Bill Generation row, choose the day of the month on which you want the report to be generated.

If you set the value to a day that does not occur in a given month (such as 29, 30, or 31), the report generates on the last day of that month.

Step 3 From the Time drop-down list box in the Monthly Bill Generation row, choose the hour and minute when you want the report to be generated.

A 24-hour clock represents time, where 0 equals midnight, and 1 through 11 represent a.m. hours, and 12 through 23 represent the p.m. hours of 1 p.m. through 11 p.m., respectively.

Step 4 From the Life drop-down list box in the Monthly Bill Generation row, choose the duration of the report from the range of 00 to 12 months. The option that you choose indicates how many months the report remains on the disk before the report gets deleted.

Tip If you set the life of the report to 00, the report does not generate.

Step 5 From the Day of Month drop-down list box in the Other Monthly Reports row, choose the day of the month on which you want the reports to be generated.

If you set this value to a day that does not occur in a given month (such as 29, 30, or 31), the report generates on the last day of that month.

Step 6 From the Time drop-down list box in the Other Monthly Reports row, choose the hour and minute that you want reports to be generated.

A 24-hour clock represents time, where 0 equals midnight, and 1 through 11 represent a.m. hours, and 12 through 23 represent the p.m. hours of 1 p.m. through 11 p.m., respectively.

Step 7 From the Life drop-down list box in the Other Monthly Reports row, choose the life of the report from the range of 00 to 12 months. The option that you choose indicates how many months the report remains on the disk before the report gets deleted.

Tip If you set the life of the report to 00, the report does not generate.

Step 8 Click the **Update** button.

Reports with report generation interval of Monthly in Automatic Generation/Alert Option and enabled automatically generate every month at the time that you specify and are deleted after the number of months that you specify.

Changes take effect at midnight. For the changes to take effect immediately, stop and restart the CAR Scheduler service in the Control Center—Feature Services window.

Tip To restore the defaults, click the **Restore Defaults** button. By default, monthly bill reports run at 3 a.m. on the first day of every month and get purged after two months, and other monthly reports run at 2 a.m. on the first day of every month and get purged after two months.

Additional Information

See the "Related Topics" section on page 29-7.

Alarms and Alerts

This release of Cisco Unified Communications Manager introduces a CAR alarm catalog (CARAlarmCatalog.xml) for the CAR Scheduler.

Table 29-3 displays the alarms/alerts in this catalog.

To configure these alarms, go to **Cisco Unified Serviceability > Alarm > Configuration > CDR Services**.

Table 29-3 CAR Alarm Catalog

Name	Severity	Description
CARSchedulerJobFailed	ERROR_ALARM	A critical CAR scheduled job failed. An alert gets raised when critical CDR Scheduler jobs and tasks fail (for example, DailyCdrLoad, PopulateSchedules, etc.).
CARSchedulerJobError	ERROR_ALARM	A CAR scheduled job failed. An alarm gets sent for all other noncritical CAR Scheduler jobs and tasks (for example, daily, weekly, and monthly reports, QoSNotification, ChargeLimitNotification, etc.).
BadCDRFileFound	ERROR_ALARM	Bad CDR or CMR flat file was found during CDR Load to the CAR database. The CDR Loader can detect bad or corrupted CDR and/or CMR flat files and log the specified error. Information on the failure cause (specified reason for the bad record) and the failure summary (tracks number of bad records in comparison to the total records in the file) gets provided.

For additional information on these alarms and recommended action, see the alarm definitions at **Cisco Unified Serviceability > Alarm > Definitions > CARAlarmCatalog**.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 28, “Configuring CAR System Parameters”
- Chapter 30, “Configuring the CAR System Database”
- Chapter 31, “Generating the CAR System Event Log”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 30

Configuring the CAR System Database

You can configure CAR to notify you when the CAR database size exceeds a percentage of the maximum number of records. You can set the message and the maximum number of records and specify the alert percentage.

You can configure the system to maintain the CAR database size between the low water mark and the high water mark values that you configure through the Configure Automatic Database Purge window. When the database size reaches the low water mark, CAR sends an alert to the user. When the database size reaches the high water mark, the system deletes records based on the deletion age and sends an e-mail.

To configure the CAR system database, go to **Cisco Unified Serviceability -> Tools -> CDR Analysis and Reporting -> System or Report Config**.

This chapter contains the following topics on how to purge and reload the CAR database:

- Manually Purging or Reloading the CAR Database, page 30-1
- Configuring Automatic Database Purge, page 30-4
- Related Topics, page 30-5
- Additional Cisco Documentation, page 30-5

Manually Purging or Reloading the CAR Database

This section describes how to manually purge selected records from the CAR database and how to delete all of the CAR data and reload the database with new CDR data. You may want to reload the database to reclassify calls after dial-plan updates, user-device association changes, call rate changes, and so on.

Before you begin to manually purge data, disable the CDR Loader.

Manual purging of the CDRs gets stopped if the CAR Web Service is stopped during the manual purge process. Manual purging cannot begin again until the CAR Web Service restarts. Then you must begin the manual purge process again.

There are two ways to intentionally stop the CAR Web Service:

- Deactivate the CAR Web Service in the Serviceability Service Activation window (**Cisco Unified Serviceability > Service Activation**).
- Stop the CAR Web Service in the Feature Services window of the Serviceability Control Center (**Cisco Unified Serviceability > Tools > Control Center - Feature Services**).

The CDR Loader cannot begin again until either the CAR Web Service or the CAR Scheduler gets restarted.

A CAR administrator can no longer generate CAR reports when a manual purge of the CAR database is in process or CDR records are reloading. The following error message displays when you try to run reports during these processes:

```
10023: Manual Purge/Reload is in process. Please run the reports once the Manual
Purge/Reload is over.
```

Both the **Purge** button and the **Reload All Call Detail Records** button get disabled, and the following alert message displays on the Manual Purge window, when either a manual purge or CDR reload occurs:

```
Manual Purge/Reload is still running. User will not be allowed to run another instance of
Manual Purge/Reload. So, both Purge and Reload All Call Detail Records buttons are
disabled.
```

Procedure

Step 1 Choose **System > Database > Manual Purge**.

The Manual Database Purge window displays.

Step 2 Choose one of the following actions:

- To delete the existing CAR data and reload the CAR database, click the **Reload All Call Detail Records** button.

  The system displays a message that indicates that deleting the records may impact system performance. To continue the reload process, click **OK**.

  The system begins loading the CDRs into the CAR database within 5 minutes and continues uninterrupted for up to 6 hours. To monitor the progress of the reload, generate the CDR Load event log, as described in the "Generating the Event Log" section on page 31-1.

  After the system loads the new records, the system loads the records according to the schedule that is configured in Chapter 29, "Configuring the CAR System Scheduler". By default, CDR data loads 24 hours per day and 7 days per week.

- To manually purge selected CAR records, continue with Step 3.

Step 3 In the Select Table field, choose the table in the database that you want purged.

To view the tables for which manual purge is permitted, the total number of records in the table, and the latest record and oldest record in the table, click the **Table Information** button.

The Table Information window displays. You will see a table with the following information:

Database Name	Table Name	Total No. of Records	Latest Record	Oldest Record
CAR	Tbl_billing_data	0	0	0
CAR	Tbl_billing_error	0	0	0
CAR	Tbl_purge_history	0	0	0

To return to the Manual Database Purge window, click the **Close** button.

Step 4 In the Delete records field, choose a date that will determine which records will be purged by clicking one of the following radio buttons:

- Older than—Choose a date for which all records before that date will be deleted.
- Between—Choose a range of dates between which all records will be deleted.

Step 5 Choose the date range of the CAR records that you want to delete.

Step 6 To delete all records older than or between the dates that you specified, click the **Purge** button.

A prompt advises you that you are about to permanently delete the specified records.

Step 7 To purge the records, click the **OK** button or click the **Cancel** button to abort the purge operation.

If you click **OK**, the records get purged from the selected table. After successful deletion of records, the status message shows the number of records that were deleted from the table.

Additional Information

See the "Related Topics" section on page 30-5.

Configuring Automatic Database Purge

This section describes how to schedule and disable automatic purging of the CAR database. By default, the system enables automatic database purge.

Procedure

Step 1 Choose **System > Database > Configure Automatic Purge**.

The Configure Automatic Database Purge window displays. At the top of the window, the percentage amount of the CAR database space that has been used gets displayed. The maximum CAR Database space that is available gets displayed in megabytes.

Step 2 From the Low Water Mark drop-down list box, choose the minimum percentage of the maximum CAR database size that you want the system to use for CAR data. The default value specifies 80 percent.

Tip The system notifies you when the CAR database size reaches the low or the high water mark; it also notifies you when the CAR database size exceeds the maximum number of records. For information on configuring an e-mail alert, see the "Enabling or Disabling Alerts by Mail" section on page 35-4, for instructions.

Step 3 From the High Water Mark drop-down list box, choose the maximum percentage of the maximum CAR database size that you want the system to use for CAR data. The default value specifies 90 percent.

Step 4 In the Min Age of Call Detail Records field, enter the minimum number of days that you want CAR to use when it purges CDRs from the CAR database. Enter a number between 1 and 180. The default value specifies 30 days.

When the database size exceeds the high water mark or the number of CDRs in the CAR database exceeds the maximum number of records, CAR deletes the CDRs that are older than the number of days that you specified in this field.

Step 5 In the Max Age of Call Detail Records field, enter the maximum number of days that you want to keep the CDRs in the CAR database. Enter a number between 1 and 180. The default value specifies 60 days.

CAR deletes all CDRs that are older than the specified number of days.

Note To restore the default values for the fields in this window, click the **Restore Defaults** button.

Step 6 Click the **Update** button.

The changes take effect at midnight. To make changes take effect immediately, restart the Cisco CAR Scheduler service.

Tip When CAR loads the CDRs into the CAR database, the CAR Scheduler checks the low and high water marks and the maximum record limit. If any threshold is breached, CAR immediately deletes records that are older than the number of days that you specify in Step 4

Additional Information

See the "Related Topics" section on page 30-5.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 28, "Configuring CAR System Parameters"
- Chapter 29, "Configuring the CAR System Scheduler"
- Chapter 31, "Generating the CAR System Event Log"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 31

Generating the CAR System Event Log

CAR provides logs that you can use to track the status of the various activities. The event log tracks events that the CAR Scheduler triggers, such as automatically generated reports, loading of CDRs, report deletions, and database purging.

The event log provides a report on the status of the activities that the CAR Scheduler controls. The event log report shows whether the tasks started, completed successfully, or are in progress.

This chapter contains the following topics:

- Generating the Event Log, page 31-1
- Related Topics, page 31-4
- Additional Cisco Documentation, page 31-4

Generating the Event Log

This section describes how to generate the event log report. The event log includes a list of tasks/reports that are scheduled on a daily, weekly, or monthly basis.

This release of Cisco Unified Communications Manager introduces the Task Monitor and Database Maintenance as new features.

TaskMonitor monitors the status of other jobs and cleans up Informix Dynamic Server (IDS) memory when necessary by using the IDS command “onmode –F.” DatabaseMaintenance runs the IDS-recommended optimized database maintenance “update statistics” procedures.

Task Monitor begins about 1 minute after the Scheduler starts, and 1 minute after the Scheduler repopulates the schedules every day at midnight (00.00). The Task Monitor periodically (every 5 minutes) monitors the status of all jobs for the day from the tbl_event_log with the exception of the following jobs: PopulateSchedules, TaskMonitor, DatabaseMaintenance, and DailyCdrLoad.

When a task does not start on schedule because a previous task is still running, you may see something like the following trace message:

```
2008-02-14 08:00:04, 602 WARN [main] services. Scheduler - runTasks(): Job [DailyCdrLoad]
thread is busy, hence it will be removed from today’s schedule and not be started!”
```

The Scheduler gives a grace period to periodically sleep for 10 seconds and then check whether the task thread is complete. The Scheduler sleeps up to 2 minutes total. If the task thread is not complete after the 2 minutes of wait, the next task gets removed from the current schedule, and does not run until its next scheduled time.

Table 31-1 displays the list of tasks/reports and how often they are scheduled.

Table 31-1 Task List

Task	Scheduled
CDR Load	Daily
Task Monitor[1]	Daily
Database Maintenance[2]	Daily
QoS Notification	Daily
Charge Limit Notification	Daily
Database Alert	Daily
Delete Reports	Daily
Database Purge	Daily
Traffic Summary - Hour of Day	Daily
Top N Charge	Daily
Top N Duration	Daily
Top N Calls	Daily
Conference - Detail	Daily
Traffic Summary - Day of week	Weekly
Conference Bridge Utilization - Day of week	Weekly
Voice Messaging Utilization - Day of week	Weekly
Route Pattern/Hunt Pilot Utilization - Day of week	Weekly
Route/Hunt List Utilization - Day of week	Weekly
Route Group Utilization - Day of week	Weekly
Gateway Utilization - Day of week	Weekly
Line Group Utilization - Day of week	Weekly
QoS Summary	Monthly
Gateway Summary	Monthly
Traffic Summary - Day of month	Monthly
System Overview	Monthly
Department Bill Summary	Monthly
Individual Bill Summary	Monthly
Top N Charge	Monthly
Top N Duration	Monthly
Top N Calls	Monthly
Conference - Summary	Monthly

1. The system automatically configures and executes the Task Monitor, which is an internal task, on a daily basis.
2. Database Maintenance represents an internal task that the system automatically configures and executes on a daily basis.

Procedure

Step 1 Choose **System > Log Screens > Event Log.**

The Event Log window displays.

Step 2 Click the **Daily** radio button to choose daily jobs, the **Weekly** radio button to choose weekly jobs, or the **Monthly** radio button to choose monthly jobs.

Step 3 In the List of Jobs area, choose the tasks for which you want information.

Step 4 To add the chosen task to the Selected Jobs area, click the right arrow icon.

Step 5 To remove tasks from the Selected Jobs area, choose the task that you want removed and click the left arrow icon.

Step 6 To add tasks with a different frequency, repeat Step 2 through Step 4. For example, you can have daily reports and reports that include monthly or weekly tasks.

Step 7 Choose the status to include in the report. You must choose at least one status as described in Table 31-2.

Note The system chooses the status of each event log report by default.

Table 31-2 Event Log Report Status

Status	Description
Complete	If this check box is checked, the event log report includes tasks that are complete.
In Progress	If this check box is checked, the event log report includes tasks that are currently in progress.
Unsuccessful	If this check box is checked, the event log report includes tasks that have failed.
Scheduled	If this check box is checked, the event log report includes tasks that have been scheduled but have not yet started.

Note When the Scheduler restarts, all unfinished jobs with a status of Scheduled get deleted. Current jobs with the status of In Progress or Scheduled get changed to Unsuccessful.

Step 8 Choose a date range by choosing From and To values.

Step 9 To generate the event log report, click the **OK** button.

The event log displays information about the chosen tasks.

Table 31-3 describes the event log report output.

Table 31-3 Event Log Report Output Parameters

Parameter	Description
Sl No	Serial number
Jobs	Name of the task

Table 31-3 Event Log Report Output Parameters (continued)

Parameter	Description
Start Time	Time the task starts
End Time	Time the task ends
Status	Unsuccessful, in progress, completed
Date	Date the task is scheduled

Step 10 Print the log by right-clicking on the screen and choosing **Print**.

Note A grace period of up to 2 minutes gets provided, so an in-process job can finish before the next schedule job is scheduled to begin.

Additional Information

See the "Related Topics" section on page 31-4.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 28, "Configuring CAR System Parameters"
- Chapter 29, "Configuring the CAR System Scheduler"
- Chapter 30, "Configuring the CAR System Database"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

PART 7

Report Configuration

CHAPTER 32

Understanding the CAR Reports Configurations

Use the CAR report configuration to define the following parameters:

- Rating parameters for calls—duration, time of day, voice quality
- Quality of service
- Automatic generation of reports with alerts
- Notification limits

This chapter contains the following topics:

- Understanding the CAR Reports Configuration, page 32-1
- Related Topics, page 32-2
- Additional Cisco Documentation, page 32-2

Understanding the CAR Reports Configuration

Before you start generating reports with CAR, configure the system. See the "Configuring CAR System Parameters" section on page 28-1.

Rating Engine

You can use CAR to set a base monetary rate for the cost of calls based on a time increment. You can further qualify the cost by applying the time-of-day and voice-quality factors. Service providers who must account for service to subscribers commonly use this feature. Some organizations also use this information to establish billing costs for users and departments in the organization for accounting or budgeting purposes.

Reports that use these rating parameters include Individual Bill, Department Bill, Top N by Charge, Top N by Duration, and Top N by Number of Calls.

Note If you do not change the default value for charge base/block, the cost will always equal zero because the default base charge per block equals zero.

The charge of any call comprises the multiplication of the basic charge of the call, multiplication factor for time of day, and multiplication factor for voice quality. You can set the basic charge for a call through the **Report Config > Rating Engine > Duration** window. See the following list:

- Basic charge = cost, or number of units, applied to the duration block that is specified in the Number of Blocks section.

- Number of blocks = total duration of call, in seconds, for which you want the base charge to be applied.

You can set the multiplication factor for time of day through the **Report Config > Rating Engine > Time of Day** window. The basis of the settings provides the connect time of the call.

You can set the multiplication factor for voice quality through the **Report Config > Rating Engine > Voice Quality** window.

QoS Values

CAR generates QoS reports. To qualify the data that is presented in those reports, CAR uses predefined values that are set about voice quality. You can specify the value ranges that are good, acceptable, fair, and poor for jitter, latency, and lost packets.

Automatic Generation of Reports and Alerts

CAR automatically generates reports based on a schedule. Report generation can include a daily, weekly, or monthly summary report, QoS reports, traffic reports, Device/Route Plan utilization reports, and so on, that you may want to view on a regular basis.

Notification Limits

You can specify limits for QoS and daily charges, so the administrator gets alerted by e-mail when these limits are exceeded. The alerts go to all users that are designated as CAR Administrators through Cisco Unified Communications Manager Administration. See the "Configuring CAR Administrators, Managers, and Users" section on page 2-8.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 33, "Configuring the CAR Rating Engine"
- Chapter 34, "Configuring the CAR Reports QoS Values"
- Chapter 35, "Configuring the Automatic Generation of CAR Reports and Alerts"
- Chapter 36, "Configuring CAR Reports Notification Limits"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 33

Configuring the CAR Rating Engine

Use the CAR rating engine configuration to define the base rate and duration, time of day, and voice quality rating parameters for calls.

Note Rating parameters for calls get used during CAR loading. If you want old CDR records in the CAR database to use new values for these parameters, you must reload all the CDRs in the CAR database.

This chapter contains the following topics:

- Setting the Base Rate and Duration, page 33-1
- Factoring Time of Day into Call Cost, page 33-2
- Factoring Voice Quality into Call Cost, page 33-3
- Related Topics, page 33-4
- Additional Cisco Documentation, page 33-4

Setting the Base Rate and Duration

To establish a cost basis for calls, you must specify a base rate for all calls. For example, if your service provider charges you 6 cents for each minute, billed in 10-second increments, you can set the base rate at which all calls are charged at 1 cent for each 10-second increment.

This section describes how to establish the base charge and duration values.

Note If you use the default base charge value, reports do not provide any costs. The system provides default values, but if left to the defaults, the Rating Engine stays disabled and does not provide costs.

Procedure

Step 1 Choose **Report Config > Rating Engine > Duration**.

The Call Duration window displays.

Step 2 In the To (seconds) field, enter the seconds for which you want the base charge to be applied. For example, if you are billed in 6-second increments, enter 6 in this field. If you are billed a flat rate for each minute regardless of call duration, enter 60 in this field, so the charge is based on whole minutes.

Step 3 In the Base Charge/Block field, enter the cost basis for the seconds that are shown in the To (seconds) field. For example, if you are billed 6 cents for each minute in 6-second increments, enter 0.006 in this field. If you are billed 7 cents for each minute in whole minutes (no incremental billing), enter 0.07 in this field.

In the preceding examples, if you are billed in 6-second increments and the cost is 0.006 for each 6-second increment, a call that lasts 7 seconds would cost 0.012. Rationale: Each 6-second increment costs 0.006, and two blocks from 0 to 6 seconds occurred.

Likewise, if you are billed in whole minutes and the cost is 7 cents for each minute, a call that lasted 3 minutes would cost 21 cents. Rationale: Each 60-second increment costs 7 cents, and three blocks of 1 minute occurred.

Step 4 Click the **Update** button.

Tip To restore the default setting, click the **Restore Defaults** button. By restoring the default value of 0 for the call charge/block, you effectively disable the other factors that are used in determining call cost.

Additional Information

See the "Related Topics" section on page 33-4.

Factoring Time of Day into Call Cost

To further define the cost of calls, you can specify a multiplication factor for certain times of day. For example, if you want to charge subscribers a premium for daytime calls, you can apply a multiplication factor to the base charge/block that you specified in the Call Duration window.

This section describes how to establish certain times of day when calls cost more.

Note If you do not want to increase call cost by time of day, you can use the default values. The default multiplication factor specifies 1, so no increase in call cost for time of day occurs.

Procedure

Step 1 Choose **Report Config > Rating Engine > Time of Day**.

The Time of Day window displays.

Step 2 To add rows, click the **Add Rows** link.

The system adds a row between 00:00:00 and 23:59:59.

Step 3 To add additional rows, check the check box for the row above which you want to add a new row and click the **Add Rows** link.

Note To delete rows, check the check box for the row that you want to delete and click the **Delete Rows** link.

Step 4 Enter the From and To time ranges in 24-hour, minute, and second format. A 24-hour period, from 00:00:00 to 23:59:59, represents the default time range. If you want to set one time-of-day range from 8 am to 5 pm, you will need to establish three time-of-day ranges: the first from 00:00:00 to 07:59:59, the second from 08:00:00 to 16:59:59, and the third from 17:00:00 to 23:59:59.

Note You must use Coordinated Universal Time (UTC), rather than a 12-hour clock, when factoring Time of Day into Call Cost.

Step 5 Enter the Multiplication Factor that designates a number by which you want the base charge/block to be multiplied when a call occurs in the specified time range. For example, if you charge a premium of double the price for calls that are placed between 8 a.m. and 5 p.m., the multiplication factor equals 2.00. A multiplication factor of 1.00 does not affect the cost of the call.

Step 6 To add the time-of-day and multiplication factors, click the **Update** button.

Tip To restore the default setting, click the **Restore Defaults** button.

Additional Information

See the "Related Topics" section on page 33-4.

Factoring Voice Quality into Call Cost

To further define the cost of calls, you can specify a multiplication factor for the voice quality of a call. For example, if subscribers are paying a premium price to ensure the highest voice quality on calls, you can apply various multiplication factors to the base charge/block that you specified in the Call Duration window depending on the voice quality. Using a multiplication factor other than 1.00 helps differentiate between the various voice quality calls as well.

This section describes how to establish call cost when calls that have a certain voice quality cost more.

Note If you do not want to increase call cost by voice quality, you can use the default values. The default multiplication factor equals 1.00, so no increase in call cost occurs for voice quality.

Procedure

Step 1 Choose **Report Config > Rating Engine > Voice Quality**.

The Voice Quality window displays.

Step 2 In the Multiplication Factor field, enter the number by which you want the base charge/block to be multiplied when a call occurs in the specified voice-quality category. The "Configuring QoS Values" section on page 34-1 defines the voice-quality categories: Good, Acceptable, Fair, and Poor.

Example

Voice Quality Good; Factor 1.2

Voice Quality Acceptable; Factor 1.0

Voice Quality Fair; Factor 1.0

Voice Quality Poor; Factor 0.8

A good call gets charged 1.2 times that of an acceptable or fair call. A poor call gets charged 0.8 times that of an acceptable or fair call.

Note Multiplication factor for a good call >= the multiplication factor for acceptable >= multiplication factor for fair >= multiplication factor for poor.

Step 3 To set the voice quality multiplication factors, click the **Update** button.

Tip To restore the default setting, click the **Restore Defaults** button.

Additional Information

See the "Related Topics" section on page 33-4.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 32, "Understanding the CAR Reports Configurations"
- Chapter 34, "Configuring the CAR Reports QoS Values"
- Chapter 35, "Configuring the Automatic Generation of CAR Reports and Alerts"
- Chapter 36, "Configuring CAR Reports Notification Limits"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 34

Configuring the CAR Reports QoS Values

This chapter contains the following topics:

- Configuring QoS Values, page 34-1
- Related Topics, page 34-2
- Additional Cisco Documentation, page 34-3

Configuring QoS Values

QoS values get configured for lost packets, jitter, and latency based on good, acceptable, fair, or poor criteria.

If a call does not satisfy any of the criteria that are set for any of the four voice-quality categories, it receives a classification of NA (not applicable); likewise, if the system is not configured to generate CMR data (or if the CMR is bad), the CMR receives a classification of NA (not applicable).

Enter NA to ignore the values of a parameter. For example, a QoS parameter such as jitter, has NA, and the QoS is defined as good, which means that the QoS depends only on the values of latency and lost packets. All three parameters cannot have NA as values. Infinity designates the maximum value that is available for any parameter. If you specify a rule where a jitter value from 500 to Infinity is considered poor, a call with jitter greater than 500 receives a classification of poor.

Note Be aware that the classifications of “NA” and “Infinity” are case-sensitive.

This section describes how to define the QoS values.

Procedure

Step 1 Choose **Report Config > Define QoS**.

The Define Quality of Service window displays. Table 34-1 describes the QoS default values.

Table 34-1 QoS Default Values

QoS Parameter	Default
Lost Packets	Good—0.00 to 15.00 Acceptable—15.01 to 30.00 Fair—30.01 to 45.00 Poor—45.01 to infinity
Jitter	Good—0 to 20 Acceptable—21 to 100 Fair—101 to 150 Poor—151 to infinity
Latency	No default values apply.

Step 2 To add rows, check the check box for the row above which you want to add a new row and click the **Add Rows** link.

The new row gets added above the row that you checked, and the check box is cleared.

The rows represent the values that CAR uses to quantify the conditions good, acceptable, fair, and poor in the QoS reports. For each value set, enter the upper and lower limits in the From and To columns.

Note To delete rows, check the check box for the row that you want to delete and click the **Delete Rows** link.

Step 3 For each value that you have set, choose the Quality of Service.

Step 4 Click the **Update** button.

Tip To restore the default QoS values, click the **Restore Defaults** button.

Additional Information

See the "Related Topics" section on page 34-2.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 32, "Understanding the CAR Reports Configurations"
- Chapter 33, "Configuring the CAR Rating Engine"
- Chapter 35, "Configuring the Automatic Generation of CAR Reports and Alerts"
- Chapter 36, "Configuring CAR Reports Notification Limits"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 35

Configuring the Automatic Generation of CAR Reports and Alerts

Before You Begin

Before you start generating reports with CAR, configure the system. See the "Configuring CAR System Parameters" section on page 28-1.

This chapter contains the following topics:

- Enabling or Customizing Reports for Automatic Generation, page 35-3
- Enabling or Disabling Alerts by Mail, page 35-4
- Related Topics, page 35-5
- Additional Cisco Documentation, page 35-5

Table 35-1 displays the list of reports that the system enables or disables for automatic generation, the report generation interval, and the recipients of the report.

Table 35-1 Automatically Generated Reports

Name of Report	Report Generation Interval	Recipients
Department Bill Summary	Monthly	• CAR managers • CAR administrators
Gateway Summary	Monthly	• CAR administrators
Individual Bill	Monthly	• Individual users configured in Cisco Unified CM. • CAR administrators Note: Administration users do not get access to this report.
Individual Bill Summary	Monthly	• Individual users configured in Cisco Unified CM • CAR managers • CAR administrators
Conference Summary	Monthly	• CAR administrators

Table 35-1 Automatically Generated Reports (continued)

Name of Report	Report Generation Interval	Recipients
Conference Detail	Daily	• CAR administrators
QoS Summary	Monthly	• CAR managers • CAR administrators
System Overview	Monthly	• CAR administrators
Top N Charge	Daily	• CAR managers • CAR administrators
Top N Charge	Monthly	• CAR managers • CAR administrators
Top N Duration	Daily	• CAR managers • CAR administrators
Top N Duration	Monthly	• CAR managers • CAR administrators
Top N Calls	Daily	• CAR managers • CAR administrators
Top N Calls	Monthly	• CAR managers • CAR administrators
Traffic Summary—Day of Month	Monthly	• CAR administrators
Traffic Summary—Day of Week	Weekly	• CAR administrators
Traffic Summary—Hour of Day	Daily	• CAR administrators
Conference Bridge Util—Day of Week	Weekly	• CAR administrators
Voice Messaging Util—Day of Week	Weekly	• CAR administrators
Route Pattern/Hunt Pilot Util—Day of Week	Weekly	• CAR administrators
Route/Hunt List Util—Day of Week	Weekly	• CAR administrators
Route Group Util—Day of Week	Weekly	• CAR administrators
Line Group Util—Day of Week	Weekly	• CAR administrators
Gateway Util—Day of Week	Weekly	• CAR administrators

Note In large setups, with a large number of gateways, route groups, route lists, and route patterns, enabling all the Utilization reports (Gateway Utilization, Line Group Utilization, Route Group Utilization, Route List Utilization, and Route Pattern Utilization) increases the CPU usage of the system, therefore increasing the time in which reports are generated. This also affects system performance. Cisco recommends that you enable only Gateway Utilization reports for automatic generation, due to the number of gateways that are typically found in a large system. You can generate all Utilization reports on demand by selecting five or less gateways, route groups, route lists, or route groups.

Automatically generating reports involves a two-step process:

- First, enable the reports that you want to generate unless they are enabled by default. See the "Enabling or Customizing Reports for Automatic Generation" section on page 35-3.
- Second, schedule the reports for the day and time that you want them to generate. (CAR provides a default schedule. If the default schedule is acceptable, only enable the reports that you want to generate automatically.) See the Chapter 29, "Configuring the CAR System Scheduler".

CAR provides e-mail alerts for various events. Enabling the system for e-mail alerts involves a two-step process:

- First, enable the e-mail alerts. Default enables some, but not all, reports. See the "Enabling or Disabling Alerts by Mail" section on page 35-4.
- Second, configure the e-mail that is sent when the alert criteria are met. See the "Enabling or Disabling Alerts by Mail" section on page 35-4

Additional Information

See the "Related Topics" section on page 35-5.

Enabling or Customizing Reports for Automatic Generation

This section describes how to enable or disable one or all reports for automatic generation. You can also customize the report parameters and enable a mailing option, so reports get e-mailed when they are created. When the report gets mailed, CAR generates the e-mail address by using the mail ID for the CAR administrator(s) and the mail domain that is configured in the Mail Parameters window; that is, CAR uses <mail ID for the CAR administrator> @ <domain that is configured in the mail parameters window>.

For all new installations of Cisco Unified Communications Manager, you must first enable the e-mail alerts and reports for automatic generation. The default status for all reports and alerts specifies **Disabled**.

For all Cisco Unified Communications Manager upgrades from Release 5.x to a later release of Cisco Unified Communications Manager, the tbl_pregenmail_option table data migrates only if the CAR Scheduler service is active.

When you upgrade to another version of Cisco Unified Communications Manager, disable all reports and alerts while the upgrade is in process to conserve system resources. Remember to enable the reports and alerts after the upgrade completes.

The "Automatically Generated Reports Schedule" section on page 1-6 describes reports that are enabled by default.

Procedure

Step 1 Choose **Report Config > Automatic Generation/Alert**.

The Automatic Report Generation/Alert Option window displays.

Step 2 In the Reports [Report Generation Interval] box, choose the report that you want to automatically generate based on the schedule that you defined in the System Scheduler. See the Chapter 29, "Configuring the CAR System Scheduler".

Step 3 In the Status field, choose **Enabled** or **Disabled**.

Step 4 To customize the report or have the report e-mailed when it is generated, click the **Customize Parameters** button.

The Customize Parameters window displays.

Note Each report provides different customization options, depending on the type of report.

Step 5 Choose the CSV or PDF radio button, depending on the type of report that you want the system to mail.

Step 6 To have the report mailed to all CAR administrators, check the **Mailing Option** check box.

Step 7 To save the values that you specified, click the **Update** button.

The Customize Parameters window closes.

Step 8 To enable or customize other reports, repeat Step 4 through Step 7.

Step 9 Click the **Update** button.

Changes take effect at midnight. You can force the change to take effect immediately by stopping and restarting the CAR Scheduler service.

Additional Information

See the "Related Topics" section on page 35-5.

Enabling or Disabling Alerts by Mail

There are two Alerts by Mail that are available. These alerts are:

- Charge Limit Notification
- QoS Notification

See the "Configuring Notification Limits" section on page 36-1 for information on how to configure these alerts.

This section describes how to enable these alerts to be mailed to users.

Procedure

Step 1 Choose **Report Config > Automatic Generation/Alert**.

The Automatic Report Generation/Alert window displays.

Step 2 In the Alerts by Mail box, choose the alert that you want to enable or disable.

Step 3 In the Status field, choose **Enabled** or **Disabled**.

Step 4 Click the **Update** button.

Step 5 To enable or disable alerts by mail, repeat Step 2 and Step 4.

Changes take effect at midnight. You can force the change to take effect immediately by stopping and restarting the CAR Scheduler service.

Additional Information

See the "Related Topics" section on page 35-5.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 32, "Understanding the CAR Reports Configurations"
- Chapter 33, "Configuring the CAR Rating Engine"
- Chapter 34, "Configuring the CAR Reports QoS Values"
- Chapter 36, "Configuring CAR Reports Notification Limits"

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

CHAPTER 36

Configuring CAR Reports Notification Limits

Before You Begin

Before you start generating reports with CAR, configure the system. See the "Configuring CAR System Parameters" section on page 28-1.

This chapter contains the following topics:

- Configuring Notification Limits, page 36-1
- Related Topics, page 36-2
- Additional Cisco Documentation, page 36-2

Configuring Notification Limits

This section describes how to specify the notification limits for QoS and daily charges.

Procedure

Step 1 Choose **Report Config > Notification Limits**.

The Set Limits for Notification window displays.

Step 2 In the Daily QoS Parameters area, enter a threshold for good and poor calls.

The threshold applies in the form of a percentage of all calls that must be exceeded to trigger an e-mail alert to the administrator. The default for good calls specifies less than 20 percent, meaning that when good calls represent less than 20 percent of all calls per day, an alert gets sent. The default for poor calls specifies greater than 30 percent, meaning that when poor calls represent more than 30 percent of all calls per day, an alert gets sent. The alert is called the QoS Notification.

Step 3 In the Daily Charge Limit area, enter the number of monetary units (such as dollars, francs, or pounds) that, when exceeded by any user in the system, will trigger sending an e-mail alert to the administrator. The alert is called the Charge Limit Notification.

Step 4 Click the **Update** button.

Changes take effect immediately. The new values get used whenever the next alert is sent.

Additional Information

See the "Related Topics" section on page 36-2.

Related Topics

- CDR Analysis and Reporting Configuration Checklist, page 2-1
- Chapter 32, “Understanding the CAR Reports Configurations”
- Chapter 33, “Configuring the CAR Rating Engine”
- Chapter 34, “Configuring the CAR Reports QoS Values”
- Chapter 35, “Configuring the Automatic Generation of CAR Reports and Alerts”

Additional Cisco Documentation

- *Cisco Unified Communications Operating System Administration Guide*
- *Cisco Unified Serviceability Administration Guide*
- *Cisco Unified Communications Manager Call Detail Records Administration Guide*

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