CDR Analysis and Reporting Tool Administration Guide

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CDR Analysis and Reporting Tool Administration Guide

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 Cisco product information available. You can obtain the most current documentation by accessing Cisco's product documentation page at this URL:

http://www.cisco.com/univercd/home/home.htm

The preface covers these topics:

Purpose

The *CDR Analysis and Reporting Guide* provides information about the CDR Analysis and Reporting tool.

Use this book with the *Cisco CallManager Serviceability Administration Guide, Cisco CallManager Serviceability System Guide, Cisco CallManager Administration Guide*, and the *Cisco CallManager System Guide*. All documents provide instructions for administering the Cisco CallManager program and include descriptions of procedural tasks that you complete using Cisco CallManager Administration.

Audience

The *CDR Analysis and Reporting Guide* provides information for network administrators who are responsible for managing and supporting the Cisco CallManager system. Network engineers, system administrators, or telecom engineers use this guide to learn about, and administer, CAR features. This guide requires knowledge of telephony and IP networking technology. However, managers and individual users can also use CAR to generate certain reports, so each section explains which users can access the feature.

Organization

The following table shows how this guide is organized:

Chapter	Description
Chapter 1, "CDR Analysis and Reporting Overview"	Provides an overview of CDR Analysis and Reporting, a tool used to create user, system, device, and billing reports.
Chapter 2, "Getting Started with CDR Analysis and Reporting"	Provides the procedures for configuring the CDR Analysis and Reporting (CAR) CDR service parameters and logging in and out of CAR.
Chapter 3, "CAR System Configuration"	Provides procedures for configuring the CAR system parameters, system scheduler, and system database.
Chapter 4, "CAR Report Configuration"	Provides procedures for configuring the rating engine, quality of service, and automatic generation for CAR reports.
Chapter 5, "CAR User Reports Configuration"	Provides procedures for configuring individual and department bills and Cisco IP phone services for use with CAR user reports.
Chapter 6, "CAR System Reports Configuration"	Provides procedures for configuring quality of service reports and parameters, traffic summary, system overview, and CDR errors for use with CAR system reports.
Chapter 7, "CAR Device Reports Configuration"	Provides procedures for configuring CAR device reports for gateways, conference bridges, and voice-mail utilization.
Chapter 8, "CDR Search Configuration"	Provides procedures for configuring CAR CDR Search for user extension and gateway.
Chapter 9, "Export CDR/CMR Records Configuration"	Provides procedures for configuring Export CDR/CMR records.
Chapter 10, "CAR Report Results"	Provides information describing the results of all CAR reports.

Related Documentation

Refer to the *Cisco CallManager Documentation Guide* for further information about related Cisco IP telephony applications and products. 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

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.
^	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

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/techsupport

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

Cisco documentation and additional literature are available in the Product Documentation DVD package, which may have shipped with your product. The Product Documentation DVD is updated regularly and may be more current than printed documentation.

The Product Documentation DVD is a comprehensive library of technical product documentation on portable media. The DVD enables you to access multiple versions of hardware and software installation, configuration, and command guides for Cisco products and to view technical documentation in HTML. With the DVD, you have access to the same documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .pdf versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD=) from Cisco Marketplace at this URL:

http://www.cisco.com/go/marketplace/

Ordering Documentation

Beginning June 30, 2005, registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

http://www.cisco.com/go/marketplace/

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at tech-doc-store-mkpl@external.cisco.com or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

Documentation Feedback

You can rate and provide feedback about Cisco technical documents by completing the online feedback form that appears with the technical documents on Cisco.com.

You can send comments about Cisco documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

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.

A summary of U.S. laws governing Cisco cryptographic products may be found at: http://www.cisco.com/wwl/export/crypto/tool/stqrg.html.

If you require further assistance please contact us by sending email to export@cisco.com.

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—security-alert@cisco.com

  An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- Nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.*x* through 8.*x*.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Note Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

  or view the digital edition at this URL:

  http://ciscoiq.texterity.com/ciscoiq/sample/

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

  http://www.cisco.com/en/US/products/index.html

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

  http://www.cisco.com/discuss/networking

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html

CDR Analysis and Reporting Overview

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

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

This chapter contains the following topics:

Understanding CDR Data

Call detail records (CDR) detail the called number, the number that placed the call, the date and time that the call was started, the time that it connected, and the time that it ended. 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 CallManager 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 CallManager 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 continues 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. CDR Analysis and Reporting (CAR) accesses the CDR/CMR files in the directory structure that the CDR Repository Manager service creates.

If CDR disk space exceeds the high water mark that you configure, the system generates the CDRHWMExceeded alert. If the system deletes all successfully processed files (those delivered to billing servers and loaded to CAR) and the disk usage still exceeds the allocated maximum disk space for CDR files, the system generates the CDRMaximumDiskSpaceExceeded alert and deletes undelivered files starting with the oldest until disk utilization falls below the high water mark.

For more information on the CDR services and alerts, refer to the *Cisco CallManager Serviceability Administration Guide*.

Note If you upgrade from Cisco CallManager 4.x, Cisco CallManager saves the CDRs in the CAR database to CSV files. The Data Migration Tool uses these CSV files to upgrade the CAR database. The system stores the CSV files in /common/download/windows/car. The system stores the pregenerated reports in /common/download/windows/pregenerated.

Because Cisco CallManager 5.x does not use a CDR database to store CDR records as in previous releases, the CDR data does not migrate to the Cisco CallManager 5.x system.

Understanding CDR Analysis and Reporting

You access CAR from the Tools menu of Cisco CallManager Serviceability after you activate the appropriate services as described in the "Activating CAR" section on page 2-1.

All CAR reports use CDR data. CAR processes the CDRs from flat files that the CDR Repository service has placed in the CDR repository folder structure. CAR processes CDRs at the scheduled time and frequency. By default, CDR data loads from midnight to 5 a.m. on a daily basis; however, you can set the loading time, interval, and duration as needed.

CAR retrieves information that is required for various reports from the CDRs and CMRs as well as from the Cisco CallManager database.

Scheduling Reports

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 the Daily reports would schedule all the reports that have report generation intervals as Daily. Similarly, scheduling Weekly or Monthly reports would schedule the reports that have report generation intervals as 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 For a list of reports and the default generation schedule, see the "CAR Reports General Information" section on page 1-5.

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 are running 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.

Purging CAR data

CAR provides automatic and manual purging of the CAR database. By default, the system enables automatic purging. When enabled, the system maintains the CAR database size between the high water mark and low water mark that you specify in the Configure Automatic Purge window. The system does not load data into the CAR database if the database size exceeds the high water mark.

Automatic purges of the CAR databases occur at the time when daily reports are scheduled and before each CDR load. During an automatic purge, CDR Analysis and Reporting deletes records that are older than the number of day(s) that you specify for the CAR database if the database size exceeds the high water mark. Upon completion of the automatic purge, the system sends an e-mail to the administrator that indicates the number of records that were deleted, the size of the CAR database before and after purging, and the beginning and ending date of available CDRs.

Use the 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 purge schedule.

Note Schedule database purges or manual purging during off-peak hours to minimize any degradation of Cisco CallManager performance.

You can also reload the CAR database with CDR records by clicking the Reload button on 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 every day from midnight to 5 a.m.

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, refer to the "Configuring the Rating Engine" section on page 4-1.

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, and database purging.

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 CallManager Administration. For more information, see the "Configuring CAR Administrators, Managers, and Users" section on page 2-3.

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 a number of system parameters. Because default values are provided for all system parameters, Cisco recommends customizing but does not require it.

CAR allows you to set the following parameters:

- The 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 CallManager Administration provides, or if you are outside the NANP, be sure to configure the dial plan according to your Cisco CallManager dial plan.
- Gateways—To utilize the gateway reports, you need to configure gateways in CAR. You should do this after installation for 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.

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.

The section describes the reports that are available with CDR Analysis and Reporting and contains the following topics:

CAR Reports General Information

For all the 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 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 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 chosen is less than the number of days that the report can show (less than seven 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 can happen when the report gets generated for the past data and if the user that was involved in a call at that time no longer exists in the system (Cisco CallManager database).

Additional Information

- See the "Related Topics" section on page 1-15.

User Reports

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

- Individual Bills—Available for users, managers, and CAR administrators. Individual bills provide your call information for the date range that you specify. You can generate, view, or mail summary or detail information about your individual phone bills.
- Department Bills—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. Top N by Charge reports that individual users generate list the top number of users that incurred a maximum charge for calls during a period that you specify. Reports generated by destinations list the destinations that incurred the maximum charges. Reports 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.
- Top N by Duration—Available for managers and CAR administrators. Top N by Duration reports that individual users generate list the top number of users that incurred a maximum time on calls during a period that you specify. Reports generated by destinations list the destinations that incurred the maximum duration. Reports 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.
- Top N by Number of Calls—Available for managers and CAR administrators. Top N by Number of Calls reports that individual users generate lists 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 generated By Individual Users lists the Users who incurred the maximum number of calls. Reports 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 IP Manager Assistant (IPMA) Call Completion Usage Reports—Available for CAR administrators. The Cisco IPMA summary and detail reports provide call completion usage details for both IPMA managers and assistants. 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. The assistant reports can include calls that assistants handle for themselves only, calls that assistants handle for managers, calls that both 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 1-15.

System Reports

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 CallManager 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.
- QoS 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.
- QoS 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.
- QoS 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. Include only those call types and QoS voice-quality categories that you chose. 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.
- Traffic Summary by Extensions—Available for CAR administrators. This report provides information about the call volume for a period and set of extensions that you specify. Include only those call types and extensions that you chose. 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.
- 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.
- 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.
- Malicious Call Details—Available for CAR administrators. The Cisco CallManager 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 CallManager 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 of the precedence levels. CAR makes the report available on-demand; the report does not get autogenerated.
- System Overview—Available for CAR administrators. This report provides a list of reports that you can select to generate. You can choose a list of reports that you want to appear on the report. Use this report to see a high-level picture of the Cisco CallManager network.
- 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 loading the CDR data. This report lists the percentage of CDRs that are invalid and the reason these CDRs have been classified as invalid.

Additional Information

See the "Related Topics" section on page 1-15.

Device Reports

Device reports help CAR administrators track the load and performance of Cisco CallManager-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
- Gateway Summary—Available for CAR administrators. This 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.
- Gateway Utilization—Available for CAR administrators. The 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 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 reports allows you to generate and view details about conference calls. 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 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 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 1-15.

Automatically Generated Reports Schedule

Automatically generating reports comprises a two-step process. First, you must enable the reports that you want to have generated, unless they are enabled by default. 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.

The system enables or disables the following reports for automatic generation by default. The words Daily, Weekly, or Monthly in the square brackets next to the report name specify the report generation interval of the particular report.

- Traffic Summary-Hour of Day[Daily] - Enabled
- Conference-Summary [Monthly] - Disabled
- Conference-Detail [Daily] - Disabled
- Conference Bridge Util-Day of Week[Weekly] - Enabled
- Gateway Util-Day of Week[Weekly] - Enabled
- Line Group Util-Day of Week[Weekly] - Disabled
- Route Group Util-Day of Week[Weekly] - Disabled
- Route/Hunt List Util-Day of Week[Weekly] - Disabled
- Route Pattern/Hunt Pilot Util-Day of Week[Weekly] - Disabled
- Traffic Summary-Day of Week[Weekly] - Enabled
- Traffic Summary-Day of Month [Monthly] - Enabled
- Voice Messaging Util-Day of Week[Weekly] - Enabled
- Gateway Summary [Monthly] - Enabled

- QOS Summary [Monthly] - Enabled
- System Overview [Monthly] - Enabled
- Department Bill Summary [Monthly] - Disabled
- Individual Bill Summary [Monthly] - Disabled
- Top N Calls [Daily] - Disabled
- Top N Calls [Monthly] - Disabled
- Top N Charge [Daily] - Disabled
- Top N Charge [Monthly] - Disabled
- Top N Duration [Daily] - Disabled
- Top N Duration [Monthly] - Disabled

To enable or disable report generation, see the "Enabling or Customizing Reports for Automatic Generation" section on page 4-7.

To change the specific time each day, week, or month that reports get generated and get purged from the system see the "System Scheduler Configuration" section on page 3-7.

Additional Information

See the "Related Topics" section on page 1-15.

CDR Search

Call detail records (CDR) provide details about the called number, the number that placed the call, the date and time that the call was started, the time that it connected, the time that it ended, and the cause for the termination of a call. Call management records (CMRs, or diagnostic records) detail the jitter, lost packets, the amount of data that was 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 as Cisco CallManager tracks the progress of the call through each part of the call: sending digits, receiving digits, hold, transfer, engaging a transcoder for conferencing, and disengaging the transcoder.

You must enable the CDR Enabled Flag, CDR Log Calls with Zero Duration, and Call Diagnostics service parameters in Cisco CallManager for CDR data to be generated. You must enable the CDR Enabled Flag parameter on each node in the cluster. For more information about configuring these service parameters, see the *Cisco CallManager Administration Guide*.

All CAR reports use CDR data. Make sure that you have the most current CDR data from which to build your reports. By default, CDR data loads from midnight to 5 a.m. on a daily basis; however, you can set the loading time, interval, and duration as needed.

You can configure CDR searches to verify the details of a call. The search groups 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 extension to analyze call details for the first 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 extensions for the period that you specify. This helps you trace calls that are placed from

specific extensions 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. If more than 100 records are returned, the system truncates the results.
- 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 chose. 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.

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 the Cisco CallManager help pages specify. 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 Make sure that you have first installed the Cisco IP Telephony Locale Installer on every server in the cluster. Installing the locale installer ensures that you have the latest translated text available for the CAR web pages. For more information on the Cisco IP Telephony Locale Installer, refer to the *Cisco IP Telephony Platform Administration Guide*.

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

In the Cisco CallManager Administration, set the user-preferred locale in the Cisco CallManager 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 CallManager database stores this information. Refer to the *Cisco CallManager Administration Guide* for more detailed information.

This section describes 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 client's most preferred locale. 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 CallManager system default locale that is set in the Cisco CallManager 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 CallManager database, and then CAR windows for non-administrative users (users or managers) display the user's preferred locale. If the CAR UI does not support this locale, or if the locale is not installed in the system, the Cisco CallManager system default locale gets used. If this locale is not supported by CAR, or is not installed in the system, pages 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 pages, 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's 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.

Web Browsers

The CAR program supports the following web browsers:

- Netscape Communicator 7.1
- Microsoft Internet Explorer 6.0

From any user PC in your network, browse into a server that is running Cisco CallManager Administration and log in with administrative privileges.

Note Simultaneous logon to Cisco CallManager Administration by a large number of users can cause web page performance to suffer. Try to limit the number of users and administrators that are logged on simultaneously.

CDR Analysis and Reporting Configuration Checklist

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

Table 1-1 CAR Configuration Checklist

Configuration Steps		Related Procedures and Topics
Step 1	Activate the CDR services on the appropriate servers.	Activating CAR, page 2-1
Step 2	To ensure that the CDR records write to flat files, you must enable the Cisco CallManager service parameters, CDREnabled and CallDiagnosticsEnabled.	*Cisco CallManager Administration Guide*
Step 3	Set up CAR administrators, managers, and users in Cisco CallManager Administration.	Configuring CAR Administrators, Managers, and Users, page 2-3
Step 4	Configure CAR system parameters for report generation: • Configure mail server. • Configure dial plan. • Configure gateway. • Set system preferences.	System Parameters Configuration, page 3-1
Step 5	Specify the value ranges that you consider good, acceptable, fair, and poor for jitter, latency, and lost packets.	Defining the Quality of Service (QoS) Values, page 4-5
Step 6	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.	Configuring the Rating Engine, page 4-1
Step 7	Enable the reports that you want to automatically generate by using the Automatic Generation/Alert Option window.	Configuring Automatic Report Generation/Alert, page 4-6 Automatically Generated Reports Schedule, page 1-10
Step 8	Configure the system scheduler to schedule when CAR loads CDRs as well as daily, weekly, and monthly reports.	System Scheduler Configuration, page 3-7

Table 1-1 CAR Configuration Checklist (continued)

Configuration Steps		Related Procedures and Topics
Step 9	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.	Configuring Automatic Database Purge, page 3-13
Step 10	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.	Configuring Notification Limits, page 4-8
Step 11	If your users want to view localized user and manager reports, install the proper locales.	*Cisco IP Telephony Platform Administration Guide*
Step 12	To back up CAR, including the database and the pregenerated reports, make sure that you configure the CAR target in the backup utility.	*Cisco IP Telephony Disaster Recovery Framework (DRF) Administration Guide*

Additional Information

See the "Related Topics" section on page 1-15.

Related Topics

Additional Cisco Documentation

- *Cisco IP Telephony Platform Administration Guide*
- *Cisco CallManager Serviceability Administration Guide*
- *Cisco CallManager Serviceability System Guide*

Getting Started with CDR Analysis and Reporting

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

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

This chapter contains the following topics:

Note You can view CAR reports in either PDF or CSV format. PDF format limits the number of records in the CAR reports to 5000, and CSV format limits the records to 20,000. If the number of records exceeds these limits, a message displays to inform you that the results are truncated. To avoid this, you can reduce the date range and generate the reports, or, if you are using PDF format, you can use CSV format instead.

Activating CAR

CAR comprises a group of complementary services, which you can activate in the Service Activation window in Cisco CallManager Serviceability. Before you can launch CAR from the Tools menu in Cisco CallManager 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 From the Servers drop-down list box, choose the first node of the cluster.

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

Note Activate the CAR services on only the first node, where the Cisco CallManager database resides.

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

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

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

Additional Information

See the "Related Topics" section on page 2-5.

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 CDR records be available in flat files on the CDR Repository node (the first node). To ensure that the CDR records write to flat files, you must enable the following Cisco CallManager service parameters:

- CDREnabled

Note Enable this parameter on all servers in the cluster.

- CallDiagnosticsEnabled

Note Because the default values for the service parameters CDREnabled and CallDiagnosticsEnabled are disabled, you must enable these service parameters to make CDR records available to CAR.

For information on configuring service parameters, refer to the *Cisco CallManager Administration Guide*.

Configuring CAR Administrators, Managers, and Users

Any user can act as a CAR administrator; however, you must add the end user to the Cisco CAR Administrators User Group in Cisco CallManager 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.

Tip To use CAR, ensure at least one CAR administrator exists in the Cisco CallManager 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 CallManager Administration, add an end user by choosing **User Management > End User**. For information on how to perform this task, refer to the *Cisco CallManager Administration Guide*. To create a manager, make sure that you enter a value in the Manager User ID field.

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**.

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 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 2-5.

Logging On to CAR

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 node. After you activate the services, the option CDR Analysis and Reporting displays under the Tools menu in Cisco CallManager Serviceability. For information on how to activate services, refer to the "Activating CAR" section on page 2-1.
- Configure CAR administrators, managers, and users as described in "Configuring CAR Administrators, Managers, and Users" section on page 2-3.

Procedure

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

- For CAR system administrators only—From Cisco CallManager 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.

If the user ID or password are invalid, CAR displays the message, "Invalid Logon. Either the User Name or Password entered is invalid. Click here to try again." Click the link, enter your user ID and password again and click **OK**.

The CAR window displays.

Additional Information

See the "Related Topics" section on page 2-5.

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 2-5.

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 2-5.

Related Topics

- Activating CAR, page 2-1
- Configuring CAR Administrators, Managers, and Users, page 2-3
- Logging On to CAR, page 2-4
- Logging Out of CAR, page 2-4
- Accessing CAR Documentation Online Help, page 2-5
- CDR Analysis and Reporting Overview, page 1-1
- CAR System Configuration, page 3-1
- CAR Report Configuration, page 4-1
- CAR User Reports Configuration, page 5-1
- CAR System Reports Configuration, page 6-1
- CAR Device Reports Configuration, page 7-1
- CDR Search Configuration, page 8-1
- Export CDR/CMR Records Configuration, page 9-1
- CAR Report Results, page 10-1

CAR System Configuration

Before you start generating reports with CAR, configure the system. In most cases, CAR provides default values; however, review the topics that this chapter provides to learn more about customizing CAR.

This chapter contains the following topics:

System Parameters Configuration

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. Because default values are provided for all system parameters, Cisco recommends customizing but does not require it.

This section contains the following topics:

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, enter the e-mail identifier that will be used in the From field when e-mails are sent.

Step 3 In the Password field, enter the password that is used to access the server that is running the e-mail system.

Note CAR does not authenticate the user ID and password. You must disable authentication on the mail server or enter a valid user ID and password.

Step 4 In the Confirm Password field, enter the same password from Step 3 to confirm.

Step 5 In the Mail Domain field, enter the domain name for the server that is running the e-mail system.

Step 6 In the Mail Server Name field, enter the name or IP address of the server that is running the e-mail system.

Step 7 To make the changes, click the **Update** button.

Additional Information

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

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 CallManager Administration, or if you are outside the NANP, be sure to configure the dial plan in CAR according to your Cisco CallManager dial plan. At least one condition must exist to configure the Dial Plan. Refer to the *Cisco CallManager Administration Guide* and the *Cisco CallManager 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 "Gateway Configuration" section on page 3-5.)
  - 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 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), then 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 3-16.

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 3-1 provides the default NANP values.

Table 3-1 Default Values for CAR Dial Plan

Condition	No of Digits	Pattern	Call Type
=	5	!	OnNet
=	7	!	Local
=	10	T!	Others
=	10	G!	Local
=	10	!	Long Distance
=	11	T!	Others
=	11	XG!	Local
=	11	!	Long Distance
>	3	011!	International

The following information explains the default table values in Table 3-1:

- 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 OnNet.
- 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 is 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 an 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 three and that 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 CallManager Serviceability Administration Guide*.

Additional Information

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

Gateway Configuration

Tip Configure the gateways in CAR for existing Cisco CallManager system gateways. Also, after you add gateways to Cisco CallManager Administration, configure the new gateways in CAR. When gateways are deleted from the Cisco CallManager 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 CallManager 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 CallManager 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 CallManager 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 3-16.

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 parameters.

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 3-2.

Table 3-2 System Preferences Parameter

Parameter	Description
COMPANY_NAME	Enter the company name that is used as header information in reports.

Step 3 Click the **Update** button.

System Scheduler Configuration

The CAR System Scheduler provides the following functions:

- Loads the daily CDR schedule
- Disables the daily CDR schedule
- Schedules the daily report
- Schedules the weekly report
- Schedules the monthly report

Note Loading CDR data can cause performance degradation on the Cisco CallManager server. Cisco recommends that you use the default loading time or schedule the loading to occur at a time when Cisco CallManager performance will be least affected.

Additional Information

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

Configuring the CDR Load Schedule

By default, CDR data loads every day from midnight to 5 a.m. This section describes how to customize the loading schedule, how to restore the default loading schedule if it was customized, and how to disable CDR loading.

Disable CDR loading when you are installing or upgrading the system in the same off-hours that CDR loading normally occurs. Because loading CDRs causes a resource drain on Cisco CallManager resources, you can suspend CDR loads until other operations complete. 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 CallManager.

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 3-12.

Procedure

Step 1 Choose **System > Scheduler > CDR Load**.

The CDR Load window displays.

Step 2 Perform one of the following steps:

- To restore the default loading schedule, so CDR data loads every day from midnight to 5 a.m., click the **Restore Defaults** button.

  Changes take effect at midnight. For the change to take effect immediately, stop and restart the Cisco CAR Scheduler service in the Control Center—Feature Services window.

- 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.

Step 3 In the Load CDR & CMR area, complete the fields as described in Table 3-3.

Table 3-3 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.
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. It will not load CDR data automatically in the duration specified; it will load CDR data uninhibited in the specified duration only if loading starts at that duration per settings done in load CDR and CMR area. So, if loading starts at uninhibited loading interval, it will continue to the end of uninhibited loading interval, plus the duration field set in the load CDR and CMR area.

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 3-4:

Table 3-4 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.

Additional Information

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

Scheduling Daily Reports

The Daily Report Scheduler schedules the time and duration of CAR daily reports.

Note Report generation can degrade Cisco CallManager performance; schedule reports when performance will be least affected.

Before You Begin

Specify the reports to be generated by using the Automatic Generation/Alert Option. See the "Configuring Automatic Report Generation/Alert" section on page 4-6, 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 that 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 as Daily in Automatic Generation/Alert Option, and enabled, automatically generate every day at the time that you specified and get deleted after the number of days that you specified.

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 3-16.

Scheduling Weekly Reports

The Weekly Report Scheduler schedules the day, time, and duration of the automatic weekly reports.

Note Report generation can degrade Cisco CallManager performance; schedule reports when performance will be least affected.

Before You Begin

Use the Automatic Generation/Alert Option to specify the reports to be generated. See the "Configuring Automatic Report Generation/Alert" section on page 4-6, 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 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 4 From the Life drop-down list box, choose the duration of the report from the range of 00 to 12 weeks.

Tip If you choose 00 for the life of the report, the report does not generate.

Step 5 Click the **Update** button.

Reports with report generation interval as Weekly in Automatic Generation/Alert Option, and enabled, automatically generate every week at the time that you specified and get deleted after the number of weeks that you specified.

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 3-16.

Scheduling Monthly Reports

The Monthly Report Scheduler schedules the day, time and duration of CAR monthly reports.

Note Report generation can degrade Cisco CallManager performance; schedule reports when performance will be least affected.

Before You Begin

Use the Automatic Generation/Alert Option to specify the reports to be generated. See the "Configuring Automatic Report Generation/Alert" section on page 4-6, 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 that 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 that 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.

Tip If you choose 00, the reports do 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 that you want the reports 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.

Tip If you choose 00, the reports do not generate.

Step 8 Click the **Update** button.

Reports with report generation interval as Monthly in Automatic Generation/Alert Option, and enabled, automatically generate every month at the time that you specified and get deleted after the number of months that you specified.

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 3-16.

System Database Configuration

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 Email.

See the following sections to configure system database information:

- Manually Purging or Reloading the CAR Database, page 3-12
- Configuring Automatic Database Purge, page 3-13
- System Log Screens, page 3-14

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.

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 3-14.

After the system loads the new records, the system loads the records according to the schedule that is configured in the "Configuring the CDR Load Schedule" section on page 3-7. By default, CDR data loads every day from midnight to 5 a.m.

- 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. 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
- Between

Choose the date range of the CAR records that you want to delete.

Step 5 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 6 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 3-16.

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.

Step 2 To enable automatic purge, make sure that the **Disable CAR Purge** check box is not checked.

Note To disable automatic purge, check the **Disable CAR Purge** check box.

Step 3 From the Low Water Mark drop-down list box, choose the minimum percentage of the 6 gigabyte CAR database that you want the system to use for CAR data. The system stops purging CAR files when the database size reaches this level.

Tip The system notifies you when the CAR database size reaches the low water mark. For information on configuring an Email alert, see the"Enabling or Disabling Alerts by Mail" section on page 4-8, for instructions.

Step 4 From the High Water Mark drop-down list box, choose the maximum percentage of the 6-gigabyte CAR database that you want the system to use for CAR data. The system begins purging CAR files when the database size exceeds this level.

Step 5 In the Delete CAR Records older than field of the Automatic Database Purge area, enter the age, in days, of the CAR records that you want to purge from the database. CAR deletes records that are older than the specified number of days when the database size reaches the high water mark.

Step 6 Click the **Update** button.

The changes take effect at midnight. To make changes take effect immediately, restart the Cisco CAR Scheduler service.

The CAR Scheduler checks the low water mark and high water mark as set here daily and deletes the records based on the specified age when the database size reaches the high water mark. The deletion occurs at the same time that the Daily report generation is set, as described in the "Scheduling Daily Reports" section on page 3-9. CAR also deletes records based on the specified age before each CDR load.

Note To restore the default values for the fields on this window, click the **Restore Defaults** button. By default, the system enables automatic purge.

Additional Information

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

System Log Screens

CAR provides logs that can be used 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.

Additional Information

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

Generating the Event Log

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 have started, completed successfully, or are in progress.

This section describes how to generate the event log report.

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 3-5.

Note The system chooses all the job statuses by default.

Table 3-5 Event Log Report Status

Status	Description
Completed	If this check box is checked, the event log report includes tasks that have completed.
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.

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 3-6 describes the event log report output.

Table 3-6 Event Log Report Output Parameters

Parameter	Description
Sl No	Serial number
Jobs	Name of the task
Start Time	Time the task started
End Time	Time the task ended
Status	Unsuccessful, in progress, completed
Date	Date the task was scheduled

Step 10 Print the log by right-clicking on the screen and choosing Print.

Additional Information

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

Related Topics

- Configuring Mail Server Parameters, page 3-2
- Configuring the Dial Plan, page 3-2
- Restoring the Default Values for the CAR Dial Plan, page 3-4
- Configuring the CDR Load Schedule, page 3-7
- Scheduling Daily Reports, page 3-9
- Scheduling Weekly Reports, page 3-10
- Scheduling Monthly Reports, page 3-11
- System Database Configuration, page 3-12
- Configuring Automatic Database Purge, page 3-13
- System Log Screens, page 3-14
- Generating the Event Log, page 3-14
- Configuring Automatic Report Generation/Alert, page 4-6
- Configuring Notification Limits, page 4-8
- QoS by Gateway Configuration, page 6-6
- Gateway Detail Report Configuration, page 7-1
- Gateway Summary Report Configuration, page 7-4
- Gateway Utilization Reports Configuration, page 7-5

CAR Report Configuration

Use report configuration to define the following parameters:

- Rating parameters for calls—duration, time of day, voice quality

Note Rating parameters for calls occurs 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.

- Quality of service
- Automatic generation of reports with alerts
- Notification limits

This chapter contains the following topics:

Before You Begin

Before you start generating reports with CAR, configure the system. See the "CAR System Configuration" section on page 3-1

Configuring the 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 be zero because the default base charge per block is 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. Refer to 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.

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 4-9.

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.

Note You must use military time, 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 would be 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 4-9.

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 "Defining the Quality of Service (QoS) Values" section on page 4-5, 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 and fair call. A poor call gets charged 0.8 times that of an acceptable and 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 4-9.

Defining the Quality of Service (QoS) Values

CAR generates Quality of Service reports. To qualify the data that is presented in those reports, CAR uses predefined values that are set about voice quality. Specify the value ranges that are good, acceptable, fair, and poor for jitter, latency, and lost packets. 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).

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. This 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 quality-of-service values.

Procedure

Step 1 Choose **Report Config > Define QoS**.

The Define Quality of Service window displays. Table 4-1 describes the QoS default values.

Table 4-1 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

Table 4-1 QoS Default Values (continued)

QoS Parameter	Default
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 4-9.

Configuring Automatic Report Generation/Alert

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.

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 15 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 4-7.
- 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 "System Scheduler Configuration" section on page 3-7.

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 4-8.
- Second, configure the e-mail that is sent when the alert criteria is met.

Additional Information

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

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.

The "Automatically Generated Reports Schedule" section on page 1-10 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 "System Scheduler Configuration" section on page 3-7.

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 4-9.

Enabling or Disabling Alerts by Mail

This section describes how to enable alerts to be mailed to users.

Note For the QoS and Charge Limit Notifications, see the "Configuring Notification Limits" section on page 4-8.

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 4-9.

Configuring 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 CallManager Administration. See the "Configuring CAR Administrators, Managers, and Users" section on page 2-3.

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.

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 of an e-mail alert to the administrator.

Step 4 Click the **Update** button.

Changes take effect immediately. The new values will get used whenever the next alert is sent.

Additional Information

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

Related Topics

- System Parameters Configuration, page 3-1
- Enabling or Customizing Reports for Automatic Generation, page 4-7
- Configuring Mail Server Parameters, page 3-2
- Enabling or Disabling Alerts by Mail, page 4-8
- Configuring Mail Server Parameters, page 3-2
- System Scheduler Configuration, page 3-7
- Configuring the Rating Engine, page 4-1
- Defining the Quality of Service (QoS) Values, page 4-5
- System Database Configuration, page 3-12
- Setting the Base Rate and Duration, page 4-2
- Factoring Time of Day into Call Cost, page 4-3
- Factoring Voice Quality into Call Cost, page 4-4

CHAPTER 5

CAR User Reports Configuration

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:

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

Configuring Bills

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 the "System Scheduler Configuration" section on page 3-7, for more information.

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 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

This section describes how to view, or mail, summary or detail information about users, managers, and administrators.

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 (the total number of calls that were made and the charges that were incurred). Detailed reports provide the call types (Internal, Local, Long Distance, International, or On Net) 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.

You can only choose the pregen report if you are logged in as CAR administrator. Non CAR admin users (Manager level users and Individual Users) cannot see the pregen reports from the scroll down list.

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. 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 5-14.

Configuring Department Bills

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

This section describes how to generate, view, or mail summary or detail information about departmental bills. 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 (the total number of calls that were made and the charges that were incurred). Detailed reports provide the call types (Internal, Local, Long Distance, International, or On Net) 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 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.

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 search function. See the "Searching for Users" section on page 5-14, 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. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area.

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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 5-14.

Configuring Top N

Top N by 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 report with two to three options to show the Top N Users, Destinations, Calls, or Extensions.

Top N by 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.

Top N by 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.

This section contains the following topics:

Configuring Top N by Charge

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

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

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 by Charge 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 5-1 describes the call types.

Table 5-1 Top N by Charge Call Types

Call Type	Description
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network going out through the PSTN.
International	International calls that originate in the Cisco CallManager network going out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
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 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 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 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 5-14.

Configuring Top N by Duration

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

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

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
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network going out through the PSTN.
International	International calls that originate in the Cisco CallManager network going out through the PSTN.

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

Call Type	Description
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and go into the Cisco CallManager network.
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and then were transferred outbound from the Cisco CallManager 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 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 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 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 5-14.

Configuring Top N by Number of Calls

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

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

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
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network going out through the PSTN.
International	International calls that originate in the Cisco CallManager network going out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and go into the Cisco CallManager network.

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

Call Type	Description
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and then were transferred outbound from the Cisco CallManager 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 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 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 5-14.

Configuring Cisco IP Manager Assistant (IPMA) Usage Reports

Cisco IP Manager Assistant (IPMA) provides the call completion usage reports of both Cisco IPMA managers and assistants. Only CAR administrators can generate IPMA reports. The Cisco IPMA 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 type and total, apart from duration for each assistant (and/or manager). The detail report for a manager shows the date, origination time, origination number, destination number, call classification, and duration for each call for all the assistants (and/or manager), and last total duration 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 number, destination number, call classification, and duration for each call for all the managers (and/or assistant) and last total duration for the assistant.

Additional Information

See the "Related Topics" section on page 5-14.

Configuring Cisco IPMA Manager Call Usage

This section describes how to generate a Cisco IPMA manager call usage report. Only CAR administrators can generate IPMA reports.

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

Procedure

Step 1 Choose **User Reports > Cisco IPMA > Manager Call Usage**.

The Call Usage for Cisco IPMA 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's ID or click the **Select Manager(s)** link to search for a manager's 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. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

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 5-14.

Configuring Cisco IPMA Assistant Call Usage

This section describes how to generate an assistant call usage report. Only CAR administrators can generate IPMA reports.

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

Procedure

Step 1 Choose **User Reports > Cisco IPMA > Assistant Call Usage**.

The Call Usage for Cisco IPMA 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's ID or click the **Select Assistant(s)** link to search for an assistant's 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. 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

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**.

Additional Information

See the "Related Topics" section on page 5-14.

Cisco IP Phone Services Reports

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

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

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

Procedure

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

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

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

Step 3 Click the right arrow icon to add the chosen service to the Selected Cisco IP Phone Services 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. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area. 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 5-14.

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 3-2, for more information. Also, set up the details of the report that you want generated. See the following sections:

- Configuring Bills, page 5-1
- Configuring Top N, page 5-4
- Cisco IP Phone Services Reports, page 5-12
- Configuring Cisco IP Manager Assistant (IPMA) Usage Reports, page 5-10
- CAR System Reports Configuration, page 6-1
- CAR Device Reports Configuration, page 7-1
- CDR Search Configuration, page 8-1

This section 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.

Additional Information

See the "Related Topics" section on page 5-14.

Searching for Users

Many of the reports in CAR provide a search function, so you can look for users. The following CAR reports support search:

- User Reports—Department and individual bills, Top N by charge, duration, and number of calls, Cisco IPMA, and Cisco IP Phone Services
- System Reports—QoS details, Traffic Summary (Extn)
- All reports that can be generated can be mailed via the Send Report button

Before You Begin

You must be using one of the windows that are listed in the "Searching for Users" section on page 5-14.

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 5-14.

Related Topics

- CAR User Reports Configuration, page 5-1
- CAR System Reports Configuration, page 6-1
- CAR System Configuration, page 3-1
- CAR Device Reports Configuration, page 7-1
- CDR Search Configuration, page 8-1
- Cisco IP Phone Services Report Results., page 10-10

- Configuring Cisco IP Manager Assistant (IPMA) Usage Reports, page 5-10
- Configuring Cisco IPMA Manager Call Usage, page 5-10
- Configuring Cisco IPMA Assistant Call Usage, page 5-11
- Top N By Number of Calls Report Results, page 10-5
- Configuring Top N by Charge, page 5-4
- Configuring Top N by Duration, page 5-6
- Top N By Charge or Duration Report Results, page 10-4
- Configuring Top N by Number of Calls, page 5-8
- Bill Summary Report Results, page 10-2
- Bill Detail Report Results, page 10-3
- Configuring Individual Bills, page 5-2

CAR System Reports Configuration

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 user's calls.

This chapter contains the following topics:

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

Configuring QoS Reports

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 CallManager 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 "Defining the Quality of Service (QoS) Values" section on page 4-5 provide 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 the "System Scheduler Configuration" section on page 3-7, for more information.

The following sections describe how to configure QoS detail and summary reports:

QoS Detail Report Configuration

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

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 6-1 describes the call types.

Table 6-1 QoS Detail Report Call Types

Call Type	Description
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network going out through the PSTN.
International	International calls that originate in the Cisco CallManager network going out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.

Table 6-1 QoS Detail Report Call Types (continued)

Call Type	Description
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and were transferred outbound from the Cisco CallManager 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 "Defining the Quality of Service (QoS) Values" section on page 4-5, provide basis for all voice-quality categories.

Table 6-2 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 is degraded but still 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 5-14.

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 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

QoS Summary Report Configuration

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

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 Generate New Report and go to Step 3.

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 3 In the Select Call Types area, check the check boxes for the types of calls that you want the report to include. Table 6-3 describes the call types.

Table 6-3 QoS Summary Report Call Types

Call Type	Description
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network going out through the PSTN.
International	International calls that originate in the Cisco CallManager network going out through the PSTN.

Table 6-3 QoS Summary Report Call Types (continued)

Call Type	Description
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and were transferred outbound from the Cisco CallManager 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. 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring QoS Parameters

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.

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.

The following sections describe how to configure QoS parameters by gateway and by call type:

QoS by Gateway Configuration

Caution Use CAR only during off-peak hours. Otherwise, data collection and report generation could cause performance degradation on the Cisco CallManager 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 "Gateway Configuration" section on page 3-5.

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 6-4.

Table 6-4 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 6-21, 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 QoS Parameter Operators, page 6-21, 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 QoS Parameter Operators, page 6-21, 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 to 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, 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.

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. 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

QoS by Call Types Configuration

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 CallManager 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 6-5.

Table 6-5 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 "QoS Parameter Operators" section on page 6-21, 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 "QoS Parameter Operators" section on page 6-21, 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 "QoS Parameter Operators" section on page 6-21, 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 6-6 describes the call types.

Table 6-6 QoS Parameters by Call Types

Call Type	Description
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network going out through the PSTN.
International	International calls that originate in the Cisco CallManager network going out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.

Table 6-6 QoS Parameters by Call Types (continued)

Call Type	Description
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and were transferred outbound from the Cisco CallManager 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. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area.

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 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring Traffic Reports

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

Tip Use this report to determine the number of calls that are being made on an hourly or daily basis. This report helps you identify high- and low-traffic patterns for capacity planning.

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. Include only those call types and extensions that you chose.

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.

The following sections describe how to configure traffic summary and traffic summary by extensions reports:

- Configuring Traffic Summary, page 6-10
- Configuring Traffic Summary by Extensions, page 6-12

Configuring Traffic Summary

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 System Scheduler Configuration, page 3-7, for more information.

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

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 6-7.

Table 6-7 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 you specify in Step 5, and the Qos values you specify in Step 6 for hour of 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 you specify in Step 5, and the Qos values 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 you specify in Step 5, and the Qos values 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 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. Table 6-8 describes the call types.

Table 6-8 Traffic Summary by Call Types

Call Type	Description
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network going out through the PSTN.
International	International calls that originate in the Cisco CallManager network going out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager 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 be 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 set in the "Defining the Quality of Service (QoS) Values" section on page 4-5 provide basis for all voice-quality categories.

Table 6-9 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.

Table 6-9 QoS Detail Report Voice Quality (continued)

Voice Quality	Description
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, follow the procedure described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring Traffic Summary by Extensions

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.

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

Procedure

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

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

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

Table 6-10 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 6-11 describes the call types.

Table 6-11 Traffic Summary (Extn) by Call Types

Call Type	Description
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network going out through the PSTN.
International	International calls that originate in the Cisco CallManager network going out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.

Table 6-11 Traffic Summary (Extn) by Call Types (continued)

Call Type	Description
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Note The calls in the chart/table shows comprise an average number of calls per day. If the data 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 be 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 5-14.

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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring Malicious Call Details Reports

Only CAR administrators generate the Malicious Call Details report. The report displays the details of malicious calls.

This section describes how to generate, view, or mail a malicious call detail report.

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

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. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area.

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 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Additional Documentation

- *Cisco CallManager Features and Services Guide*

Configuring Precedence Call Summary

Only CAR administrators generate the Precedence Call Summary report. The report displays the Call Summary for the precedence values that you choose.

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

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

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 6-12.

Table 6-12 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 the precedence levels that you want in the report or click **Select All** to check all precedence levels.

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

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 to 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 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring Client Matter Code Reports

Only CAR administrators can generate the Client Matter Code report. You can generate a report that shows 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.

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

Caution Use CAR only during off-peak hours; otherwise, data collection and report generation could cause performance degradation on the Cisco CallManager system.

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 button.

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 In Report Format, choose the CSV radio button if you want the report to generate in CSV (comma separated value) format or the PDF radio button if you want the report to generate in PDF (portable document format).

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, follow the procedure that is described in "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring Authorization Code Name Reports

Only CAR administrators can generate the Authorization Code Name report. You can generate a report that shows the originating and destination numbers, the date and time that the call originated, the call duration in seconds, the call classification, authorization code name, and the authorization level for calls that relate 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.

Caution Use CAR only during off-peak hours; otherwise, data collection and report generation could cause performance degradation on the Cisco CallManager system.

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 button.

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 pull-down list boxes, enter the date range of the period for which you want to see authorization code name information.

Step 5 In Report Format, choose the CSV radio button if you want the report to generate in CSV (comma separated value) format, or the PDF radio button if you want the report to generate in PDF (portable document format).

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, follow the procedure that is described in "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring Authorization Level Reports

Only CAR administrators can generate the Authorization Level report. You can generate a report that shows 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 authorization level.

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

Caution Use CAR only during off-peak hours; otherwise, data collection and report generation could cause performance degradation on the Cisco CallManager system.

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 button.

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

Note Only FAC authorization levels reports associated with Route Patterns will be generated.

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 authorization level information.

Step 5 In Report Format, choose the CSV radio button if you want the report to generate in CSV (comma separated value) format or the PDF radio button if you want the report to generate in PDF (portable document format).

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, follow the procedure that is described in "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring System Overview

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

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 "System Scheduler Configuration" section on page 3-7, for more information.

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

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

Procedure

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

The System Overview 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 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, choose the reports that you want generated by highlighting the report and clicking the right arrow icon.

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

Tip You can highlight more than one report at a time by holding down 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. 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, follow the procedure that is described in Mailing a Report, page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

Configuring CDR Error

Only CAR administrators generate the CDR error report. The report provides statistics for the number of error records in the CAR Billing_Error table and the reason for the errors.

This section describes how to generate, view, or mail information about CDR errors.

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

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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 6-22.

QoS Parameter Operators

Table 6-13 describes the QoS parameter operators.

Table 6-13 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.

Table 6-13 QoS Parameter Operators (continued)

Operator	Description
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.

Additional Information

See the "Related Topics" section on page 6-22.

Related Topics

- CDR Error Report Results, page 10-18
- System Overview Report Results, page 10-17
- Enabling or Customizing Reports for Automatic Generation, page 4-7
- Precedence Call Summary Report Results, page 10-16
- CDR Analysis and Reporting Overview, page 1-1
- Traffic Summary Report Results, page 10-13
- Configuring Traffic Summary, page 6-10
- Configuring Traffic Summary by Extensions, page 6-12
- QoS by Call Types Report Results, page 10-12
- QoS Parameter Operators, page 6-21
- QoS by Gateway Configuration, page 6-6
- QoS by Gateways Report Results, page 10-12
- QoS Parameter Operators, page 6-21
- QoS by Call Types Configuration, page 6-7
- QoS Detail Report Configuration, page 6-2
- QoS Summary Report Results, page 10-11
- Defining the Quality of Service (QoS) Values, page 4-5
- QoS Detail Report Results, page 10-10
- QoS Summary Report Configuration, page 6-4

CAR Device Reports Configuration

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 CallManager related devices, such as conference bridges, voice-mail server, and gateways.

This chapter contains the following topics:

Configuring Gateway Reports

Configure the following device reports for gateways:

Gateway Detail Report Configuration

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.

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

Procedure

Step 1 Choose **Device Reports > Gateway > Detail**.

The Gateway Detail window displays.

Step 2 To display the list of gateways in the List of Gateways box that you can include in the report, 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 to 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 up to 15 gateways at a time.

Step 4 To move the chosen gateway to the list of Selected Gateways box, click the down arrow icon.

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 7-1 describes the call types.

Table 7-1 Gateway Details by Call Types

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 CallManager network going out through the PSTN.

Table 7-1 Gateway Details by Call Types (continued)

Call Type	Description
International	International calls that originate in the Cisco CallManager network going out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and were transferred outbound from the Cisco CallManager 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 "Defining the Quality of Service (QoS) Values" section on page 4-5 provide basis for all voice-quality categories.

Table 7-2 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 did 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. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area.

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 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

Gateway Summary Report Configuration

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 "CAR System Configuration" section on page 3-1, for more information.

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

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 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 7-3 describes the call types.

Table 7-3 Gateway Details by Call Types

Call Type	Description
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.

Table 7-3 Gateway Details by Call Types (continued)

Call Type	Description
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and were transferred outbound from the Cisco CallManager network through a gateway.
Outgoing	All outbound calls that originate from a Cisco IP Phone and terminate in a gateway.

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. 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

Gateway Utilization Reports Configuration

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 (number of calls in the 5-minute interval that used the gateway *100) / (maximum number of calls that could possibly use the gateway at any time). Maximum number of calls that are possible by using the gateway at any time = maximum number of ports for the gateway as configured in the CAR Gateway Configuration window. After calculating the utilization for each 5-minute sample for the whole 1-hour duration, the maximum utilization value found for that 1 hour displays in the report as the utilization for the time between 11hrs and 12hrs. Similarly, to get a utilization for the whole day, the whole day gets divided into samples of 5 minutes each, and maximum utilization is calculated. 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 gateway that is chosen.

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 "CAR System Configuration" section on page 3-1, for more information.

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

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 7-4.

Table 7-4 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative results for each hour in a 24-hour period for the period that you specify in Step 8.
Day of Week	Displays the days of the week that occur within the period that you specify in Step 8.
Day of Month	Displays 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 to 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 15 gateways at a time.

Step 7 Click the down arrow icon to move the chosen gateway to the list of Selected Gateways box.

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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

Configuring Route Plan Utilization Reports

Configure the following device reports for route plans:

- Route and Line Group Utilization Reports Configuration, page 7-7
- Route/Hunt List Utilization Report Configuration, page 7-9
- Route Pattern/Hunt Pilot Utilization Report Configuration, page 7-11

Route and Line Group Utilization Reports Configuration

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 way as it 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 "CAR System Configuration" section on page 3-1, for more information.

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

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 7-5.

Table 7-5 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative results for each hour in a 24-hour period for the period that you specify in Step 8.
Day of Week	Displays the days of the week that occur within the period that you specify in Step 8.
Day of Month	Displays 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 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 15 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 icon.

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 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

Route/Hunt List Utilization Report Configuration

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 the "System Scheduler Configuration" section on page 3-7, for more information.

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

This section describes how to generate, view, or mail 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 7-6.

Table 7-6 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative results for each hour in a 24-hour period for the period that you specify in Step 8.
Day of Week	Displays the days of the week that occur within the period that you specify in Step 8.
Day of Month	Displays 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/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 15 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 icon.

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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

Route Pattern/Hunt Pilot Utilization Report Configuration

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 the "System Scheduler Configuration" section on page 3-7, for more information.

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

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 7-7.

Table 7-7 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative results for each hour in a 24-hour period for the period that you specify in Step 8.
Day of Week	Displays the days of the week that occur within the period that you specify in Step 8.
Day of Month	Displays 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 15 route patterns/hunt pilots at a time.

Step 7 Click the down arrow icon 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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

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.

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

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 pull-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 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 7-8.

Table 7-8 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. If you want the report in PDF format, choose PDF (portable document format) in the Report Format area.

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, follow the procedure that is described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

Configuring Conference Bridge Utilization Reports

Only CAR administrators generate the conference bridge utilization report. The report provides an estimate of the maximum utilization percentage of the Conference Bridges (cumulative utilization of all the Conference Bridges in the system) for the period and not the exact utilization. For example, the system calculates the utilization of a Conference Bridge between 11hrs and 12hrs by sampling the 1-hour duration in 5-minute equal samples. The utilization for each 5 minutes gets calculated as (number of calls in the 5-minute interval that used the conference bridge *100) / (maximum number of calls that the conference bridge can handle at any time). After calculating the utilization for each 5-minute sample for the whole one-hour duration, the maximum utilization value found for that one hour displays 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. Reports generate for each conference bridge.

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 "System Scheduler Configuration" section on page 3-7, for more information.

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

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 7-9.

Table 7-9 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative results for each hour in a 24-hour period for the period that you specify in Step 6.
Day of Week	Displays the days of the week that occur within the period that you specify in Step 6.
Day of Month	Displays 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 side panel, 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.

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, follow the procedure described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

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 device between 11hrs and 12hrs by sampling the 1-hour duration in 5-minute samples. The system calculates utilization for each 5 minutes as (number of calls in the 5-minute interval that used the voice-messaging devices *100) / (maximum number of calls that the voice messaging devices can handle at any time). After calculating the utilization for each 5-minute sample for the entire one-hour duration, the maximum utilization value that is found for that one hour displays in the report as the utilization for the time between 11hrs and 12hrs. Similarly, to get a utilization for the whole day, the whole day comprises samples of 5 minutes each, and maximum utilization gets calculated. 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 voice messaging server.

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 "System Scheduler Configuration" section on page 3-7 for more information.

Note The CAR voice-messaging utilization report only supports Cisco uOne, Unity, and Octel Voicemail gateway.

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

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 7-10.

Table 7-10 Generate Report Fields

Parameter	Description
Hour of Day	Displays the cumulative results for each hour in a 24-hour period for the period that you specify in Step 12.
Day of Week	Displays the days of the week that occur within the period that you specify in Step 12.
Day of Month	Displays the days of the month that occur within the period that you specify in Step 12.

Step 3 In the Available Reports field, choose an automatically generated report (if available) and go to Step 14, or use the default Generate New Report and go to Step 4.

Step 4 To choose a voice-messaging DN, click **Voice Messaging DNs** in the left side panel.

A list of configured voice-messaging DNs displays.

Step 5 From the list of DNs, choose a voice-messaging DN.

The DN that you chose displays in the List of DNs/Ports list box.

Step 6 In Select Voice Messaging DNs/Ports, click the down arrow icon.

The DN that you chose displays in the Selected DNs/Ports list box.

Step 7 Repeat Step 5 and Step 6 until you have chosen all DNs that you want to include in the report.

Step 8 To choose a voice-messaging port, click **Voice Messaging Ports** in the left side panel.

A list of configured voice-messaging ports displays.

Step 9 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 10 In Select Voice Messaging DNs/Ports, click the down arrow icon.

The port that you chose displays in the Selected DNs/Ports list box.

Step 11 Repeat Step 9 and Step 10 until you have chosen all the ports that you want to include in the report.

Step 12 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 13 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 14 Click the **View Report** button.

The report displays.

Step 15 If you want to mail the report, click the **Send Report** button. To send the report, follow the procedure described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 7-17.

Related Topics

- Voice Messaging Utilization Report Results, page 10-23
- Conference Bridge Utilization Report Results, page 10-22
- Conference Call Detail Report Results, page 10-21
- Gateway and Route Utilization Report Results, page 10-21
- Gateway Detail Report Results, page 10-19

CDR Search Configuration

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:

Before You Begin

Make sure that you set the Cisco CallManager 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, refer to the *Cisco CallManager Administration Guide*.

All CAR reports use CDR data. Be sure to have the most current CDR data from which your reports are built. By default, CDR data loads daily from midnight to 5 a.m. However, you can set the loading time, interval, and duration as needed. See the "System Scheduler Configuration" section on page 3-7, for more information.

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 name and extension. You can narrow the search by specifying both users and extensions in the same search.

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

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 range of the period for which you want to see CDR data for the specified user or extension.

Step 4 Click the **OK** button.

The CDR-CMR Search Results window displays. If the search returns more than 100 records, a message indicates that the result will be truncated.

Step 5 To view the CMR data, click the **Others** button. To view both the CDR and CMR data fields, click the **View** button.

Step 6 To mail the report to e-mail recipient(s), follow the steps in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 8-7.

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.

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

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 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 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.

Step 5 To move the chosen gateway to the list of Selected Gateways box, click the down arrow icon.

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

Step 6 Choose the date and time range of the period when you want to search CDR data.

Step 7 Click the **OK** button.

The CDR-CMR Results window displays. If the search returns more than 100 records, a message indicates that the result will be truncated.

Step 8 To view the CMR data, click the **Others** button. To view both the CDR and CMR data fields, click the **View** button.

Step 9 To mail the report to e-mail recipient(s), follow the steps in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 8-7.

Configuring CDR Search by Cause for Call Termination

Only CAR administrators use the CDR Search by Cause for Call Termination feature.

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 icon above the Selected Call Termination Causes box.

The cause(s) that you chose displays in the Selected Call Termination Causes list box.

Step 4 Choose the date and time range of the period when you want to search CDR data.

Step 5 Click **OK**.

The Call Termination Details window displays the report criteria for which the report has been generated, along with the total number of calls that have been placed during the given time range as well as how many call legs and the percentage of call legs for each cause code selected.

Step 6 To view CDRs, see the "Viewing Call Termination Details" section on page 8-4.

Additional Information

See the "Related Topics" section on page 8-7.

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 8-4 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.

From this window, you can view the media information and the CDR-CMR dump records by clicking the **Others** and **View** links. Refer to the "Understanding the CDR Search Results" section on page 10-23 for information on how to read CDR search results reports.

Step 3 To mail the report in an e-mail, click **Send Report** and follow the procedure described in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 8-7.

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 as described in Table 8-1.

Table 8-1 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 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.

Step 4 In the To Date field, choose the date and time to which you want CDRs searched.

Step 5 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 6 In the Select CDRs column, check the check box(es) of the CDR(s) at which you want to look.

Step 7 Click **View CDRs**.

The CDR-CMR Search by Precedence Levels - CDR-CMR Search Results window displays. If the search returns more than 100 records, a message indicates that the result will be truncated.

Step 8 To view the CMR data, click the **Others** button. To view both the CDR and CMR data fields, click the **View** button.

Step 9 To mail the report to e-mail recipient(s), click **Send Report** and follow the steps in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 8-7.

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 user's extension 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 appears 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.

Step 4 Click **OK**.

The CDR-CMR Search Results window displays. If the search returns more than 100 records, a message indicates that the result will be truncated.

Step 5 To view the CMR data, click the **Others** button. To view both the CDR and CMR data fields, click the **View** button.

Step 6 To mail the report to e-mail recipient(s), follow the steps in the "Mailing a Report" section on page 5-13.

Additional Information

See the "Related Topics" section on page 8-7.

Related Topics

- Understanding the CDR Search Results, page 10-23
- Media Information, page 10-25
- CDR and CMR Dump Tables, page 10-25
- Mailing a Report, page 5-13
- Configuring CDR Search by User Extension, page 8-1
- Configuring CDR Search by Gateway, page 8-2
- Configuring CDR Search by Cause for Call Termination, page 8-4
- Viewing Call Termination Details, page 8-4
- Configuring CDR Search By Call Precedence Levels, page 8-5
- Configuring CDR Search for Malicious Calls, page 8-6

Export CDR/CMR Records Configuration

This chapter describes how to export CDR/CMR records.

Using Export CDR/CMR in the CDR menu in Cisco CallManager CDR Analysis and Reporting, you can export CDR/CMR dump information to the location of your choice on your computer. The CDR/CMR dump exists in the CSV format.

The following procedure describes how to export CDR/CMR dumps to a file.

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 pull-down menus, choose a date range for the CDR/CMR dump.

Step 3 In Select records, check the CDR and/or CMR 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 9-2.

Additional Information

See the "Related Topics" section on page 9-2.

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 "Export CDR/CMR Records Configuration" section on page 9-1.

Procedure

Step 1 From the Export CDR/CMR record Results window, right-click either the CDR Dump or CMR Dump link.

A pop-up window that comprises the following options displays:

- Open—This option allows you to open the web page that contains the CDR/CMR dump in the same window.
- Open in a New Window—This option allows you to open the web page 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 out the CDR/CMR dump.
- Copy Shortcut—This option allows you to copy the web page 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 pop-up 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 downloaded 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 in large size, Cisco recommends that you download the file to a local disk and delete them from the server to avoid disk usage in the server side.

Additional Information

See the "Related Topics" section on page 9-2.

Related Topics

- Export CDR/CMR Records Configuration, page 9-1

- CDR Search Configuration, page 8-1
- CDR Analysis and Reporting Configuration Checklist, page 1-14
- Viewing Export CDR/CMR Records Results, page 9-2

CHAPTER 10

CAR Report Results

This chapter describes report output information for each of the CAR report types:

Bill Summary Report Results

The report groups information by the user name in ascending order. The summary report includes the following fields (see Table 10-1).

Table 10-1 Summary Report Fields

Field	Description
Call Classification—Call categories specify classes.	
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network that go out through the PSTN.
International	International calls that originate in the Cisco CallManager network that go out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
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 provided basis for QoS categories; see the "Defining the Quality of Service (QoS) Values" section on page 4-5 and the "Configuring QoS Parameters" section on page 6-5.	
Good	QoS for these calls designates the highest possible quality.
Acceptable	QoS for these calls shows them slightly degraded but still falls within an acceptable range.
Fair	QoS for these calls, although degraded, still fall within a usable range.
Poor	QoS for these calls was unsatisfactory.
NA	These calls did not match any criteria for the established QoS categories.

Table 10-1 Summary Report Fields (continued)

Field	Description
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 the "Configuring the Rating Engine" section on page 4-1.	

Bill Detail Report Results

The report groups information by the user name in ascending order. The detail report includes the following fields (see Table 10-2).

Table 10-2 Detail Report Fields

Field	Description
Date and Orig. Time	The date and 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.	
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network that go out through the PSTN.
International	International calls that originate in the Cisco CallManager network that go out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
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 provided basis for QoS categories; see the "Defining the Quality of Service (QoS) Values" section on page 4-5 and the "Configuring QoS Parameters" section on page 6-5.	
Good	QoS for these calls designates the highest possible quality.

Table 10-2 Detail Report Fields (continued)

Field	Description
Acceptable	QoS for calls that are slightly degraded but still within an acceptable range.
Fair	QoS for calls, that although degraded, still within a usable range.
Poor	QoS for calls unsatisfactory.
NA	Calls that did not match any criteria for the established QoS categories.
Duration(s)	The time, in seconds, that the call 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 the Rating Engine" section on page 4-1.

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 10-3.

Table 10-3 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 the Rating Engine" section on page 4-1.
By Destinations	
Dest	The destination of the calls.
Call Classification	The total number of calls for each call classification.
Calls	Total number of calls.
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 the "Configuring the Rating Engine" section on page 4-1.

Table 10-3 Top N by Charge and by Duration Report Fields (continued)

Field	Description
By Number of Calls	
User	User names.
Date	Date that the call occurred.
Orig Time	Time that the calls originated.
Orig	Origin of the calls.
Dest	Destination of the calls.
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 the "Configuring the Rating Engine" section on page 4-1.

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 10-4.

Table 10-4 Top N by Number of Calls Report Fields

Field	Description
By Individual Users	
Users	User names.
Duration(s)	The time, in seconds, that the call connected.
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 the "Configuring the Rating Engine" section on page 4-1.
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.

Table 10-4 Top N by Number of Calls Report Fields (continued)

Field	Description
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 the "Configuring the Rating Engine" section on page 4-1.
Duration	The time, in seconds, that the call was 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.

Call Usage for Cisco IPMA Assistant—Detail

The report 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 groups information about calls that the assistant handled and calls that the assistant handled for the manager. The detail report includes the following fields (see Table 10-5).

Table 10-5 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.

Call Usage for Cisco IPMA Assistant—Summary

The report shows information about calls that the assistant handled for themselves and that the assistant handled for the manager. The reports groups call information by attendant name. The summary report includes the following fields (see Table 10-6).

Table 10-6 Detail 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 10-6 Detail Report Fields (continued)

Field	Description
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network that go out through the PSTN.
International	International calls that originate in the Cisco CallManager network that go out through the PSTN.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
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 the assistant handled for the manager.
Duration (sec)	The total duration for all the calls for the particular call classification.

Call Usage for Cisco IPMA Manager—Detail

The report provides information about calls that managers handle for themselves and that assistants handle for managers. The report groups information 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 10-7).

Table 10-7 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.

Table 10-7 Detail Report Fields (continued)

Field	Description
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.

Call Usage for Cisco IPMA Manager—Summary

The report shows information about calls that the managers handle for themselves and that the assistants handle for the managers. The report groups information 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 10-8).

Table 10-8 Detail 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	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways are used).
Local	Local calls that are routed through the public switched telephone network (PSTN) to numbers without an area code or which include one of the local area codes.
Long Distance	Long-distance calls that originate in the Cisco CallManager network that go out through the PSTN.
International	International calls that originate in the Cisco CallManager network that go out through the PSTN.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Table 10-8 Detail Report Fields (continued)

Field	Description
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.

Cisco IP Phone Services Report Results.

The Cisco IP Phone Services report includes the following fields. See Table 10-9.

Table 10-9 Cisco 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 have subscribed to a given service, out of the total number of subscriptions for all services.

QoS Detail Report Results

The QoS detail report includes the following fields. See Table 10-10.

Table 10-10 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 amount of time, in seconds, that the call was connected.
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.	
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network that go out through the PSTN.
International	International calls that originate in the Cisco CallManager network that go out through the PSTN.

Table 10-10 QoS Detail Report Fields (continued)

Field	Description
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and were transferred outbound from the Cisco CallManager 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.
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 the device that received the call experienced.

QoS Summary Report Results

The QoS summary report includes the following fields. See Table 10-11.

Table 10-11 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.

QoS by Gateways Report Results

The QoS by gateways report provides the following information. See Table 10-12.

Table 10-12 QoS Gateway 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.

QoS by Call Types Report Results

The QoS by call types report provides the following information. See Table 10-13.

Table 10-13 QoS Call Type 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	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network that go out through the PSTN.
International	International calls that originate in the Cisco CallManager network that go out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.

Table 10-13 QoS Call Type Report Fields (continued)

Field	Description
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and were transferred outbound from the Cisco CallManager network through a gateway.
Others	All other outgoing calls, such as toll-free numbers or emergency calls such as 911.

Traffic Summary Report Results

The traffic summary and traffic summary by extension reports contain the same information and include some or all of the following fields. See Table 10-14.

Table 10-14 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.
Internal	Intracluster calls that originated in the Cisco CallManager network and ended in the same Cisco CallManager network (no gateways 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 CallManager network that go out through the PSTN.
International	International calls that originate in the Cisco CallManager network that go out through the PSTN.
On Net	Outgoing, intercluster calls that originate on one Cisco CallManager cluster and terminate on a different cluster.

Table 10-14 Traffic Summary Report Fields (continued)

Field	Description
Incoming	Inbound calls that originated outside the Cisco CallManager network, entered through a gateway, and went into the Cisco CallManager network.
Tandem	Inbound calls that originated outside the Cisco CallManager network, entered the Cisco CallManager network through a gateway, and were transferred outbound from the Cisco CallManager 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.

Authorization Code Name Call Details

This report shows the usage of specific authorization code names. For security purposes, the authorization code authorization code name (description) displays and not the authorization code. The detail report includes the following fields (see Table 10-15).

Table 10-15 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, on so on.)
Authorization Level	The authorization level for calls for each chosen authorization code name.

Authorization Level Call Details

This report shows the usage of specific authorization levels. The detail report includes the following fields (see Table 10-16).

Table 10-16 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.)
Authorization Code Name	The authorization code name for each authorization level that you chose.

Client Matter Code Details

The report shows the usage of specific client matter codes. The detail report includes the following fields (see Table 10-17).

Table 10-17 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.)

Malicious Call Details Report Results

The Malicious Call Details report provides information about malicious calls. The report provides the following fields. See Table 10-18.

Table 10-18 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.
Orig. Device	Name of the originating device.
Dest. Device	Name of the destination device.
Call Classification	Classification of the malicious call.

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. Two tables, one reflecting the bar chart, and the other listing the "Number of Calls" and "Percentage" for each precedence level that was chosen, displays in the report.

Table 10-19 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.

System Overview Report Results

The system overview provides information about all parts of the Cisco CallManager network. The report provides the following sections. See Table 10-20.

Table 10-20 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 10-4 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 10-4 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 10-4 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 10-4 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 10-4 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 10-4 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. See the "Traffic Summary Report Results" section on page 10-13 for details about this section of the system overview report.
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 10-13 for details about this section of the system overview report.

Table 10-20 System Overview Report (continued)

Field	Description
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 10-13 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 10-11 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 10-12 for details about this section of the system overview report.

CDR Error Report Results

The CDR error report provides the following information. See Table 10-21.

Table 10-21 CDR Error Report Fields

Field	Description
Time	The hour for the specified day that the error occurred.
No of Error CDRs	The total number of CDR data records that were not processed during loading into CAR due to an error.
No of Valid CDRs	The total number of CDR data records that were successfully loaded to CAR.
% of Error CDRs	The percentage of failed CDR data records out of all the CDR data records to be loaded.
Error Description	An error that occurred when the system was trying to load the CDR data records.
% of Error CDRs	The percentage of CDR data records that failed due to the corresponding error description.

Gateway Detail Report Results

The gateway detail report includes the following fields. See Table 10-22.

Table 10-22 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.
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 type (compression or payload type) that the call originator used on its sending side during this call. This type may differ from the codec type that was used on its receiving side.
Dest. Codec	The codec type (compression or payload type) that the destination used on its sending side during this call. This type may differ from the codec type 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	Quality of service shows the voice-quality grade that was achieved for the calls.
Dest QoS	The QOS category that was experienced by the receiver of the call.

Gateway Summary Report Results

The gateway summary report includes the following fields. See Table 10-23.

Note The gateway summary report segregates calls for each call classification the user selects and divides the calls on QoS type.

Table 10-23 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 "Defining the Quality of Service (QoS) Values" section on page 4-5 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(s)	Shows the total of duration for all the calls for the particular call classification.

Gateway and Route Utilization Report Results

The gateway, route group, route list, and route pattern utilization reports provide similar output. If you generate these reports in CSV format, the report displays in a table. If you chose PDF, the report shows the utilization as a bar chart. A graph displays for each selected gateway or route group. See Table 10-24.

Table 10-24 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.
% of Calls	Gateway, route group, route list, or route pattern utilization percentage. This field gives the cumulative 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.

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 whether you chose to generate the report in the CSV or PDF format. The following tables show the fields in the Conference Call Detail and Summary reports.

Note The report criteria include the type of conference (ad hoc and/or meet-me) and the From and To date range.

Table 10-25 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 10-26 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.

Conference Bridge Utilization Report Results

The report provides the following fields. If you chose CSV output, the report displays the utilization in a table. If you chose PDF, the report shows the utilization as a bar chart. See Table 10-27.

Table 10-27 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.

Voice Messaging Utilization Report Results

The report provides the following fields. If you chose CSV output, the report displays the utilization in a table. If you chose PDF, the report shows the utilization as a bar chart. See Table 10-28.

Table 10-28 Voice-Messaging Utilization Report Fields

Field	Description
% Usage	Voice-messaging percentage.
Time/Day	Time in one-hour blocks if you chose Hourly or one-day blocks if you chose day of week or daily.
Voice Messaging Ports	The sum of the maximum number of ports for all the gateways under the route patterns that are configured for Octel voice messaging and the entries in the Device table of Cisco CallManager that have type Class as 8.
Voice Messaging Gateways	The originating or destination device name as the gateways under the route patterns that are configured for Octel system.
Number of Ports	The number of ports that the voice-messaging gateway supports.

Understanding the CDR Search Results

The following sections describe CDR search results: the "Understanding the Results for CDR Search" section on page 10-23, the "Media Information" section on page 10-25, and the "CDR and CMR Dump Tables" section on page 10-25.

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 10-25. The CDR search retrieves the CDR/CMR files from the tbl_billing_data and tbl_billing_error tables of the CAR database.

See Table 10-29.

Table 10-29 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.

Table 10-29 CDR Search Results (continued)

Field	Description
Orig Node Id Dest Node Id	This field specifies the node within the Cisco CallManager cluster 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 (within a cluster) to the originating/destination leg of a call.
Calling No Calling 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.
Called No Called 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 10-25 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 10-25 for information about the CDR and CMR Dump tables.

Media Information

The media information table provides following information. See Table 10-30.

Table 10-30 CDR Media Information

Field	Description
Origination Leg	A unique identifier (within a cluster) for the originating leg of a call.
Destination Leg	A unique identifier (within a cluster) for the destination leg of a call.
Parameter	The media parameters MediaTransportAdd_IP, PayLoadCapability, MediaCap_g723BitRate, packets sent, octets sent, packets received, octets received, packets lost, jitter, latency, VideoCap_Codec, VideoCap_Bandwidth, VideoCap_Resolution, VideoTransportAddress_IP, VideoTransportAddress_Port, and QoS.
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 10-31.

Note You can view the content of the voice quality metrics field, varVQMetrics, in the Origination CMR and Destination CMR fields.

Table 10-31 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.

A

B

C

D

E

G

I

L

M

N

O

P

Q

R

S

T

U

V

W