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*Cisco Unified CallManager CDR Analysis and Reporting Tool Administration Guide*  
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|   |           |
|---|-----------|
| <b>Preface</b>  | <b>ix</b> |
| Purpose   | ix        |
| Audience  | x         |
| Organization  | x         |
| Related Documentation   | xi        |
| Conventions   | xi        |
| Obtaining Documentation, Obtaining Support, and Security Guidelines | xii       |
| Cisco Product Security Overview                                     | xii       |

---

**CHAPTER 1**

|   |            |
|---|------------|
| <b>CDR Analysis and Reporting Overview</b>          | <b>1-1</b> |
| Understanding CDR Data                              | 1-1        |
| Understanding CDR Analysis and Reporting            | 1-2        |
| CAR Administrators, Managers, and Users             | 1-5        |
| CAR System Settings                                 | 1-5        |
| CAR Reports   | 1-6        |
| CAR Reports General Information                     | 1-6        |
| User Reports  | 1-7        |
| System Reports                                      | 1-8        |
| Device Reports                                      | 1-10       |
| Automatically Generated Reports Schedule            | 1-11       |
| CDR Search  | 1-12       |
| Internationalization for CDR Analysis and Reporting | 1-13       |
| Web Browsers  | 1-15       |
| CDR Analysis and Reporting Configuration Checklist  | 1-15       |
| Related Topics                                      | 1-16       |

---

**CHAPTER 2**

|  |            |
|--|------------|
| <b>Getting Started with CDR Analysis and Reporting</b> | <b>2-1</b> |
| Activating CAR   | 2-1        |
| Configuring CDR Service Parameters                     | 2-2        |
| Configuring CDR Enterprise Parameters                  | 2-3        |
| Configuring CAR Administrators, Managers, and Users    | 2-4        |
| Logging On to CAR                                      | 2-5        |

Logging Out of CAR 2-5  
 Accessing CAR Documentation Online Help 2-6  
 Related Topics 2-6

**CHAPTER 3**

**CAR System Configuration 3-1**

Configuring CAR System Parameters 3-1  
     Configuring Mail Server Parameters 3-2  
     Configuring the Dial Plan 3-2  
     Restoring the Default Values for the CAR Dial Plan 3-4  
     Gateway Configuration 3-5  
     Configuring System Preferences 3-6  
 Configuring the CAR System Scheduler 3-7  
     Configuring the CDR Load Schedule 3-7  
     Scheduling Daily Reports 3-9  
     Scheduling Weekly Reports 3-10  
     Scheduling Monthly Reports 3-11  
 Configuring the CAR System Database 3-12  
     Manually Purging or Reloading the CAR Database 3-12  
     Configuring Automatic Database Purge 3-14  
 Generating the Event Log 3-15  
 Related Topics 3-16

**CHAPTER 4**

**CAR Report Configuration 4-1**

Configuring the Rating Engine 4-1  
     Setting the Base Rate and Duration 4-2  
     Factoring Time of Day into Call Cost 4-3  
     Factoring Voice Quality into Call Cost 4-4  
 Defining the Quality of Service (QoS) Values 4-5  
 Configuring Automatic Report Generation/Alert 4-6  
     Enabling or Customizing Reports for Automatic Generation 4-7  
     Enabling or Disabling Alerts by Mail 4-8  
 Configuring Notification Limits 4-9  
 Related Topics 4-10

**CHAPTER 5**

**CAR User Reports Configuration 5-1**

Configuring Bills 5-1  
     Configuring Individual Bills Reports 5-2  
     Configuring Department Bills Reports 5-3

|  |      |
|--|------|
| Configuring Top N Reports  | 5-4  |
| Configuring Top N by Charge Reports  | 5-4  |
| Configuring Top N by Duration Reports  | 5-6  |
| Configuring Top N by Number of Calls Reports                                     | 5-8  |
| Configuring Cisco Unified CallManager Assistant Usage Reports                    | 5-10 |
| Configuring Manager Call Usage for Cisco Unified CallManager Assistant Reports   | 5-11 |
| Configuring Assistant Call Usage for Cisco Unified CallManager Assistant Reports | 5-12 |
| Cisco IP Phone Services Reports  | 5-13 |
| Mailing a Report   | 5-14 |
| Searching for Users  | 5-15 |
| Related Topics   | 5-15 |

**CHAPTER 6****CAR System Reports Configuration 6-1**

|   |      |
|---|------|
| Configuring QoS Reports                           | 6-1  |
| QoS Detail Report Configuration                   | 6-2  |
| QoS Summary Report Configuration                  | 6-4  |
| QoS by Gateway Report Configuration               | 6-6  |
| QoS by Call Types Report Configuration            | 6-8  |
| Configuring Traffic Reports                       | 6-10 |
| Configuring Traffic Summary Reports               | 6-11 |
| Configuring Traffic Summary by Extensions Reports | 6-13 |
| Configuring FAC/CMC Reports                       | 6-15 |
| Configuring Client Matter Code Reports            | 6-16 |
| Configuring Authorization Code Name Reports       | 6-17 |
| Configuring Authorization Level Reports           | 6-18 |
| Configuring Malicious Call Details Reports        | 6-19 |
| Configuring Precedence Call Summary               | 6-19 |
| Configuring System Overview                       | 6-21 |
| Configuring CDR Error                             | 6-22 |
| Related Topics                                    | 6-22 |

**CHAPTER 7****CAR Device Reports Configuration 7-1**

|  |     |
|--|-----|
| Configuring Gateway Reports                            | 7-1 |
| Gateway Detail Report Configuration                    | 7-1 |
| Gateway Summary Report Configuration                   | 7-4 |
| Gateway Utilization Reports Configuration              | 7-6 |
| Configuring Route Plan Utilization Reports             | 7-8 |
| Route and Line Group Utilization Reports Configuration | 7-8 |

- Route/Hunt List Utilization Report Configuration 7-10
- Route Pattern/Hunt Pilot Utilization Report Configuration 7-11
- Configuring Conference Bridge Reports 7-13
  - Configuring Conference Call Details 7-13
  - Configuring Conference Bridge Utilization Reports 7-14
- Configuring Voice-Messaging Utilization Reports 7-16
- Related Topics 7-17

**CHAPTER 8**

**CDR Search Configuration 8-1**

- Configuring CDR Search by User Extension 8-1
- Configuring CDR Search by Gateway 8-3
- Configuring CDR Search by Cause for Call Termination 8-4
- Viewing Call Termination Details 8-5
- Configuring CDR Search By Call Precedence Levels 8-5
- Configuring CDR Search for Malicious Calls 8-6
- Related Topics 8-7

**CHAPTER 9**

**Export CDR/CMR Records Configuration 9-1**

- Exporting CDR/CMR Records 9-1
- Viewing Export CDR/CMR Records Results 9-2
- Related Topics 9-3

**CHAPTER 10**

**CAR Report Results 10-1**

- Bill Summary Report Results 10-2
- Bill Detail Report Results 10-3
- Top N By Charge or Duration Report Results 10-4
- Top N By Number of Calls Report Results 10-5
- Call Usage for Assistant—Detail Report Results 10-6
- Call Usage for Assistant—Summary Report Results 10-7
- Call Usage for Manager—Detail Report Results 10-8
- Call Usage for Manager—Summary Report Results 10-8
- Cisco IP Phone Services Report Results 10-9
- QoS Detail Report Results 10-10
- QoS Summary Report Results 10-11
- QoS by Gateways Report Results 10-12
- QoS by Call Types Report Results 10-12

|   |       |
|---|-------|
| Traffic Summary Report Results                      | 10-13 |
| Authorization Code Name Call Details Report Results | 10-14 |
| Authorization Level Call Details Report Results     | 10-15 |
| Client Matter Code Details Report Results           | 10-15 |
| Malicious Call Details Report Results               | 10-16 |
| Precedence Call Summary Report Results              | 10-16 |
| System Overview Report Results                      | 10-17 |
| CDR Error Report Results                            | 10-18 |
| Gateway Detail Report Results                       | 10-18 |
| Gateway Summary Report Results                      | 10-19 |
| Gateway and Route Utilization Report Results        | 10-21 |
| Conference Call Detail Report Results               | 10-21 |
| Conference Bridge Utilization Report Results        | 10-22 |
| Voice Messaging Utilization Report Results          | 10-23 |
| Understanding the CDR Search Results                | 10-23 |
| Understanding the Results for CDR Search            | 10-23 |
| Media Information                                   | 10-25 |
| CDR and CMR Dump Tables                             | 10-26 |

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**INDEX**





## Preface

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



### Note

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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>

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The preface covers these topics:

- [Purpose, page ix](#)
- [Audience, page x](#)
- [Organization, page x](#)
- [Related Documentation, page xi](#)
- [Conventions, page xi](#)
- [Obtaining Documentation, Obtaining Support, and Security Guidelines, page xii](#)
- [Cisco Product Security Overview, page xii](#)

## Purpose

The *Cisco Unified CallManager CDR Analysis and Reporting Administration Guide* provides information about the Cisco Unified CallManager CDR Analysis and Reporting tool.

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

# Audience

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

# Related Documentation

Refer to the *Cisco Unified 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](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  |
|-----------------------------|--|
| <b>boldface font</b>        | Commands and keywords are in <b>boldface</b> .   |
| <i>italic font</i>          | Arguments for which you supply values are in <i>italics</i> .  |
| [ ]                         | 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 <i>screen font</i> .  |
| <b>boldface screen font</b> | Information you must enter is in <b>boldface screen font</b> .   |
| <i>italic screen font</i>   | Arguments for which you supply values are in <i>italic screen font</i> .   |
| →                           | 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, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

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

## 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](mailto:export@cisco.com).



# CDR Analysis and Reporting Overview

---

Cisco Unified 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, page 1-1](#)
- [Understanding CDR Analysis and Reporting, page 1-2](#)
- [CAR Administrators, Managers, and Users, page 1-5](#)
- [CAR System Settings, page 1-5](#)
- [CAR Reports, page 1-6](#)
- [CDR Search, page 1-12](#)
- [Internationalization for CDR Analysis and Reporting, page 1-13](#)
- [Web Browsers, page 1-15](#)
- [CDR Analysis and Reporting Configuration Checklist, page 1-15](#)
- [Related Topics, page 1-16](#)

## 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 Unified 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 Unified 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 continue to make connection attempts to the CDR repository node until a connection is made. The Cisco CDR Agent service sends any accumulated CDR files when the connection to the CDR Repository node resumes. The CDR Repository Manager service maintains the CDR and CMR files, allocates the amount of disk space for use by CMRs and CDRs, sends the files to up to three configured destinations, and tracks the delivery result for each destination. CDR Analysis and Reporting (CAR) accesses the CDR/CMR files in the directory structure that the CDR Repository Manager service creates.

The high and low water mark settings that you configure specify percentages of the total disk space that are allocated for the CDR repository. Although the preserved folder under the CDR repository folder contributes to the high and low water mark percentages, Log Partition Monitoring never deletes the folder if the high water mark gets reached. If the high water mark gets reached, the CDR Repository Manager deletes processed CDR files until the low water mark is reached or all processed files are deleted, whichever comes first. If all processed CDR files are deleted but the low water mark has not been reached, the deletion stops. The CDRHighWaterMarkExceeded alarm gets generated until the system reaches the maximum disk allocation. If the maximum disk allocation gets reached, the system deletes undelivered files and files within the preservation duration, starting with the oldest files, until disk utilization falls below the high water mark. If you receive the CDRMaximumDiskSpaceExceeded alarm repeatedly for this scenario, either increase the disk allocation or lower the number of preservation days.

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


**Note**

If you upgrade from Cisco Unified CallManager 4.x, Cisco Unified 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 Unified 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 Unified CallManager 5.x system.

## Understanding CDR Analysis and Reporting

CAR's primary function is to generate reports on the users of Cisco Unified CallManager and generate reports on the system status with respect to call processing. CAR also performs CAR database management activities. You can perform these tasks in one of the following ways:

- Automatically configure the required tasks to take place.
- Manually perform the tasks by using the web interface.

You access CAR from the Tools menu of Cisco Unified 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. An option allows continuous loading 24/7 of the CDR data. An option also allows you to “Load CDR Only” data (the corresponding CMR records do not get loaded).

CAR retrieves information that is required for various reports from the CDRs and CMRs as well as from the Cisco Unified 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 1-6](#).

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.

**Note**

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

---

**Purging CAR data**

This section contains information on the following topics:

- Automatic purging
- Manual purging
- Event log purging

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

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

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

**Tip**

---

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

---

Configure manual database purge when you want to delete records that are older than a particular date or that fall in a specific date range, but you do not want to change the automatic purging schedule. You can also reload the CAR database with CDR records by clicking the Reload button in the Manual Purge window. You may want to reload the database to reclassify calls after dial-plan updates, user-device association changes, call rate changes, and so on. After the system loads the new records, the system loads the records according to the schedule in the configured CDR load schedule. By default, CDR data loads every day from midnight to 5 a.m.

**Tip**

---

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

---

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

### Call Costs

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

Reports that use these rating parameters include individual bill, department bill, top N by charge, top N by number, and top N by duration.

**Note**

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

**Note**

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

For more information on setting call rates, 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 Unified CallManager Administration. For more information, see the [“Configuring CAR Administrators, Managers, and Users” section on page 2-4](#).

## 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:

- Mail server criteria—CAR uses this information to successfully connect to the e-mail server to send alerts and reports by e-mail. If you do not want to send alerts or reports by e-mail, you do not need to specify this information.
- Dial plan—The default dial plan in CAR specifies the North American numbering plan (NANP). Ensure the dial plan is properly configured, so call classifications are correct in the reports. If you have modified the default NANP that Cisco Unified CallManager Administration provides, or if you are outside the NANP, be sure to configure the dial plan according to your Cisco Unified 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, page 1-6](#)
- [User Reports, page 1-7](#)
- [System Reports, page 1-8](#)
- [Device Reports, page 1-10](#)
- [Automatically Generated Reports Schedule, page 1-11](#)

## CAR Reports General Information

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

- When no records match the time range 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 Unified CallManager database).

#### Additional Information

See the [“Related Topics” section on page 1-16](#).

## User Reports

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

- Bills
  - Individual—Available for users, managers, and CAR administrators. Individual bills provide 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. Those CAR administrators who are also application users cannot get this report.
  - Department—Available for managers and CAR administrators. Department bills provide call information and quality of service (QoS) ratings. If you are a manager, you can generate a summary or detailed report of the calls that are made by all users who report to you, or only those users that you choose. If you are a CAR administrator, you can generate a summary or detailed report of the calls that some or all users in the system make. This report helps you to keep track of all calls on a user-level basis for the entire system.
- Top N
  - By Charge—Available for managers and CAR administrators. 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.
  - 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.
  - 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 Unified CallManager Assistant
  - Manager Call Usage—Available for CAR administrators. The Cisco Unified CallManager Assistant summary and detail reports provide call completion usage details for managers. The manager reports can include calls that managers handle for themselves only, calls that assistants handle for managers only, or calls that both managers and assistants handle for managers.
  - Assistant Call Usage—Available for CAR administrators. The Cisco Unified CallManager Assistant summary and detail reports provide call completion usage details for assistants. The assistant reports can include calls that assistants handle for themselves only, calls that assistants handle for managers, or calls that assistants handle for themselves and for managers.
- Cisco IP Phone Services—Available for CAR administrators. The Cisco IP Phone Services report shows selected Cisco Unified 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 1-16](#).

## 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 Unified 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.
  - Summary—Available for managers and CAR administrators. This report provides a two-dimensional pie chart that shows the distribution of QoS grades that are achieved for the specified call classifications and period. The report also provides a table that summarizes the calls for each QoS. The call details in CDRs and CMRs and the QoS parameters that you choose provide the basis for assigning a call to a particular voice-quality category. Use this report to monitor the voice quality of all calls through the network.
  - By Gateway—Available for CAR administrators. This report shows the percentage of the calls for each of the chosen gateways that meet the QoS criteria that the user chooses. You can generate this report on an hourly, daily, or weekly basis.

- By Call Types—Available for CAR administrators. This report shows the percentage of the calls for each chosen call type that meet the QoS criteria that the user chooses. You can generate this report on an hourly, daily, or weekly basis.
- Traffic
  - Summary—Available for CAR administrators. This report provides information about the call volume for a period that you specify. Include only those call types and QoS voice-quality categories that you choose. Use this report to determine the number of calls that are being made on an hourly, weekly, or daily basis. This report helps you identify high- and low-traffic patterns for capacity planning
  - Summary by 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 choose. You can generate the report on an hourly, weekly, or daily basis. This report helps you determine high-usage users or groups by aggregating the usage level across the users that you specify.
- FAC/CMC
  - Client Matter Code (CMC)—Available for CAR administrators. This report allows administrators to view the originating and destination numbers, the date and time that the call originated, the call duration in seconds, and the call classification for calls that relate to each chosen client matter code.
  - Authorization Code Name—Available for CAR administrators. This report allows administrators to view the originating and destination numbers, the date and time that the call originated, the call duration in seconds, the call classification, and the authorization level for calls that relate to each chosen authorization code name.
  - Authorization Level—Available for CAR administrators. This report allows administrators to view the originating and destination numbers, the date and time that the call originated, the call duration in seconds, the authorization code name, and the call classification for calls that relate to each chosen authorization level.
- Malicious Call Details—Available for CAR administrators. The Cisco 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 Unified 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 1-16.

## Device Reports

Device reports help CAR administrators track the load and performance of Cisco Unified 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.
  - 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, On Net) and also, the total calls for each QoS value for each gateway in the system. Use this report to track the functionality of the system on a daily basis. If you discover issues that need to be studied further, use the gateway detail report.
  - Utilization—Available for CAR administrators. The report provides an estimate of the utilization percentage of the gateway(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each gateway that is chosen. Use this report for load balancing or capacity planning (to evaluate the need for adding or removing gateways, depending on their utilization). You can specify gateways by type, such as all or some of the VG200 gateways in your system, or by only those gateways that use a particular route pattern.
- Route Plan
  - Route and Line Group Utilization—Only CAR administrators can generate the route and line group utilization report. This report provides an estimated utilization percentage of the chosen route and line group(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each chosen route and line group. Use the report to analyze whether the route and line group capacity is sufficient to meet the usage requirements. Based on the results, you can decide whether additions are required. If you are load balancing gateways by using different route and line groups or route patterns and hunt lists that are assigned to the gateways, you can use this report to see the load for the whole grouping. This report also provides a convenient way of generating utilization information for a grouping of gateways by a particular route and line group; the group will also include any H.323 fallback gateways that are using the specified route and line group.
  - Route/Hunt List Utilization—Available for CAR administrators. The route/hunt list utilization report provides an estimated utilization percentage of the chosen route/hunt list(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each chosen route/hunt list. Use the report to analyze whether the route and line group capacity is sufficient to meet the usage requirements. Based on the results, you can decide whether additions are required. If you are load balancing gateways by using different route/hunt lists that are assigned to the gateways, you can use this

report to see the load for the whole grouping. This report also provides a convenient way of generating utilization information for a grouping of gateways by a particular route/hunt list; the group will also include any H.323 fallback gateways that are using the chosen route/hunt list.

- Route Pattern/Hunt Pilot Utilization—Available for CAR administrators. The route pattern/hunt pilot utilization report provides an estimated utilization percentage of the chosen route pattern(s)/hunt pilot(s). You can examine the usage on the basis of each hour of a day or by a specified number of days of the week or month. Reports generate for each chosen route pattern/hunt pilot. Use the report to analyze system usage on the chosen route pattern/hunt pilot.
- Conference Call Details—Available for CAR administrators. The Conference Call Details reports allows you to generate and view details about conference calls and conference bridges. The Summary Report displays the summary information of conference calls within a chosen date/time range but does not contain information about each individual conference participant call leg. The Detailed Report displays the detailed information about the conference calls within a chosen date/time range and includes information about each individual conference participant call leg.
- Conference Bridge Utilization—Available for CAR administrators. The 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 1-16](#).

## 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.

- Department Bill Summary [Monthly]
- Gateway Summary [Monthly]
- Individual Bill Summary [Monthly]
- Conference-Summary [Monthly]
- Conference-Detail [Daily]
- QOS Summary [Monthly]
- System Overview [Monthly]

- Top N Charge [Daily]
- Top N Charge [Monthly]
- Top N Duration [Daily]
- Top N Duration [Monthly]
- Top N Calls [Daily]
- Top N Calls [Monthly]
- Traffic Summary-Day of Month [Monthly]
- Traffic Summary-Day of Week [Weekly]
- Traffic Summary-Hour of Day [Daily]
- Conference Bridge Util-Day of Week [Weekly]
- Voice Messaging Util-Day of Week [Weekly]
- Route Pattern/Hunt Pilot Util-Day of Week [Weekly]
- Route/Hunt List Util-Day of Week [Weekly]
- Route Group Util-Day of Week [Weekly]
- Line Group Util-Day of Week [Weekly]
- Gateway Util-Day of Week [Weekly]

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 [“Configuring the CAR System Scheduler”](#) section on page 3-7.

#### Additional Information

See the [“Related Topics”](#) section on page 1-16.

## CDR Search

In all CDR Search reports, the system only displays the oldest 100 records that fall into the time and date range that you configure.

You can configure CDR searches to verify the details of a call. The search forms groups of all the related legs of a call, which can be useful if the call involves a conference or transfer. This method helps you track the progress and quality of each part of an entire call.

This section describes the following features:

- **CDR Search by User Extension**—Available for CAR administrators. You can search CDRs by user or directory number (calling, original called, or final called) to analyze call details for the first 100 records that satisfy the search criteria. You can search for calls by using specific numbers for the period that you specify, which helps you trace calls that are placed from or to any specific numbers for diagnostic or informational purposes. All associated records, such as transfer and conference calls, appear together as a logical group. If you do not specify an extension, the system returns the first 100 CDR records that match the date range that you specify.
- **CDR Search by Gateway**—Available for CAR administrators. You can search CDRs by gateways to analyze the call details of calls that are using specific gateways. This method helps you trace issues on calls through specific gateways.

- **CDR Search by Cause for Call Termination**—Available for CAR administrators. You can search CDRs by cause for call termination to get information about the cause for the termination of a call. You can choose from a list of causes for call termination and can generate the report for a particular date range. The generated report contains the report criteria, along with the total number of calls that were placed in the given time. In addition, a table displays with the fields Call Termination Cause Value and description, the total number of calls, and the percentage of calls for each Call Termination Cause, and an option to choose the CDRs.
- **CDR Search by Call Precedence Level**—Available for CAR administrators. You can search CDRs by call precedence level. The report that generates allows you to view the CDRs on the basis of precedence. You can choose the precedence level and date range for which to generate a report. The report displays the number of calls and the percentage of these calls for each precedence level that you 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 Unified 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 Unified CallManager 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 Unified CallManager Locale Installer, refer to the *Cisco Unified Communications Operating System Administration Guide*.

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

In the Cisco Unified CallManager Administration, set the user-preferred locale in the Cisco Unified 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 Unified CallManager database stores this information. Refer to the *Cisco Unified 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 Unified 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 Unified 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 Unified 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 (or later)
- Microsoft Internet Explorer 6.0 (or later)

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



## Note

Simultaneous logon to Cisco Unified 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  |
|---------------------|--|--|
| <b>Step 1</b>       | Activate the CDR services on the appropriate servers.  | <a href="#">Activating CAR, page 2-1</a>   |
| <b>Step 2</b>       | To ensure that the CDR records write to flat files, you must enable the Cisco CallManager service parameters, CDREnabled and CallDiagnosticsEnabled.   | <i>Cisco Unified CallManager Administration Guide</i>  |
| <b>Step 3</b>       | Set up CAR administrators, managers, and users in Cisco Unified CallManager Administration.  | <a href="#">Configuring CAR Administrators, Managers, and Users, page 2-4</a>  |
| <b>Step 4</b>       | Configure CAR system parameters for report generation: <ul style="list-style-type: none"> <li>• Configure mail server.</li> <li>• Configure dial plan.</li> <li>• Configure gateway.</li> <li>• Set system preferences.</li> </ul> | <a href="#">Configuring CAR System Parameters, page 3-1</a>  |
| <b>Step 5</b>       | Specify the value ranges that you consider good, acceptable, fair, and poor for jitter, latency, and lost packets.   | <a href="#">Defining the Quality of Service (QoS) Values, page 4-5</a>   |
| <b>Step 6</b>       | 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.   | <a href="#">Configuring the Rating Engine, page 4-1</a>  |
| <b>Step 7</b>       | Enable the reports that you want to automatically generate by using the Automatic Generation/Alert Option window.  | <a href="#">Configuring Automatic Report Generation/Alert, page 4-6</a><br><a href="#">Automatically Generated Reports Schedule, page 1-11</a> |
| <b>Step 8</b>       | Configure the system scheduler to schedule when CAR loads CDRs as well as daily, weekly, and monthly reports.  | <a href="#">Configuring the CAR System Scheduler, page 3-7</a>   |

Table 1-1 CAR Configuration Checklist (continued)

| Configuration Steps |  | Related Procedures and Topics   |
|---------------------|--|---|
| <b>Step 9</b>       | 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.<br><br>You can disable automatic database purging, but the system enables purging by default. | <a href="#">Configuring Automatic Database Purge, page 3-14</a>           |
| <b>Step 10</b>      | 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.   | <a href="#">Configuring Notification Limits, page 4-9</a>                 |
| <b>Step 11</b>      | If your users want to view localized user and manager reports, install the proper locales.   | <i>Cisco Unified Communications Operating System Administration Guide</i> |
| <b>Step 12</b>      | To back up CAR, including the database and the pregenerated reports, make sure that you configure the CAR target in the backup utility.  | <i>Disaster Recovery Administration Guide</i>                             |

**Additional Information**

See the [“Related Topics”](#) section on page 1-16.

## Related Topics

- [CAR Reports General Information, page 1-6](#)
- [User Reports, page 1-7](#)
- [System Reports, page 1-8](#)
- [Device Reports, page 1-10](#)
- [Automatically Generated Reports Schedule, page 1-11](#)
- [Getting Started with CDR Analysis and Reporting, page 2-1](#)
- [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](#)

**Additional Cisco Documentation**

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





# Getting Started with CDR Analysis and Reporting

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

This chapter contains the following topics:

- [Activating CAR, page 2-1](#)
- [Configuring CDR Service Parameters, page 2-2](#)
- [Configuring CDR Enterprise Parameters, page 2-3](#)
- [Configuring CAR Administrators, Managers, and Users, page 2-4](#)
- [Logging On to CAR, page 2-5](#)
- [Logging Out of CAR, page 2-5](#)
- [Accessing CAR Documentation Online Help, page 2-6](#)
- [Related Topics, page 2-6](#)

## Activating CAR

CAR comprises a group of complementary services, which you can activate in the Service Activation window in Cisco Unified CallManager Serviceability. Before you can launch CAR from the Tools menu in Cisco Unified 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 Unified CallManager database resides.

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

- 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 Unified CallManager Serviceability menu.

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

#### Additional Information

See the “[Related Topics](#)” section on page 2-6.

## 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 are generated, and generated in the manner you can use for your particular system, you must enable certain Cisco Unified CallManager service parameters.

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

- System Parameters
  - **CDR Enabled Flag**—This parameter determines whether CDRs are generated. Valid values specify True (CDRs are generated) or False (CDRs are not generated). For this required field, the default value specifies False. Enable this parameter on all servers in the cluster
  - **CDR Log Calls With Zero Duration Flag**—This parameter enables or disables the logging of CDRs for calls which were never connected or which lasted less than 1 second. Cisco Unified CallManager logs unsuccessful calls (calls that result in reorder, such as might occur because of a forwarding directive failure or calls that attempt to go through a busy trunk) regardless of this flag setting. This parameter represents a required field. The default value specifies False.
- Clusterwide Parameters (Device - General)
  - **Call Diagnostics Enabled**—This parameter determines whether the system generates call management records (CMRs), also called diagnostic records. Valid values specify Disabled (do not generate CMRs), Enabled Only When CDR Enabled Flag is True (generate CMRs only when the CDR Enabled Flag service parameter is set to True), or Enabled Regardless of CDR Enabled Flag (generates CMRs without regard to the setting in the CDR Enabled Flag service parameter). This represents a required field. The default value specifies Disabled.
  - **Display FAC in CDR**—This parameter determines whether the Forced Authorization Code (FAC) that is associated with the call displays in the CDR. Valid values specify True (display authorization code in CDRs) or False (do not display authorization code in CDRs) for this required field. The default value specifies False.

- **Show Line Group Member DN in finalCalledPartyNumber CDR Fields**—This parameter determines whether the finalCalledPartyNumber field in CDRs shows the directory number (DN) of the line group member who answered the call or the hunt pilot DN. Valid values specify True (the finalCalledPartyNumber in CDRs will show the DN of the phone that answered the call) or False (the finalCalledPartyNumber in CDRs will show the hunt pilot DN). This parameter applies only to basic calls that are routed through a hunt list without feature interaction such as transfer, conference, call park, and so on. If a feature is involved in the call, the hunt pilot DN will show in the finalCalledPartyNumber field regardless of the setting in this parameter. This parameter does not apply to Cisco Unified CallManager Attendant Console. The default value for this required field specifies False.
- Clusterwide Parameters (Device - Phone)
  - **Add Incoming Number Prefix to CDR** —This parameter determines whether Cisco Unified Communications Manager adds the incoming prefix (as specified in the National Number Prefix, International Number Prefix, Subscriber Number Prefix, and Unknown Number Prefix service parameters) to the calling party number in the CDRs for that call. This parameter applies cluster wide. If this service parameter is set to False, the normal call will have the CDR data for CallingPartyNumber without a prefix and all the supplementary services like Pickup, Transfer, etc, will have the CDR data for CallingPartyNumber with a prefix. If this service parameter is set to True, the normal call and all the supplementary services will have the CDR data for CallingPartyNumber with a prefix. The default value for this required field specifies False.

## Configuring CDR Enterprise Parameters

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

- CDR Parameters
  - **CDR File Time Interval**—This parameter specifies the time interval for collecting CDR data. For example, if this value is set to 1, each file will contain 1 minute of CDR data (CDRs and CMRs, if enabled). The external billing server and CAR database will not receive the data in each file until the interval expires (or sometime later, depending on the CAR Loader schedule setting). Consider how quickly you want access to the CDR data when you decide what interval to set for this parameter. Setting this parameter to 60 means that each file will contain 60 minutes worth of data, but that data will not be available until the 60-minute period has elapsed, and the records are written to the CAR database. The CDR files are sent to the configured billing server(s). The default value specifies 1. The minimum value specifies 1, and the maximum value specifies 1440. The unit of measure for this required field represents a minute.
  - **Cluster ID**—This parameter provides a unique identifier for the cluster. Because the parameter gets used in CDRs, collections of CDRs from multiple clusters can be traced to the sources. The default value specifies StandAloneCluster. The maximum length comprises 50 characters and provides a valid cluster ID that comprises any of the following characters: A-Z, a-z, 0-9, . -.
- CCM Web Services Parameters
  - **Allowed CDRonDemand get\_file Queries Per Minute**—This parameter specifies the maximum number of CDRonDemand get\_file queries that are allowed per minute for the system. For this required field the default value specifies 10. The minimum value equals 1 and the maximum value equals 20.
  - **Allowed CDRonDemand get\_file\_list Queries Per Minute**—This parameter specifies the maximum number of CDRonDemand get\_file\_list queries that are allowed per minute for the system. For this required field the default value specifies 20. The minimum value equals 1 and the maximum value equals 40.

# 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 Unified 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.

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

## Procedure

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



**Note** After creating the End User, edit the user password credentials by clicking the button **Edit Credentials** near the password text box. Uncheck the **User Must Change at Next Login** check box.



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

- Step 2** Choose **User Management > User Group**; click **Find**.  
The Find and List User Groups window displays.
- Step 3** Click **Standard CAR Admin Users**.  
The CAR User Group window displays.
- Step 4** Click the **Add End Users to Group** button.
- Step 5** Check the check box(es) for the users that you want to add to the group and click **Add Selected**.  
The user displays in the Users in Group group box.



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

## Additional Information

See the [“Related Topics”](#) section on page 2-6.

# 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 SOAP-CDRonDemand Service run on the first node. After you activate the services, the option CDR Analysis and Reporting displays under the Tools menu in Cisco Unified 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 2-4](#).

## Procedure

---

- Step 1** To log on to CAR, perform one of the following tasks:
- For CAR system administrators only—From Cisco Unified 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. Click **Login**.
- The CAR window displays.
- If the user ID or password are invalid, CAR displays one of the Identity Management System (IMS) messages that are listed in Table 2-1. 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 2-6](#).

# 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 2-6.

## 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 2-6.

## Related Topics

- [Activating CAR](#), page 2-1
- [Configuring CAR Administrators, Managers, and Users](#), page 2-4
- [Logging On to CAR](#), page 2-5
- [Logging Out of CAR](#), page 2-5
- [Accessing CAR Documentation Online Help](#), page 2-6
- [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:

- [Configuring CAR System Parameters, page 3-1](#)
- [Configuring the CAR System Scheduler, page 3-7](#)
- [Configuring the CAR System Database, page 3-12](#)
- [Generating the Event Log, page 3-15](#)
- [Related Topics, page 3-16](#)

### Configuring CAR System Parameters

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, page 3-2](#)
- [Configuring the Dial Plan, page 3-2](#)
- [Restoring the Default Values for the CAR Dial Plan, page 3-4](#)
- [Gateway Configuration, page 3-5](#)
- [Configuring System Preferences, page 3-6](#)

## Configuring Mail Server Parameters

To send e-mail alerts and reports by e-mail, you must specify the mail server configuration information. CAR uses the configuration information to successfully connect to the e-mail server.

This section describes how to specify e-mail server information.

### Procedure

- 
- Step 1** Choose **System > System Parameters > Mail Parameters**.  
The Mail Parameters window displays.
- Step 2** In the Mail ID field, 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 Unified CallManager Administration, or if you are outside the NANP, be sure to configure the dial plan in CAR according to your Cisco Unified CallManager dial plan. At least one condition must exist to configure the Dial Plan. Refer to the *Cisco Unified CallManager Administration Guide* and the *Cisco Unified 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 that you chose. To delete a row, check the check box by the row that you want to delete and click the **Delete Rows** link.
-  **Note** CAR classifies calls on the basis of the dialed number as stored in the CDRs. If the dialed digits differ from the digits that are written in CDRs (due to number transformations), configure the Dial Plan in CAR on the basis of how the digits show up in CDRs.
- 
- Step 5** To make the changes, click the **Update** button.
- 

### Additional Information

See the [“Related Topics”](#) section on page 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 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 Unified 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 Unified CallManager system gateways. Also, after you add gateways to Cisco Unified CallManager Administration, configure the new gateways in CAR. When gateways are deleted from the Cisco Unified 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 Unified 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 Unified 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 Unified 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. Do not enter a company name with more than 64 characters. |

- Step 3** Click the **Update** button.

# Configuring the CAR System Scheduler

The CAR System Scheduler allows you to perform the following functions:

- [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](#)

**Note**

Heavy traffic loading of CDR data can cause performance degradation on the Cisco Unified CallManager server.

**Additional Information**

See the [“Related Topics” section on page 3-16](#).

## Configuring the CDR Load Schedule

By default, CDR data loads continuously 24 hours a day, seven days a week and loads only CDR records. This section describes how to customize the loading schedule, how to restore the default loading schedule if it is customized, and how to disable CDR loading.

Disable CDR loading when you install or upgrade the system. Because loading CDRs causes a resource drain on Cisco Unified 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 Unified 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** Choose one of the following options:

- **Disable Loader**—To disable CDR data loading, check the **Disable Loader** check box and click the **Update** box.

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.

- **Continuous Loading 24/7**—To enable the CDR Loader to run continuously 24 hours a day, 7 days a week to load CDRs and CMRs into the CAR database, check the **Continuous Loading 24/7** check box and click the **Update** box. This represents the default setting for the CDR Load Schedule.

The CAR Scheduler service stops, and the CAR Loader gets configured to run immediately (within 1 to 2 minutes). The CAR Scheduler service restarts. If no new files for processing exist, the CDR Loader sleeps and then checks periodically for new files to be loaded.



**Note** For additional information on processing of CDR and CMR files, see the “CDR Repository Configuration” chapter in the *Cisco Unified CallManager Serviceability Administration Guide*.

- **Load CDR only**—To load only CDR records into the CAR database, check the **Load CDR only** check box and click the **Update** box. Continue to step 3 to configure the load parameters. With this option, CMR records do not load into the CAR database. This represents the default setting for the CDR Load Schedule.

If you must access the skipped CMR records that do not load when the **Load CDR only** option is selected, you must either disable the **Load CDR only** option and then select the **Reload all CDR** option from the CDR Load window or manually move the CMR files from the “processed” directory to the “preserved” directory. Cisco does not recommend that you use the second option without assistance from Cisco TAC.



**Note** To restore the default loading schedule of Continuous Loading 24/7, click the **Restore Defaults** box. 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.

**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. CDR data does not load **automatically** in the time that is specified. The CDR data loads uninhibited in the specified duration only if loading starts at the duration that is specified in the Load CDR and CMR area settings. If CDR data loading starts at an uninhibited loading interval, loading continues to the end of the uninhibited loading interval, plus the time in the duration field that is set in the Load CDR and CMR area, or until no new files to process exist.

Uninhibited loading take precedence over any values that are set for scheduled loading. If you do not want uninhibited loading of CDR data, set the From and To values at 00:00.

- Step 4** In the Uninhibited Loading of CDR area, complete the fields as described in [Table 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** check box.

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.

#### 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.

#### 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. The option that you choose indicates how many weeks the report remains on the disk before the report gets deleted.



**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.

**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 on which you want the report to be generated.

If you set the value to a day that does not occur in a given month (such as 29, 30, or 31), the report generates on the last day of that month.

**Step 3** From the Time drop-down list box in the Monthly Bill Generation row, choose the hour and minute 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. The option that you choose indicates how many months the report remains on the disk before the report gets deleted.

**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 on which 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. The option that you choose indicates how many months the report remains on the disk before the report gets deleted.



**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.

## Configuring the CAR System Database

You can configure CAR to notify you when the CAR database size exceeds a percentage of the maximum number of records. You can set the message and the maximum number of records and specify the alert percentage.

You can configure the system to maintain the CAR database size between the low water mark and the high water mark values that you configure through the Configure Automatic Database Purge window. When the database size reaches the low water mark, CAR sends an alert to the user. When the database size reaches the high water mark, the system deletes records based on the deletion age and sends an 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 3-14](#)

## 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 3-15](#).

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.



**Note** To restore the default values for the fields in this window, click the **Restore Defaults** button.

---

**Step 2** 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.



**Tip** The system notifies you when the CAR database size reaches the low or the high water mark; it also notifies you when the CAR database size exceeds two million records. For information on configuring an Email alert, see the “[Enabling or Disabling Alerts by Mail](#)” section on page 4-8, for instructions.

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**Step 3** 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.

**Step 4** In the Min Age of Call Detail Records field, enter the minimum number of days that you want CAR to use when it purges CDRs from the CAR database. Enter a number between 1 and 180.

When the database size exceeds the high water mark or the number of CDRs in the CAR database exceeds two million records, CAR deletes the CDRs that are older than the number of days that you specified in this field.

**Step 5** In the Max Age of Call Detail Records field, enter the maximum number of days that you want to keep the CDRs in the CAR database. Enter a number between 1 and 180.

CAR deletes all CDRs that are older than the specified number of days.

**Step 6** Click the **Update** button.

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



**Tip** When CAR loads the CDRs into the CAR database, the CAR Scheduler checks the low and high water marks and the two million record limit. If any threshold is breached, CAR immediately deletes records that are older than the number of days that you specify in [Step 4](#).

---

### Additional Information

See the “[Related Topics](#)” section on page 3-16.

# Generating the Event Log

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

The event log provides a report on the status of the activities that the CAR scheduler controls. The event log report shows whether the tasks 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                          |
|------------|--------------------------------------|
| SI 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](#)
- [Configuring the CAR System Database, page 3-12](#)
- [Configuring Automatic Database Purge, page 3-14](#)
- [Generating the Event Log, page 3-15](#)
- [Configuring Automatic Report Generation/Alert, page 4-6](#)
- [Configuring Notification Limits, page 4-9](#)
- [QoS by Gateway Report Configuration, page 6-6](#)
- [Gateway Detail Report Configuration, page 7-1](#)
- [Gateway Summary Report Configuration, page 7-4](#)
- [Gateway Utilization Reports Configuration, page 7-6](#)



## CAR Report Configuration

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Use report configuration to define the following parameters:

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



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**Note** Rating parameters for calls get used during CAR loading. If you want old CDR records in the CAR database to use new values for these parameters, you must reload all the CDRs in the CAR database.

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

This chapter contains the following topics:

- [Configuring the Rating Engine, page 4-1](#)
- [Defining the Quality of Service \(QoS\) Values, page 4-5](#)
- [Configuring Automatic Report Generation/Alert, page 4-6](#)
- [Configuring Notification Limits, page 4-9](#)
- [Related Topics, page 4-10](#)

### 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 equal zero because the default base charge per block equals zero.

The charge of any call comprises the multiplication of the basic charge of the call, multiplication factor for time of day, and multiplication factor for voice quality. You can set the basic charge for a call through the **Report Config > Rating Engine > Duration** window. 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.

This section contains the following topics:

- [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](#)

## 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 4-10.

## 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 4-10.

## 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 or fair call. A poor call gets charged 0.8 times that of an acceptable or fair call.



**Note** Multiplication factor for a good call  $\geq$  the multiplication factor for acceptable  $\geq$  multiplication factor for fair  $\geq$  multiplication factor for poor.



























































































































































































































