CHAPTER 26

CAR Report Configuration

Use report configuration to define the following parameters:

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

Note Rating parameters for calls 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.

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

This chapter contains the following topics:

Before You Begin

Before you start generating reports with CAR, configure the system. See the "CAR System Configuration" section on page 25-1.

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.

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 26-9.

Factoring Time of Day into Call Cost

To further define the cost of calls, you can specify a multiplication factor for certain times of day. For example, if you want to charge subscribers a premium for daytime calls, you can apply a multiplication factor to the base charge/block that you specified in the Call Duration window.

This section describes how to establish certain times of day when calls cost more.

Note If you do not want to increase call cost by time of day, you can use the default values. The default multiplication factor specifies 1, so no increase in call cost for time of day occurs.

Procedure

Step 1 Choose **Report Config > Rating Engine > Time of Day**.

The Time of Day window displays.

Step 2 To add rows, click the **Add Rows** link.

The system adds a row between 00:00:00 and 23:59:59.

Step 3 To add additional rows, check the check box for the row above which you want to add a new row and click the **Add Rows** link.

Note To delete rows, check the check box for the row that you want to delete and click the **Delete Rows** link.

Step 4 Enter the From and To time ranges in 24-hour, minute, and second format. A 24-hour period, from 00:00:00 to 23:59:59, represents the default time range. If you want to set one time-of-day range from 8 am to 5 pm, you will need to establish three time-of-day ranges: the first from 00:00:00 to 07:59:59, the second from 08:00:00 to 16:59:59, and the third from 17:00:00.

Note You must use military time, rather than a 12-hour clock when factoring Time of Day into Call Cost.

Step 5 Enter the Multiplication Factor that designates a number by which you want the base charge/block to be multiplied when a call occurs in the specified time range. For example, if you charge a premium of double the price for calls that are placed between 8 a.m. and 5 p.m., the multiplication factor would be 2.00. A multiplication factor of 1.00 does not affect the cost of the call.

Step 6 To add the time-of-day and multiplication factors, click the **Update** button.

Tip To restore the default setting, click the **Restore Defaults** button.

Additional Information

See the "Related Topics" section on page 26-9.

Factoring Voice Quality into Call Cost

To further define the cost of calls, you can specify a multiplication factor for the voice quality of a call. For example, if subscribers are paying a premium price to ensure the highest voice quality on calls, you can apply various multiplication factors to the base charge/block that you specified in the Call Duration window depending on the voice quality. Using a multiplication factor other than 1.00 helps differentiate between the various voice quality calls as well.

This section describes how to establish call cost when calls that have a certain voice quality cost more.

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

Procedure

Step 1 Choose **Report Config > Rating Engine > Voice Quality**.

The Voice Quality window displays.

Step 2 In the Multiplication Factor field, enter the number by which you want the base charge/block to be multiplied when a call occurs in the specified voice-quality category. The "Defining the Quality of Service (QoS) Values" section on page 26-5, 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 >= the multiplication factor for acceptable >= multiplication factor for fair >= multiplication factor for poor.

Step 3 To set the voice quality multiplication factors, click the **Update** button.

Tip To restore the default setting, click the **Restore Defaults** button.

Additional Information

See the "Related Topics" section on page 26-9.

Defining the Quality of Service (QoS) Values

CAR generates Quality of Service reports. To qualify the data that is presented in those reports, CAR uses predefined values that are set about voice quality. Specify the value ranges that are good, acceptable, fair, and poor for jitter, latency, and lost packets. If a call does not satisfy any of the criteria that are set for any of the four voice-quality categories, it receives a classification of NA (not applicable); likewise, if the system is not configured to generate CMR data (or if the CMR is bad), the CMR receives a classification of NA (not applicable).

Enter NA to ignore the values of a parameter. For example, a QoS parameter such as jitter, has NA, and the QoS is defined as good, which means that the QoS depends only on the values of latency and lost packets. All three parameters cannot have NA as values. Infinity designates the maximum value that is available for any parameter. If you specify a rule where a jitter value from 500 to Infinity is considered poor, a call with jitter greater than 500 receives a classification of poor.

Note Be aware that the classifications of "NA" and "Infinity" are case-sensitive.

This section describes how to define the quality-of-service values.

Procedure

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

The Define Quality of Service window displays. Table 26-1 describes the QoS default values.

Table 26-1 QoS Default Values

QoS Parameter	Default
Lost Packets	Good—0.00 to 15.00 Acceptable—15.01 to 30.00 Fair—30.01 to 45.00 Poor—45.01 to infinity
Jitter	Good—0 to 20 Acceptable—21 to 100 Fair—101 to 150 Poor—151 to infinity
Latency	No default values apply.

Step 2 To add rows, check the check box for the row above which you want to add a new row and click the **Add Rows** link.

The new row gets added above the row that you checked, and the check box is cleared.

The rows represent the values that CAR uses to quantify the conditions good, acceptable, fair, and poor in the QoS reports. For each value set, enter the upper and lower limits in the From and To columns.

Note To delete rows, check the check box for the row that you want to delete and click the **Delete Rows** link.

Step 3 For each value that you have set, choose the Quality of Service.

Step 4 Click the **Update** button.

Tip To restore the default QoS values, click the **Restore Defaults** button.

Additional Information

See the "Related Topics" section on page 26-9.

Configuring Automatic Report Generation/Alert

CAR automatically generates reports based on a schedule. Report generation can include a daily, weekly, or monthly summary report, QoS reports, traffic reports, Device/Route Plan utilization reports, and so on, that you may want to view on a regular basis.

Note In large setups, with a large number of gateways, route groups, route lists, and route patterns, enabling all the Utilization reports (Gateway Utilization, Line Group Utilization, Route Group Utilization, Route List Utilization, and Route Pattern Utilization) increases the CPU usage of the system, therefore increasing the time in which reports are generated. This also affects system performance. Cisco recommends that you enable only Gateway Utilization reports for automatic generation, due to the number of gateways that are typically found in a large system. You can generate all Utilization reports on demand by selecting 15 or less gateways, route groups, route lists, or route groups.

Automatically generating reports involves a two-step process:

- First, enable the reports that you want to generate unless they are enabled by default. See the "Enabling or Customizing Reports for Automatic Generation" section on page 26-7.
- Second, schedule the reports for the day and time that you want them to generate. (CAR provides a default schedule. If the default schedule is acceptable, only enable the reports that you want to generate automatically.) See the "System Scheduler Configuration" section on page 25-7.

CAR provides e-mail alerts for various events. Enabling the system for e-mail alerts involves a two-step process:

- First, enable the e-mail alerts. Default enables some, but not all, reports. See the "Enabling or Disabling Alerts by Mail" section on page 26-8.
- Second, configure the e-mail that is sent when the alert criteria are met.

Additional Information

See the "Related Topics" section on page 26-9.

Enabling or Customizing Reports for Automatic Generation

This section describes how to enable or disable one or all reports for automatic generation. You can also customize the report parameters and enable a mailing option, so reports get e-mailed when they are created. When the report gets mailed, CAR generates the e-mail address by using the mail ID for the CAR administrator(s) and the mail domain that is configured in the Mail Parameters window; that is, CAR uses <mail ID for the CAR administrator> @ <domain that is configured in the mail parameters window>.

The "Automatically Generated Reports Schedule" section on page 24-11 describes reports that are enabled by default.

Procedure

Step 1 Choose **Report Config > Automatic Generation/Alert**.

The Automatic Report Generation/Alert Option window displays.

Step 2 In the Reports [Report Generation Interval] box, choose the report that you want to automatically generate based on the schedule that you defined in the System Scheduler. See the "System Scheduler Configuration" section on page 25-7.

Step 3 In the Status field, choose **Enabled** or **Disabled**.

Step 4 To customize the report or have the report e-mailed when it is generated, click the **Customize Parameters** button.

The Customize Parameters window displays.

Note Each report provides different customization options, depending on the type of report.

Step 5 Choose the CSV or PDF radio button, depending on the type of report that you want the system to mail.

Step 6 To have the report mailed to all CAR administrators, check the **Mailing Option** check box.

Step 7 To save the values that you specified, click the **Update** button.

The Customize Parameters window closes.

Step 8 To enable or customize other reports, repeat Step 4 through Step 7.

Step 9 Click the **Update** button.

Changes take effect at midnight. You can force the change to take effect immediately by stopping and restarting the CAR Scheduler service.

Additional Information

See the "Related Topics" section on page 26-9.

Enabling or Disabling Alerts by Mail

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

Note For the QoS and Charge Limit Notifications, see the "Configuring Notification Limits" section on page 26-8.

Procedure

Step 1 Choose **Report Config > Automatic Generation/Alert**.

The Automatic Report Generation/Alert window displays.

Step 2 In the Alerts by Mail box, choose the alert that you want to enable or disable.

Step 3 In the Status field, choose **Enabled** or **Disabled**.

Step 4 Click the **Update** button.

Step 5 To enable or disable alerts by mail, repeat Step 2 and Step 4.

Changes take effect at midnight. You can force the change to take effect immediately by stopping and restarting the CAR Scheduler service.

Additional Information

See the "Related Topics" section on page 26-9.

Configuring Notification Limits

You can specify limits for QoS and daily charges, so the administrator gets alerted by e-mail when these limits are exceeded. The alerts go to all users that are designated as CAR Administrators through Cisco Unified CallManager Administration. See the "Configuring CAR Administrators, Managers, and Users" section in the *Cisco Unified CallManager CDR Analysis and Reporting Administration Guide, Release 5.0(4)*.

This section describes how to specify the notification limits for QoS and daily charges.

Procedure

Step 1 Choose **Report Config > Notification Limits**.

The Set Limits for Notification window displays.

Step 2 In the Daily QoS Parameters area, enter a threshold for good and poor calls.

The threshold applies in the form of a percentage of all calls that must be exceeded to trigger an e-mail alert to the administrator. The default for good calls specifies less than 20 percent, meaning that when good calls represent less than 20 percent of all calls per day, an alert gets sent. The default for poor calls specifies greater than 30 percent, meaning that when poor calls represent more than 30 percent of all calls per day, an alert gets sent.

Step 3 In the Daily Charge Limit area, enter the number of monetary units (such as dollars, francs, or pounds) that, when exceeded by any user in the system, will trigger sending of an e-mail alert to the administrator.

Step 4 Click the **Update** button.

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

Additional Information

See the "Related Topics" section on page 26-9.

Related Topics

- System Parameters Configuration, page 25-1
- Enabling or Customizing Reports for Automatic Generation, page 26-7
- Configuring Mail Server Parameters, page 25-2
- Enabling or Disabling Alerts by Mail, page 26-8
- Configuring Mail Server Parameters, page 25-2
- System Scheduler Configuration, page 25-7
- Configuring the Rating Engine, page 26-1
- Defining the Quality of Service (QoS) Values, page 26-5
- System Database Configuration, page 25-12
- Setting the Base Rate and Duration, page 26-2
- Factoring Time of Day into Call Cost, page 26-3
- Factoring Voice Quality into Call Cost, page 26-4