Oracle® Communications Convergent Charging Controller

Radius Control Agent User's Guide

Release 12.0.0

December 2017

ORACLE®

Copyright

Contents

Chapter 1

System Overview 1

Chapter 2

The Radius Control Agent Application 3

Chapter 3

The RCA Configuration Screens 7

Chapter 4

Reloading the Configuration 43

Glossary of Terms 47

Index 51

About This Document

Scope

The scope of this document includes all functionality a user must know in order to effectively operate the Radius Control Agent application. It does not include detailed design of the service.

Audience

This guide is written primarily for Radius Control Agent administrators. However, the overview sections of the document are useful to anyone requiring an introduction.

Prerequisites

Although it is not a prerequisite to using this guide, familiarity with the target platform would be an advantage.

This manual describes system tasks that should only be carried out by suitably trained operators.

Related Documents

The following documents are related to this document:

- *Convergent Charging Controller Radius Control Agent Technical Guide*

Document Conventions

Typographical Conventions

The following terms and typographical conventions are used in the Oracle Communications Convergent Charging Controller documentation.

Formatting Convention	Type of Information
Special Bold	Items you must select, such as names of tabs.
	Names of database tables and fields.
Italics	Name of a document, chapter, topic or other publication.
	Emphasis within text.
Button	The name of a button to click or a key to press.
	Example: To close the window, either click **Close**, or press **Esc**.
Key+Key	Key combinations for which the user must press and hold down one key and then press another.
	Example: **Ctrl+P** or **Alt+F4**.
`Monospace`	Examples of code or standard output.
`Monospace Bold`	Text that you must enter.
variable	Used to indicate variables or text that should be replaced with an actual value.
menu option > menu option >	Used to indicate the cascading menu option to be selected.
	Example: **Operator Functions > Report Functions**
hypertext link	Used to indicate a hypertext link.

Specialized terms and acronyms are defined in the glossary at the end of this guide.

System Overview

Overview

Introduction

This chapter provides a high-level overview of the application. It explains the basic functionality of the system and lists the main components.

It is not intended to advise on any specific Oracle Communications Convergent Charging Controller network or service implications of the product.

In this Chapter

This chapter contains the following topics.

What is the Radius Control Agent?

Introduction

The Radius Control Agent (RCA) is a SLEE interface that acts as the gateway between Radius and INAP, providing a seamless integration between prepaid PSDNs and applications such as ACS or Prepaid Charging. The connection to the Oracle SLC is through a CAMEL 2 interface.

RCA can also be configured to work between Cisco GGSN and Prepaid Charging by editing the **eserv.config** file and sms.jnlp files.

The following functionality is provided:

- Listening on specific ports for incoming Radius messages
- Sending Radius messages to predetermined ports
- Sending SLEE events to another SLEE application using a service key
- Constructing outgoing INAP messages
- Processing incoming INAP messages

Available features

Some of the features in RCA may be unavailable, depending on licensing and permissions.

The Radius Control Agent Application

Overview

Introduction

This chapter explains how to access the Radius Control Agent application and how to use the RCA screens.

In this chapter

This chapter contains the following topics.

Accessing the RCA application

Introduction

The Radius Control Agent (RCA) screens, accessed through the Service Management System screens, allow you to configure the RCA tables in the SMF database on the SMS. To begin configuring the RCA database, the SMS screens must first be configured and running.

SMS main menu

Here is an example of the SMS main menu showing the RCA menu options.

Accessing the Radius Control Agent screen

Follow these steps to access the Radius Control Agent screen.

Step	Action
1	From the SMS main screen, select the **Services > RCA Service > RADIUS Control Agent** menu options.
	Result: You see the Radius Control Agent screen.

Radius Control Agent screen
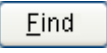
The Radius Control Agent screen lets you configure the RCA. Here is an example screen:
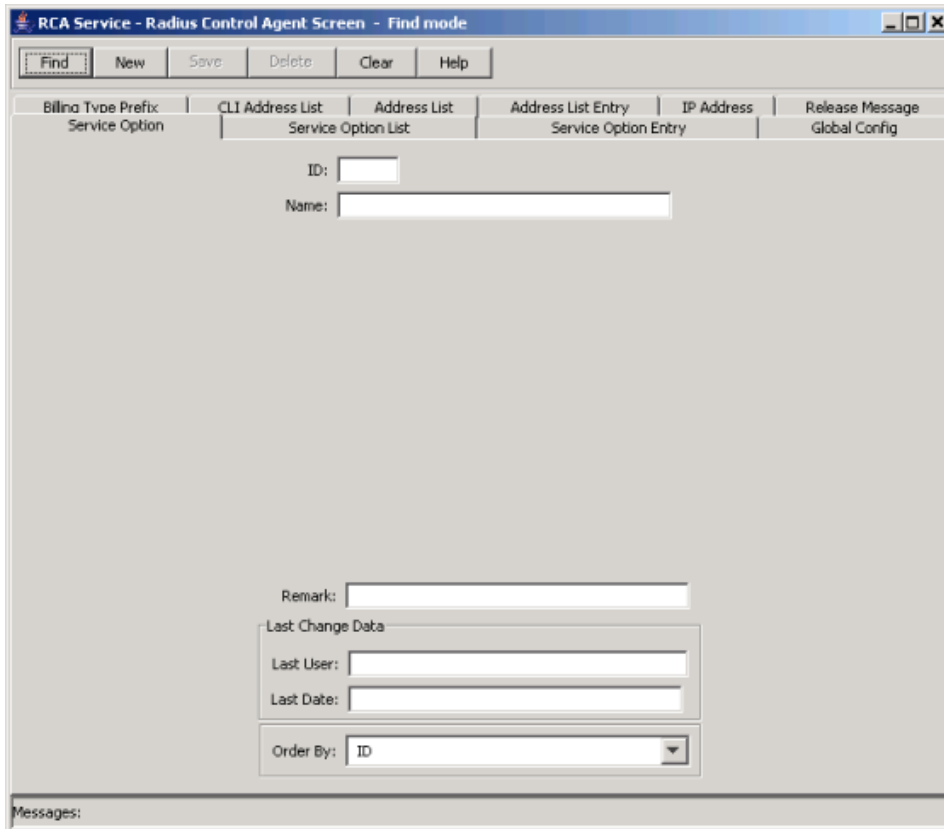
On-screen buttons

The RCA uses a set of buttons to start specific actions within each screen.

The table below describes the function of each button.

Button	Function
Find	Opens the Find window, enabling you to find records that match the search criteria.
	When you click **Find** in the Find screen, an Oracle Like% query is triggered that returns the first 100 records that begin with the selection criteria.
	For example, if you enter 123 in the Query field, the system will return records such as 123, 1234, 12345.

Button	Function
New	Creates a new record template on the current screen. Click **Save** to save the new record details to the database.
Save	Saves any changes to the record on the current screen to the database.
Delete	Removes the selected record from the database.
Clear	Clears all entries from the screen, enabling you to clear the screen before adding a new record.
Help	Opens context-sensitive Help containing information about the functionality available in the current screen.
Return	Returns you to the previous screen in the screen hierarchy.
	Note: Any changes that have been made on-screen will not be saved (unless **Save** has been clicked previously).

The RCA Configuration Screens

Overview

Introduction

This chapter explains how to configure the RCA on the SMS using the RCA screens.

To configure RCA in the the database the following items *must* be defined:

- *Global Config* (on page 36)

Optionally the following items may also be defined:

- *Billing Type Prefix* (on page 7)
- *Release Message* (on page 10)
- *Address List* (on page 26)
- *Service Option* (on page 13)

In this chapter

This chapter contains the following topics.

Billing Type Prefix

Introduction

You use the **Billing Type Prefix** tab to configure different billing types (volume or duration) for particular CLI prefixes.

To maintain Billing Type Prefixes, see the relevant option:

- *Adding a billing type prefix* (on page 8)
- *Editing a billing type prefix* (on page 9)
- *Deleting a billing type prefix* (on page 10)

Billing Type Prefix tab

Here is an example **Billing Type Prefix** tab.

Adding a billing type prefix

Follow these steps to Add a new billing type prefix.

Step	Action
1	On the **Billing Type Prefix** tab in the Radius Control Agent Screen - Find mode, click **New**. **Result:** You see the tab in New mode.

Step	Action

2	In the **Prefix** field, enter the CLI prefix you want to assign a billing type to.
3	From the **Billing Type** drop down box, select the billing type to use for billing calls that match the CLI prefix.
4	In the **Remark** field, enter a comment if required.
5	Click **Save**.
6	Repeat steps 2 through 5 for all the required Billing Type Prefixes.
	Note: When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
7	Click **Return** to go back to the previous screen.

Editing a billing type prefix

Follow these steps to edit a billing type prefix.

Step	Action
1	In Find mode on the **Billing Type Prefix** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123,

Step	Action
	1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding a billing type prefix* (on page 8).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a billing type prefix

Follow these steps to delete an RCA billing type prefix.

Step	Action
1	In Find mode on the **Billing Type Prefix** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

Release Message

Introduction

The **Release Message** tab allows you to specify the RADIUS release message to send, corresponding to the release codes received from the IN, if the IN releases instead of connecting the call.

To maintain global configurations, see the relevant option:

- *Adding a release message* (on page 11)
- *Editing a release message* (on page 12)
- *Deleting a release message* (on page 13)

Release Message tab

Here is an example **Release Message** tab in Find mode.

Adding a release message

Follow these steps to Add a new release message.

Step	Action
1	On the **Release Message** tab in the Radius Control Agent Screen - Find mode, click **New**.
	Result: You see the tab in New mode.

Step	Action
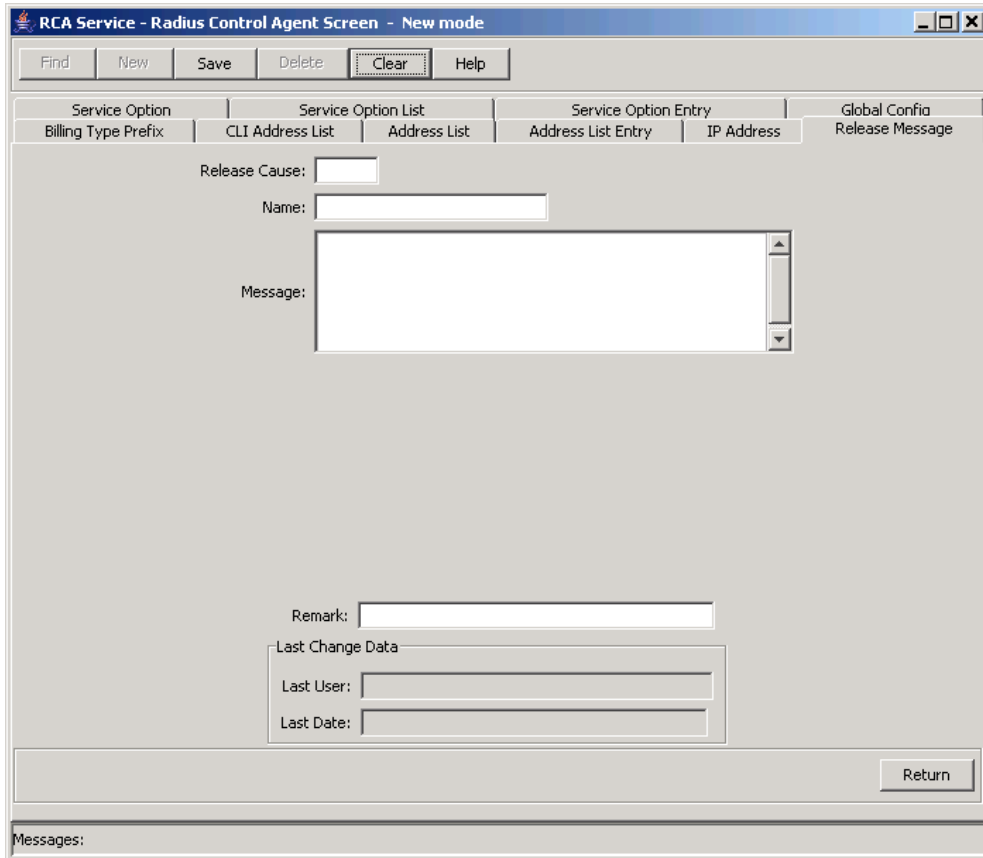
2	In the **Release Cause** field, enter the code corresponding to the release cause from the destination application (either ACS or CCS).
3	In the **Name** field, enter the name to assign to the release cause.
4	In the **Message** field, enter the RADIUS release message to send when a call is disconnected with this release cause.
5	In the **Remark** field, enter a comment if required.
6	Click **Save**.
7	Repeat steps 2 through 6 for all the required release messages. **Note:** When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
8	Click **Return** to go back to the previous screen.

Editing a release message

Follow these steps to edit an RCA release message.

Step	Action
1	In Find mode on the **Release Message** tab, enter selection criteria in one or more query fields. **Note:** If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.

Step	Action
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345. The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**. **Result:** The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding a release message* (on page 11).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a release message

Follow these steps to delete an RCA release message.

Step	Action
1	In Find mode on the **Release Message** tab, enter selection criteria in one or more query fields. **Note:** If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**. **Result:** The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345. The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**. **Result:** The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

Service Option

Introduction

The RCA Service Option tabs let you configure the available service options for a service provided by the PDSN.

Service Options must be defined in the following order:

Step	Action
1	Define the available service options on the **Service Option** tab. See *Adding a service option* (on page 14).
2	Create the service option list on the **Service Option List** tab. See *Adding a service option list* (on page 17).

Step	Action
3	On the **Service Option Entry** tab, assign the service options you have defined to the service option list. See *Adding a service option entry* (on page 20).

Maintaining service options

To maintain service option configurations, see the relevant option:

- *Adding a service option* (on page 14)
- *Editing a service option* (on page 15)
- *Deleting a service option* (on page 16)

Service Option tab

Here is an example of the **Service Option** tab.

Adding a service option

Follow these steps to Add a new service option.

Step	Action
1	On the **Service Option** tab in the Radius Control Agent Screen in Find mode, click **New**. **Result:** You see the tab in New mode.

Step	Action

2	In the **ID** field, enter the ID corresponding to the PDSN ID for the service option. This is an integer which must be in the range 0-255.
3	In the **Name** field, enter the service option name. You may use up to 30 characters.
4	In the **Remark** field, enter any comments.
5	Click **Save**.
6	Repeat steps 2 through 5 for all the required service options.
	Note: When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
7	Click **Return** to go back to the previous screen.

Editing a service option

Follow these steps to edit a service option.

Step	Action
1	In Find mode on the **Service Option** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123,

Step	Action
	1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding a service option* (on page 14).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a service option

Follow these steps to delete a service option in the RCA.

Step	Action
1	In Find mode on the **Service Option** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears:
5	Click **Yes** to confirm.
	Result: The record is removed from the database.
6	Click **Return** to return to the previous screen.

Service Option List

Introduction

The RCA Service Option tabs let you configure the available service options for a service provided by the PDSN.

Service Options must be defined in the following order:

Step	Action
1	Define the available service options on the **Service Option** tab. See *Adding a service option* (on page 14).
2	Create the service option list on the **Service Option List** tab. See *Adding a service option list* (on page 17).
3	On the **Service Option Entry** tab, assign the service options you have defined to the service option list. See *Adding a service option entry* (on page 20).

Maintaining service option lists

To maintain service option list configurations, see the relevant option:

- *Adding a service option list* (on page 17)
- *Editing a service option list* (on page 18)
- *Deleting a service option list* (on page 19)

Service Option List tab

Here is an example **Service Option List** tab.

Adding a service option list

Follow these steps to Add a new Service Option List.

Step	Action
1	On the **Service Option List** tab in the Radius Control Agent Screen in Find mode, click **New**. **Result:** You see the tab in New mode.

Step	Action
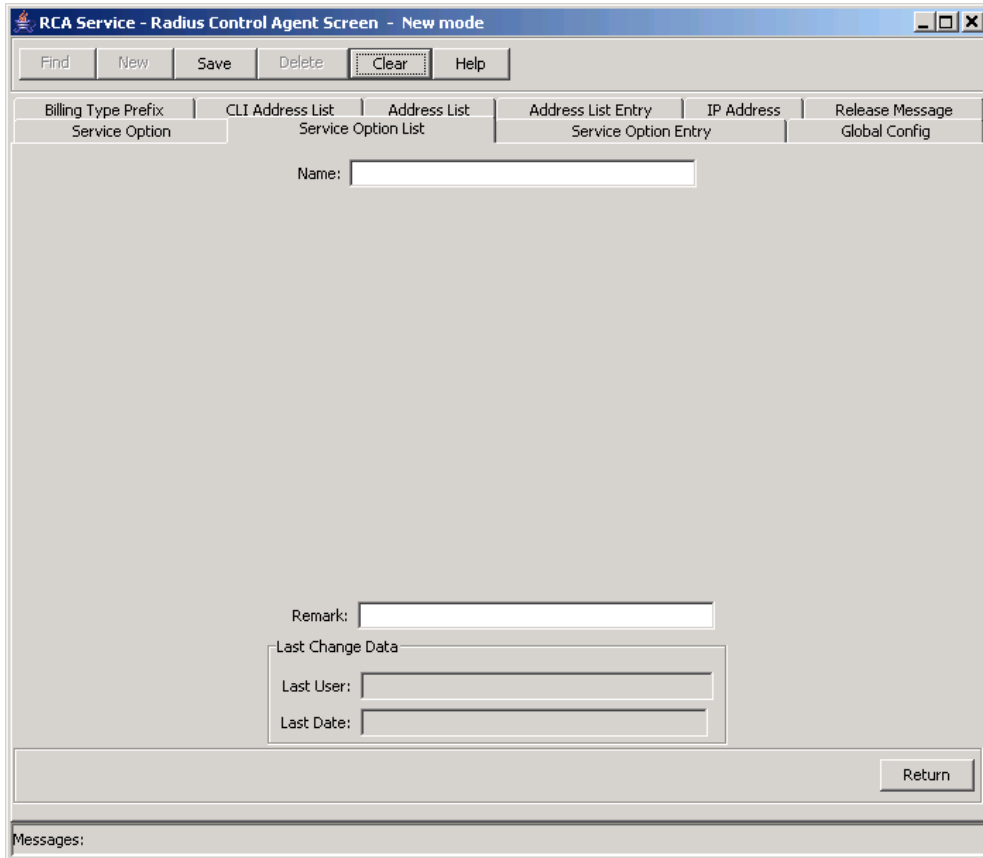
2	In the **Name** field, enter the service option list name. This can be up to 30 characters long.
3	In the **Remark** field, enter any comments.
4	Click **Save**.
5	Repeat steps 2 through 4 for all the required service option lists.
	Note: When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
6	Click **Return** to go back to the previous screen.

Editing a service option list

Follow these steps to edit a service option list name.

Step	Action
1	In Find mode on the **Service Option List** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you

Step	Action
	are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding a service option list* (on page 17).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a service option list

Follow these steps to delete an RCA service option list.

Step	Action
1	In Find mode on the **Service Option List** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

Service Option Entry

Introduction

The RCA Service Option tabs let you configure the available service options for a service provided by the PDSN.

Service Options must be defined in the following order:

Step	Action
1	Define the available service options on the **Service Option** tab. See *Adding a service option* (on page 14).
2	Create the service option list on the **Service Option List** tab. See *Adding a service option list* (on page 17).
3	On the **Service Option Entry** tab, assign the service options you have defined to the service option list. See *Adding a service option entry* (on page 20).

Maintaining service option entry

To maintain service option entry configurations, see the relevant option:

- *Adding a service option entry* (on page 20)
- *Editing a service option entry* (on page 21)
- *Deleting a service option entry* (on page 22)

Service Option Entry tab

Here is an example of the **Service Option Entry** tab in find mode.

Adding a service option entry

Follow these steps to Add a Service Option Entry to a Service Option List.

Step	Action
1	On the **Service Option Entry** tab in the Radius Control Agent Screen in Find mode, click **New**. **Result:** You see the tab in New mode.

Step	Action

Step	Action
2	From the **Service Option List** drop down box, select the required service option list.
3	From the **Service Option** drop down box, select the service option to include in the list.
4	In the **Max Num Instances** enter the maximum number of simultaneous accesses to the service option, that the customer may have. This is an integer which must be in the range 0-255.
5	Click **Save**.
6	Repeat steps 2 through 5 for all the required service options.
	Note: When you click **Save**, the saved values remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
7	Click **Return** to go back to the previous screen.

Editing a service option entry

Follow these steps to Edit a Service Option Entry.

Step	Action
1	In Find mode on the **Service Option Entry** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.

Step	Action
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the grid on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding a service option entry* (on page 20).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a service option entry

Follow these steps to delete an RCA Service Option Entry.

Step	Action
1	In Find mode on the **Service option Entry** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

IP Address

Introduction

The address tabs in the RCA allow you to configure lists of IP addresses for remote billing purposes (see *X.S011 - 005 - C, cdma200 Wireless IP Network Standard: Accounting Services and 3GPP2 RADIUS VSAs*).

Note: It is the responsibility of the PDSN to perform the remote accounting, and not the RADIUS Control Agent.

Addresses in RCA need to be configured in the following order:

Step	Action
1	Define the IP addresses on the IP Address tab. See *Adding an IP address* (on page 24).

Step	Action
2	Define IP address lists on the Address List tab. See *Adding an address list* (on page 27).
3	Assign the IP addresses to an address list, on the Address List Entry tab. See *Adding an address list entry* (on page 31).
4	Assign the address lists to CLI prefixes on the CLI Address List tab. See *Adding a CLI address list* (on page 34).

Maintaining IP address

To maintain IP address configurations, see the relevant option:

- *Adding an IP address* (on page 24)
- *Editing an IP address* (on page 25)
- *Deleting an IP address* (on page 25)

IP Address tab

Here is an example **IP Address** tab in find mode.

Adding an IP address

Follow these steps to Add a new IP address.

Step	Action
1	On the **IP Address** tab in the Radius Control Agent Screen in Find mode, click **New**. **Result:** You see the tab in New mode.

Step	Action
2	From the **Address Type** drop down list, select the address type.
3	Select the **Qualifier** check box if the IP address is exempt from billing. **Note:** The exemption is subject to interpretation by the PDSN, and not the RADIUS Control Agent.
4	In the **IP Address** field, enter the IP address you want to add.
5	In the **Mask or Prefix** field, enter the mask or prefix for the IP address. **Note:** This will depend on the Address Type. Enter a mask if the Address Type is IPv4, or a prefix if it is IPv6.
6	In the **Description** field enter a description for the IP address. This can be up to 50 characters long.
7	In the **Remark** field, enter a user comment if required.
8	Click **Save**.
9	Repeat steps 2 through 8 for all the required IP Addresses. **Note:** When you click **Save**, the values from the previous entry remain on the screen. You can create another new record by typing over these values and clicking **Save** again.

Step	Action
10	Click **Return** to go back to the previous screen.

Editing an IP address

Follow these steps to edit an RCA IP address.

Step	Action
1	In Find mode on the **IP Address** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding an IP address* (on page 24).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting an IP address

Follow these steps to delete an RCA IP address.

Step	Action
1	In Find mode on the **IP Address** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

Address List

Introduction

The address tabs in the RCA allow you to configure lists of IP addresses for remote billing purposes (see *X.S011 - 005 - C, cdma200 Wireless IP Network Standard: Accounting Services and 3GPP2 RADIUS VSAs*).

Note: It is the responsibility of the PDSN to perform the remote accounting, and not the RADIUS Control Agent.

Addresses in RCA need to be configured in the following order:

Step	Action
1	Define the IP addresses on the IP Address tab. See *Adding an IP address* (on page 24).
2	Define IP address lists on the Address List tab. See *Adding an address list* (on page 27).
3	Assign the IP addresses to an address list, on the Address List Entry tab. See *Adding an address list entry* (on page 31).
4	Assign the address lists to CLI prefixes on the CLI Address List tab. See *Adding a CLI address list* (on page 34).

Maintaining address list

To maintain address list configurations, see the relevant option:

- *Adding an address list* (on page 27)
- *Editing an address list* (on page 28)
- *Deleting an address list* (on page 29)

Address List tab

Here is an example **Address List** tab in Find mode.

Adding an address list

Follow these steps to Add a new address list.

Step	Action
1	On the **Address List** tab in the Radius Control Agent Screen in Find mode, click **New**.
	Result: You see the tab in New mode.

Step	Action

2	In the **Name** field, enter the name of the address list to add.
3	In the **Remark** field, enter a user comment if required.
4	Click **Save**.
5	Repeat steps 2 through 5 for all the required address lists.

Note: When you click **Save**, the values from the previous entry remain on the screen. You can create another new record by typing over these values and clicking **Save** again.

6	Click **Return** to go back to the previous screen.

Editing an address list

Follow these steps to edit an RCA address list.

Step	Action
1	In Find mode on the **Address List** tab, enter selection criteria in one or more query fields.

Note: If a field is left empty, then the search will retrieve all instances of that field.

2	Click **Find**.

Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.

The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).

3	Click on the record to edit.

Step	Action
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding an address list* (on page 27).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting an address list

Follow these steps to delete an RCA address list.

Step	Action
1	In Find mode on the **Address List** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

Address List Entry

Introduction

The address tabs in the RCA allow you to configure lists of IP addresses for remote billing purposes (see *X.S011 - 005 - C, cdma200 Wireless IP Network Standard: Accounting Services and 3GPP2 RADIUS VSAs*).

Note: It is the responsibility of the PDSN to perform the remote accounting, and not the RADIUS Control Agent.

Addresses in RCA need to be configured in the following order:

Step	Action
1	Define the IP addresses on the IP Address tab. See *Adding an IP address* (on page 24).
2	Define IP address lists on the Address List tab. See *Adding an address list* (on page 27).
3	Assign the IP addresses to an address list, on the Address List Entry tab. See *Adding an address list entry* (on page 31).

Step	Action
4	Assign the address lists to CLI prefixes on the CLI Address List tab. See *Adding a CLI address list* (on page 34).

Maintaining address list entry

To maintain address list entry configurations, see the relevant option:

- *Adding an address list entry* (on page 31)
- *Editing an address list entry* (on page 31)
- *Deleting an address list entry* (on page 32)

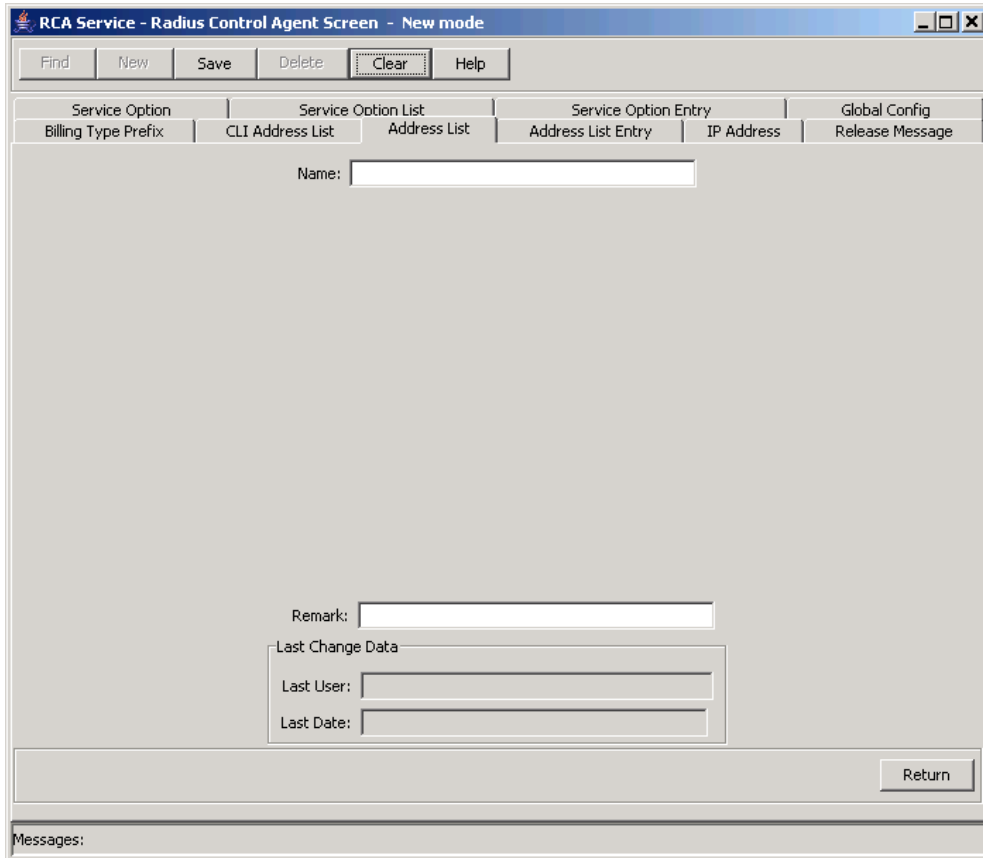## Address List Entry tab

Here is an example **Address List Entry** tab in find mode.

Adding an address list entry

Follow these steps to Add a new address list.

Step	Action
1	On the **Address List Entry** tab in the Radius Control Agent Screen in Find mode, click **New**.
	Result: You see the tab in New mode.

Step	Action
2	From the **Address List** drop down box, select the name of the address list to add an IP address to.
3	From the **IP Address** drop down box, select the IP address to add.
4	In the **Remark** field, enter a user comment if required.
5	Click **Save**.
6	Repeat steps 2 through 5 for all the required address lists.
	Note: When you click **Save**, the values from the previous entry remain on the screen. You can create another new record by typing over these values and clicking **Save** again.
7	Click **Return** to go back to the previous screen.

Editing an address list entry

Follow these steps to edit an RCA address list entry.

Step	Action
1	In Find mode on the **Address List Entry** tab, enter selection criteria in one or more query

Step	Action
	fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding an address list entry* (on page 31).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting an address list entry

Follow these steps to delete an RCA address list entry.

Step	Action
1	In Find mode on the **Address List Entry** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

CLI Address List

Introduction

The address tabs in the RCA allow you to configure lists of IP addresses for remote billing purposes (see *X.S011 - 005 - C, cdma200 Wireless IP Network Standard: Accounting Services and 3GPP2 RADIUS VSAs*).

Note: It is the responsibility of the PDSN to perform the remote accounting, and not the RADIUS Control Agent.

Addresses in RCA need to be configured in the following order:

Step	Action
1	Define the IP addresses on the IP Address tab. See *Adding an IP address* (on page 24).
2	Define IP address lists on the Address List tab. See *Adding an address list* (on page 27).
3	Assign the IP addresses to an address list, on the Address List Entry tab. See *Adding an address list entry* (on page 31).
4	Assign the address lists to CLI prefixes on the CLI Address List tab. See *Adding a CLI address list* (on page 34).

Maintaining CLI address list

To maintain CLI address list configurations, see the relevant option:

- *Adding a CLI address list* (on page 34)
- *Editing a CLI address list* (on page 35)
- *Deleting a CLI address list* (on page 36)

CLI Address List tab

Here is an example **CLI Address List** tab in find mode.

Adding a CLI address list

Follow these steps to add a new CLI address list.

Step	Action
1	On the **CLI Address List** tab in the Radius Control Agent Screen in Find mode, click **New**. **Result:** You see the tab in New mode.

Step	Action

2	In the **Prefix** field, enter the CLI prefix to assign an address list to.
3	From the **Address List** drop down box, select the address list.
4	In the **Remark** field, enter a user comment if required.
5	Click **Save**.
6	Repeat steps 2 through 5 for all the address lists to assign to a CLI.

Note: When you click **Save**, the values from the previous entry remain on the screen. You can create another new record by typing over these values and clicking **Save** again. |
| 7 | Click **Return** to go back to the previous screen. |

Editing a CLI address list

Follow these steps to edit an RCA CLI address list.

Step	Action
1	In Find mode on the **CLI Address List** tab, enter selection criteria in one or more query fields.

Note: If a field is left empty, then the search will retrieve all instances of that field. |
| 2 | Click **Find**.

Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345. |

Step	Action
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding a CLI address list* (on page 34).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a CLI address list

Follow these steps to delete an RCA CLI address list.

Step	Action
1	In Find mode on the **CLI Address List** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

Global Config

Introduction

The **Global Config** tab allows you to specify the global default values for the RCA service.

To maintain global configurations, see the relevant option:

- *Adding a global configuration* (on page 37)
- *Editing a global configuration* (on page 39)
- *Deleting a global configuration* (on page 39)

Global Config tab

Here is the **Global Config** tab view, in find mode.

Adding a global configuration

Follow these steps to add a new global configuration for the RCA.

Step	Action
1	On the **Global Config** tab in the Radius Control Agent Screen in Find mode, click **New**.
	Result: The **Global Config** tab redisplays in New mode.
2	In the **Name** field, enter the name for the global configuration.
	Note: This name corresponds to the `ConfigName` parameter in the **eserv.config** file. This tells the Radius Gateway which database configuration to load at startup.
3	From the **Service Option List** drop down box, select the service option list. This will have been previously defined on the **Service Option List** tab.
	Note: This is intended for volume-based billing; for duration-based billing leave blank or none.

Step	Action
4	In the **Max Service Instances** field, enter the maximum number of external services that can be accessed at one time. **Note:** This is related to service options; for duration-based billing leave blank.
5	In the **Session Timeout** field, enter the maximum length of time for a session before it is disconnected (regardless of the activity of the session). **Note:** Leave blank or 0 for no timeout.
6	In the **Idle Timeout** field, enter the length of time the session can be inactive before it is disconnected. To ensure that calls can be billed correctly, you must enter a value for Idle Timeout that is: - Greater than zero (0). If you set **Idle Timeout** to zero or leave this field blank, the timer is disabled. - Greater than the largest reservation chunk that will be returned by the billing engine. This will prevent the RCA from timing out sessions that are still active. - Less than the billing engine timeout value that is set in the **Session Timeout** field; if the billing engine times out first, it will release the reservation, so the call will not be billed. **Note:** When the idle timer expires, RCA sends an ApplyChargingReport to ACS, signaling that the call has ended, and billing for the call.
7	From the **Billing Type** drop down list, select the default billing type for incoming calls. Select one of: - Duration - Volume - None **Note:** If you select None, then you must select a value in the **Release** field. If the CLI for an incoming call does not match any prefix configured in the **Billing Type Prefix** tab then the incoming call is released using the release code configured here.
8	Select the **Write UDR** check box if you want to write usage data records. **Note:** This should be left unselected, Oracle applications write EDRs generated by Prepaid Charging.
9	In the **Internal Error** field, enter the RADIUS error message to send for any errors occurring that are not related to releasing the call.
10	In the **Max Volume Quota** field, enter the maximum amount of data (in octets) that can be used. **Note:** This is used for volume-based billing; for duration-based billing leave blank or 0.
11	In the **Max Duration Quota** field, enter the maximum length of time (in seconds) that the user can be connected when no billing is being performed. For example, if RCA receives a Connect/Continue from the IN without an ApplyCharging. **Note:** This is used for duration-based billing;for volume-based billing leave blank or 0.
12	In the **Shared Secret** field, enter the key used for encryption/decryption between RCA and the RADIUS client.
13	In the **Remark** field, enter a user comment if required.
14	Click **Save**.
15	Repeat steps 2 through 14 for all global configuration records to define.

Step	Action
	Note: When you click **Save**, the values from the previous entry remain on the screen. You can then create another new record by typing over these values.
16	Click **Return** to go back to the previous screen.

Editing a global configuration

Follow these steps to edit an RCA global configuration.

Step	Action
1	In Find mode on the **Global Config** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to edit.
4	Click **Select**.
	Result: The selected record appears in Update mode on the tab.
5	Edit the details as described in *Adding a global configuration* (on page 37).
6	Click **Save**, and then **Return**, to save your changes and return to the previous screen.

Deleting a global configuration

Follow these steps to delete an RCA global configuration.

| Step	Action
1	In Find mode on the **Global Config** tab, enter selection criteria in one or more query fields.
	Note: If a field is left empty, then the search will retrieve all instances of that field.
2	Click **Find**.
	Result: The query returns the first 100 records that begin with the selection criteria. For example, if you enter 123 in a query field, the system will return records such as 123, 1234, 12345.
	The results appear in the table on the Find result mode screen for the type of record you are querying. See *Using the Find Screens* (on page 40).
3	Click on the record to delete.
4	Click **Delete**.
	Result: The Confirm Delete Record screen appears.
5	Click **Yes** to confirm.
6	Click **Return** to return to the previous screen.

Using the Find Screens

Introduction

A find screen enables you to find records that match the selection criteria. All RCA find screens contain the following:

- Buttons
- Query fields

Example RCA find screen

Here is an example find screen. This is always the mode used when opening a tab.
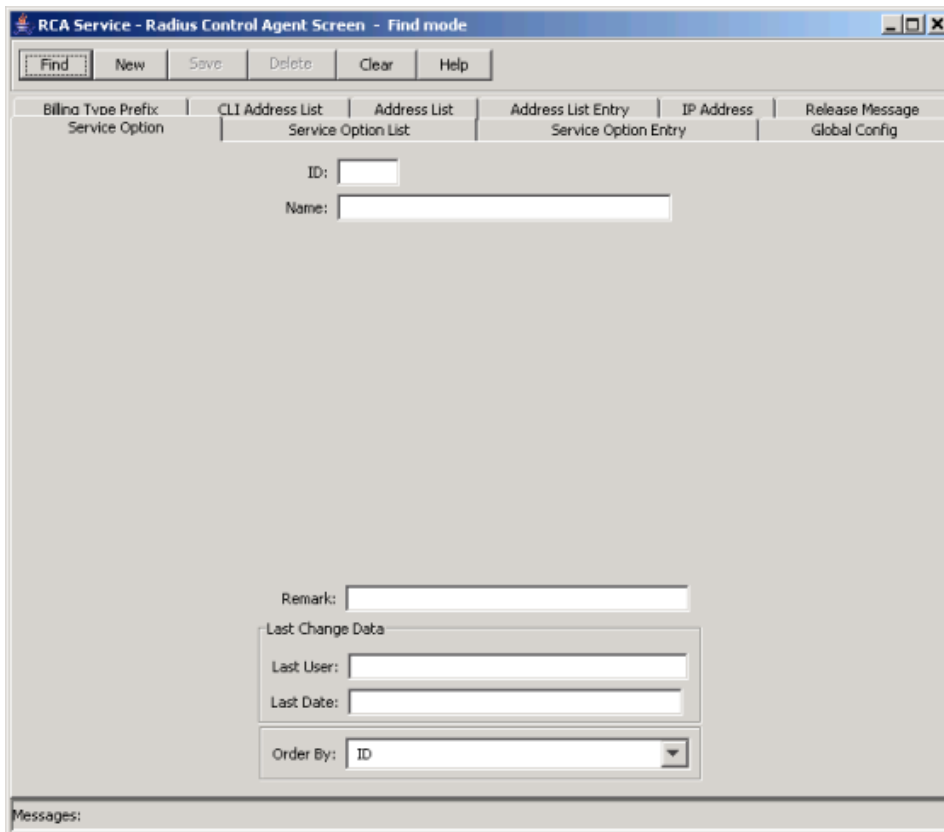
You see the available query fields in the screen, and the screen title indicates that you are in Find mode.

Example Find result mode screen

Here is an example Find results mode screen. This screen is shown after **Find** has been clicked and there are two or more records found. A single record automatically goes to the tab Update mode screen.

Note: The first 100 records matching the selection criteria in the database are listed, displayed in no particular order. If the required record is not found, add more search criteria to conduct a more specific search.

Find result mode buttons

The table below describes the function of each button displayed at the bottom of the RADIUS Control Agent Screens in Find result mode.

Button	Function
Previous	Goes back to the previous set of records in the table, if you have used the **Next** button to display more records.
Next	Displays the next set of records, if all the Find results cannot be displayed in the table at one time.
Select	Selects the record highlighted in the table and displays it on the tab in Update mode.
Modify All	Modifies a group of records.
Delete All	Deletes a group of records.
Export	Exports the Find results to a file.

Button	Function
Print	Prints the Find results.
Return	Returns you to the RADIUS Control Agent Screen in Find mode for the tab.

Reloading the Configuration

Overview

Introduction

This chapter explains how to reload the RCA configuration. This lets you apply any changes you have made, either through the RCA configuration screens or in the **eserv.config** file, straight away.

In this chapter

This chapter contains the following topics.

Rescheduling the Configuration

Introduction

The RCA configuration is loaded at startup. If you make any changes to the configuration, either through the screens or in the **eserv.config** file, you can reload the configuration using the Reschedule Global Config facility. This lets you apply any changes to the configuration straight away.

Accessing the Reschedule Global Config screen

Follow these steps to access the Reschedule Global Config screen.

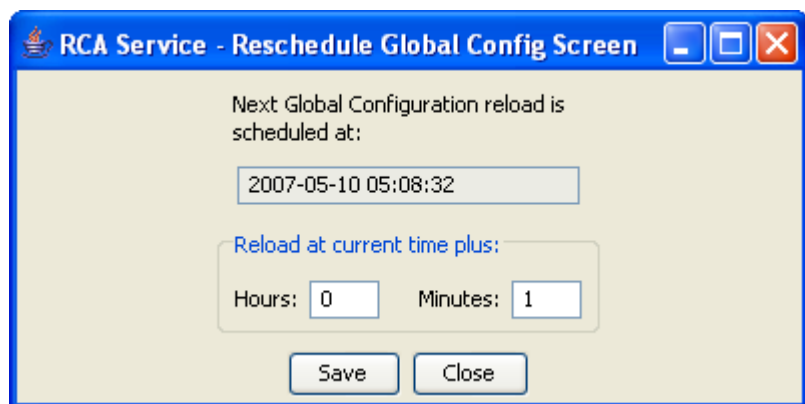| Step	Action
1	From the SMS main screen, select the **Services > RCA Service > Reschedule Global Config** menu options.

Step	Action

Result: You see the Reschedule Global Config screen.

The Reschedule Global Config screen

Here is an example of the RCA Service - Reschedule Global Config screen.

Reschedule Global Config screen fields

This table describes the function of each field.

Field	Description
Next Global Configuration reload is scheduled at	This field is populated when you request a global configuration reload. The next scheduled time is calculated as the current time with the Hours and Minutes you specify added on.
Hours	The number of hours to add to the current time to create the new schedule time for the global configuration reload.
Minutes	The number of minutes to add to the current time to create the new schedule time for the global configuration reload.

Setting the reschedule time

Follow these steps to set the time to reload the RCA configuration.

Step	Action
1	In the **Hours** field in the Reschedule Global Config screen, specify the number of hours after the current system time to wait before reloading the RCA configuration.
2	In the **Minutes** field in the Reschedule Global Config screen, specify the number of minutes to continue waiting before reloading the RCA configuration.
3	Click **Save**.
	Result: The RCA configuration is reloaded with the latest parameter values once the specified time has elapsed.

Glossary of Terms

AAA

Authentication, Authorization, and Accounting. Specified in Diameter RFC 3588.

ACS

Advanced Control Services configuration platform.

ANI

Automatic Number Identification - Term used in the USA by long-distance carriers for CLI.

CAMEL

Customized Applications for Mobile network Enhanced Logic

This is a 3GPP (Third Generation Partnership Project) initiative to extend traditional IN services found in fixed networks into mobile networks. The architecture is similar to that of traditional IN, in that the control functions and switching functions are remote. Unlike the fixed IN environment, in mobile networks the subscriber may roam into another PLMN (Public Land Mobile Network), consequently the controlling function must interact with a switching function in a foreign network. CAMEL specifies the agreed information flows that may be passed between these networks.

CCS

1) Charging Control Services component.

2) Common Channel Signalling. A signalling system used in telephone networks that separates signalling information from user data.

CLI

Calling Line Identification - the telephone number of the caller. Also referred to as ANI.

Convergent

Also "convergent billing". Describes the scenario where post-paid and pre-paid calls are handed by the same service platform and the same billing system. Under strict converged billing, post-paid subscribers are essentially treated as "limited credit pre-paid".

Diameter

A feature rich AAA protocol. Utilises SCTP and TCP transports.

DTMF

Dual Tone Multi-Frequency - system used by touch tone telephones where one high and one low frequency, or tone, is assigned to each touch tone button on the phone.

IN

Intelligent Network

INAP

Intelligent Network Application Part - a protocol offering real time communication between IN elements.

IP

1) Internet Protocol

2) Intelligent Peripheral - This is a node in an Intelligent Network containing a Specialized Resource Function (SRF).

IP address

Internet Protocol Address - network address of a card on a computer.

PLMN

Public Land Mobile Network

RADIUS

Remote Authentication Dial-In User Service - a system of distributed security that secures remote access to networks and network services against unauthorised access.

SCTP

Stream Control Transmission Protocol. A transport-layer protocol analogous to the TCP or User Datagram Protocol (UDP). SCTP provides some similar services as TCP (reliable, in-sequence transport of messages with congestion control) but adds high availability.

Session

Diameter exchange relating to a particular user or subscriber access to a provided service (for example, a telephone call).

SLC

Service Logic Controller (formerly UAS).

SLEE

Service Logic Execution Environment

SMS

Depending on context, can be:

- Service Management System hardware platform
- Short Message Service
- Service Management System platform
- Convergent Charging Controller Service Management System application

SRF

Specialized Resource Function – This is a node on an IN which can connect to both the SSP and the SLC and delivers additional special resources into the call, mostly related to voice data, for example play voice announcements or collect DTMF tones from the user. Can be present on an SSP or an Intelligent Peripheral (IP).

SSP

Service Switching Point

TCP

Transmission Control Protocol. This is a reliable octet streaming protocol used by the majority of applications on the Internet. It provides a connection-oriented, full-duplex, point to point service between hosts.

Index

A

AAA • 47
About This Document • v
Accessing the Radius Control Agent screen • 4
Accessing the RCA application • 3
Accessing the Reschedule Global Config screen • 43
ACS • 47
Adding a billing type prefix • 7, 8, 10
Adding a CLI address list • 23, 26, 30, 33, 34, 36
Adding a global configuration • 36, 37, 39
Adding a release message • 10, 11, 13
Adding a service option • 13, 14, 16, 19
Adding a service option entry • 14, 16, 19, 20, 22
Adding a service option list • 13, 16, 17, 19
Adding an address list • 23, 26, 27, 29, 33
Adding an address list entry • 23, 26, 29, 30, 31, 32, 33
Adding an IP address • 22, 23, 24, 25, 26, 29, 33
Address List • 7, 26
Address List Entry • 29
Address List Entry tab • 30
Address List tab • 27
ANI • 47
Audience • v
Available features • 1

B

Billing Type Prefix • 7
Billing Type Prefix tab • 8

C

CAMEL • 47
CCS • 47
CLI • 47
CLI Address List • 32
CLI Address List tab • 34
Convergent • 47
Copyright • ii

D

Deleting a billing type prefix • 7, 10
Deleting a CLI address list • 33, 36
Deleting a global configuration • 36, 39
Deleting a release message • 10, 13
Deleting a service option • 14, 16
Deleting a service option entry • 20, 22
Deleting a service option list • 17, 19
Deleting an address list • 26, 29
Deleting an address list entry • 30, 32

Deleting an IP address • 23, 25
Diameter • 47
Document Conventions • vi
DTMF • 47

E

Editing a billing type prefix • 7, 9
Editing a CLI address list • 33, 35
Editing a global configuration • 36, 39
Editing a release message • 10, 12
Editing a service option • 14, 15
Editing a service option entry • 20, 21
Editing a service option list • 17, 18
Editing an address list • 26, 28
Editing an address list entry • 30, 31
Editing an IP address • 23, 25
Example Find result mode screen • 40
Example RCA find screen • 40

F

Find result mode buttons • 41

G

Global Config • 7, 36
Global Config tab • 37

I

IN • 47
INAP • 48
Introduction • 1, 3, 7, 10, 13, 16, 19, 22, 26, 29, 32, 36, 40, 43
IP • 48
IP address • 48
IP Address • 22
IP Address tab • 23

M

Maintaining address list • 26
Maintaining address list entry • 30
Maintaining CLI address list • 33
Maintaining IP address • 23
Maintaining service option entry • 20
Maintaining service option lists • 17
Maintaining service options • 14

O

On-screen buttons • 4
Overview • 1, 3, 7, 43

P

PLMN • 48
Prerequisites • v

R

RADIUS • 48