Oracle® Communications Convergent Charging Controller

Roaming Technical Guide

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About This Document

Scope

The scope of this document includes all the information required to install, configure, and administer the Roaming application. This covers the following service:

- RAP (Reoriginating Application)

Audience

This guide was written primarily for system administrators and persons installing, configuring and administering the Roaming Applications. However, sections of the document may be useful to anyone requiring an introduction to the application.

Prerequisites

Although there are no prerequisites for using this guide, familiarity with the target platform would be an advantage.

A solid understanding of Unix and a familiarity with IN concepts are an essential prerequisite for safely using the information contained in this technical guide. Attempting to install, remove, configure or otherwise alter the described system without the appropriate background skills, could cause damage to the system; including temporary or permanent incorrect operation, loss of service, and may render your system beyond recovery.

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:

- *Service Logic Execution Environment Technical Guide*
- *Service Management System 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.

Chapter 1

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.

Introduction to the Roaming Applications 1

Introduction to the Roaming Applications

Introduction

The Roaming applications give subscribers the ability to make and receive calls whilst roaming. The following application is provided:

- RAP

RAP

The RAP application allows subscribers to perform voice calls whilst roaming using other operators not supporting CAMEL functionality. This includes the facility to use a predefined list of safe MSCs.

Defining a safe MSC means that roaming calls coming from the safe MSC do not need to be reconnected. For this type of call, the MSC address is used instead of the originator address in the idp message. Data from the originating idp is passed directly to CCS, through the outgoing idp, thus removing the need to reconnect. For more details, see *safe.cfg* (on page 4).

Roaming calls that do not match any of the defined safe MSCs are handled in the normal way.

Functionality Overview

The Roaming Applications provide the following functionality:

- *RAP Configuration* (on page 3)
- SLEE configuration

Chapter 2

Configuration

Overview

Introduction

This chapter explains the configuration details of the Roaming Applications software.

The Roaming Applications software will be in two directories:

- **/IN/service_packages/RAP** for the Rap application and reports

In this Chapter

This chapter contains the following topics.

RAP Configuration 3

RAP Configuration

Introduction

The RAP installation package installs and modifies the configuration files it needs to run. This section is an overview of the required steps, and can be used as a reference to change the installed package configuration.

SLEE.cfg

The configuration file **/IN/service_packages/SLEE/etc/SLEE.cfg** is modified to accommodate the RAP service.

```
SERVICEKEY=INTEGER 700000 rap                                  #Added by roamingScp-Rap
SERVICE=rap 1 rap rap                                          #Added by roamingScp-Rap
APPLICATION=rap rap.sh /IN/service_packages/RAP/bin 1 1        #Added by roamingScp-Rap
```

rap.cfg

This is an example of a configured **/IN/service_packages/RAP/etc/rap.cfg** file:

```
TSAN_PREFIX=49709
TSAN_INTERNATIONAL_PREFIX=32
TSAN_RANGE=0000 9999
LOCAL_NUMBER_INDICATOR=032 3
ALLOCATED_TSAN_TIMEOUT=15
CANCELLED_TSAN_TIMEOUT=15
SERVICE_KEY=2
```

normalise.cfg

The sample normalisation file (**/IN/service_packages/RAP/etc/normalise.cfg**) does not include any entries. However this is described here to enable the administrator to create and maintain this file.

It is possible to re-read this file without interruption to the service by sending a SIGHUP to the rap process. This file uses a simple parser and does not allow comments.

```
gt nationalUnknownIdicator nationalUnknownCut pasteNationalUnknown
internationalUnknownIndicator internationalUnknownCut pasteInternationalUnkown
pasteNational pasteInternational
```

Based on the global title (gt) prefix match and the Nature of Address for the called party, the following actions are specified.

Nature Of Address	Action
National	The pasteNational string will be prepended to the called party.
International	The pasteInternational string will be prepended to the called party.
Unknown	• If the nature of address is unknown, the internationalUnknownIndicator is compared with the called number. • If this matches, internationalUnknownCut digits are stripped from the called number and pasteInternationalUnknown digits are prepended. • If this match fails, the nationalUnknownIndicator is compared with the called number. • If this matches, nationalUnknownCut digits are stripped from the called number and pasteNationalUnknown digits are prepended. • If this fails, the number is left unchanged.

safe.cfg

The sample safe file (**/IN/service_packages/RAP/etc/safe.cfg**) does not include any entries. However, it is described here to enable the administrator to create and maintain this file.

It is possible to re-read this file without interruption to the service by sending a SIGHUP to the rap process.

```
#This file contains a list of msc addresses which are judged to be safe.
#FORMAT
#<STRING>
0044
```

MSC Addresses

You define the safe MSC addresses in a single column in the safe file. Each MSC address consists of a digit string of up to 1023 characters in length. You do not need to specify the whole address.

Note: There is no limit to the number of MSC addresses you can define. However, performance may be affected if you define a very large number of them.

Matching MSC Addresses

An originating MSC address for a roaming call is considered to be safe if it matches any of the MSC addresses defined in the safe file. A match is made when the characters defined for an MSC address in the safe file match an equal number of characters (starting from the beginning) in the originating MSC address. The match will be with the first MSC in the safe file which matches, over its length, the originating MSC.

Chapter 3

Background Processes

Overview

Introduction

This chapter describes processes that run the Roaming applications.

In this Chapter

This chapter contains the following topics.

RAP 5

RAP

Purpose

RAP allows prepaid customers to perform voice calls whilst roaming within other operators that support CAMEL functionality. This includes the facility to use a predefined list of safe MSCs.

Defining a safe MSC means that roaming calls coming from the safe MSC do not need to be reconnected. For this type of call, the MSC address is used instead of the originator address in the idp message. Data from the originating idp is passed directly to CCS, through the outgoing idp, thus removing the need to reconnect. For more details, see *safe.cfg* (on page 4).

Startup

RAP is a SLEE application that is started by the SLEE. You must declare RAP in the SLEE configuration file (**SLEE.cfg**) as follows:

```
SERVICEKEY=INTEGER 700000
SERVICE=rap 1 rap
APPLICATION=rap rap.sh /IN/service_packages/RAP/bin 1
```

Parameters

RAP accepts the following parameters from **rap.cfg**.

For more information see *RAP Configuration* (on page 3).

Note: If a parameter is not defined in **rap.cfg**, then its default value is automatically used.

The available parameters are:

Parameter	Default	Description
ACS_CALLED_PARTY_NOA	2	The NOA value for the called party to be passed to ACS. Optional.
ACS_CALLING_PARTY_NOA=*int*	3	The NOA value for the calling party to be passed to ACS. Optional.

Parameter	Default	Description
ADD_CALLING_PARTY_ZERO=*int*		Defines if a zero is to be added to the start of the calling party. **Allowed values:** • 1= inserts an optional zero to the start of the calling party GT INAPNUMBER • 0= suppresses the insertion of a zero. Optional.
ALLOCATED_TSAN_TIMEOUT=*seconds*	15	Period an allocated Temporary Service Access Number (TSAN) remains valid. Optional.
CANCELLED_TSAN_TIMEOUT=*seconds*	15	Period a canceled TSAN remains in a canceled state. Optional.
LOCAL_NUMBER_INDICATOR=*string int*		Used to strip digits from the called number, after the normal normalization process has been completed. *int* is the number of digits to strip from the front of the called number before it is matched to *string* to identify if the called number is a local number.
SERVICE_KEY=*int*		The service key used to transfer dialogs to CCS, and in the initial DP sent to CCS. This must be set in the **SLEE.cfg**.
TRANSLATE=*string1 string2 int*		Defines numbers to be translated by RAP. *string1* is translated to *string2* with the 'Nature of Address' set to *int*. There are a maximum of 10 definitions. Remove unused TRANSLATE definitions to improve performance. **Note:** The CAMEL encoding for '*' comes as a 'A' not 'B' as in CS1. For example: short code *111 should be written as: `TRANSLATE=A111 B111 2` Optional.
TSAN_INTERNATIONAL_PREFIX=*int*		The international prefix that will be added to the TSAN if it is a local number.
TSAN_PREFIX=*int*		The prefix for all temporary service access numbers.
TSAN_RANGE=*int int*		Defines the beginning and the end of the TSAN range when appended to the TSAN_PREFIX.

Failure

If the RAP application fails, then no calls can be made whilst roaming.

Output

The RAP application writes error messages to the system log file.

Chapter 4

About Installation and Removal

Overview

Introduction

This chapter provides information about the installed components for the Oracle Communications Convergent Charging Controller application described in this guide. It also lists the files installed by the application that you can check for, to ensure that the application installed successfully.

In this Chapter

This chapter contains the following topics.

Installation and Removal Overview 7

Installation and Removal Overview

Introduction

For information about the following requirements and tasks, see *Installation Guide*:

- Convergent Charging Controller system requirements
- Pre-installation tasks
- Installing and removing Convergent Charging Controller packages

Roaming packages

An installation of Roaming includes the following packages, on the:

- SMS:
  - roamingSms
- SLC:
  - roamingScp