Oracle® Communications Convergent Charging Controller

Short Message Charging Bundle User's and Technical Guide

Release 6.0.1

April 2017

ORACLE®

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Contents

About This Document

Scope

The scope of this document includes all the information required to install, configure and administer the Short Message Charging Bundle application.

Audience

This guide was written primarily for system administrators and persons installing, configuring and administering the SMCB) application. 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, Oracle 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 Management System Technical Guide*
- *Service Logic Execution Environment Technical Guide*
- *Advanced Control Services Technical Guide*
- *Charging Control Services User's Guide*
- *Charging Control Services 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.

What is Short Message Charging Bundle?

About SMCB

The Short Message Charging Bundle) (SMCB) service allows the sending of Short Messages (SMS) to be billed using the Charging Control Services (CCS) platform. The charging of Mobile Originating (SMS_MO) and Mobile Terminating (SMS_MT) services can be applied differently, because the Short Message Charging service differentiates between Originating and Terminating. This means that different Advanced Control Services (ACS) control plans can be used for each service.

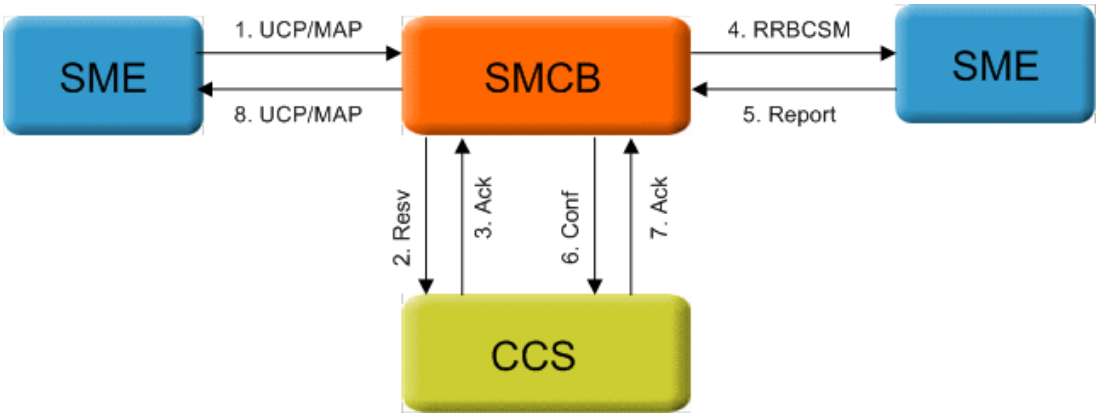
The handle name of the SLEE Service Key is analyzed to check for the suffix “SM_MO” or “SM_MT”. This means the Mobile Originating or Mobile Terminating InitialDPs must come from different service keys for SMCB to be able to differentiate between Originating and Terminating services.

The SMCB Service can be used in conjunction with a UCP Trigger Application to allow Application Service Providers (ASPs) to connect and bill for Short Message sending. The login, and connection management of ASPs is provided within the UCP trigger application. The interface to ACS is a CAMEL Phase 2 InitialDP regardless of whether the UCP trigger application is used, or the Short Message Charging service is invoked directly.

Note: The use of the Mobile Originating and Mobile Terminating services are licensed separately, so throughout this document, license controlled features are marked with (1). This means those features may not be present if the relevant license has not been purchased.

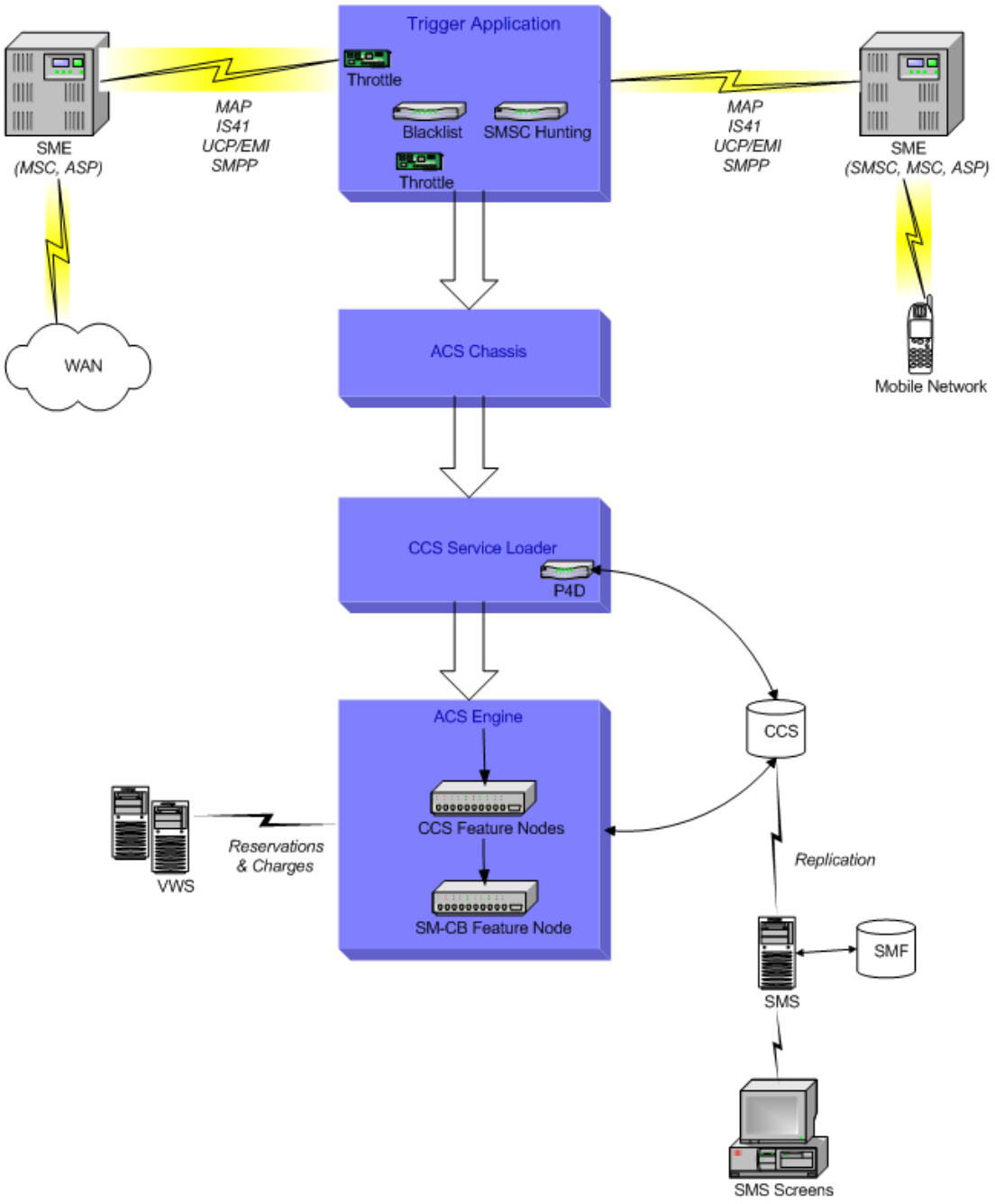
Charging overview diagram

This diagram shows the interaction between SME, CCS and SMCB.



Architectural overview

This diagram shows the physical components used for the Short Message Charging Bundle.



EDRs

Overview

The Billing Engine EDRs are used to record the billing events produced by SMCB.

For a detailed description of the EDRs, refer to *Event Detail Record Reference Guide*.

The Short Message Charging Tariff Types are based on existing BE EDRs as follows:

Tariff Type	Original EDR Type	SMCB EDR Type	Additional Fields
	CDR_TYPE=5	CDR_TYPE=12	TN, WALLET_TYPE, CLI, LOCADD
	N/A	N/A	None – this tariff type does not interact with the Billing Engines.
	CDR_TYPE=1	CDR_TYPE=13	WALLET_TYPE, LOCADD

Where:

- CLI = Logical Calling Number (MSISDN of subscriber)
- LOCADD = Network Calling Number (Global Title of MSC/VMSC)
- TN = Logical Called Number (Terminating Number)

SMS User Templates

Template descriptions

The SMCB service has three user template permissions to control the access to MO or MT functionality.

Access Name	Description
(1) CCS SM Origination	Grants access to the following Mobile Originating specific functionality: • Originating Message Plan field in the Edit Product Type Screen.
(1) CCS SM Termination	Grants access to the following Mobile Terminating specific functionality: • Terminating Message Plan field in the Edit Product Type Screen.
CCS Short Message Charging	Grants access to the Short Message Charging Rating screens.

SMS Reports

Reports

This table lists the available SMS reports for the SMCB service.

Report Name	Description
Peak Usage Report	Reports the maximum number of MO and MT calls in a single statistics period for a given time period.
(1) SMSMO Summary Report	Provides sum totals for each SMSMO statistic for a given time period.
(1) SMSMO Detailed Report	Lists the detailed SMSMO statistics for a given time period.
(1) SMSMT Summary Report	Provides sum totals for each SMSMT statistic for a given time period.

Chapter 2

Configuration

Overview

Introduction

Both the SMS and SLC require post-installation configuration before Short Message Charging Bundle can be used. This chapter explains the configuration required on each of the platforms.

In this chapter

This chapter contains the following topics.

Configuring the SLC

Introduction

The following configuration files must be set up for SMCB SLC platform:

Configuration File	Description
eserv.config	Main CCS configuration file, located in **/IN/service_packages**
acs.conf	Main ACS configuration file, located in **/IN/service_packages/ACS/etc**
SLEE.cfg	Main SLEE configuration file, located in **/IN/service_packages/SLEE/etc**

The **eserv.config** configuration file consists of two sections relevant to SMCB:

Section Type	Description
`CCS.smcbMacroNodes`	A sub-section called `smcbMacroNodes` in the `CCS` section. This contains all the SMCB specific configuration for CCS.

smcbMacroNodes

Parameters

Here are the parameters required in the `CCS.smcbMacroNodes` section of the **eserv.config** configuration file.

To configure SMCB, set up the parameters in the **eserv.config** configuration file:

/IN/service_packages/eserv.config

To edit the configuration file, use a text editor such as **vi**.

AlwaysSendContinue

Syntax: `AlwaysSendContinue = true|false`

Description: Determines whether the SMCB/ACS sends a Continue or a Connect.

Type: Boolean

Optionality: Optional (default used if not set).

Allowed: true, false

Default: false

Notes: When set to:

- True, a Continue is sent regardless of whether the number from the incoming IDP is changed by the normalization process.
- False, a Connect is sent if the number from the incoming IDP is changed by the normalization process, otherwise a Continue is sent.

Example: `AlwaysSendContinue = true`

CacheRefreshInterval

Syntax: `CacheRefreshInterval = seconds`

Description: Time to wait before checking the cache has up to date rating rules and types information.

Type: Integer

Optionality: Optional

Allowed: Seconds. Maximum is 43200 seconds (12 hours)

Default: 600

Notes: If this has expired, then the new configuration is re-read.

Example: `CacheRefreshInterval = 600`

CallingPartyNumberPrefix

Syntax: `CallingPartyNumberPrefix = "prefix"`

Description: String to prefix the calling number with for tariffed charging, so Short Messages can be billed differently to voice calls from the same location.

Type: String

Optionality: Optional

Allowed: Maximum 20 characters

Default: “E”

Notes: Can be set to “” (empty string) to disable prefix.

Example: `CallingPartyNumberPrefix = "E"`

CdrOrigCdNumExt

Syntax: `CdrOrigCdNumExt = ext`

Description: The original called party IDP number, extension number that is recorded in the CDR TN field.

Type: Integer

Optionality: Optional

Allowed:

Default: 0

Notes:
Example: `CdrOrigCdNumExt = 0`

CdrUsePendingTN

Syntax: `CdrUsePendingTN = true|false`
Description: Use pending TN rather than original called number in EDRs
Type: Boolean
Optionality: Optional (default used if not set).
Allowed: true, false
Default: false
Notes:
Example: `CdrUsePendingTN = false`

DisableAutoReply

Syntax: `DisableAutoReply = true|false`
Description: Disable the auto-reply message.
Type: Boolean
Optionality: Optional
Allowed: true, false
Default: 0
Notes:
Example: `DisableAutoReply = false`

HomeCountryCode

Syntax: `HomeCountryCode = "code"`
Description: String identifying the home country code for SMS-MO country code statistics.
Type: String
Optionality: Optional
Allowed: Maximum is10 characters
Default: “”
Notes:
Example: `HomeCountryCode = ""`

OverrideInitialEventCdrType

Syntax: `OverrideInitialEventCdrType = true|false`
Description: Override the EDR type for the initial event reservation
Type: Boolean
Optionality: Optional (default used if not set).
Allowed: true, false
Default: true
Notes:
Example: `OverrideInitialEventCdrType = true`

OverrideInitialTariffCdrType

Syntax: `OverrideInitialTariffCdrType = true|false`
Description: Override the EDR type for the initial tariff reservation
Type: Boolean
Optionality: Optional (default used if not set).
Allowed: true, false
Default: true
Notes:
Example: `OverrideInitialTariffCdrType = true`

ReportSMSCFailures

Syntax: `ReportSMSCFailures = true|false`
Description: Report SMSC delivery failures to the system log file.
Type: Boolean
Optionality: Optional (default used if not set).
Allowed: true, false
Default: true
Notes:
Example: `ReportSMSCFailures = true`

TimeToBill

Syntax: `TimeToBill = seconds`
Description: The time used for Tariffed calls.
Type: Integer
Optionality: Optional
Allowed: Maximum is 3600 seconds (1 hour).
Default: 60
Notes: This value should match the initial period in the CCS CLI-DN screen, so the cost of the Short Message equals the Initial Cost field.
Example: `TimeToBill = 60`

TimeZone

Syntax: `TimeZone = "zone"`
Description: The time zone sent in the event reservation request to the VWS. For example, GMT, MST, or GMT+01:00.
Type: String
Optionality: Optional (default used if not set)
Allowed: *zone* must be typed in a form recognized by the operating system. You can find a list of recognized time zones in the Time Zones appendix of *Advanced Control Services Technical Guide*.
Default: "GMT"
Notes:
Example: `TimeZone = "GMT"`

Example

After installation of the packages are complete, place the following entries into **/IN/service_packages/eserv.config**. An example is provided in the `smcbMacroNodes` section in **/IN/service_packages/SMCB/etc/examples/eserv.config.smcb_example**:

```
CCS = {
    smcbMacroNodes = {
        CallingPartyNumberPrefix = "E"
        TimeToBill = 60
        CacheRefreshInterval = 600
        HomeCountryCode = "44"
        DisableAutoReply = false
        AlwaysSendContinue = false
        ReportSMSCFailures = true
        CdrOrigCdNumExt = 0
        OverrideInitialTariffCdrType = true
        OverrideInitialEventCdrType = true
        CdrUsePendingTN = false
        TimeZone = "PST"
    }

}#
```

acs.conf

Parameters

To configure SMCB in ACS, set up the parameters in the **acs.conf** configuration file:

/IN/service_packages/ACS/etc/acs.conf

To edit the configuration file, use a text editor such as **vi**.

Note: The **acs.conf** parameters must begin with an initial space otherwise they will not be read by ACS.

This table describes the parameters required in the `acsChassis` section of the **acs.conf** configuration file.

Parameter	Description
`ServiceEntry(SERVICE_HANDLE, WHO_CHARGE, WHERE_FROM, WHERE_TO, WHO_CONNECT, SERVICE_LIBRARY)`	Although ACS has specific terms for the fields in a Service Entry, the use of them in SMCB is described here. This shows how the desired behavior can be achieved.

Example

An example configuration for three SMCB services are shown below.

Note: The parameters of the `ServiceEntry` field should NOT be space separated.

Parameter	Description
`MacroNodePluginFile libSMCBMacroNodes.so`	Library with SMCB Feature Node.
`ServiceEntry(CCS_`**`SM_MO`**`, nN, cC, dD, E, ccsServiceLibrary.so)`	Defines the ACS Chassis fields to use for a Mobile Originating Service.
`ServiceEntry(CCS_`**`SM_MT`**`, dD, cC*, dD, E,`	Defines the ACS Chassis fields to use for a

Parameter	Description
ccsServiceLibrary.so)	Mobile Terminating Service. *** Note:** for "SM_MT" handles the ASP_NAME will be prepended to the WHERE_FROM field.
ServiceEntry(CCS_REVERSE_**SM_MT**, cC, dD*, dD, E, ccsServiceLibrary.so)	Defines the ACS Chassis fields to use for a Mobile Terminating Service where there is a separate sender than the ASP to charge. *** Note:** for "SM_MT" handles the ASP_NAME will be prepended to the WHERE_FROM field.

SLEE.cfg

Parameters

The following parameters are required in the **SLEE.cfg** configuration file.

- APPLICATION=slee_acs slee_acs.sh /IN/service_packages/ACS/bin 1 1 1000
- SERVICE=**SM_MO** 1 slee_acs CCS_SM_MO
- SERVICE=**SM_MT** 1 slee_acs CCS_SM_MT
- SERVICEKEY=INTEGER 5 **SM_MO**
- SERVICEKEY=INTEGER 6 **SM_MT**

The values in bold are the Service Handles that SMCB will compare to decide whether to run the Short Message Originating Call Plan or the Short Message Terminating Call Plan.

Note: The third field in SERVICEKEY must match the first field in SERVICE.

Configuring the SMSC

Configuration requirements

The SMCB SLC platform requires SMSC to be installed and configured for Auto-Reply Text Message support.

The smcbScp installation configures the short message template for the **Unknown** language only.

The default SMSC installation creates a SLEE notification interface using the **notificationIF** name. CCS requires that the interface be named **Notification**; this requires a change to the **SLEE.cfg** file.

The SMSC notification interface requires a **.from** file to be created in the **/IN/service_packages/SLEE/msgs directory**, this file contains the text that will become the Calling Party Address for the short message sent to the SMSC.

Nokia 47 Extension Configuration

Configuration requirements

To configure an extension the following changes are required to the **acs.conf** file.

Firstly, the service entry line requires the use of the extension number in place of the called/calling number. This is indicated by the use of a **0** instead of **cC** or **dD**.

Example:

```
ServiceEntry (EXT_CCS_SM_MT,0,0,dD,dD,ccsSvcLibrary.so)
```

Secondly, an extension definition is required, to specify the type of extension to be used. It has the following format:

- Extension number (the number specified in the service entry)
- Extension type (IDP tag as specified in the trigger application)
- Extension number format (fixed at 'inapaddressstring')
- Number description (fixed at 'extension,nature,plan,digits')

Example:

```
extensionNumber 0 47 inapaddressstring extension,nature,plan,digits
```

Configuring the SMS

Introduction

The SMCB service provides Service Management System screens to allow configuration of billing rates and rules. This defines the charging mechanism and cost for sending a Short Message.

Refer to the chapter - *SMCB Service* (on page 23) for details.

Chapter 3

SMS Import Export

Overview

Introduction

This chapter explains the SMS import and export utility.

In this chapter

This chapter contains the following topics.

SMS Import Export Utility

Introduction

The SMS Import Export utility provides a replacement for the SMSMO Time of Day tariffing option.

It lets you perform the following actions:

- Export the SMCB rating types and rules to a readable text file
- Import a set of previously saved SMCB rating types and rules
- Verify a set of previously exported SMCB rating types and rules. For example, use this option if you want to verify the validity of any manual changes you make to the file contents prior to importing the file into the database

All previous rating types and rules are replaced by the imported rules.

When the data has been imported into the database, the new data becomes available to the SMCB feature node once it has been replicated to the SLC. The text file takes a standard ‘config’ file format.

An additional utility is provided to swap the data using a single command. The smcbSwapData utility backs up the current data to an export file and imports data previously exported into the running database, replacing the current rules with the imported rules. This script can be run as a cron job to allow overnight rule and type changes with no user intervention.

Import Export Utility

Parameters

The SMCB Import Export utility is executed using the `smcbImportExport` command which is installed into **/IN/service_packages/SMCB/bin**.

This command takes the following arguments:

Argument	Default	Explanation
import	n/a	Run in import, export or verify mode, can only be one
export	n/a	of 'import', 'export' or 'verify' (mandatory)
verify	n/a	
-u	/	database user to connect to Oracle as (optional)
-f	/IN/service_packages/SMCB/ etc/ smcbDumpFile.cfg	filename for import/export data (optional)

Procedure

Follow these steps to run the Import Export Utility on the SMS.

Step	Action
1	Log in as `ccs_oper`.
2	Change to the SMCB directory, by typing: `cd /IN/service_packages/SMCB`
3	Type: `bin/smcbImportExport export` **Result:** This invokes the utility to export the SMCB rating types and rules. If you specify the **-f** option, then the data is exported to the specified file, otherwise the data is exported to a file called `smcbDumpFile.cfg` located in **/IN/service_packages/SMCB/etc**.
4	Type: `bin/smcbImportExport verify` **Result:** This invokes the utility to verify the SMCB rating types and rules. If you specify the **-f** option, then the data from the specified file is verified, otherwise the data from a file called `smcbDumpFile.cfg`, located in **/IN/service_packages/SMCB/etc,** is verified. This is only required if changes were made to the exported data.
5	Type: `bin/smcbImportExport import` **Result:** This invokes the utility to import the SMCB rating types and rules. If you specify the **-f** option, then the data is imported from the specified file, otherwise the data is imported from a file called `smcbDumpFile.cfg` located in **/IN/service_packages/SMCB/etc .**

Enabling Debug

You can enable debug by setting the smcbImportExport debug section.

Example

```
DEBUG=smcbImportExport ; export DEBUG
```

Note: This only takes effect on the next run of smcbImportExport or smcbSwapData.sh.

This table describes any potential problems.

Problem	Solution
Export mode failed because the file exists.	Remove or rename the existing file.
Import/verify mode failed because	Make sure the file exists and is readable.

Problem	Solution
the file does not exist or is unreadable.	
Import/verify mode failed because the import file is not well formed.	Make sure import file has correct format.
Import/verify mode failed because the rating type does not exist.	Make sure the rating type specified is in the import file.
Import mode failed because the named event does not exist.	Make sure the named event specified has been created in the CCS tariff screens.
Import/export mode failed because the database login is incorrect.	Make sure that the provided username and password are correct for your database instance and that the database is running.

Swap Data Utility

Parameters

The SMCB Swap Data utility is executed using the smcbSwapData.sh command which is installed into **/IN/service_packages/SMCB/bin**.

This command takes the following arguments:

Argument	Description
`export-file`	Specifies the export file, this file cannot exist.
`import-file`	Specifies the import file, this file must exist.
`-u user/pass`	Specifies the oracle usename and password (optional).

Procedure

Follow these steps to run the Swap Data Utility on the SMS.

Step	Action
1	Log in as `ccs_oper`.
2	Change to the SMCB directory, type: `cd /IN/service_packages/SMCB`
3	Type either of the following: • `bin/smcbSwapData.sh` *`export-file import-file`* • `bin/smcbSwapData.sh` *`export-file import-file`* `-u user/pass` **Result:** This invokes the utility to swap the SMCB rating types and rules. The live feature node data will be replaced when feature node refreshes its cache.

Potential problems

This table describes the potential problems and their resolution.

Problem	Solution
Swap data utility failed with invalid arguments.	Specify one of the following: • 2 arguments: $1 = export file, $2 = import

Problem	Solution
	file • 4 arguments: $3 & $4 = -u user/pass.
Swap data utility failed because the export file exists.	Remove or rename the existing export file.
Swap data utility failed because the import file does not exist or is unreadable.	Make sure the import file exists and is readable.

Import-Export File Format

File format

The export/import files used by the SMCB Import Export utility have the format shown below.

Note: This file follows the standard **eserv.config** file formatting rules. Comments begin with a hash (#) symbol.

```
smcb = {
    ratingTypes = [
    {
        name =      "string"            # max 20 chars
        rtype =     'char'              # values: 'T', 'N' or 'F'
        acsCustId = number              # the id of the ACS Customer
        callingNumberPrefix = "string"  # max 10 chars (optional)
        eventClass = "string"           # NE class as string (optional)
        # (Note: required when type = 'N')
        eventName = "string"            # NE name as string (optional)
        # (Note: required when type = 'N'
    }
    {
        ...
    }
    ]
    ratingRules = [
    {
        name = "string"                 # max 20 chars
        priority = number               # values between 0 … 99999
        acsCustId = number              # the id of the ACS Customer
        sourceRegEx = "string"          # regex, max 64 chars
        destRegEx = "string"            # regex, max 64 chars
        textRegEx = "string"            # max 200 chars
        ratingType = "string"           # name of rating type
        comment = "string"              # max 100 chars (optional)
        noFundsReply = "string"         # max 160 chars (optional)
        ignoreTextCase = true|false     # ignore or match text case
    }
    {
        ...
    }
    ]
}
```

Chapter 4

SMS Statistics

Overview

Introduction

The tables in this chapter show the statistics that will be generated by the SMCB Feature Node.

In this chapter

This chapter contains the following topics.

Statistic Mapping

SMS-MO

This table describes the available SMS-MO statistics.

Name	Description
NUM_IDP	Total messages processed for both SMS-MO and SMS-MT.
MO_NUM_IDP	Total SMS-MO messages processed.
MO_NUM_POSTPAID	Total SMS-MO postpaid messages processed.
MO_NUM_PREPAID	Total SMS-MO prepaid messages processed.
MO_NUM_BILLED	Total successfully billed SMS-MO prepaid messages.
MO_NUM_NO_CREDIT	Total SMS-MO messages where the submitter has insufficient balance.
MO_NUM_INVALID_BE	Total SMS-MO messages where the submitter is not valid for E2BE.
MO_NUM_INVALID_NE	Total SMS-MO messages where the named event is not valid for E2BE.
MO_NUM_NO_RULE	Total SMS-MO messages where no rating rule applies.
MO_NUM_CONTINUE	Total continue messages sent to message max for SMS-MO prepaid.
MO_NUM_RELEASE	Total releasecall messages sent to message max for SMS-MO prepaid.
MO_NUM_SME_FAILURE	Total SMS-MO prepaid messages where the destination SME processing failed.
MO_NUM_PREPAID_?	Total SMS-MO prepaid messages per country code. (where '?' is the country code)
MO_NUM_BILLED_?	Total successful SMS-MO prepaid messages per country code. (where '?' is the country code)

Name	Description
MO_NUM_PREPAID_ALL	Total SMS-MO prepaid messages for all country codes. (only when a country code stat is reported)
MO_NUM_BILLED_ALL	Total successful SMS-MO prepaid messages for all country codes. (only when a country code stat is reported)

SMS-MT

This table describes the available SMS-MT statistics.

Name	Description
NUM_IDP	Total messages processed for both SMS-MO and SMS-MT.
MT_NUM_IDP	Total SMS-MT messages processed.
MT_NUM_POSTPAID	Total SMS-MT postpaid messages processed.
MT_NUM_PREPAID	Total SMS-MT prepaid messages processed.
MT_NUM_BILLED	Total successfully billed SMS-MT prepaid messages.
MT_NUM_NO_CREDIT	Total SMS-MT messages where the submitter has insufficient balance.
MT_NUM_INVALID_BE	Total SMS-MT messages where the submitter is not valid for E2BE.
MT_NUM_INVALID_NE	Total SMS-MT messages where the named event is not valid for E2BE.
MT_NUM_NO_RULE	Total SMS-MT messages where no rating rule applies.
MT_NUM_CONTINUE	Total Continue messages sent to Message Max for SMS-MT prepaid.
MT_NUM_RELEASE	Total ReleaseCall messages sent to Message Max for SMS-MT prepaid.
MT_NUM_SME_FAILURE	Total SMS-MT prepaid messages where the destination SME processing failed.
MT_NUM_PREPAID_?_??	Total SMS-MT prepaid messages for each ASP Id prefix matched (based on the network calling numbers). (where '?' is the AspId and '??' is the OAdC / network calling number)
ASP_?_SUB_OP_CODE	Total P4D messages where MNP wrong network occurred for each AspId. (where '?' is the AspId).

Statistics by Transaction

MT Transactions

This table indicates which statistics have MT transactions.

Statistic	TS	NES	NoR	NoC	TF	NEF	NEI	Free
NUM_IDP	Y	Y	Y	Y	Y	Y	Y	Y
MT_NUM_IDP	Y	Y	Y	Y	Y	Y	Y	Y
MT_NUM_PREPAID	Y	Y	Y	Y	Y	Y	Y	Y
MT_NUM_PREPAID_?_?? (*3)	Y	Y	Y	Y	Y	Y	Y	Y
MT_NUM_BILLED	Y	Y						
MT_NUM_NO_CREDIT				Y				
MT_NUM_INVALID_BE				Y			Y	

Statistic	TS	NES	NoR	NoC	TF	NEF	NEI	Free
MT_NUM_INVALID_NE (*2)				Y			Y	
MT_NUM_NO_RULE			Y					
MT_NUM_CONTINUE	Y	Y						
MT_NUM_RELEASE					Y	Y		
MT_NUM_SME_FAILURE					Y	Y		
MT_NUM_POSTPAID								
ASP_?_SUB_OP_CODE								

MO Transactions

This table indicates which statistics have MO transactions.

Statistic	TS	NES	NoR	NoC	TF	NEF	NEI	Free
NUM_IDP	Y	Y	Y	Y	Y	Y	Y	Y
MO_NUM_IDP	Y	Y	Y	Y	Y	Y	Y	Y
MO_NUM_PREPAID	Y	Y	Y	Y	Y	Y	Y	Y
MO_NUM_PREPAID_? (*1)	Y	Y	Y	Y	Y	Y	Y	Y
MO_NUM_BILLED	Y	Y						
MO_NUM_BILLED_? (*1)	Y	Y						
MO_NUM_NO_CREDIT				Y				
MO_NUM_INVALID_BE				Y			Y	
MO_NUM_INVALID_NE (*2)				Y			Y	
MO_NUM_NO_RULE			Y					
MO_NUM_CONTINUE	Y	Y						
MO_NUM_RELEASE					Y	Y		
MO_NUM_SME_FAILURE					Y	Y		
MO_NUM_POSTPAID								
MO_NUM_PREPAID_ALL (*1)	Y	Y	Y	Y	Y	Y	Y	Y
MO_NUM_BILLED_ALL (*1)	Y	Y						

Transaction key

This table describes Transaction keys.

Key	Description
TS	Successful tariffed transaction.
NES	Successful named event transaction.
NoR	No tariffing rule fired for this transaction.

Key	Description
NoC	Insufficient credit for this transaction.
TF	Tariffed transaction failed because SMS not delivered to SME.
NEF	Named event transaction failed because SMS not delivered to SME.
NEI	Named event transaction where named event is invalid (change tariffing NE config after setting SMCB tariffing).
?	MT: Asp Name, MO: Country Code.
??	MT: OAdC Number.
*1	Only if not home country code and if registered country code stat found.
*2	Only for named event reservations.
*3	Only if Asp Id is present in IDP.

SMS Statistics Update

Introduction

The updateStats utility updates the SMS-MO country code and SMS-MT Asp-Id/OAdC statistics in the SMF_STATISTICS_DEFN database table on the SMS machine.

SMS-MO Country Codes

The updateStats utility examines the country codes file (stats/country_codes.txt) to determine which country code statistics to insert into the database, and which to remove.

Note: Statistics that are already present in the database are ignored. Statistics that are present in the database, but are no longer present in the file, are removed.

Statistics are generated and inserted into the database using the following templates:

- MO_NUM_PREPAID_?
- MO_NUM_BILLED_?

where ? is the country code.

SMS-MT Asp-Ids

The updateStats utility examines the Asp Id directory (stats/asp_ids) to determine which Asp-Id and OAdC statistics require inserting into the database.

The name of the Asp-Id file should reflect the name of the Asp. Each Asp-Id file should contain a list of the OAdCs that are associated with that ASP.

Statistics are generated and inserted into the database using the following template:

MT_NUM_PREPAID_?_??

where ? is the Asp Name and ?? is the OAdC.

An additional extractStats utility is provided that migrates an existing set of Asp-Id/OAdC statistics into the new format used by SMCB.

The template used for existing statistics is: ASP_<asp-id> and SMSMT<asp-id>_<oadc>.

Run update stats utility

Follow these steps to run the update statistics utility on the SMS.

Step	Action
1	Log in as **ccs_oper**.
2	Change to the SMCB directory, by typing: `cd /IN/service_packages/SMCB`
3	Type `bin/updateStats.sh` Follow the on screen prompts for information. **Result:** This invokes the utility to update the country code and Asp-Id statistics. The statistics that are updated are different depending on your license type. If no updates are required no changes will be made to your system.
4	For the new stats to become effective the smsStatsDaemon process should be restarted on the SLC.

Run extract stats utility

Follow these steps to run the extract statistics utility on the SMS.

Step	Action
1	Log in as **ccs_oper**.
2	Change to the SMCB directory, by typing: `cd /IN/service_packages/SMCB`
3	Type: `bin/extractStats.sh` Follow the on screen prompts for information. **Result:** This invokes the utility to extract the Asp-Id statistics from an existing database and produces a set of AspId files. This utility only performs changes to your system when your license type allows it.

Chapter 5

SMCB Service

Overview

Introduction

This chapter explains the how to use the SMCB Service screen.

In this chapter

This chapter contains the following topics.

CCS SMCB Service Screen

Introduction

The Short Message Charging Bundle service provides an SMS screen to allow you to configure billing rates and rules. This defines the charging mechanism and cost for sending a short message.

There are three rule types:

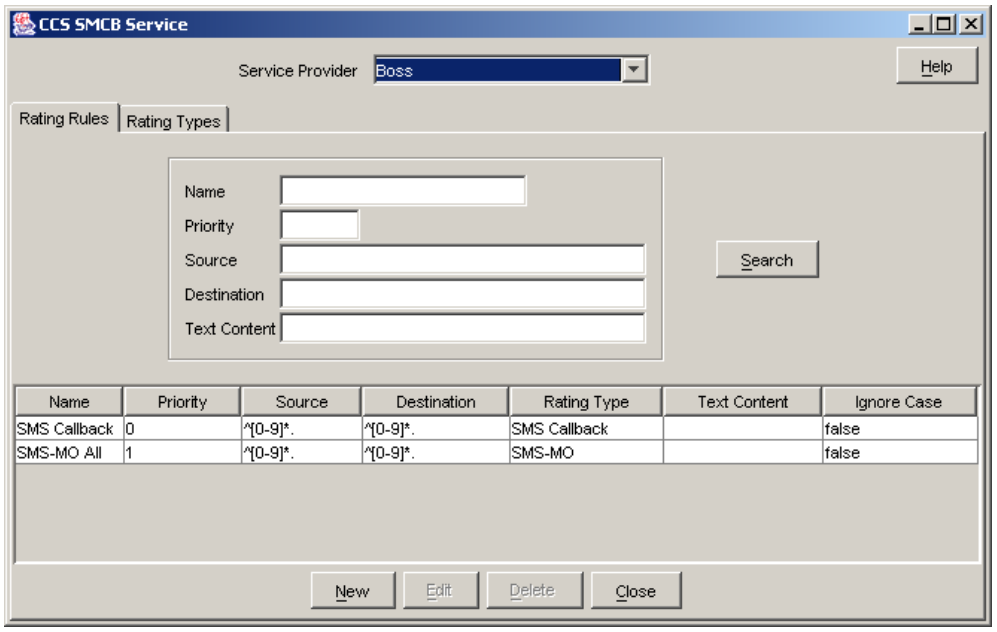
- Named Event
- Tariffed
- Free

Accessing the CCS SMCB Service screen

Follow these steps to access the CCS SMCB Service screen.

Step	Action
1	From the main Service Management System screen, select the menu options **Services > SMCB Service**. **Result:** You see the CCS SMCB Service screen.

Step	Action



Searching for records

Follow these steps to search for records on the tabs of the CCS SMCB Service screen.

Step	Action
1	Within the search fields at the top of the tab, enter all or part of the content you are searching for. **Note:** Leaving all fields blank will return all records.
2	Click **Search**.

Rating Rules

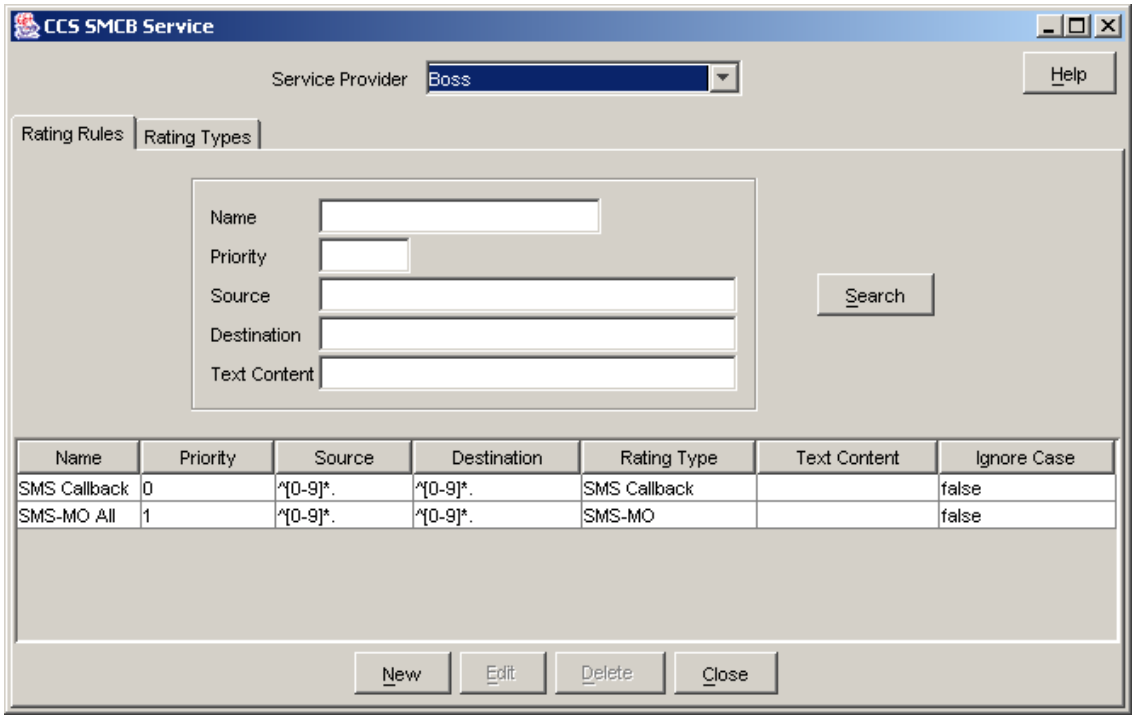
Introduction

You create rating rules on the **Rating Rules** tab in the CCS SMCB Services screen. They can be prioritized to provide a given behavior, such as charging for short codes differently to PSTN numbers that start with the same digits.

Lower priority (0..1) entries are processed before higher priority entries (2+).

Rating Rules tab

Here is an example **Rating Rules** tab.



Rating Rules tab search fields

This table describes the fields on the **Rating Rules** tab available for searching records.

Field	Description
Name	The name of the rating rule to search for. Restricted to 20 characters in length.
Priority	The priority given to this rule, from 0 (most preferred) to 99999 (least preferred).
Source	The source regular expression to search for. Restricted to 64 characters.
Destination	The destination regular expression to search for. Restricted to 64 characters.
Text Content	The text to search for. Restricted to 64 characters.

For more information, see *Searching for records* (on page 24).

A note about regular expressions

The following is an explanation of regular expressions and their use.

Regular expressions can contain anchors ('^' and '$'), groups ('[ ]') and wild cards ('*'):

- '^' anchors the expression to the start of the string
- '$' anchors the expression to the end of the string
- '[ ]' groups characters into a class, for example [0-9] means any number
- '*' repeats the previous character class zero or more times, such as '[0-9]*'

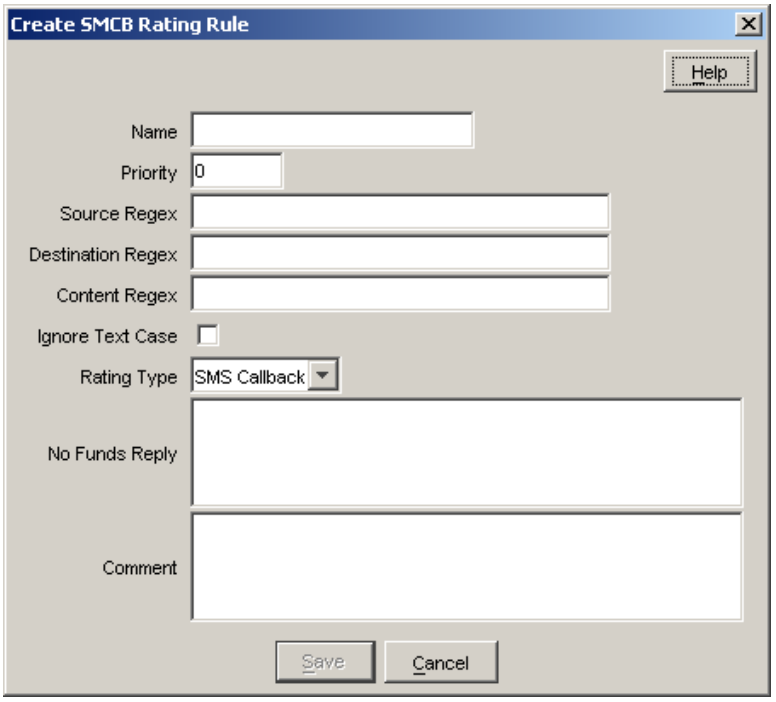
Examples

This table shows some example expressions.

Expression	Description
^1234$	Will match the exact string 1234.
^1234	Will match any string beginning with 1234.
1234$	Will match any string that ends with 1234.
^[0-9]*1234$	Will match a string that begins with zero or more numbers (0-9) and ends with 1234.
1234[0-9][0-9]*	Will match a string that contains the substring 1234 and then 1 or more numbers (0-9).

Creating rating rules

Follow these steps to set up an SMCB rating rule.

Step	Action
1	On the **Rating Rules** tab, click **New**. **Result:** You see the Create SMCB Rating Rule screen. 
2	Fill in the fields, as described in *Rating rules fields* (on page 26).
3	Click **Save**.

Rating rules fields

This table describes the function of each field.

Field	Description
Name	The name given to this rating rule. Restricted to 20 characters.
Priority	The priority given to this rule, from 0 (most preferred) to 99999 (least

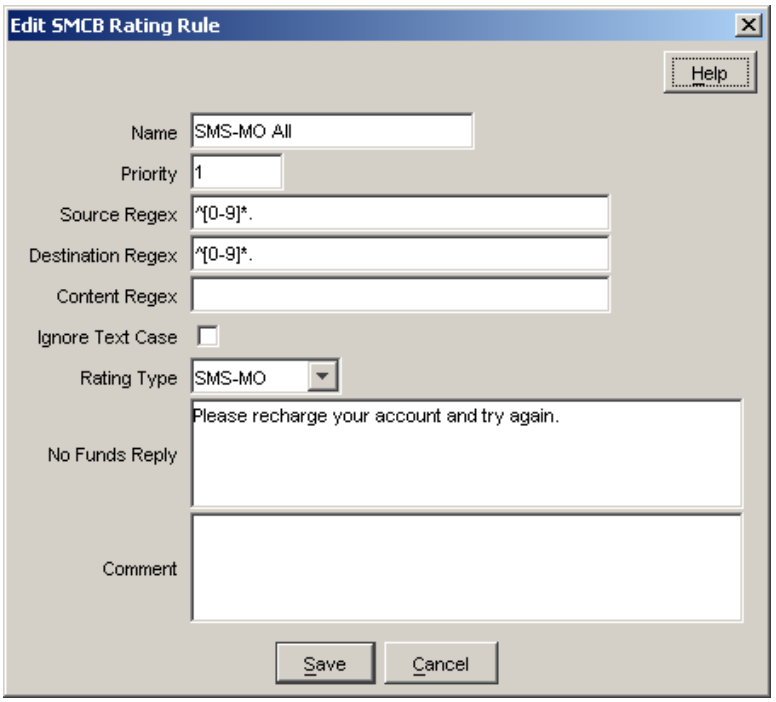
Field	Description
	preferred). If the source, destination and (optionally) content regular expressions from two rules *both* match a given short message, the priority will be used to determine which rule is used. If the two rules have the same priority, the rules will be ordered alphabetically by rule name.
Source Regex	The regular expression that is applied to the source number to determine if the rule matches. Restricted to 64 characters. This field will be verified when the **Save** button is selected, (see *A note about regular expressions* (on page 25)).
Destination Regex	The regular expression that is applied to the destination number to see if the rule matches. Restricted to 64 characters. This field will be verified when the **Save** button is selected, (see *A note about regular expressions* (on page 25)).
Content Regex	The text against which messages are matched. This rule is optional. It is applied after the other rules have been applied. Restricted to 200 characters.
Ignore Text Case	Defines whether or not to ignore the case of the message text when matching it against the text in the **Content Regex** field.
Rating Type	The type of the rating the will be applied to the call if the rule matches. Lists all the currently defined rating type names. This shows the name of the rating types on the **Rating Types** tab.
No Funds Reply	The text that is returned to the user if there are insufficient funds to bill this call. Restricted to 160 characters.
Comment	A free form text field allowing you to enter comments. This field is not used for any processing, but is present to allow you to save extra information if needed. Restricted to 100 characters.

Editing rating rules

Follow these steps to edit an SMCB rating rule.

Step	Action
1	On the **Rating Rules** tab, from the table, select the rule to edit.
2	Click **Edit**. **Result:** You see the Edit SMCB Rating Rule screen.

Step	Action



3 Make changes to the fields, as described in *Rating rules fields* (on page 26).

4 Click **Save**.

Deleting rating rules

Follow these steps to delete an SMCB rating rule.

Step	Action
1	On the **Rating Rules** tab, from the table, select the rule to delete.
2	Click **Delete**. **Result:** You see a Confirm Deletion dialog box.
3	Click **OK**.

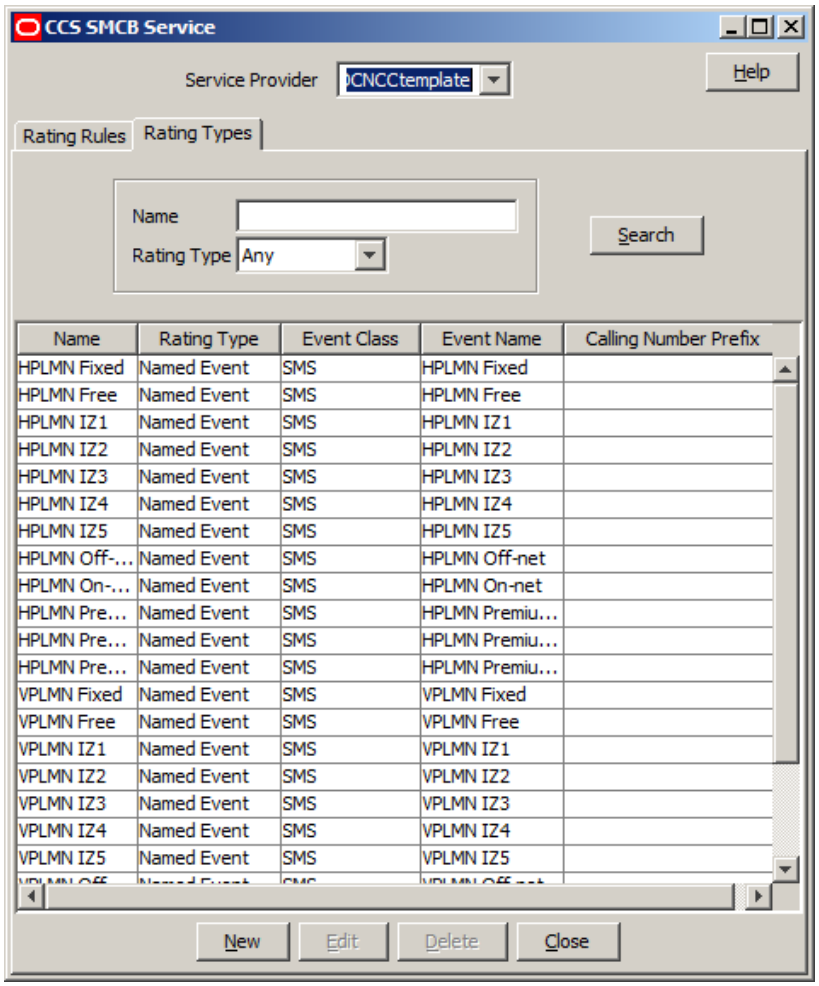
Rating Types

Introduction

The **Rating Types** tab lists the SMCB rating types that have been defined for use in the rating rules. You can add new rating types to the list, edit, or delete existing ones.

Rating Types tab

Here is an example **Rating Types** tab.



Rating Types tab search fields

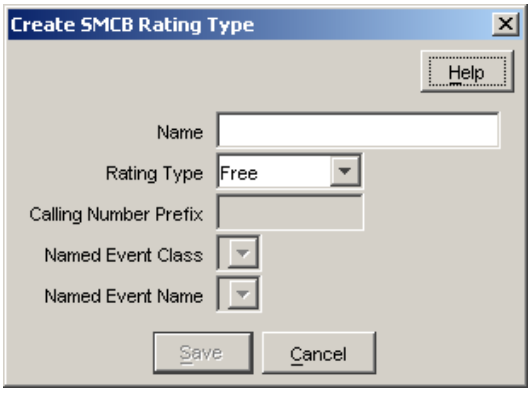
This table describes the fields on the **Rating Types** tab available for searching records.

Field	Description
Name	The name of the rating type to be found. Restricted to 20 characters.
Rating Type	The type of the rating to be search for. The drop down list is set to: • Any • Tariff • Free • Named Event

For more information, see *Searching for records* (on page 24).

Creating rating types

Follow these steps to create an SMCB rating type.

Step	Action
1	On the **Rating Types** tab, click **New**. **Result:** You see the Create SMCB Rating Type screen. 
2	Fill in the fields,as described in *Rating types fields* (on page 30).
3	Click **Save**.

Rating types fields

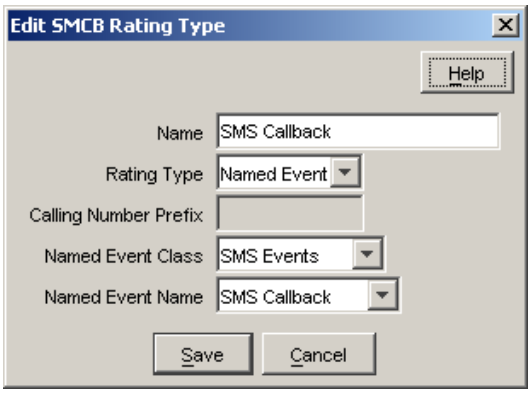
This table describes the function of each field.

Field	Description
Name	The name of this rating type. Restricted to 20 characters.
Rating Type	The type of the rating type. The available types are: • Free • Named Event • Tariff
Calling Number Prefix	The calling number prefix that is applied before sending the information to the billing engine (only enabled with type is `Tariff`). Restricted to 10 hexadecimal digits (0-9,A-F).
Named Event Class	The named event class that is billed (only enabled with type is `Named Event`). Restricted to currently defined event classes in the database.
Named Event Name	The named event name that is billed (only enabled with type is `Named Event`). Restricted to currently defined event names in the database.

Editing rating types

Follow these steps to edit an SMCB Rating Type.

Step	Action
1	On the **Rating Types** tab, from the table, select the type to edit.
2	Click **Edit**. **Result:** You see the Edit SMCB Rating Type screen.

Step	Action
	
3	Make changes to the fields,as described in *Rating types fields* (on page 30).
4	Click **Save**.

Deleting rating types

Follow these steps to delete an SMCB rating type.

Step	Action
1	On the **Rating Types** tab, from the table, select the type to delete.
2	Click **Delete**. **Result:** You see a Confirm Deletion dialog box.
3	Click **OK**.

Chapter 6

Short Message Charging Feature Node

Overview

Introduction

This chapter explains how the Short Message Charging feature node may be used.

For information on the Short Message Charging feature node, refer to *Feature Nodes Reference Guide*.

In this chapter

This chapter contains the following topics.

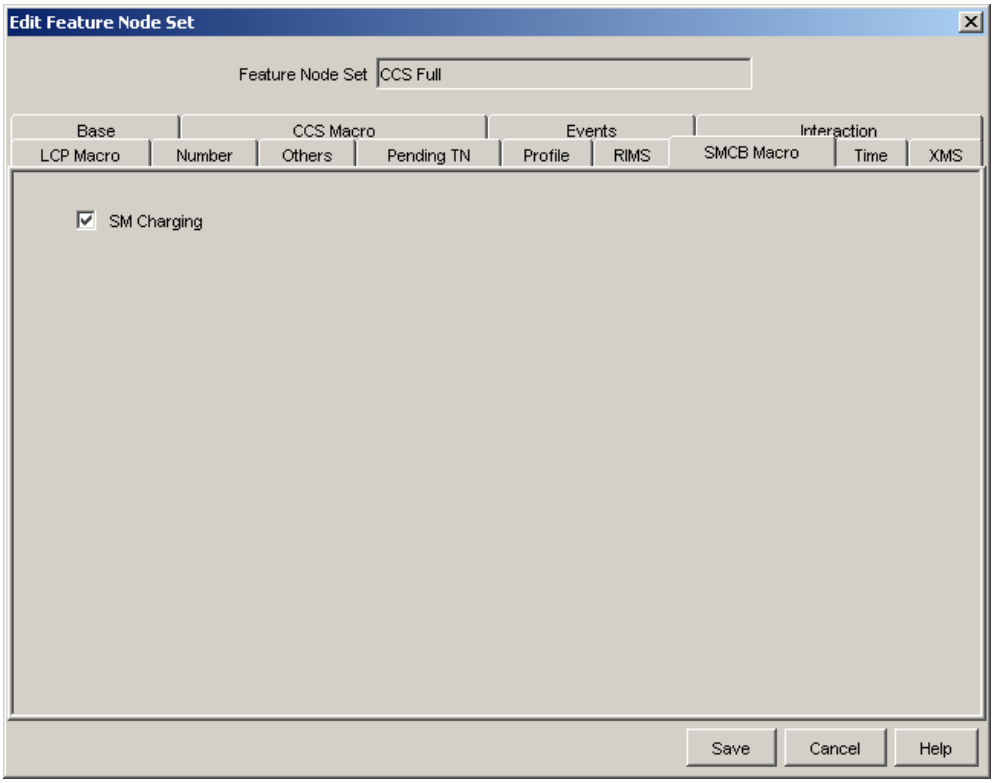
Feature Node Access Setup

Configuring access to SM Charging Feature Node

Follow these steps to configure access to the Short Message Charging feature node on a per Service Provider basis.

Step	Action
1	On the ACS Main screen, click **Customer**.
2	On the ACS Customer screen, select the **Resource Limits** tab.
2	Select the customer from the table and click **Edit**.
3	On the Edit Customer Resources screen, in the **Allocate Feature Sets** box of the **Public Set Access** area, select the **CCS Full** check box.
4	Click **Save** to return to the ACS Main screen.
5	On the ACS Main screen, click **Configuration**.
6	On the ACS Configuration screen, select the **Feature Sets** tab.
7	In the **Feature Node Set** drop down list, select `CCS Full`.
8	In the Edit Feature Set screen, select the **SMCB Macro** tab.
9	Select the **SM Charging** check box.

Step	Action



10 Press **Save**.

For detailed information on Feature Sets, refer to *Advanced Control Services User's Guide*.

Message Call Plan Setup

Procedure

Access to the Short Message Charging Control Plans are set on a per product type basis in the Product Type screen in the Prepaid Charging UI. Use the following steps to set up an Originating or Termination Message control plan.

Step	Action
1	On the Prepaid Charging UI select the menu options **Resources->Product Type->Edit Product Type**.
2	Select **Control Plans** from the panel list of the left. Refer to Resources - Product Type in *Charging Control Services User's Guide.*
3	Associate a control plan with the following CCS Capabilities - **SMS_MO**, **SMS_MT** and **RSMS_MT**, by creating (or editing) entries in the Capability List.
4	Click **Save**.

Using Other Feature Nodes

Introduction

The Short Message Charging feature node is designed to work with the following feature nodes:

Application	Feature Node	Use to
ACS	Terminate Unchanged	Send a Continue back to the trigger application
ACS	Disconnect	Send a Release back to the trigger application
CCS	Set Wallet Type	Set whether to use the primary or secondary wallet in the CCS service loader. Should be used before the SMCB feature node.

Other compatible nodes

This table lists other compatible nodes.

Application	Feature Node
ACS	Start
ACS	End
ACS	Dynamic Switch
ACS	Attempt Termination
ACS	Unconditional Termination
CCS	Account Activation
CCS	Account State Branch
CCS	Account State Text Message
CCS	Balance State Branch
CCS	Billable Event
CCS	Business Prefix Branch
CCS	Friend and Family/Friend and Destination Discount
CCS	Set Discount
ACS	Event Branching
ACS	Event Counting
ACS	Event Setting
ACS	Calling Party Filter
ACS	Called Party Filter
ACS	Number Matching
ACS	Prefix Tree Filtering
ACS	Profile Branching
ACS	Store Profile
ACS	Day of Week
ACS	Day of Year
ACS	Time of Day
ACS	Time of Week
CCS	Declined Billing Cause

Chapter 7

Tools and Utilities

Overview

Introduction

This chapter explains tools and utilities for use with SMCB.

In this chapter

This chapter contains the following topics.

SMCB Capability Tool

Introduction

The SMCB Capability Tool sets the default control plan to run if the 'call' is:

- Mobile Originating (SMS_MO)
- Mobile Terminated (SMS_MT)
- Reverse Mobile Terminated (RSMS_MT)

and if no account is found in CCS, that is, it is a Post Paid account.

Usage

A utility script allows management of default control plans within the CCS_CAPABILITY database table. It is installed in **/IN/ service_packages/SMCB/bin** and has the following usage:

Usage:

```
[-u user/pass] [-d] -o ["Originating_Control_Plan"]
[-u user/pass] [-d] -t ["Terminating_Control_Plan"]
[-u user/pass] [-d] -r ["Reverse_Terminating_Control_Plan"]
```

where:

- '-u user/pass' (database username/password OPTIONAL, default: '/')
- '-o' for Originating (if control plan not specified: display only)
- '-t' for Terminating (if control plan not specified: display only)
- '-r' for Reverse Terminating (if control plan not specified: display only)
- '-d' delete existing Control Plan - must also specify -t or -o or -r

Examples

Execute the smcbCapability.sh script with:

- No arguments, displays the current default control plan for the SMS_MO, SMS_MT and RSMS_MT capabilities.
- The following argument:

'-o' will display the default control plan for the SMS_MO capability only.

This also works for '-t' for SMS_MT and '-r' for RSMS_MT.

- The following argument:

  ' -t "ACS Management" ' will update the SMS_MT capability and set 'ACS Management' as its default control plan.

  This also works for '-o' for SMS_MO and '-r' for RSMS_MT

- The following argument:

  '-d -r' will disassociate (remove) the current default control plan from the RSMS_MT capability.

  This also works for '-o' for SMS_MO and '-t' for SMS_MT. Using the '-d' on its own is an error and will have no effect.

These options may be combined, for example to update the SMS_MO and SMS_MT capabilities in one go, the following arguments may be used:

```
' -o "ACS Management" -t "ACS Management"
```

However, using the -d option overrides any other options, so that only removals are possible. For example, ' -o "ACS Management" -d -t ' will remove the default control plans for both SMS_MO and SMS_MT and not update the SMS_MO capability to use the specified default control plan.

Additional notes

- Execute the smcbCapability.sh script with the following argument:

  '-?' displays the usage (as above) and exits immediately.

- An optional argument allows the database login to be specified: ' -u "user/pass" '

  It is recommended to run the smcbCapability.sh script as 'ccs_oper' so this argument is not required, however if used the user should enter the database username/password for the CCS_ADMIN schema.

- Existing control plans must be specified, therefore the control plan must exist and be selectable in the Control Plan Editor for it to be chosen using this tool.

  If the user enters a control plan that does not match an existing name then the following error will be displayed:

  "Error: you must specify an existing Control Plan for *CAPABILITY*"

  where *CAPABILITY* is 'SMS_MO', 'SMS_MT', or 'RSMS_MT'

- If a partial name is chosen for a control plan and this partial name matches a single control plan, then this control plan will be used. However, if the partial name matches more than one control plan then a menu will be displayed allowing the user to select from the matching control plans:

  For example:

  Execute the smcbCapability.sh script with the following arguments:

  - '-o ACS' will associate the 'ACS Management' default control plan with the SMS_MO capability, on the test system there is only one control plan with the 'ACS' prefix therefore this resolves to a single control plan.
  - ' -t "E2" ' will attempt to associate the SMS_MT capability with a control plan beginning with the word 'E2' ,however there are 2 control plans that begin with this name. A menu will be displayed as follows:

    ```
    Note: the Control Plan you specified resolves to more than one plan
    please select from the following Control Plans:
    1: E2 CR5 Example Restriction Plan
    2: E2 Global Prompt For Account Reference
    select:
    ```

    The user should enter the number matching the required control plan; this will be associated with the capability specified.

Chapter 8

Administration Tasks

Operating Procedures

Introduction

This chapter provides the operating procedures for the application.

These procedures are normally performed once, after the installation and configuration of the system.

In this chapter

This chapter contains the following topics.

Managing Processes

Introduction

The Short Message Charging Bundle service runs within the slee_acs process, using the **ccsSvcLibrary.so** and **smcbMacroNodes.so** libraries.

This means SMCB is started when the SLEE on the SLC is started (as acs_oper).

Starting the SLEE

Follow these steps to start the service.

Step	Action
1	Login as the acs_oper unix user.
2	Start the SLEE by typing: `/IN/service_packages/SLEE/bin/slee.sh`

Stopping the SLEE

Follow these steps to stop the service.

Step	Action
1	Login as the acs_oper unix user.
2	Stop the SLEE by typing: `/IN/service_packages/SLEE/bin/stop.sh`

Turning Debug ON / OFF

Procedure

Follow these steps to set the debug option.

Step	Action
1	To turn on debug, set the UNIX environment variable DEBUG to **SMCB_FN** or **all.** **Example:** `DEBUG=SMCB_FN; export DEBUG` **Note:** The **all** selection of the DEBUG section displays all sections of debug. This is the most verbose debug level, so using the **SMCB_FN** section is recommended when specifically checking the SMCB service.
2	To turn off debug, unset the DEBUG environment variable.
3	Restart the SLEE to make the new setting effective.

Re-reading Database Configuration

Procedure

Follow these steps to check when the Short Message Charging Feature Node last re-read the database configuration.

Step	Action
1	Set the UNIX environment variable DEBUG to **SMCB_Cache**, for example: `DEBUG=SMCB_Cache; export DEBUG`
2	Restart the SLEE to make the new setting effective. **Result:** SMCB Cache related actions are shown, allowing the monitoring of the cache state.
3	Check the system logfile for the following entry and note its timestamp: `NOTICE: CCS SMCB_FN (55): 1003: Rating cache updated`
4	Check the value in **eserv.config** for: `CCS.smcbMacroNodes.CacheRefreshInterval`
5	To turn off debug, the DEBUG environment variable must be unset.
6	Restart the SLEE to make the new setting effective.

Chapter 9

Troubleshooting

Overview

Introduction

This chapter explains the important processes on each of the server components in Convergent Charging Controller, and describes a number of example troubleshooting methods that can help aid the troubleshooting process before you raise a support ticket.

In this chapter

This chapter contains the following topics.

Possible Problems

Problem scenarios

This table describes problems and their resolution.

Problem	Solution
New Rating configuration is not being used.	Check timestamp **Tariff** configuration last saved, and the value of **cacheRefreshInterval** in **eserv.config** section `CCS.smcbMacroNodes`. If SMCB should have re-read the configuration, check syslog for errors. If symptoms persist, restart the SLEE and check.
Rating Cache is updated every period (alarm 1003 is logged).	Update the statistics on the SMF (using **updateStats.sh** or update an entry using the screens) and allow the data to be replicated.

Balance type problems

The `CCS` and `BE` sections of **eserv.config** have items that do not directly affect SMCB, but have an effect on the other parts of the system that calculate how much should be charged for the request that SMCB sends the billing engine.

This table describes balance type problems and their resolution.

Problem	Solution
The value of the balance type(s) does not change as expected.	Check parameters listed below.

This table describes the parameters in **eserv.config** relevant to SMCB and how they affect charging.

Parameter	Purpose of Parameter	Possible effect
`CCS.ccsRewards.balanceTypes.`	Lists the Ids of the balance types that can	Another balance type to the one you are using may also go up in value. If you are using the

Parameter	Purpose of Parameter	Possible effect
allowed	be used for rewards, on a per Service Provider basis	same balance type then it will appear to go up more than you expect. Check the CCS Rewards screen for configuration.
CCS.ccsRewards. balanceTypes. expenditure	Lists the ID of the balance type that records the monthly expenditure, on a per Service Provider basis	Only the monthly expenditure should increase as a result of this item. However, if there is another unexpected increase in value for a balance type, check the balance type ID matches the monthly expenditure ID for that Service Provider.
CCS.ccsVWARS Activation. balanceTypes. freeSmsType	Set the balance type ID to use for the FreeSMS credits, on a per Service Provider basis	Only the FreeSMS balance type should increase as a result of this item. However, if there is another unexpected increase in value for a balance type, check the balance type ID matches the FreeSMS ID for that Service Provider.
CCS.reservation Handler. overrideDiscount Type	Sets the behavior of the discounts in CCS.	If the charge is not as expected, check the discounts setup for that Service Provider, and the expected behavior of them from this item.
CCS.reservation Handler. refundBalanceType s. balanceTypeId	Sets the Balance Type ID the CCS refunds behavior should use, on a per Service Provider basis.	The ID listed is credited when the CCS refunds functionality is used. Check the correct balance type ID is being used.

BE message problems

This table lists messages to BE problems.

Problem	Solution
The messages to the BE do not appear to get through.	Check parameters listed below.

This table describes the parameters in **eserv.config** relevant to SMCB and how they affect messages to BE.

Parameter	Purpose of Parameter	Possible effect
CCS.ccsActions. maxOutstanding BeClientMsgs	Maximum outstanding messages beClient will hold before it rejects a request without querying the BEs.	Reservations or confirmations to the BE receive an error code of General Error or Could not contact BE. Resolve by increasing the value (more memory use) and restart SLEE.
CCS.ccsService Library. IncomingCallBar Enable	If set to True then if the Call Barring is enabled on the calling number	Short Messages do not reach SMCB FN, as the service loader rejects them before the call plan is run. Check the account and account type call barring screens.
CCS.reservation Handler. maxReservation Length	The time the BE will hold a Tariff Reservation before the BE will release it.	If the time between the Tariffed reservation and confirmation/revoke is greater than this period, an error is returned saying the Reservation does not exist.
CCS.reservation Handler. greedyReservation LengthLimit	Minimum time for the Tariffed reservation.	If a Tariffed reservation is requested for less than this time then the reservation time returned is this minimum, and not the value requested.
CCS.namedEvent	How long a Named Event	If a Named Event Reservation is not

Parameter	Purpose of Parameter	Possible effect
Handler.maxWallet LockLength	Reservation will lock the wallet.	acknowledged in this time, then the reservation is canceled. This could happen when the BEs are heavily loaded and take longer than this length to Ack the reservation.
CCS.namedEvent Handler.cascade	The cascade ID to use when the “promotional use” flag is False.	When the promotional use flag is false, the cost of the Named Event is charged in the balance type order of the defined cascade. See CCS Named Event screen and Edit Product Type Chargeable Events screen (for per product type overrides).
CCS.namedEvent Handler. promo_cascade	The cascade ID to use when the “promotional use” flag is True	When the promotional use flag is true, the cost of the Named Event is charged in the balance type order of the defined cascade. See CCS Named Event screen and Edit Product Type Chargeable Events screen (for per product type overrides).
CCS.namedEvent Handler.reservati on Period	How long a Named Event reservation will last	If a Named Event Reservation is not confirmed or revoked in this time the confirmation/reservation will fail.
CCS.namedEvent Handler.minResync ReservationLength	Named Event reservations of less than this period will not be copied to the other BE during a BE failover.	If a BE failover happens between a reservation and confirmation/revoke, an error is returned saying “reservation does not exist” as it has not been copied to the other BE to handle. This is a trade-off for failover performance.

Chapter 10

About Installation and Removal

Overview

Introduction

This chapter provides information about the installed components for the 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

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

SMCB packages

An installation of Short Message Charging Bundle includes the following packages, on the:

- SMS:
  - smcbSms
- SLC:
  - smcbScp

Checking the Installation

Checking smcbScp installation

Once the installation is complete, refer to this checklist to ensure that installation has been successful.

Step	Action
1	Use **SQLPLUS** as the smf oracle user to check 3 database tables are created, by typing: `select table_name from all_tables where table_name like 'CCS_SMCB%';`
2	Check **/IN/service_packages/SMCB/smcbScp.install.log** for errors.

Step	Action
3	Check the following entries are placed in **/IN/service_packages/ACS/etc/acs.conf** (1) • ServiceEntry (CCS_SM_MO,cC,nN,dD,dD,ccsSvcLibrary.so) # Added by smcbScp (1) • ServiceEntry (CCS_SM_MT,dD,cC,dD,dD,ccsSvcLibrary.so) # Added by smcbScp (1) • ServiceEntry (REVERSE_CCS_SM_MT,cC,cC,dD,dD,ccsSvcLibrary.so) # Added by smcbScp (1) • MacroNodePluginFile smcbMacroNodes.so # Added by smcbScp (1)
4	Check **/IN/service_packages/SLEE/etc/SLEE.cfg** contains the following entries (1): • SERVICEKEY=INTEGER 11 SM_MO #Added by smcbScp (1) • SERVICEKEY=INTEGER 12 SM_MT #Added by smcbScp (1) • SERVICEKEY=INTEGER 13 R_SM_MT #Added by smcbScp (1) • SERVICE=SM_MO 1 slee_acs CCS_SM_MO #Added by smcbScp (1) • SERVICE=SM_MT 1 slee_acs CCS_SM_MT #Added by smcbScp (1) • SERVICE=R_SM_MT 1 slee_acs(1) REVERSE_CCS_SM_MT #Added by smcbScp (1) • REVERSE_CCS_SM_MT #Added by smcbScp (1)
5	Add the SMCB Macro node configuration to the **eserv.config** file, as detailed in the *smcbMacroNodes* (on page 5) section.

Checking smcbSms installation

Once the installation is complete, refer to this checklist to ensure that installation has been successful.

Step	Action
1	Use **SQLPLUS** as the smf oracle user to check 2 database tables are created, by typing: `select table_name from all_tables where table_name like 'CCS_SMCB%';`
2	Check **/IN/service_packages/SMCB/smcbSms install.log** for errors.

SMS Reload Procedure

Procedure

Follow these steps to reload (remove and reinstall) the SMCB system.

Step	Action
1	Remove SMCB service plans from the **CCS Resources->Product Type->Control Plans** window.
2	Delete data in ACS Control Plan Editor for all service plans that contain the SMCB Feature Node.
3	Remove the SMCB SMS package (see below for more information).
4	Install the SMCB SMS package (see above for more information).
5	Create the service plans for SMCB in CPE (see below for more information).
6	Select the ACS Control Plan Editor service plan in the **CCS Resources->Product Type->Control Plans** window.
7	Initialize the ACS Control Plan Editor replication (replicate the data to the SLC).

Glossary of Terms

ACS

Advanced Control Services configuration platform.

ANI

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

ASP

- Application Service Provider, or
- Application Server Process. An IP based instance of an AS. An ASP implements a SCTP connection between 2 platforms.

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.

CC

Country Code. Prefix identifying the country for a numeric international address.

CCS

1) Charging Control Services component.

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

CDR

Call Data Record

Note: The industry standard for CDR is EDR (Event Detail Record).

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”.

CPE

Control Plan Editor (previously Call Plan Editor) - software used to define the logic and data associated with a call -for example, "if the subscriber calls 0800 *nnnnnn* from a phone at location *xxx* then put the call through to *bb bbb bbbb*".

cron

Unix utility for scheduling tasks.

DP

Detection Point

IDP

INAP message: Initial DP (Initial Detection Point)

IN

Intelligent Network

INAP

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

Initial DP

Initial Detection Point - INAP Operation. This is the operation that is sent when the switch reaches a trigger detection point.

ISDN

Integrated Services Digital Network - set of protocols for connecting ISDN stations.

MNP

Mobile Number Portability

MO

Mobile Originated

MSC

Mobile Switching Centre. Also known as a switch.

MSISDN

Mobile Station ISDN number. Uniquely defines the mobile station as an ISDN terminal. It consists of three parts; the country code (CC), the national destination code (NDC) and the subscriber number (SN).

MT

Mobile Terminated

PLMN

Public Land Mobile Network

PSTN

Public Switched Telephone Network - a general term referring to the variety of telephone networks and services.

Service Provider

See Telco.

SLC

Service Logic Controller (formerly UAS).

SLEE

Service Logic Execution Environment

SME

Short Message Entity - This is an entity which may send or receive short messages. It may be located in a fixed network, a mobile, or an SMSC.

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

SMSC

Short Message Service Centre stores and forwards a short message to the indicated destination subscriber number.

SMS-MO

Short Message Service Mobile Originated

SMS-MT

Short Message Service Mobile Terminating

SN

Service Number

Telco

Telecommunications Provider. This is the company that provides the telephone service to customers.

Telecommunications Provider

See Telco.

VMSC

Visited Mobile Switching Centre

VWS

Oracle Voucher and Wallet Server (formerly UBE).

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