Oracle® Communications Convergent Charging Controller
Charging Control Services User's Guide

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Contents

Chapter 1

System Overview 1

Chapter 2

Getting Started 21

Chapter 3

Initial Configuration 25

Chapter 4

Subscriber Management..29

Chapter 5

Subscriber Management - Subscribers 47

Chapter 6

Subscriber Management - Product Type.. 79

Chapter 7

Wallet Management 119

Chapter 8

Service Management 157

Chapter 9

Notifications Management..233

Chapter 10

Task Management 245

Chapter 11

EDR Management...259

Chapter 12

CCS Reports 283

About This Document

Scope

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

Audience

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

Prerequisites

Although there are no prerequisites for 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:

- *Advanced Control Services User's Guide*
- *Feature Nodes Reference Guide*
- *Control Plan Editor User's Guide*
- *Subscriber Profile Manager User's Guide*
- *Voucher Manager User's Guide*
- *Charging Control Services Technical Guide*
- *Service Management System User's 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.

Terminology

This topic explains any terminology specific to this manual.

Term	Definition
ACS Customer	ACS customers are set up in the ACS Customer screen. They configure systems to provide services to subscribers.
Service Provider	CCS service providers are the same as ACS customers and are set up in the ACS Customer screen. There is additional service provider configuration provided in CCS.
Customer	Customers in CCS refer to the customers configured on the Subscriber Management screen.
Subscriber	A subscriber account is set up for each MSISDN which uses services provided by the service provider.

System Overview

Overview

Introduction

This chapter explains the main features of CCS and describes the basic functionality of the system.

In this chapter

This chapter contains the following topics.

What is CCS and VWS?

Overview

Charging Control Services (CCS) and Voucher and Wallet Server (VWS) are prepaid and post-paid services. They offer flexibility and control over billing methods and telephony services in general.

They operate at the service application level of the network.

Features

Features of CCS and the VWS include:

- Customization of call / session management and routing according to factors such as:
    - Geography
    - Demographics
    - Availability of resources
    - User preference
    - Call screening
    - Validation of subscriber credit prior to routing of calls
    - Free call options (for example, to customer service)
- Variable levels of credit and selection for different services for complex promotion logic
- Forced disconnection on credit exhaustion
- Fraud control (detection of unauthorized simultaneous subscriber ID entry, credit card use, or bad PIN)

- Links to VWS to provide wallet and balance management, including:
  - Individual or group subscriber accounts
  - Monetary and time-based wallet balances
- User interaction:
  - On-line credit recharge and balance query through a www CGI interface
- Home and roaming network support through CAMEL 2 / 3
  - Support for GSM, 2G, 2.5G and 3G circuit-switched and packet networks

ACS functionality

CCS works in conjunction with the Advanced Control Services product for added processing capability. Many of the features of CCS are accessed through ACS, for example:

- Customer-managed control plans
- Graduated levels of security
- Management of all outgoing and incoming calls
- Statistics generation
- Announcements.

See *ACS User's Guide* for the full functionality provided with CCS.

CCS Macro Nodes

The feature nodes that are available to CCS within the Control Plan Editor are listed in the *Feature Nodes Reference Guide*.

For information on using the CPE see *CPE User's Guide*.

Service providers

The Voucher and Wallet Server is installed and run as a network service by a Telecommunications Operator (telco). It enables the Telco to create service providers and to create customers and subscribers for those service providers. Although the customer is able to monitor subscriber details and recharge wallet balances through the web interface, the telco retains full control over all aspects of the wallet.

CCS structure

Here is an example of the roles of telco, service provider, and customer in CCS.
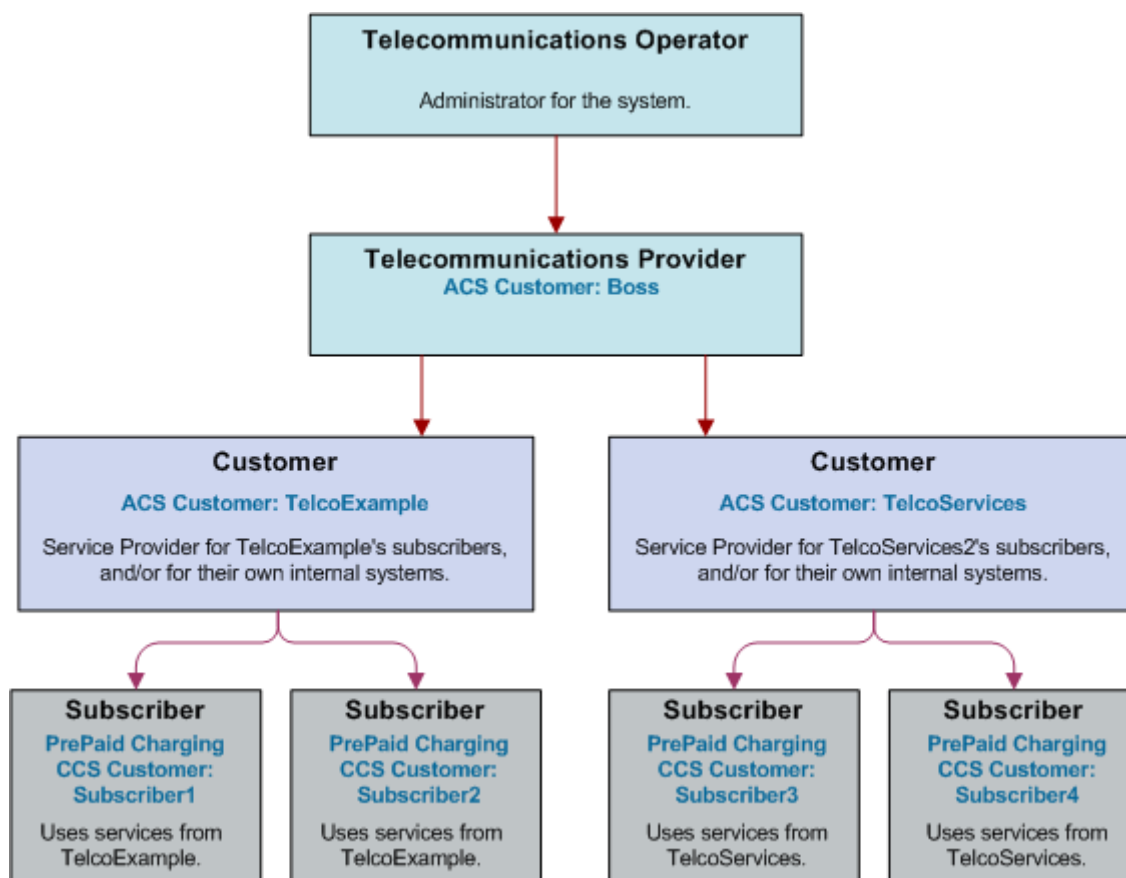
Hardware deployment

This diagram shows the how the machines in a CCS deployment interact.
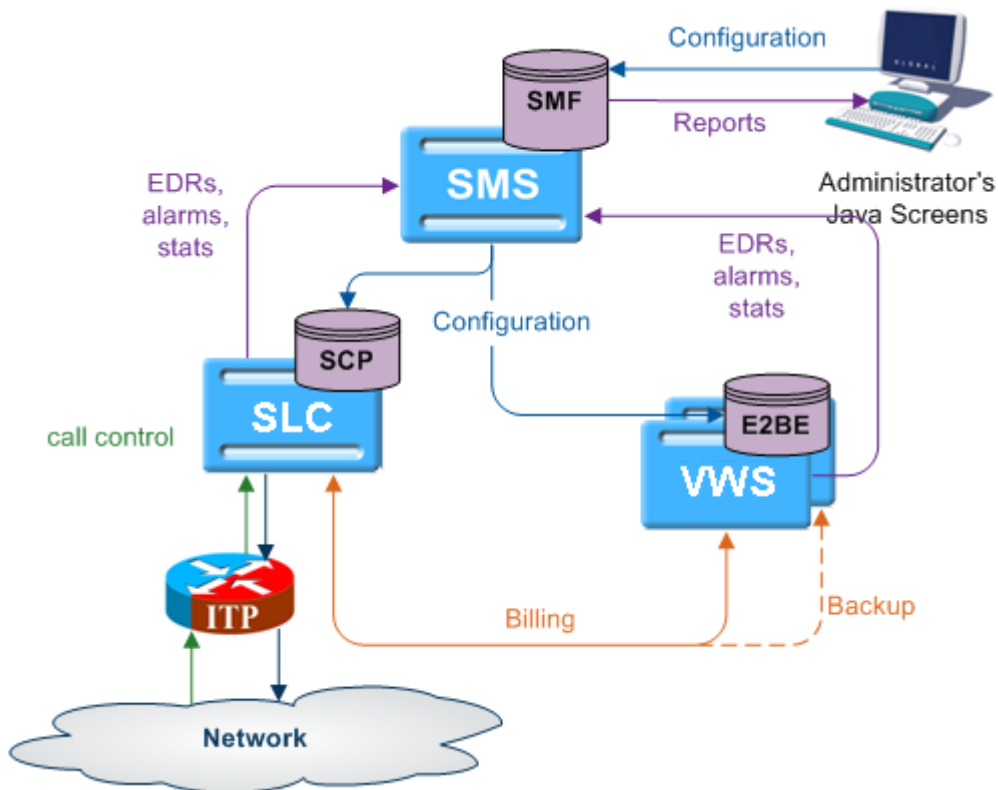
Domains

Domains

CCS uses domains to control which service is provided by a specific network element.

A domain defines the functionality CCS uses a set of one or more domain nodes for. Domain nodes are network elements that provide one or more of the following functions:

- Billing
- Wallet management
- Voucher management

An example of a domain would be a pair of Oracle Voucher and Wallet Servers.

Domains enable CCS to separate traffic for a dedicated service such as voucher redemption.

BCD Domain

The BCD domain is used for subscriber accounts stored on the Billing and Revenue Management (BRM) system. For these accounts, the following Convergent Charging Controller charging features will have no effect if used:

- Periodic Service/Charge logic (for example, the ability to perform logic based on periodic charge subscriptions in BRM)
- Balance cascade overrides
- Service logic derived discounts

- Text notification of mid-call tariff change (for example, text notification of mid-call tariff change will not be available).

Note: Convergent Charging Controller does not require a subscriber to have a subscriber record stored locally on Convergent Charging Controller. If subscriber information is not present on Convergent Charging Controller, Convergent Charging Controller uses the subscriber's logical calling number as the subscriber reference.

Domain Types

Domain types enable CCS to handle groups of domain nodes that share a common technology. This can reflect the communication protocol, and/or make and model of the node.

Examples: The following are domain types:

- VWS
- DIAMETER
- Intec

For more information about configuring these domain types, see *Domain* (on page 161).

Changing Domains During Call Processing

The Set Active Domain feature node enables the domain type to be changed at any point within a control plan. For example, if TUS is installed with a default Voucher Domain type of '2', the domain type can be changed mid-call to VWS.

For more information about the Set Active Domain feature node, see *Feature Nodes Reference Guide*.

What Services Does CCS Provide?

Introduction

As a prepaid and post-paid service, CCS offers profitable alternate billing options to a telecommunications provider.

- Single Use Debit (Prepaid) phone-cards generate a profit for the telco, due to breakage (the remaining, unusable balance on a phone card at expiry).
- Expiry of balance and voucher expiry have an effect similar to breakage, making fixed line or mobile phones equally profitable for the telco.

Wallet flexibility

Combinations of prepaid and post-paid facilities can be tailor-made to suit individual service providers and to meet the business needs of the telco.

The rich system of prepaid services enables services to be offered to everyone wherever they are. CCS enables the telco to offer these customers the flexibility and convenience of multiple services on a single wallet, in a manageable and user-controlled form.

Wallet configuration options

Some examples of wallet flexibility are illustrated below:

1   A single wallet can provide two services:
    - PIN access from any phone

- ▪ Access from a registered telephone line number (CLI) used for any telephony service (phone, internet).
2 Wallets can be recharged through the web interface, using a voucher or a credit card.
3 A single subscriber can have a single wallet with up to two services.
4 A single subscriber can have multiple access devices, all drawing on the same wallet balance.
5 A group of subscribers can have access to a single wallet, in the name of one customer. Each subscriber in the group would access the wallet using the same physical phone line, or using the same PIN.
6 A group of subscribers can have multiple devices drawing on the same wallet balance. Each subscriber in the group would have his or her own named wallet. She or he would access the wallet using a different physical phone line or using a unique PIN.
7 Wallets can be set up anonymously, where a subscriber is not named as in the case of phonecards purchased for resale, or of single-use debit wallets.

Example 1 - single wallet

In this example, a subscriber has a single wallet.

A wallet can be accessible by a CLI (the number of a physical phone line used to access the wallet. This can be a mobile or fixed phone.) or by using a PIN. It is only required to select one method of access (PIN or CLI), but it is possible to have both. In this example, the subscriber has both a CLI and a PIN.

This enables the subscriber to use the wallet from any phone, using the PIN, or from a specific phone, where the CLI has been associated with the wallet.

Diagram - single wallet

Here is an example of a single user with single wallet balance, a single wallet and two access mechanisms.
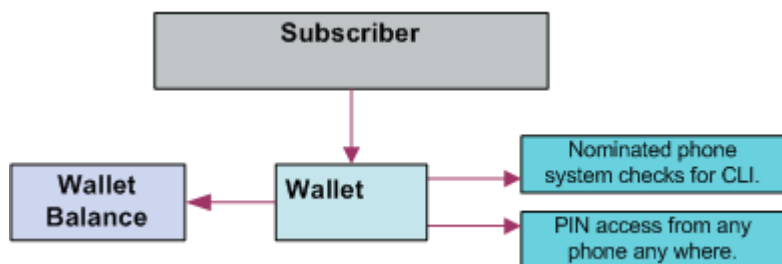
Example 2 - multiple devices

A single subscriber can have an internet connection, a mobile phone and a prepaid card, all drawing on the same wallet and rechargeable through the web interface.

Scenario	Description
1	The internet connection requires a phone connection, which has a CLI. This CLI is registered to a subscriber. Since a subscriber can only have one CLI, no other phone line can be used to access this subscriber/wallet association without a PIN.
2	The subscriber wishes to use a mobile phone without a PIN. The internet connection has been registered as the CLI, so a second subscriber must be created. The new subscriber draws on the same wallet balance as the first subscriber, but is based on the CLI of the mobile phone.

3   The subscriber wishes to have a PIN, in order to access the wallet from any fixed or mobile phone. It is possible to add a PIN to either of the two wallets created above, which would allow this feature to be used independently. However, the subscriber in this example has elected to create a completely new subscriber/wallet association. It draws on the same balance as the first two, but has a PIN and no CLI.

Diagram

Here is an example of a single user with single wallet balance, and three subscriber/wallet associations, one for each of three services.
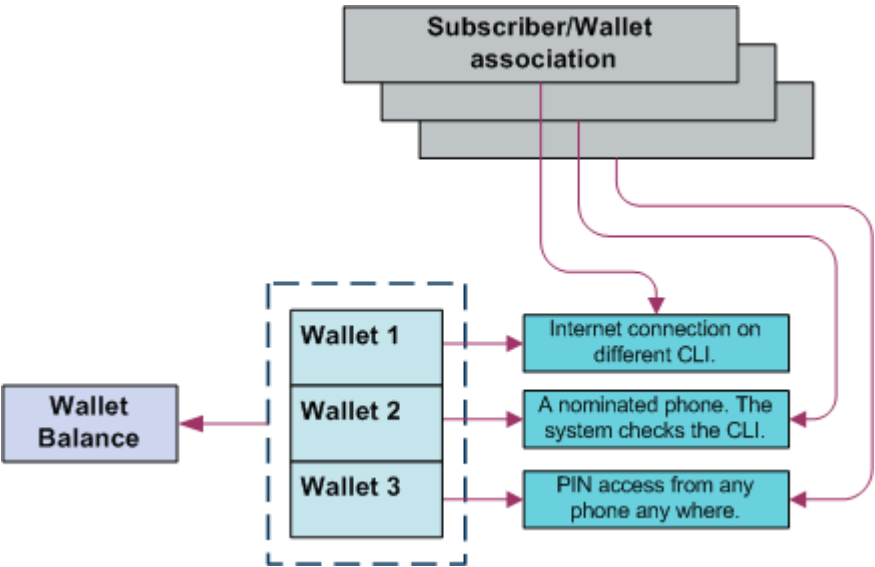
Example 3 - client group

Alternatively, several individual subscribers can have associations with a single wallet. The service provider can monitor each subscriber/wallet association without the inconvenience of maintaining a separate wallet for each subscriber. In a business setting, this has positive implications.

Within an organization, all employees can be issued with a calling card, giving them access to a common wallet. This would allow employees to work off-site, while retaining full access to their usual telephony services. The organization can also run an internet connection through this same wallet, as well as any specific fixed or mobile phones that are registered on the CCS system. This could be achieved through three subscriber/wallet associations, drawing on one wallet.

Scenario	Description
1	The telephone system at the office runs on a single telephone line. A subscriber/wallet association is set up, based on the CLI of that phone line. Any call made from the office will draw on the same wallet. If an organization had more than one phone line, or more than one office, each of these phone lines could have an individual subscriber/wallet association drawing on the same wallet.
2	The office internet connection requires a telephone connection, which has a CLI. The CLI is registered to a new subscriber using the same wallet as before. Since a subscriber can only have one CLI, no other phone line can be used to access this subscriber record without a PIN. It is possible for a subscriber to have both a CLI and a PIN, so the internet connection CLI could be on the same subscriber record as the PIN described above. In this example, the customer wishes to keep these subscriber records separate.

3   The customer wishes to issue calling cards to all employees. A subscriber/wallet association is set up with a PIN, but with no CLI. All employees are given cards with the subscriber ID printed on them. They are given the PIN to access the wallet. All employees can then access the wallet from any fixed or mobile phone, using the PIN. If it is preferred that each employee has an independent PIN, then each employee must have a separate subscriber record. A subscriber record can only have one PIN.

Diagram

Here is an example of multiple users with a common wallet balance, three subscriber/wallet associations for each of three services.
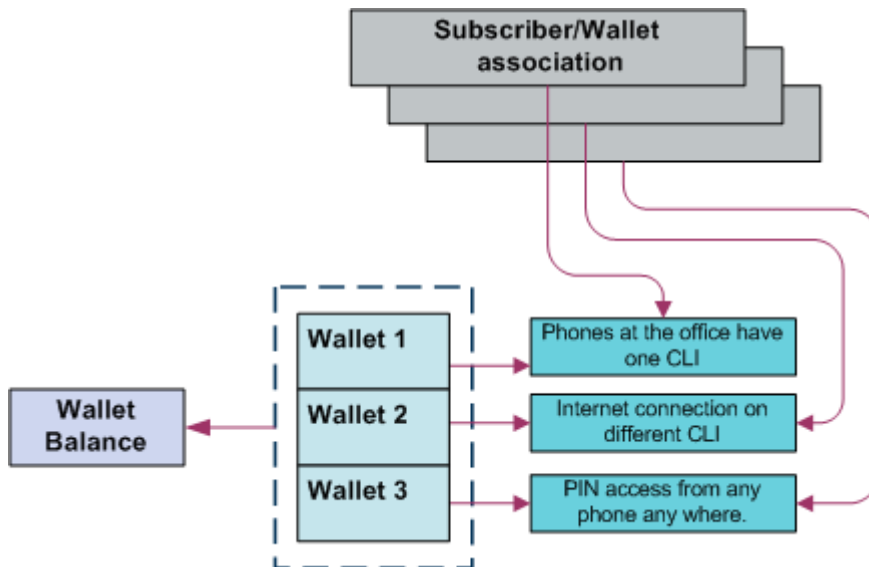
Example 4 - shared single account

Customers may prefer to manage their services on a single wallet. The flexibility of CCS makes this a viable option. Even with a single wallet, it is still possible to manage an internet connection through the CLI, as well as PIN access from any phone. This means that the CLI registered on the subscriber record is that of the internet connection, while the registered PIN enables access to the wallet from any phone.

Alternatively, the registered CLI could refer to the office phone line or to a specific mobile phone. As long as the subscriber/wallet association is registered with only one CLI and one PIN, the service provider can use the wallet according to its requirements.

Diagram

Here is an example of multiple users with one wallet balance, one wallet and two services.
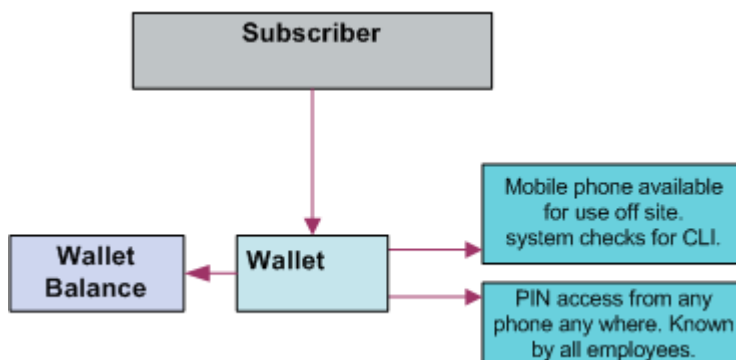
Example 5 - branded prepaid cards

A further opportunity enabled by CCS is branded prepaid. Branded prepaid allows service providers to market customized prepaid cards (either single-use debit wallets of a set value or rechargeable debit cards) with their own company logo. This can be a novel means of advertising for the service provider, particularly if the prepaid cards include special rates and discounts not available elsewhere. This is easily configurable in CCS.

The convenience and economy of the card is in itself a selling point, but the service provider also benefits from the longevity of the advertisement – especially in the case of rechargeable cards. A subscriber is far less likely to discard an advertisement printed on a phonecard.

In this example, the card is a $5 single-use debit wallet, which means that each card printed has a subscriber record and wallet of its own.

Making a Call in CCS

Introduction

After a subscriber has been assigned a subscriber ID and PIN or a CLI, it is possible for them to make a call against a CCS subscriber/wallet association.

Calling from a registered phone

Here is the process followed when a subscriber makes a call from a registered fixed or mobile phone (CLI).

Stage	Action
1	The subscriber dials the toll-free number corresponding to the country in which they are located. **Note:** The telco supplies this number to the service provider.
2	CCS checks the CLI against the subscriber information. As the phone is registered, a dial tone will indicate that the CLI has been accepted. **Note:** If the information is invalid, then the call will not be connected.
3	The subscriber enters the required phone number, followed by #. **Result:** The call will be connected and charged to the subscriber's wallet, using the appropriate tariffs for that specific date and time of day.

Calling from any phone

Here is the process followed when a subscriber makes a call from a fixed or mobile phone that is not registered, using CCS.

Stage	Description
1	The subscriber dials the toll-free number corresponding to the country in which they are located. **Note:** The telco supplies this number to the service provider.
2	CCS checks the CLI against the subscriber information. As the phone is not registered, a 'beep' will indicate that the system requires entry of phone subscriber identification details.

Stage	Description
3	The subscriber enters the subscriber ID and PIN as a single number, followed by #. The subscriber ID consists of 6 digits, including a 2-digit prefix specific to the service provider. The PIN can have up to 20 digits.
	Example: The subscriber with a subscriber ID of 445678 and a PIN of 9900 would enter the number 4456789900#.
4	A dial tone will indicate that the subscriber ID and PIN have been accepted.
	Note: The Product Capability control plan collects the PIN information and the next service handover validates the PIN. If the PIN is validated, the call gets connected. When the PIN validation fails and if the CCS_PIN_AUTH_FAILURE is configured, the last used PIN number in the service handover is used to authenticate.
5	The subscriber enters the required phone number, followed by #.
	Result: The call will be connected and charged to the subscriber's wallet using the appropriate tariffs for that specific date and time of day.

The Product Capability control plan collects the PIN information and the next service handover validates the PIN. If the PIN is validated, the call gets connected. When the PIN validation fails and if the CCS_PIN_AUTH_FAILURE is configured, the last used PIN number in the service handover is used to authenticate.

Subscriber Accounts and Wallets

Subscriber accounts

A subscriber account is the unique record in CCS which records the details of a person (subscriber) who is purchasing services from the telecommunications provider.

A subscriber account is identified by a unique E.164 number.   This is referred to as the MSISDN of the subscriber.

Wallets

Each subscriber account has one associated primary wallet. The subscriber can also have a secondary wallet. Wallets can be shared between subscriber accounts. A wallet is a group of balances owned by the subscriber and available to pay for prepaid services offered by the platform.

Example: A subscriber could have a "General Cash" balance and a "Free SMS" balance in their wallet. Each balance has its own expiry date, which means that any value left in the balance after this date is removed.

Wallets are associated with a specific VWS Voucher and Wallet Server pair. For more information about this relationship, see *Voucher and Wallet Server Technical Guide*.

Balance units

Balance units define how a wallet treats a type of currency (for example, treating SMSs differently from cash). All balance types have a balance unit.

Balance types

Balances of different sorts of value are distinguished by balance type. Balance types enable Service Providers to separate a subscriber's cash/units into logically separate areas such as:

- Promotional (have 1 day to use 20 SMSs)
- Normal (recharges done by a subscriber)

When a new balance type is created, you must list the services it can be used for.

Balance Types can be dedicated to particular services. A Promotional Cash Balance might only be for services which are high value for the subscriber, but can be delivered at minimal cost to the operator.

Example: National voice calls to other of the operator's subscribers.

Internal balance types

Some balance types are only used internally in CCS, for example, periodic charge subscription balances.

Balance expiry

When the expiry date of a balance is reached, the credit of that balance is lost.

Product Types

Product types

A product type defines the:

- Services that are available to a subscriber
- Control plans that are executed when a service is used

Product types are assigned to a subscriber and wallet combination. This enables the subscriber to have two different product types, if they have two wallets. If a wallet is shared between subscribers, each subscriber can have a different product type for that wallet.

Activation credits/promotions

You can associate product types with wallet activation promotions, with configurable:

- Balances (one of the predefined balance types, or one of the operator-defined balance types)
- Values
- Validity periods

Example: A wallet activation promotion that adds 10 EUR to the Promotional Cash balance with a validity period of 2 months can be associated with the Bronze product type. This results in each Bronze subscriber receiving 10 EUR on their Promotional Cash balance when they use a service for the first time. The expiry date of the balance is set to 2 months after the activation date.

Recharges

Introduction

Subscribers can recharge their balances through a range of recharge mechanisms, including:

- Voucher recharge through IVR
- Voucher recharge through direct dial
- External recharge through provisioning interface (for example: ATM, credit card, web interface)

In addition to the nominal value of the recharge, a bonus can be given when a recharge is made.

After the recharge, a notification SMS is sent to the subscriber.

Recharge promotions

You can reward a subscriber with a promotion bonus when a custom recharge is performed. The promotion bonus is given when two conditions are met:

1   The CCS PI `EXTRA_EDR` parameter must be set to:
    `EXTRA_EDR = "CHANNEL=CHANNEL_NAME"`
2   The recharge value passed in the PI command exceeds the balance value condition associated with the applicable promotion.

Example: If a promotion is defined with channel "ATM" and balance value event condition 10 EUR, a PI recharge with reference ATM20080110123000 and value 20 EUR will trigger the promotion to be awarded.

Promotions can be configured with various parameters.

Balance expiry

Recharges extend the expiry periods of the balances and/or the wallet being recharged.

When a balance is recharged, its expiry date is set to the current date plus the balance expiry period specified in the recharge's voucher type.   If the current expiry date of the balance is already greater than this date, the current date is kept.

Wallet expiry

Recharges extend the expiry periods of the wallet being recharged.

When a wallet is recharged, its expiry date is set to the current date plus the wallet expiry period specified in the recharge's voucher type.   If the current expiry date of the wallet is already greater than this date, the current date is kept.

Failed recharges

You can set the maximum number of failed recharge attempts that are allowed within a 24 hour period (allowed values 2-99). If the maximum number of failed recharge attempts is exceeded, the account of the recharging subscriber is moved into the frozen state.

Voucher batches

You can use the CCS Voucher Management screens to create vouchers in batches of up to 999999999 vouchers.

Each voucher batch is encrypted during the batch creation process using a PGP public/private key pair. You can upload voucher reseller's PGP public keys to encrypt a batch so that it can only be decoded by the retailer.

For security reasons, after the creation of a voucher batch, the batch remains in "Created" state until it is moved into the "Active" state manually by an operator.

Voucher recharge methods

This table describes the methods subscribers can use to recharge their account with a voucher.

Method	Description
Self-care	Subscribers use IVR to interact with the self-care function.
	For more information about self-care, see *Subscriber Self-care* (on page 13).

Method	Description
Web	Subscribers use a web interface to enter the voucher details. The website is developed by the operator and uses PI commands to integrate with the CCS PS.
SMS Direct Access	Subscribers send an SMS to a dedicated short code on the CCS PS with the voucher number inside the SMS. **Example:** A subscriber sends voucher number 12345678901234 inside an SMS to short code 4001. The subscriber's account balance is recharged with voucher 12345678901234.
Direct Dial	Subscribers dial a dedicated number that connects them to the CCS PS with the voucher number appended to it. After CCS PS attempts the recharge, an announcement is played indicating success or failure of the recharge. **Example:** If the special direct dial recharge number is 4123, a call to 412312345678901234 will recharge the account of the subscriber with voucher 12345678901234.
Customer Care	Subscribers call the customer service center, and the operator recharges the accounts by entering the voucher details into the Voucher Management screen.

External recharge methods

The Provisioning Interface provides an interface to CCS's recharge facility. Using the interface, you can integrate CCS with another system (for example: a web-based self-care system or a banking system such as ATM or credit card).

Recharges using the PI can include custom details, including:

- Configurable recharge amount
- Balance and expiry dates

Subscriber Self-care

Introduction

Subscriber self-care enables the subscriber to manage their own account. It includes these features:

- Requesting information on the current subscriber account and service status (for example: balance and wallet status, product information)
- Modifying certain parameters of their account within the limitations imposed by the operator (for example: change language, change product)
- Recharging their accoun

Main menu

When subscribers access the IVR self-care facility, they are routed through a single main menu. The menu provides an overview of the available self-care features and enable the subscribers to navigate to the sub-menus for the individual self-care features.

Voucher recharge

Subscribers can use self-care to redeem a voucher which recharges their own account and recharges another subscriber's account.

IVR system

Subscribers can use the self-care feature through a CS1-compatible IVR reached by calling a special number (short code), set by the operator.

The IVR uses announcements created by the operator in each supported language. The announcements are used by the language extension in the PA/PACUI operations executed by the IVR. When subscribers who have not yet set their preferred language make a voice call, the system automatically connects them to an IVR menu to select their preferred language.

Web

Subscribers can use the self-care feature through a separate website.   The website uses the PI commands to trigger events in CCS.

The development, testing, integration and support of the web-based self-care interface is the sole responsibility of the operator.

Notifications

Introduction

Notifications are any short message sent by CCS to a subscriber's handset. CCS generates notifications which are sent to the subscriber to inform them about specific events.

CCS sets up notifications which are delivered by other applications. Different delivery applications are used depending on the type of network and destination.

Some examples of notifications that can be sent include:

- Balance expiry
- Service expiry
- Recharge notification

ACS Notification Templates

You define the content to include in notifications by configuring ACS notification templates. For more information, see *ACS User's Guide*.

Examples of CCS activities that can use ACS notification templates are:

- Feature nodes in control plans
- Business process logic (BPL) tasks
- Credit transfers
- Periodic charges
- Profile updates
- Real-time notifications
- Promotions

Notification Languages

Notifications can use any language configured on the system. They are sent in the subscriber's preferred language (if set) or in the system's default language.

For more information about configuring:

- Languages, see *ACS User's Guide*
- Notification translations, see *CCS User's Guide*

Delivery methods

You can use any of the following methods to deliver notifications:

- Messaging Manager FDA (First Delivery Attempt) to deliver notification SMS directly to the handset of the subscriber
- EMI protocol to submit notification SMS to an EMI interface of the operator's SMSC
- SMPP protocol to submit notification SMS to an SMPP interface of the operator's SMSC

The CCS PS uses one of these delivery/submission attempt sequences:

1   Try FDA delivery first, if it fails try EMI submission
2   Try FDA delivery first, if it fails try SMPP submission
3   Try EMI submission
4   Try SMPP submission

In all cases, if all attempts fail, the message is discarded (no Store-and-Forward is performed).

Basic notifications

Notifications are sent to subscribers when:

- The number of days until the expiry date of his wallet is less than a pre-configured threshold (the warning period can be configured for each product type)
- One or more of his balance(s) has (have) been recharged (the SMS contains the new balance values)

Tasks

Introduction

Task Management comprises a set of Business Process Logic tasks that fall within the defined business rules of the service provider, and that can be executed for individual subscribers. Each business process is configured in the control plan referenced in the BPL task. The feature nodes in the control plan implement the actions of the business process.

For more information, see *Task Management* (on page 245).

Purpose

The following list provides some examples of the processes that can be executed through a BPL task:

- Product Type Swaps
- Profile updates
- Voucher Type recharges
- Wallet State changes
- Credit Transfers

Charging and notification

In the BPL task control plan you can configure extended functionality, including:

- A charge for the service provided
- Wallet state changes
- Profile updates
- Send notifications

If you have the Voucher Management functionality, you can also recharge vouchers. For more information about vouchers, see *Voucher Management*.

Feature nodes

This table describes the core feature nodes used in BPL control plans.

Note: Other nodes available in the Control Plan Editor can be included in BPL control plans if required. For more information on the available feature nodes, see *Feature Nodes Reference Guide*.

Node	Description
Account State Branch	Use this feature node to determine whether the subscriber's wallet is in the correct state to enable the BPL to execute.
Business Prefix Branch	Use this feature node to select the wallet type the BPL actions apply to, based on the called party number.
Disconnect Call	When a call passes through this feature node, it indicates that the BPL has failed to execute. The cause value for the feature node must be set to a response number configured for a 'Not Acceptable' BPL response on the **BPL Response Mapping** tab.
	Warning: The default value of 31 should not be used.
Named Event	Use this feature node to charge the subscriber for the business process. Use to:
	• Reserve funds for the BPL
	• Confirm the reservation after the BPL has completed
	• Allow for a negative wallet balance
Send Short Message	Use this feature node to send notifications for the BPL. The message to send is configured in the feature node.
Set BE EDR	Use this feature node to update any EDRs generated by the actions of the BPL, such as a named event or a voucher type recharge.
Set Wallet Type	Use this feature node to set the wallet type the BPL actions apply to.
	Warning: Announcements configured in this feature node are not used in the BPL.
Store Profile	Use this feature node to update a specified profile with the data configured in the feature node.
	Warning: Updates to profile data can also trigger a DAP or notification. These must be configured on the **Profile Notifications** tab.
Terminate Unchanged	When a call passes through this feature node, it indicates that the BPL has executed successfully. The 'OK' BPL response is reported.
Unconditional Termination	When a call passes through this feature node, it indicates that the BPL has executed successfully. The termination number for the feature node must be set to the number configured for the 'Found' BPL response on the **BPL Response Mapping** tab.

Node	Description
Voucher Type Recharge	Use this feature node to recharge the subscriber's wallets using the voucher type configured for the feature node.
	Tip: The 'Unsupported' exit is taken if the domain for the subscriber does not support voucher type redemptions.

User access

After a BPL has been defined, it can be accessed from:

- The Edit Subscriber screen
- The CCP Dashboard

User access to BPLs on the Edit Subscriber screen and the CCP Dashboard is managed through the user templates defined in the SMS User Management screen. For information about creating and maintaining user templates, see *SMS User's Guide*.

You can configure which BPLs appear on the CCP Dashboard by using the Subscriber Profile Manager screen. For more information, see *Subscriber Profile Manager User's Guide*.

User access

After a BPL has been defined, it can be accessed from the Edit Subscriber screen.

User access to BPLs on the Edit Subscriber screen is managed through the user templates defined in the SMS User Management screen. For information about creating and maintaining user templates, see *SMS User's Guide*.

Processing

BPL execution is managed by the smsTrigDaemon process. For more information about smsTrigDaemon, see *SMS Technical Guide*.

Alarms, Statistics, Reports and EDRs

Introduction

CCS uses the centralized management services of SMS to assist the administration of the services.

Alarms

CCS uses the SMS integrated alarms collection, viewing, and forwarding system. The alarms generated by all components of CCS are consolidated on the SMS and stored in a centralized alarm database.

The operator can:

- View the alarms through the alarm viewer built into the SMS screens
- Forward all alarms to an integrated external fault management system using SNMP v1 or v3

Alarms can be automatically deleted from the SMF alarm database after a configurable period.

For more information about:

- Specific alarms generated by CCS, see *Charging Control Services Alarms Guide*
- SMS alarms subsystem, see *SMS User's Guide*

Statistics

Across CCS, statistics are collected at both the system and application levels, which provide information on the performance and load of the platform. All measurements are consolidated on the SMS and stored in a centralized statistics database.

You can view the statistics through the SMS screens.

CCS_Service statistics

This table describes the statistics produced by CCS activity.

Note: These statistics are reported as CCS_Service statistics.

Statistic	Description
CCS_PD_FAIL	Number of failed DAP requests.
CCS_PD_SUCS	Number of successful DAP requests.
NUM_BE_FAIL	Number of calls rejected due to VWS failure.
NUM_BUSY	Number of calls terminated to busy number.
NUM_IDP	Number of InitialDP triggering CCS service.
NUM_NO_ANSWER	Number of calls terminated but not answered.
NUM_NSF	Number of calls rejected for insufficient funds.
NUM_RSF	Number of calls causing route selection failure.
NUM_TERM	Number of calls terminated successfully.

E2BE statistics

This table describes the statistics produced or changed by CCS activity on the VWS.

Note: These statistics are reported as E2BE statistics, and not as CCS statistics.

Statistic	Description
NUM_ATC_REQ	Number of Apply Tariff Charge requests (ATC_Req) sent to the VWS.
NUM_BPIN_REQ	Number of Bad Password Pin requests (BPIN) that were sent to the VWS.
NUM_CARR_REQ	Number of Commit Amount Reservation requests (CARR_Req) made to the VWS.
NUM_CNER_REQ	Number of Confirm Named Event Reservation requests (CNER_Req) made to the VWS.
NUM_CR_REQ	Number of Commit Reservation requests (CR_Req) made to the VWS.
NUM_CVR_REQ	Number of Commit Voucher Redeem requests (CVR_Req) made to the VWS.
NUM_DA_REQ	Number of Amount Charge (DA_Req) requests sent to the VWS.
NUM_EXTRA_EXPENDITURE_BALANCES_UPDATED	This counter is incremented when an expenditure plan contribution is made. The statistics counter is incremented with a value of (x-1) where x is the number of expenditure balances being contributed to by the expenditure plan. **Examples:** • Contribution to Yearly and Monthly expenditure balance - Counter incremented by 1

Statistic	Description
	- Contribution to Yearly, Monthly and Weekly expenditure balance - Counter incremented by 2 - Contribution to Monthly expenditure balance - Counter is not incremented
NUM_IARR_REQ	Number of Initial Amount Reservation requests (IARR_Req) made to the VWS.
NUM_INER_REQ	Number of Initial Named Event Reservation requests (INER_Req) made to the VWS.
NUM_IR_REQ	Number of Initial Reservation requests (IR_Req) made to the VWS.
NUM_LDMF_REQ	Number of MFile Reload requests (LDMF) made to the VWS.
NUM_NER_REQ	Number of Named Event Rate requests (NER_Req) sent to the VWS.
NUM_NE_REQ	Number of Named Event requests (NE_Req) sent to the VWS.
NUM_PC_CREDIT_ATTEMPT	Number of periodic charge credit attempts (Direct Credit (WGR_Req) or Voucher Type Recharge (VTR_Req) sent by ccsVWARSPeriodicCharge as part of a charge attempt. **Note:** Backlogged charges report a statistic for each credit attempt.
NUM_PC_DEBIT_ATTEMPT	Number of periodic charge debit attempts (NE_Req for periodic charges). **Note:** Backlogged charges report a statistic for each Named Event. Also, a statistic is reported during the first charge attempt following a wallet recharge.
NUM_PC_STATE_CHANGE	Number of periodic charge state changes (that is, when a new VALUE and EXPIRY are written to a periodic charge bucket). **Note:** Only one statistic is reported when processing backlogged charges.
NUM_RARR_REQ	Number of Revoke Amount Reservation requests (RARR_Req) sent to the VWS.
NUM_RNER_REQ	Number of Revoke Named Event Reservation requests (RNER_Req) sent to the VWS.
NUM_RR_REQ	Number of Revoke Reservation requests (RR_Req) sent to the VWS.
NUM_RVR_REQ	Number of Revoke Voucher Redeem requests (RVR_Req) sent to the VWS.
NUM_SARR_REQ	Number of Subsequent Amount Reservation requests (SARR_Req) sent to the VWS.
NUM_SNER_REQ	Number of Subsequent Named Event Reservation requests (SNER_Req) sent to the VWS.
NUM_SR_REQ	Number of Subsequent Reservation requests (SR_Req) sent to the VWS.
NUM_TOTAL_REQ	Total number of requests sent to the VWS.

Statistic	Description
	Note: This statistic is produced, not by CCS, but by VWS processes. However, CCS increments it when an expenditure plan contribution is made. The increment is (x-1) as explained above for the statistic, NUM_EXTRA_EXPENDITURE_BALANCES_UPDATED.
NUM_USR_REQ	Number of Unit Seconds Rate requests (USR_Req) sent to the VWS.
NUM_VI_REQ	Number of Voucher Information requests (VI_Req) sent to the VWS.
NUM_VRW_REQ	Number of Voucher Redeem Wallet requests (VRW_Req) sent to the VWS.
NUM_VR_REQ	Number of Voucher Redeem requests (VR_Req) sent to the VWS.
NUM_VU_REQ	Number of Voucher Update requests (VU_Req) sent to the VWS.
NUM_WC_REQ	Number of Wallet Create requests (WC_Req) sent to the VWS.
NUM_WD_REQ	Number of Wallet Delete requests (WD_Req) sent to the VWS.
NUM_WGR_REQ	Number of Wallet General Recharge requests (WGR_Req) sent to the VWS.
NUM_WI_REQ	Number of Wallet Information requests (WI_Req) sent to the VWS.
NUM_WR_REQ	Number of Wallet Recharge requests (WR_Req) sent to the VWS.
NUM_WU_REQ	Number of Wallet Update requests (WU_Req) sent to the VWS.

Note: All statistics are collected with a period of 1,800 seconds.

For more information about the request messages these statistics measure, see *Voucher and Wallet Server Technical Guide*.

Reports

CCS has a set of standard reports which analyze the statistics gathered on the platform.

The statistics can be off-loaded from the database to an external statistical processing platform (for example, a data warehouse) for further analysis.

For more information about reports, see *CCS Reports* (on page 283).

EDRs

EDRs are written whenever an action occurs in CCS that affects a wallet or subscriber, including when a:

- Call is processed
- SMS is sent or received
- Recharge is attempted
- Wallet changes state

EDRs are automatically uploaded to the SMS where they are added to a centralized database.

EDRs can be:

- Viewed per subscriber through the SMS screens (see *View EDRs* (on page 69))
- Post-processed in a flat file format, including being offload through SFTP

For more information about the EDR format, see *Event Detail Record Reference Guide*.

For more information about managing EDRs, see *EDR Management* (on page 259).

Getting Started

Overview

Introduction

This chapter explains how to access the CCS application and describes some of the common functionality of the CCS screens.

In this chapter

This chapter contains the following topics.

Signing on to CCS

Accessing the application

To access the CCS application, click a desktop icon for:

- SMS
- CCS

Note: The CCS product works in conjunction with ACS. If CCS is accessed through a standalone icon, you must start the CCS application as well.

SMS main menu

Here is an example of the SMS main menu showing the Convergent Charging menu options.
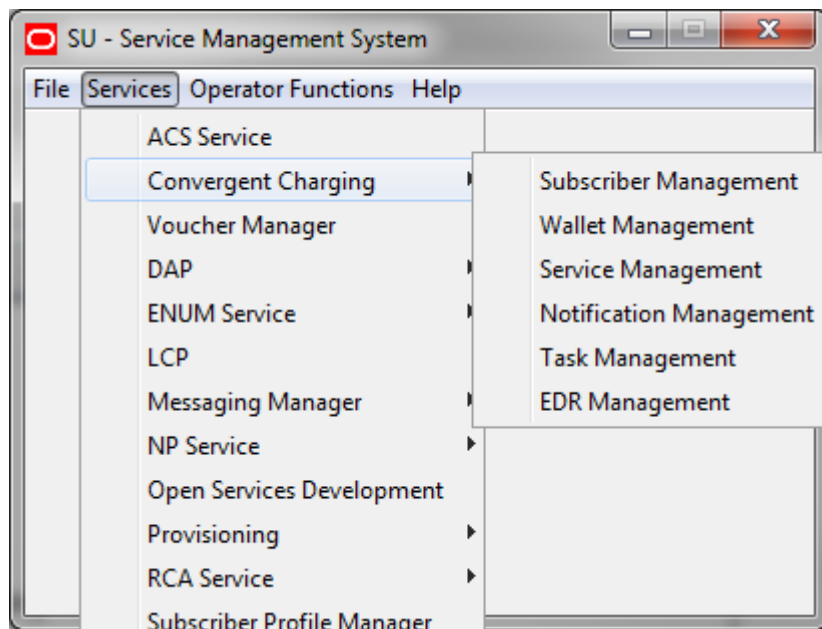
SMS Login screen

Here is an example of the SMS Login screen.

Logging into SMS

Follow these steps to log into SMS.

Step	Action
1	In the **User Name** field, type your username.
2	In the **Password** field, type your password.

Notes:

- Passwords are case sensitive.

- You have three attempts to enter a correct username and password before the User ID is locked. If this happens, you must see your System Administrator to re-activate it.

3	Click **OK**.
	Result: You see the Service Management System main screen.

Services Menu

Convergent Charging menu options

This table describes the menu options accessible from the Convergent Charging menu.

Menu	Description
Subscriber Management	Accesses the screens to create and maintain subscribers.
	For more information, see *Subscriber Management* (on page 29).
Wallet Management	Accesses the screens to create and maintain wallets.
	For more information, see *Wallet Management* (on page 119).
Service Management	Accesses the configuration screens to create and maintain services:
	For more information, see *Service Management* (on page 157).
Notification Management	Accesses the screens to create and maintain profile notifications.
	For more information, see *Notifications Management* (on page 233).
Task Management	Accesses the screens to create and maintain business processes and tasks.
	For more information, see *Task Management* (on page 245).
EDR Management	Accesses the screens to create and maintain EDRs.
	For more information, see *EDR Management* (on page 259).

Initial Configuration

Overview

Introduction

This chapter explains the steps required to perform basic functions using the software.

In this chapter

This chapter contains the following topics.

Setting Up CCS for the First Time

Default Customer - BOSS

The system is shipped with a default system customer, "BOSS".

You must use this service provider when setting up CCS.

```
topic title
```

Syntax:	`paraMeter = value`
Description:	The number of seconds ....
Type:	Integer, Decimal, Array, Parameter list, String, Boolean
Optionality:	Optional (default used if not set)
Allowed:	
Default:	
Notes:	
Example:	`paraMeter =`

Customer hierarchy

Here is an example showing the Customer hierarchy.
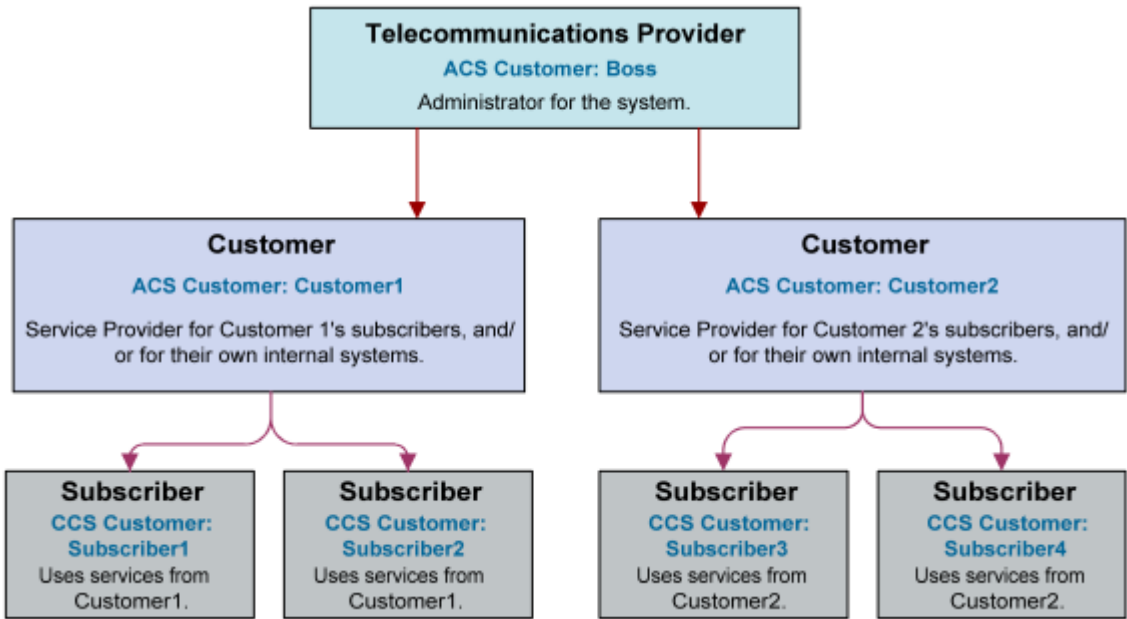
Creating a global Control Plan

Only the system administrator is able to create a global Control Plan using the Control Plan Editor.

The global Control Plan contains all the features of ordinary Control Plans, following the guidelines in *CCS User's Guide*. However, the global Control Plan takes precedence over any Control Plan associated with it.

Any nodes in the global Control Plan that require telephony action (unconditional terminate, disconnect, terminate unchanged) result in the main Control Plan being abandoned.

Example: If the Global Screening CCS Control Plan included a disconnect node, the caller would hear the announcement advertising Customer Garden Center and then the call would be disconnected. The Control Plan created by Customer Pizza is never enacted.

Implementing a New Service

Introduction

This quick start procedure to implementing a new service assumes that a CCS service provider has been created. The attributes of a CCS service provider are its default language and contact details.

Procedure

Follow these steps to implement a new service.

Step	Action	For details, see...
1	On the Resource Limits tab, set the following: • Maximum Product Types • Maximum Voucher Types	*Resource Limits* (on page 189)
2	On the Currency tab, configure the currency.	*Currency* (on page 174)

Step	Action	For details, see...
3	On the ACS Configuration screen, set the following: • Announcement set • Announcements • Control plans	See *ACS User's Guide*.
4	Create domains	*Domain* (on page 161)

Subscriber Management

Overview

Introduction

This chapter explains how to specify subscriber details for service providers.

In this chapter

This chapter contains the following topics.

Subscriber Management Module

Introduction

The Subscriber Management screen lets you configure the subscribers to CCS customers. It contains these tabs:

- *Customer* (on page 36)
- *Product Type* (on page 79)
- *Profile Group Fields* (on page 38)
- *Subscriber* (on page 47)
- *Subscriber Batch* (on page 31)

Note: The **Subscriber** and **Product Type** tabs are documented in separate chapters.

Accessing the Subscriber Management screen

Follow these steps to open the Subscriber Management screen.

Step	Action
1	Select the **Services** menu from the SMS main screen.

Step	Action
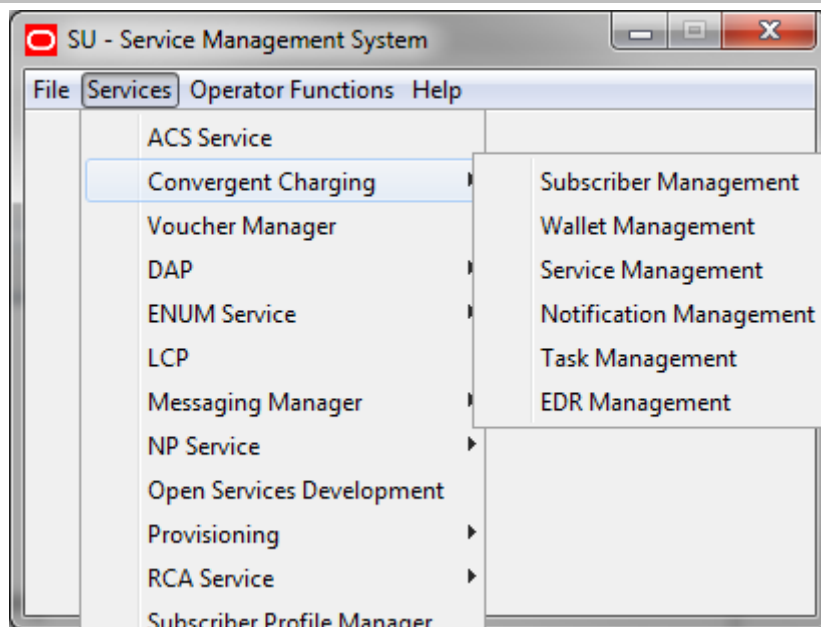
Note: The services which are available under the Services menu depend on the components which have been installed, and the permissions of the user.   The services displayed in this screen shot may not match the services you have available on your system.

| 2 | Select **Convergent Charging > Subscriber Management.** |
| | **Result:**   You see the Subscriber Management screen. |

Subscriber Management Screen

Here is an example Subscriber Management screen.

Note: The tabs or options available to you on a screen will depend upon which CCS components have been installed on the system and the Oracle license agreement.

Subscriber Batch

Introduction

The **Subscriber Batch** tab lets you view, add, modify and delete batches of subscribers.

Tip: It is also possible to work with subscribers using the ccsAccount command line tool. For more information about this tool, see *CCS Technical Guide*.

Subscriber Batch Tab

Here is an example **Subscriber Batch** tab.

Finding subscriber batches

To find specific subscriber batches in the **Subscriber Batch** tab:

Step	Action
1	Enter the first few characters of the subscriber ID and select a batch state.
2	Click **Search**.
	Result: The table displays the first 100 records which match the search criteria. Results include creation date. If the subscriber batch you want is not displayed and more than 100 records were returned, enter a longer search string and click **Search** again.

Adding subscriber batches

Follow these steps to add a new subscriber batch.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Subscriber Batch** tab in the Subscriber Management screen, click **New**.
	Result: You see the New Subscriber Batch screen.
3	Fill in the fields, as described in New subscriber batch fields.
	Once you have filled in all the fields, the **Save** button becomes active.
4	Click **Save**.
	Result: If successful, you see a message confirming the subscriber batch has been created.
5	Click **OK**.

New Subscriber Batch Screen

Here is an example New Subscriber Batch screen.

Subscriber Batch Fields

This table describes the function of each field.

Field	Description
Batch Size	The number of subscribers in the batch.
Subscriber List Filename	Name of the file containing the list of subscribers to use when creating the batch.
	Each line of the file can include either one subscriber or a range of them. Comments are ignored.

	Example: Subscriber List file content.
	`# this is a comment`
	`482345932`
	`482464935-482464945`

Result Filename	The name of the file to create for the batch.
Charging Domain	List of domains on which wallets for this subscriber batch can be stored.
	This drop down list is populated by the domains configured on the **Domain** (on page 161) tab on the Service Management screen.
Product Type	List of available product types.
	This drop down list is populated by the product types configured on the **Product Type** (on page 79) tab on the Subscriber Management screen.
Subscriber ID to Wallet Reference	Subscriber ID and related wallet reference.
	Example: `123456 ref1334`

Editing subscriber batches

Follow these steps to edit an existing subscriber account batch.

Tip: By editing a subscriber batch, you will change the batch state. Changing the batch state enables you to activate subscriber batches.

Note: The **Subscriber Batch** tab and **Edit Subscriber Batch** tab have a creation date read-only value which preserves the creation date when a batch is edited.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	In the table on the **Subscriber Batch** tab, select the record to edit.
3	Click **Edit**.
	Result: You see the Edit Subscriber Batch screen.
4	You can only change the **Batch State** field. Changing the batch state to active activates the subscriber batch.
5	Click **Save**.

Edit Subscriber Batch Screen

Here is an example Edit Subscriber Batch screen.

Deleting subscriber batches

Follow these steps to delete an existing subscriber batch.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	In the table on the **Select Batch** tab, select the record to delete.

Step	Action
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK** to delete the record from the database.

Customer

Introduction

This screen enables you to add, modify or delete customers.

The Customer screen displays the customers that have been set up for the service provider.

Once you have set up customers, you can assign subscriber accounts to a specific customer.

Customer tab

Here is an example **Customer** tab.

Finding customers

To find a specific customer in the **Customer** tab, enter the first few characters of the customer's name, and click **Search**.

Result: The grid will display the first 100 records which begin with the characters searched for.   If the required customer is not displayed and more than 100 records were returned, enter a longer search string and click **Search** again.

Adding customers

Follow these steps to add a new customer for a service provider.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Customer** tab, click **New**.

Result: You see the New Customer screen.

3	In the **Name** field, enter the name of the new customer.
	The name must be completed. Customer names must be unique for the service provider. Special characters and case do not make a distinction between names. For example, `Super Savers` is the same as `Super saver's`.
4	In the **Description** field, enter the description of the new customer.
5	In the **Reference** field, enter a reference for the new customer.
6	Click **Save**.

Editing customers

Follow these steps to edit an existing customer.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Customer** tab, select the customer record to edit.

Step	Action
	Tip: If the required customer is not displayed, you can try searching for them as described in *Finding customers* (on page 37).
3	Click **Edit**.
	Result: You see the Edit Customer screen.

| 4 | Edit the details as described in *Adding customers* (on page 37). |
| 5 | Click **Save**. |

Deleting customers

Follow these steps to delete an existing customer.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Customer** tab, select the customer to delete.
	Tip: If the required customer is not displayed, you can try searching for them as described in *Finding customers* (on page 37).
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK** to delete the record from the database.
	Result: The record is deleted and you see the Customer prompt.
5	Click **OK**.

Profile Group Fields

Introduction

The **Profile Group Fields** tab lets you define and manage subscriber profile groups and fields dynamically. You can:

- Specify a set of Profile Groups
- Specify the fields to include in each group

Two types of profile group fields may be specified:

- BPL tasks (defined on the Task Management screen)
- Profile Fields (defined on the **Profile Details** tab in the ACS Configuration screen)

You can view and edit the Profile Group field values, and execute the BPL tasks on the Edit Subscriber screen.

Note: Some other applications, for example Messaging Manager, will configure profile group fields on installation. Refer to the appropriate guide for information about specific profile group fields.

For more information about setting up BPL tasks, see *Task Management* (on page 245).

Profile tags

The tag names for profile fields are defined on the **Profile Tag Details** tab in the ACS Configuration screen.

This table describes the supported data types for profile tags.

Profile Field Tag Type	Description
BOOLEAN	A single value which is either true or false
BYTE	A single byte integer (0 to 255).
DATE	A date.
DISCOUNT	A discount specification comprising: • First discount percentage (an integer between -100 and 100) • Second discount percentage (an integer between -100 and 100) • Reserved (integer) • Maximum charge (integer)
INTEGER	32 bit integer value (signed).
LNSTRING	A limited numeric string. Valid characters are 0-9. **Note:** The limits for LNSTRING field values may be set for the product type or in resource limits.
LOPREFIX	A limited ordered prefix tree. This is made up of a limited list of numbers. **Note:** The limits for LOPREFIX field values may be set for the product type or in resource limits.
NSTRING	Numeric string. Valid characters are 0-9.
OPREFIX	An ordered prefix tree comprising an ordered list of numbers.
PREFIX	A prefix tree comprising a list of numbers.
STRING	A non limited ASCII string.
ZONE	A set of shape definitions for the area covered by the zone. Shapes may be circular or rectangular and are defined by their coordinates. **Note:** Zones may only be included in profile groups if the Location Capabilities Pack (LCP) is installed.

Configuring Zone Profile Tags

You can define a set of zones that can be used to determine the location of a subscriber.

To define a zone, you must first define the zone profile group field using a ZONE profile tag.

ZONE profile tags are configured in ACS. The LCP ZONE profile tags, Home and Work, are all configured at installation. All other zone profile tags are user defined and must conform to the configuration shown in this table.

Profile Tag Name	Profile Tag Type	Profile Tag	Parent Profile Tag	Comment
LCP ZONES	Profile Block	4128769		Configured during installation.
Home	ZONE	4128770	4128769	Configured during installation.
Work	ZONE	4128771	4128769	Configured during installation.
ZoneName	ZONE	An integer value in the range: 4128772 to 4194305	4128769	User defined. **Warning:** The parent profile tag must be set to 4128769 (the profile tag value for LCP ZONES).

For more information about profile tags, see *ACS User's Guide.*

User access

Users can access profile group fields and profile group BPLs from the Profile Groups option in the Edit Subscriber screen, provided the users have sufficient privileges.

You manage user access to profile groups, profile fields, and BPLs through the User Templates defined in the SMS User Management screen. It can be set for all fields and BPLs in the profile group, or for selected fields and BPLs. The required level of access privilege for each individual field or BPL must be added manually to the template.

This table describes the privileges that may be assigned to each profile field and BPL.

Privilege	Description
Read/Only	The field's value (if present) will be visible to the user through the screens, but they will not be able to edit, create, or delete it.
Read/Modify	The field's value (if present) will be visible to the user through the screens, and they will be able to edit it, but they will not be able to create or delete it.
Create/Delete	The field's value (if present) will be visible to the user through the screens, and they will be able to edit, create and delete it.
Execute	This BPL will be visible to the user through the screens, and they will be able to execute it.

Note: For information about creating and maintaining user Templates, see *SMS User's Guide.*

Profile Group Fields tab

Here is an example **Profile Group Fields** tab.
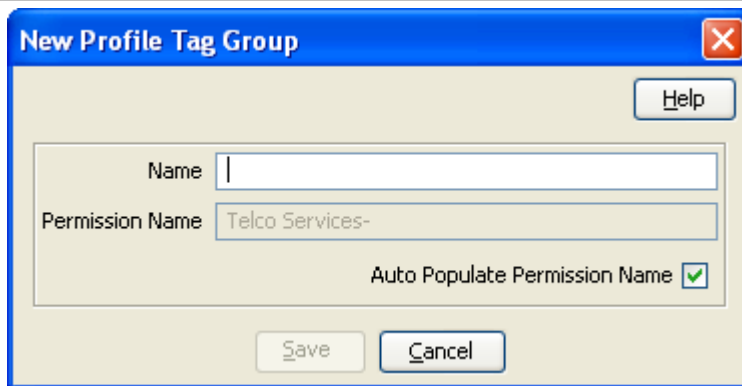
Adding profile tag groups

Follow these steps to add a new profile tag group.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Profile Group Fields** tab, click **New Group**. **Result:** You see the New Profile Tag Group screen.

Step	Action

3	In the **Name** field, enter the name for this profile tag group.
4	The **Permission Name** field displays the permission name for this group. It is used when configuring the user template in ACS.
	To set the permission name to the standard name, ensure the **Auto Populate Permission Name** check box is selected.
	The standard format is:
	`<Service Provider>-<Profile Tag Group Name>`
	To set the Permission Name to something other than the standard name:
	• Clear the **Auto Populate Permission Name** check box
	• In the **Permission Name** field, enter the name for this profile tag group.
5	Click **Save**.

Editing profile tag groups

Follow these steps to edit an existing Profile Tag Group.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Profile Group Fields** tab, select the **Group** you want to edit.
3	Click **Edit Group**.
	Result: You see the Edit Profile Tag Group screen.

4	Edit the **Name** for the profile tag group.
	Note: The **Permission Name** field is not editable.
5	Click **Save**.

Chapter 4

Adding a new profile group field

Follow these steps to add a profile group field to a profile group.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list. On the **Profile Group Fields** tab, select the **Group** you want from the drop down list.
2	Click **New**. **Result:** You see the New Profile Group Field screen.
3	Select `Profile Field` from the **Field Type** drop down list. **Result:** You see the Profile Field options in the New Profile Group Field screen:

Step	Action
4	In the **Group Order** field, set the number of the line this field should be displayed in. Lower numbers are closer to the top of the screen. **Tip:** The combination of group and sub order determines how profile group fields are displayed on the Edit Subscriber screen.
5	In the **Sub Order** field, set the number which defines where this field is displayed relative to other fields in its group. Lower numbers are closer to the left.
6	In the **Display Name** field, type the name you want to give to the field.
7	From the **Profile Tag Name** drop down list, select the profile tag this field will be in. This list is populated from the profile tags defined on the ACS Configuration screen.
8	The **Permission Name** field displays the permission name for this field. It is used when configuring the user template in ACS. If you want to set the permission name to the standard name, ensure the **Auto Populate Permission Name** check box is selected. The standard format is: *ServiceProvider-ProfileGroup-DisplayName* If you want to set the permission name to something other than the standard name:

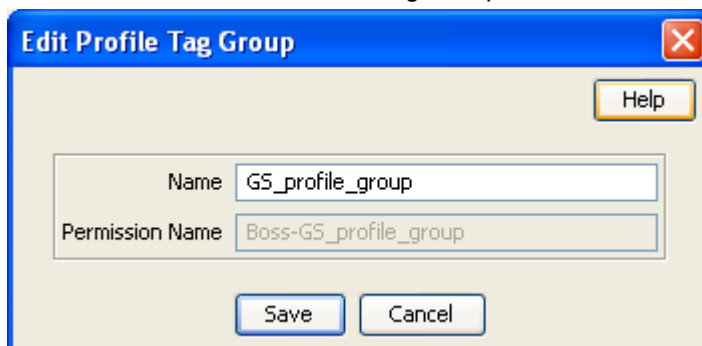| Step	Action
	• Deselect the **Auto Populate Permission Name** check box,
	• In the **Permission Name** field, enter the name for this profile group field.
9	Click **Save**.

Adding BPL fields

Follow these steps to add a BPL to a profile group.

Note: You will only be able to use this functionality if you have the Task Management license.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
	On the **Profile Group Fields** tab, select the **Group** you want from the drop down list.
2	Click **New**.
	Result: You see the New Profile Group Field screen.
3	Select `Business Process Logic` from the **Field Type** drop down list.
	Result: You see the Business Process Logic options in the New Profile Group Field screen.

Step	Action
4	In the **Group Order** field, set the number of the line this field should be displayed in.
	Lower numbers are closer to the top of the screen.
	Tip: The combination of group and sub order determines how profile group fields are displayed on the Edit Subscriber screen.
5	In the **Sub Order** field set the number which defines where this field is displayed relative to other fields in its group.
	Lower numbers are closer to the left.
6	From the **BPL** drop down list, select the BPL to include in the profile group.
	This list is populated from the BPL tasks defined in the Task Management screen. For more information about setting up BPL tasks, see *Task Management* (on page 245).

Step	Action
	Tip: The **Permission Name** field is for reference only. It displays the permission name for this BPL which is used when configuring the User Template in ACS.
7	Click **Save**.

Editing a profile group field

Follow these steps to edit an existing profile group field or BPL for a profile group.

Note: The **Field Type**, **Profile Tag Name** and **Permission Name** fields are not editable.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Profile Group Fields** tab, select the **Group** you want to edit.
3	In the table, select the row to edit.
4	Click **Edit Field**.
	Result: You see the Edit Profile Group Field screen. The screen fields differ depending on whether you are changing a Business Process Logic or Profile Field:

Step	Action

5	Edit the **Group Order** and **Sub Order** for the profile group field.
	Tip: The combination of group and sub order determines how profile group fields are displayed on the Edit Subscriber screen.
6	If required, edit the profile group field details.
	• For BPLs, you can select a different BPL from the drop down list.
	• For profile tags, you can enter a new display name.
7	Click **Save**.

Deleting profile groups and fields

Follow these steps to delete an existing Profile Group or Profile Field.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Profile Group Fields** tab, select the **Group** you want from the drop down list.
3	To delete the group and all its associated fields, click **Delete Group**.
4	To delete a specific field from the group, in the table, select the row containing the field to delete and click **Delete**.
	Result: You see the Delete Confirmation prompt.
5	Click **OK** to delete the record from the database.
	Result: The record is deleted. A confirmation prompt is displayed.
6	Click **OK**.

Subscriber Management - Subscribers

Overview

Introduction

This chapter explains the subscriber configuration screens.

In this chapter

This chapter contains the following topics.

Subscriber

Introduction

The **Subscriber** tab displays the subscriber accounts created for the selected service provider.

A subscriber account may take the form of a prepaid card or be assigned to a subscriber ID or CLI. The subscriber has a card printed with the calling card number, which is used when making a call. In the case of subscriber ID-based records, the wallet is set up to recognize a physical phone number. This enables any user of that line to access the wallet. Group wallets are created when multiple subscribers are established on a single wallet reference.

About Auditing Changes to Subscriber Data

The EDR auditing feature enables you to monitor changes to the financial data held for subscribers. When EDR auditing is enabled, a user is forced to enter a reason for changes they make to financial data in a special **Change Reason** dialog box; for example, when editing a subscriber to:

- Update the subscriber's wallets
- End a reservation
- Reverse charges in the EDR Viewer

The reason for the change, and the user who made the change are reported in the **Change Reason**, and **Operator Name** fields in the corresponding VWS EDR. You can view this information by displaying the EDR in the EDR Viewer.

The EDR auditing feature is enabled by the EDR auditing global configuration option. For more information, see the discussion on EDR auditing in *Global Configuration* (on page 184).

Subscriber tab

Here is an example **Subscriber** tab.

Access to elements of this screen are controlled by user permissions. If you cannot see some of the functionality described for this screen, your permissions may have been set to restrict access to that element.

Component options summary

This table lists all the available subscriber configuration options and their functionality.

Note: The options available to you will depend on how your system has been set up, and will be a subset of this list.

Option	Description
Details	Sets the service details for this subscriber. See Details for set up information.

Option	Description
Call Barring	Use to add and maintain the barred/allowed numbers list that applies to a subscriber. See *Call Barring* (on page 52) for set up information.
Number Translation	Use to view and maintain the short codes that are mapped to specific termination numbers for a subscriber. See *Number Translation* (on page 54) for set up information.
Balance Topup Rules	Use to view the active topup rules defined for the subscriber. The rules are used to allocate additional items, such as additional notifications, to specified balance types on a regular basis. See *Balance Topup Rules* (on page 55) for details.

Finding subscribers

Follow these steps to search for an existing subscriber.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Subscriber** tab, enter the search strings to use to find the required subscriber. Enter the first few characters of the corresponding string in one of the following fields: • **Wallet Reference** • **Card Number** • **Subscriber ID** • **Customer** **Tip:** If you enter characters in more than one field, the **Search** button will be disabled.
3	Specify whether to search for an exact match, or for a prefix match. Select: • **Exact Match** to search for the subscriber with the specified subscriber ID • **Prefix Match** to search for all subscribers with subscriber IDs that match the specified prefix
4	Click **Search**. The search returns a maximum of 100 rows. If the required subscriber is not displayed and more than 100 rows were returned, enter a longer search string and click **Search** again. **Note:** If a subscriber has more than one wallet then the search returns additional rows for the subscriber; one for each wallet. The wallet type is displayed next to the wallet reference number.

Black List

The Details option provides a **Blacklisted** check box, which lets you add or remove a subscriber from the black list.

By default subscribers are not blacklisted. However, a subscriber is automatically blacklisted if they fail, three times in succession, to recharge their wallet with a valid voucher number. The blacklisted subscriber remains active, however any future attempts at recharging with a voucher number will also require the matching scratch card serial number.

Deleting subscribers

Follow these steps to delete an existing subscriber.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	In the table on the **Subscriber** tab, select the subscriber to delete.
3	Click **Delete**.
	Result: The Delete Confirmation prompt appears.
4	Click **OK**.
	Note: The record is deleted and the **Subscriber** tab is refreshed as if you had clicked **Search**. If the subscriber has both a primary and a secondary wallet, both wallets will be deleted.

Adding Subscribers

Introduction

All configuration options must be completed to finalize a new subscriber record, however the configuration can be saved at any point by clicking **Save**.

Note: When you save a new subscriber, you are presented with the New Wallet screen. You need to configure the wallet to finish configuring the new subscriber. See Wallets for details. After adding the wallet, the subscriber is saved. To fill in any of the options that you have not completed for the subscriber, you need to search for, then edit the subscriber. See Editing and Deleting Subscribers.

New subscriber options

Here is a list of options available on the New Subscriber screen.

- Details
- *Call Barring* (on page 52)
- *Number Translation* (on page 54)
- *Balance Topup Rules* (on page 55)

Subscriber Screen Example

Here is an example New Subscriber screen.

Note: The tabs or options available to you on a screen will depend upon which CCS components have been installed on the system and the Oracle license agreement.

Details

Follow these steps to configure basic details for a new subscriber or edit the details of a current subscriber.

Step	Action
1	In the Subscriber Management screen, select the service provider from the Service Provider list.
2	On the **Subscriber** tab, to: • Create a new subscriber, click **New**. • Edit a subscriber, select the subscriber from the table and click **Edit**. **Result:** You see the New Subscriber screen or the Edit Subscriber screen, with the Subscriber, **Details** option selected.
3	In the **Card Number** field, enter the card number for this subscriber. This field is required. **Tip:** Most commonly, this is the same as the subscriber ID.
4	In the **Subscriber ID** field, enter the Calling Line Identifier (CLI) for this subscriber. This identifies the line which the call is being placed from. When a call is made using CCS, the system determines which wallet to charge based on the subscriber ID of the caller. If the subscriber ID is not recognized, the card number and PIN is used to determine the subscriber and validity of the call. The subscriber ID is mandatory.

Step	Action
5	In the **Description** field, enter a description for the new subscriber.
6	To add a PIN for this subscriber, select the **Is Defined** PIN check box. This will enable the **PIN** and **Confirm PIN** fields for entry.
7	Skip this step if a PIN is not required for this subscriber.
	If a PIN is required, configure the PIN by doing the following:
	a. In the **PIN** field, enter the PIN number.
	b. In the **Confirm PIN** field, re-enter the same PIN number. The two fields must match before the new subscriber record can be saved.
	To use the PIN, the **eserv.config** parameter `AccountLength` must be set to the required length for card numbers, or a large value for variable length card numbers, for example 50, (default = 10).
	For more information, see the *CCS Technical Guide*.
	When using the PIN option to recharge vouchers, the length of the Wallet Reference number must equal the `AccountLength` parameter (that is, variable length wallet references cannot be used).
	Tip: A PIN is recommended for security reasons.
8	From the **Language** drop down box, select the language to use for announcements for this subscriber.
	The list displays all languages available to the current service provider. Languages are configured on the Tools screen. To create a new language or give a service provider permission to use a language, see *ACS User's Guide*.
9	If the subscriber should be allowed to set the presentation restricted indicator in the outgoing connect message for all services other than CCS_ROAM, select the **Subscriber ID Restriction** check box.
10	If this subscriber should not be able to receive incoming calls while roaming, select the **Disable Incoming Calls When Roaming** check box.
11	If this subscriber should be:
	• Able to use the service, ensure the **Blacklisted** check box is not selected.
	• Stopped from using the service, select the **Blacklisted** check box.
	For more information about blacklisted subscribers, see *Black List* (on page 49).
12	If the subscriber should not be sent SMS notifications, select the **Disable SMS Notifications** check box.
13	Select another option to configure for this subscriber or click **Save**.
	Note: When you save a new subscriber, you will see the New Wallet screen. See *Wallets* (on page 56) for more information.

Call Barring

Follow these steps to add or edit call barring configuration details for a subscriber.

Note: Allowed/barred lists can also be configured at the following levels:

• System-wide

• Service provider (see the *Barred List* (on page 203) tab)

- Product type (see *Call Barring* (on page 93) option).

Step	Action
1	In the New or the Edit Subscriber screen, select the Profile, Call Barring option from the left hand menu.
	Result: You see the *Call Barring* (See example on page 53) configuration option fields.
2	In the **Allowed/Barred List** section, select whether the listed numbers will be allowed or barred from the **List Type** drop down list.
	Tip: Depending on the list type, all numbers in the list are allowed, or all numbers are barred for this subscriber. It is not possible to have some allowed and some barred numbers in the list.
3	If you want the service to ignore the allowed/barred list for this subscriber, select the **Ignore** check box.
4	To add a number to the list, enter the number in the **New Number** field and click **Add.**
5	To delete a number from the list, select it in the **Number List** and click **Delete.**
6	Repeat steps 4 and 5 as required to complete the number list.
7	Select another option to configure for this subscriber or click **Save**.
	Note: When you save a new subscriber, you will see the New Wallet screen. Refer to *Wallets* (on page 56) to finish configuring the new subscriber.

Call Barring option

Here is an example New Subscriber screen, **Call Barring** option.

Number Translation

Follow these steps to add the number translation details to a new subscriber.

Note: Number translation can also be configured at the following levels:

- System-wide

- Service provider

- Product type.

Step	Action
1	In the New Subscriber screen, select the Profile, Number Translation option from the left hand menu. **Result:** You see the *Number Translation* (See example on page 55) configuration option fields.
2	In the **Short Codes** section, edit the number list. • To add a number to the list: – In the **In** field, enter the service short code to translate – In the **Out** field, enter the termination number to translate the short service code to – Click **Add** • To delete a number from the list: – Select the number in the **Number list** – Click **Delete**
3	Repeat step 2 until the number list contains all the required numbers.

Step	Action
4	Select another option to configure for this subscriber or click **Save**.
	Note: When you save the new subscriber, you will see the New Wallet screen. Refer to *Wallets* (on page 56) to finish configuring the new subscriber.

Number Translation option

Here is an example New Subscriber, **Number Translation** option.

Balance Topup Rules

The Balance Topup Rules option lets you view the active topup rules defined for the subscriber, and when they were last activated. The rules are used to allocate additional items, such as additional notifications, to specified balance types on a regular basis. For details on creating and activating balance topup rules, see *CCS Technical Guide*.

Follow these steps to view the active balance topup rules for a subscriber.

Step	Action
1	In the New or the Edit Subscriber screen, select the **Balance Topup Rules** option from the left hand menu.
	Result: You see the **Balance Topup Rules** (See example on page 56) configuration option.

Step	Action
2	Select another option to configure for this subscriber or click **Save**.
	Note: When you save the new subscriber, you will see the New Wallet screen. Refer to *Wallets* (on page 56) to finish configuring the new subscriber.

Balance Topup Rules option

Here is an example New Subscriber screen, **Balance Topup Rules** option.
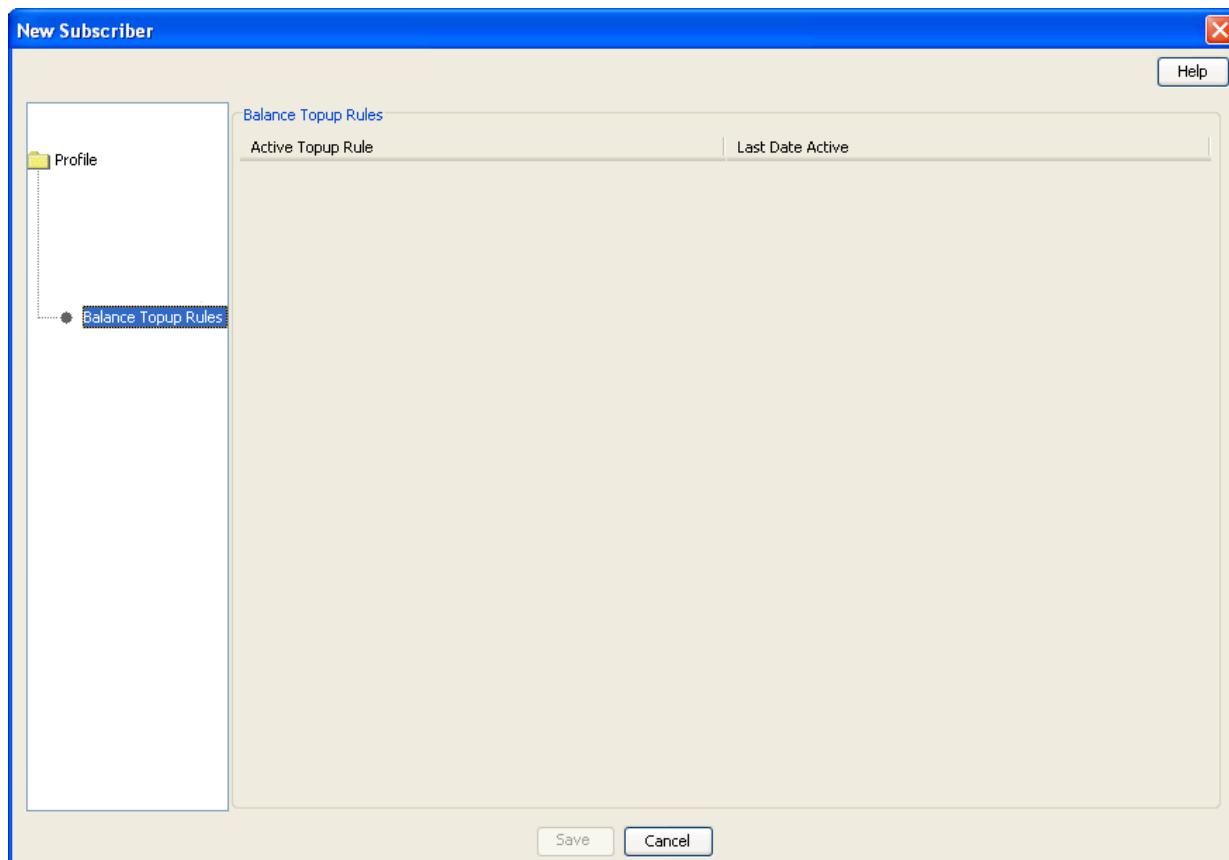
Wallets

The New Wallet screen appears when you first save the configuration for a new subscriber, or when you click **New Wallet** in the Edit Subscriber screen. The new wallet can be a:

- New private wallet
- Link to a shared wallet

Wallet rules

The following rules apply when creating a new wallet for a subscriber:

1 By default, a new wallet will be created on a VWS charging domain.
2 You can only specify a charging domain for a subscriber's wallet when you add the new wallet.
3 Only balances held on a VWS domain type will be accessible through the Edit Subscriber screen.

New Wallet Screen

Here is an example of New Wallet screen.

New Wallet Fields

This table describes the function of each field.

Field	Description
Link To Existing Wallet	Selecting this option indicates that the wallet is shared. This field will be disabled for non-VWS charging domains.
Charging Domain	The domain to use for chargeable balance types. The drop down list will display all available domains. This field will be disabled if **Link To Existing Wallet** is selected. **Note:** For distributed wallets the system will support either Diameter or VWS charging domains.
Wallet Reference	The wallet reference for one of: • The wallet on a VWS or external charging domain • For a shared wallet on a VWS charging domain If this field is left blank, then the wallet reference will be generated automatically. **Note:** This field becomes enabled if **Link to Existing Wallet** is selected or if a non VWS charging domain is selected.
Product Type	The product type associated with the wallet. For more information on product types, see *Product Type* (on page 79).
Wallet Currency	The currency used to hold monetary values in this wallet.
Customer	The customer who has access to this wallet.

Adding a third party domain wallet

Follow these steps to add a new non distributed wallet to a subscriber using a third party domain.

See New Wallet fields for a description of the fields on the New Wallet screen.

Step	Action
1	Ensure **Link To Existing Wallet** is not selected.
2	From the **Charging Domain** drop down list, select the third party domain for the wallet. This field is populated by the **Domain** tab. For more information, see *Domain* (on page 161).
4	Enter the identifier for the wallet in the **Wallet Reference** field. If you leave this field blank then the external wallet reference is auto-generated using the value of the wallet ID.
5	Click **OK** to save the new Wallet.

Adding a distributed wallet

Follow these steps to add a new distributed wallet to a subscriber.

See New Wallet fields for a description of the fields on the New Wallet screen.

Step	Action
1	In the New Wallet screen, ensure **Link To Existing Wallet** is not selected.
2	From the **Charging Domain** drop down list, select the domain to use for chargeable balances.
	This field is populated by the **Domain** tab. For more information, see *Domain* (on page 161).
4	If you selected a third party charging domain then in the **Wallet Reference** field type the external wallet reference.
5	From the drop down list, select the **Product Type** that will be associated with this wallet.
	This field is populated by the **Product Type** tab. For more information, see *Subscriber Management - Product Type* (on page 79).
6	From the **Wallet Currency** drop down list, select the currency that will be used for monetary values for this wallet.
	All available currencies are displayed in this list.
7	If required, select the **Customer** from the drop down list who will have access to this wallet.
	This field is populated by the **Customer** tab. For more information, see *Customer* (on page 36).
	Note: This field will be disabled if a non VWS charging domain is selected.
8	Click **OK** to save the new wallet.

Adding a linked wallet

Follow these steps to add a new link to an existing wallet for a subscriber.

See New Wallet fields for a description of the fields on the New Wallet screen.

Step	Action
1	In the New Wallet screen, select **Link To Existing Wallet**.
2	Enter the identifier for the shared wallet in the **Wallet Reference** field.
	You must enter an existing wallet ID.
4	Select the **Product Type** from the drop down list that will be associated with this wallet.
	This field is populated by the **Product Type** tab. For more information, see *Subscriber Management - Product Type* (on page 79).

Step	Action
5	Click **OK** to save the new linked wallet.

Editing Subscribers

Introduction

The Edit Subscriber screen allows you to edit a subscriber's configuration and profile configuration options.

From this screen you can also:

- *Record subscriber comments* (on page 62)
- *Configure subscriber zones* (on page 64)
- *Edit wallets* (on page 68)
- Change wallet balance adjustment limits
- *View EDRs* (on page 69)
- *Execute business process logic* (on page 75)
- *View subscriber promotions* (on page 77)
- Perform credit transfers

If the Convergent Charging Controller EDR auditing feature is enabled, and you update the financial data for a subscriber; for example, by updating their wallets, then you will be required to record the reason for the change when you save the subscriber record. For more information, see About Auditing Changes to Subscriber Data.

Edit subscriber screen layout

The configuration and layout for the Edit Subscriber screen is defined in the Subscriber Profile Manager (SPM).   When you open the Edit Subscriber screen, the fields and options you see depend on the configuration defined in the SPM for the subscriber's product type and service provider (see following screen example).   This means that you may see one of the following:

- The default configuration for the Edit Subscriber screen containing all the fields and options available as a standard
- A customized Edit Subscriber screen containing a subset of the standard fields and options, plus any subscriber profile groups, fields and zones that have been configured specifically for you.   The labels given to the fields and options may also be different from the default labels

You see the available options listed in the menu on the left hand side of the screen.   To view or edit the fields for a particular option, select the option in the list.

Note: For information on configuring the Edit Subscriber screen, refer to   Subscriber Profile Manager User's Guide.

Example Edit Subscriber screen

Here is an example Edit Subscriber screen configured to show subscriber details when the Details option is selected.

Access to elements of this screen are controlled by user permissions.   If you cannot see some of the functionality described for this screen, your permissions may have been set to restrict access to that element.

Reverting unsaved changes

You can revert any unsaved changes to a subscriber's configuration by clicking **Revert**. The data will revert to the most recently saved version of the subscriber's configuration.

For details see *Reverting subscriber edits* (on page 62).

Subscriber details fields

This table describes the function of the standard subscriber details fields that may be available in the Edit Subscriber screen.

Note: Some of these fields may have been given different labels in your screens depending on how the Edit Subscriber screen has been configured.

Field	Description
Card Number	Specifies the card number for the subscriber.
Subscriber ID	The Calling Line Identifier (CLI) for this subscriber. This identifies the line that the call is being placed from. When a call is made, the system determines which wallet to charge based on the subscriber ID of the caller.
Description	A description for this subscriber.
Is Defined	Either removes a subscriber's PIN (unselected), or enables adding or editing a subscriber's PIN (selected)
PIN	Sets the subscriber's PIN (Is Defined must be selected).
Confirm PIN	Confirmation of the subscriber's PIN (Is Defined must be selected).
Language	Sets the language to use for announcements for this subscriber.
Subscriber ID Restricted	Sets whether or not the subscriber may set the presentation restricted indicator in the outgoing connect message for services. For further information refer to *CCS User's Guide*.
Disable Incoming Calls When Roaming	Sets whether or not the subscriber may receive incoming calls while roaming.
Blacklisted	Sets whether or not the subscriber may use the service. When selected, the service will be disabled.
	For more information about blacklisted subscribers, see *Adding Subscribers* (on page 50).
Disable SMS Notifications	Sets whether or not the subscriber may receive SMS notifications.
Subscriber Information	Core information about the subscriber. For information purposes only.

Editing subscriber configuration

Follow these steps to edit the configuration for an existing subscriber.

Step	Action
1	In the Subscriber Management screen, select the service provider from the Service Provider list.
2	On the **Subscriber** tab, search for the subscriber to edit. For details see *Finding subscribers* (on page 49).
3	Select the row in the search results for the subscriber to edit.
	Note: If the subscriber has both a primary and a secondary wallet, there will be a row in the search results for each wallet. The wallet type is displayed next to the wallet reference number. Select the row for the wallet type to edit.
4	Click **Edit**.
	Result: You see the Edit Subscriber screen with the wallet type indicated in the screen title bar.
5	Edit the subscriber details fields as required. See *Editing configuration options* (on page 62).
6	Edit the subscriber profile options as described in *Adding Subscribers* (on page 50).
7	Edit the wallets for the subscriber as required. See *Edit Wallets* (on page 68).

Step	Action
8	Execute business process logic actions as required. See *Execute Business Process Logic* (on page 75).
9	Perform credit transfers as required. See Perform Credit Transfers.
10	Click **Save**.
11	If EDR auditing is enabled and you have changed the financial status of the subscriber, then the **Change Reason** dialog displays. Enter the reason for the change in the **Change Reason** field, and click **OK**. The reason can be up to 200 characters long. See About Auditing Changes to Subscriber Data for more information.

Editing configuration options

Follow these steps to edit the configuration options for a subscriber account.

Step	Action
1	In the Edit Subscriber screen, select the option from the left hand menu that holds the field to edit.
2	Enter the new details as required.
3	Repeat steps 1 and 2 for all the fields to edit.
4	When you have completed your edits, click **Save**.

Reverting subscriber edits

Follow these steps to revert unsaved changes to the subscriber configuration.

Step	Action
1	In the Edit Subscriber screen, click **Revert**. **Result:** Any unsaved changes to the subscriber configuration will be reversed and the subscriber will be redisplayed using the original data.

Record Subscriber comments

Introduction

The **Comments** panel, available from the Edit Subscriber screen, allows you to add notes about the subscriber's account. You can add, edit and delete comments in the panel.

User access

You can access comments in the Edit Subscriber screen provided you have been given sufficient privileges.

This table describes the privileges for comments.

Privilege	Description
Read/Only	The Comments panel will be visible through the screens, but no buttons will be available and you will not be able to edit, create, or delete comments.

Privilege	Description
Read/Modify	The Comments panel will be visible through the screens, and the **Add** and **Edit** buttons will be available. You will be able to create and edit your own comments, but you will not be able to edit the comments of other users.
Create/Delete	The Comments panel will be visible through the screens, and the **Add**, **Edit** and **Delete** buttons will be available. You will be able to create, edit and remove any existing comments.

Note: Access permissions are managed through the user templates defined in the Service Management System User Management screen. For information on creating and maintaining user templates, see *SMS User's Guide*.

Comments panel

Here is an example **Comments** panel in the Edit Subscriber screen.

Adding a comment
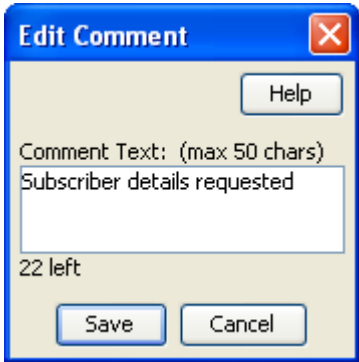
Follow these steps to add a comment to a Subscriber record.

Step	Action
1	On the left hand panel in the Edit Subscriber screen, select the option containing the Comments panel.
2	Click **Add**. **Result:** You see the Add Comment screen.
3	In the **Comment Text** field type in your comment. The comment can be up to 50 characters long.
4	Click **Save**. **Result:** You are returned to the Edit Subscriber screen

Editing a comment

Follow these steps to edit a comment on a subscriber record.

Step	Action
1	On the left hand panel in the Edit Subscriber screen, select the option containing the **Comments** panel.
2	Click **Edit**.
	Result: You see the Edit Comment screen.

Step	Action
3	Modify the comment in the **Comment Text** field, as required..
4	Click **Save**.
	Result: You are returned to the Edit Subscriber screen

Deleting a comment

Follow these steps to delete a comment from a subscriber record.

Step	Action
1	On the left hand panel in the Edit Subscriber screen, select the option containing the **Comments** panel.
2	Click **Delete**.
	Result: You see the Delete Confirmation screen for the comment.
3	Click **Yes**.
	Result: The comment is deleted and you are returned to the Edit Subscriber screen.

Configure Subscriber Zones

Introduction

Zones provide the facility to customize the services provided to the subscriber depending on their location. For example, a home zone could be defined where the subscriber may obtain cheaper calls.

A subscriber may have up to nine zones. Each zone can be configured to include a group of up to five rectangular and circular shapes. The location and area covered by each shape is determined by its coordinates (defined in latitude and longitude format). If required, the shapes may overlap.

Note: This functionality is only operational if the Convergent Charging Controller Location Capabilities Pack (LCP) package is installed.

User access

You can access zones in the Edit Subscriber screen provided you have been given sufficient privileges.

This table describes the privileges that may be assigned to zone.

Privilege	Description
Read/Only	The zone will be visible through the screens, but you will not be able to edit, create, or delete it.
Read/Modify	The zone will be visible through the screens, and you will be able to edit it, but you will not be able to create or delete it. This means that you will be able to add, edit and delete shapes for the zone. However, if there is only one shape defined for the zone you will not be able to delete it because this would also delete the zone itself.
Create/Delete	The zone will be visible to the user through the screens, and you will be able to add, edit, and delete shapes for it even if there is only one shape defined for the zone. If you delete the only remaining zone shape, then the zone's profile tag will also be removed from the subscriber's profile.

Note: Access permissions are managed through the user templates defined in the Service Management System User Management screen. For information on creating and maintaining user templates, see *Service Management System User's Guide*.

Zone group

Zones are defined in zone group panels in the Edit Subscriber screen. A zone group panel can be included where needed using the Subscriber Profile Manager.

Zone group panel

Here is an example zone group panel.

Adding a new zone shape

Follow these steps to add a new shape to a zone.

Step	Action
1	In the Edit Subscriber screen, select the option that holds the zone to add a shape to.
2	In the group for the zone, click **New**. **Result:** You see the New *Zone screen.* (See example on page 67)
3	Select the option for the zone shape, select one of: • Circular Shapes • Rectangular Shapes
4	If you are specifying a circular zone shape, in the boxes enter the coordinates for the center of the circle and its radius. • **X (Deg):** The longitude coordinate. Restricted to between -179.99999 (W) and 180.00000 (E) degrees. • **Y (Deg):** The Latitude coordinate. Restricted to between -90.00000 and 90.0000 degrees. • **R (Kms):** The radius. Restricted to between 0.0000000 and 99999999.9999999 kilometers.
5	If you are specifying a rectangular zone shape, enter the coordinates for the top left and bottom right corners of the rectangle. Top-Left Corner: • **X (Deg):** The longitude west coordinate. Restricted to between -179.99999 (W) and 180.00000 (E) degrees and must not equal the value for the longitude east coordinate. • **Y (Deg:** The latitude north coordinate. Restricted to between -90.00000 and 90.0000 degrees and must be a higher number than the latitude south coordinate. Bottom-Right Corner: • **X (Deg):** The longitude east coordinate. Restricted to between -179.99999 (W) and 180.00000 (E) degrees and must not equal the value for the longitude west coordinate. • **Y (Deg:** The latitude south coordinate. Restricted to between -90.00000 and 90.0000 degrees and must be a lower number than the latitude north coordinate.
6	Click **Save**.

Zone screen

Here is an example Zone screen.

Editing a zone shape

Follow these steps to edit a Zone shape.

Step	Action
1	In the Edit Subscriber screen, select the option where the zone to edit is defined.
2	In the zone group select the shape to edit and click **Edit**. **Result:** You see the Edit *Zone screen* (See example on page 67).
3	Edit the shape definition as described in *Adding a new zone shape* (on page 66).
4	Click **Save**.

Deleting a zone shape

Follow these steps to delete a Zone shape.

Step	Action
1	In the Edit Subscriber screen, select the option where the zone shape to delete is defined.
2	In the zone group select the shape to delete and click **Delete**. **Result:** The zone shape is deleted.

Edit Wallets

Introduction

The wallet information available in the Edit Subscriber screen will depend on the configuration defined for the product type and service provider for the subscriber (see following screen examples). This means that you may see one of the following:

- The default wallet configuration where all the standard wallet information fields are displayed under a single Wallet option.
- The Edit Subscriber screen may have been customized to contain a subset of the standard wallet information fields. This information may be available under a single option listed in the panel on the left hand side of the screen, or it may be split over more than one option. The labels given to the fields and options may also be different.

You see the available options listed in the menu on the left hand side of the screen. To view or edit the fields for a particular option, select the option in the list.

If EDR auditing is enabled in Convergent Charging Controller, and you update the wallets for a subscriber, then you will be required to record the reason for the change in a special **Change Reason** dialog that displays when you save the subscriber record. For more information, see About Auditing Changes to Subscriber Data.

Default wallet configuration

The default configuration for the Edit Subscriber screen contains the following categories of information and fields for subscribers' wallets. Depending on how your screens have been configured, you will be able to edit some or all of this data:

- External Wallet Reference
- Product type
- Customer

Wallet type

The Edit Subscriber screen lets you look at the wallet details for the primary and secondary wallets. In a standard installation the primary and the secondary wallets appear on separate tabs in the Edit Subscriber screen. You can select the wallet by selecting its tab.

If the CCP is enabled on your system then you will only be able to access either the primary or the secondary wallet from the Edit Subscriber screen, but not both. The wallet type will:

- Depend on which row you selected in the subscriber search results table
- Be clearly indicated in the Edit Subscriber screen title

Wallet field groups

This table describes the function of the standard groups of fields that may be available with a wallet in the Edit Subscriber screen. Each group contains a standard set of fields, some of which may be editable.

Note: This table shows the default labels given to the information groups. These labels may be different in your screens depending on how the Edit Subscriber screen has been configured.

Group Label	Description
Balance Types panel	A panel showing the available wallet balances.

Group Label	Description
Wallet Information	Core information about the wallet. For details, see Editing wallet information.
Product Type and Customer fields	Wallet attributes. For details, see *Product Type and Customer fields* (on page 69).

Editing wallet information

Follow these steps to edit the details in the Wallet Information group.

Warning: Although the names of the fields in the group remain the same, the group name will depend on how the Edit Subscriber screen has been configured.

Step	Action
1	From the left hand menu in the Edit Subscriber screen, select the option containing the Wallet Information group of fields.
2	In the Wallet Information panel select a different **Wallet Currency** from the drop down list, if required. This defines the currency used for monetary values for this Wallet.
3	If you have changed the subscriber's product type and you want to charge for this change then select the **Bill for Product Swap** check box. **Tip:** This charge is made when the current subscriber edits are saved. The next time you edit this subscriber this check box will have been cleared.
4	If you have completed your subscriber edits, click **Save**.
5	If EDR auditing is enabled, then the **Change Reason** dialog displays. Enter the reason for the change in the **Change Reason** field, and click **OK**. The reason can be up to 200 characters long.

Product Type and Customer fields

This table describes the function of each field.

Field	Description
Product Type	The product type which applies when this subscriber uses this wallet.
Customer	The customer the wallet is associated with. For more information about customers, see *Customer* (on page 36).

View EDRs

Introduction

From the Edit Subscriber screen you can search for and view the EDRs that have been generated for the subscriber. For each EDR you can:

- View the EDR details
- Reverse any associated charges

If the EDR auditing feature is enabled, then you can monitor operator updates to a subscriber's financial data by viewing the reason entered by the operator for any updates that have been made through the Subscriber Management screens. The reason displays in the **Change Reason** field in the resulting EDR. For more information, see About Auditing Changes to Subscriber Data.

View EDRs for Subscriber screen

Here is an example View EDRs for Subscriber screen. This screen appears when you click **View EDRs** in the Edit Subscriber screen.

EDR Masking

You can set masking for EDR fields to prevent users from viewing part of the displayed values. To set masking for EDR fields see *Adding EDR elements* (on page 270) and *Editing EDR elements* (on page 271). To specify the masking rules for EDR fields, see Editing EDR Viewer Display Masking.

You can disable masking of EDR fields for a user by specifying the EDR Viewer NO MASKING permission when you create a user template.

Note: The system administrator user receives the EDR Viewer NO MASKING permission by default.

See Creating User Templates in *SMS User's Guide* for information on creating a user template. See Assigning a template to a user in *SMS User's Guide* for information on assigning a template to a user.

View EDRs for Subscriber fields

This table describes the function of each field.

Field	Description
Use Start Date	If **Use Start Date** check box is selected, EDRs that have been generated after a specified date and time will be displayed. **Note:** The start date field is populated with the current date and time. Select a different date and time if required. For details, see Time and Date panels.
Use End Date	If **Use End Date** check box is selected, EDRs that have been generated before a specified date and time will be displayed. **Note:** The end date field is populated with the current date and time. Select a different date and time if required. For details, see Time and Date panels.
Wallet Types	The type of wallet for which the EDRs will be displayed. The options are: • Primary • Secondary
Number of EDRs	The maximum number of EDRs to search for. This can be left blank to find all the EDRs.
Called Number	A specific called party number dialed by the subscriber for which the EDRs will be displayed. This value is derived from the TN field of the resulting EDR.
EDR Tag	The operator defined EDR tag.
EDR Tag Value	The tag values of the EDRs describe the type and length of data required, and a description of the value per EDR.
Include Partial EDRs	By default only completed EDRs are shown. Select this box to also show intermediate partial EDRs.
Call Duration	The duration of the entire call, that is, the length of call in seconds. This value is derived from the DURATION field of the resulting EDR.
Discount	A list of discounts that exist for this call. This value is derived from the following fields of the resulting EDR: • DISCOUNT, • DISCOUNTS • CBTD_DISCOUNTS
Unit Type	The balance unit type for which the call cost is displayed. This is one of: • Cash • Time • Units
Call Cost	The call cost is based on the sum of all the associated costs (recharge or charge) for a specified balance unit type for the call. This value is derived from the COSTS field of the resulting EDR. **Note:** The cost for a recharge will be a negative value; the cost for a charge will be a positive value.

Finding EDRs

Follow these steps to find the EDRs that have been generated for a subscriber.

Note: The view EDRs panel is now pre-populated with default search conditions for the current subscriber. The search parameters are defined in the **sms.jnlp** and **ccp.jnlp** file. If no parameters are defined, search defaults to 2 days and all categories.

Step	Action
1	In the Edit Subscriber Screen, click **View EDRs**. **Result:** You see the *View EDRs for Subscriber screen* (See example on page 70) for the current subscriber, pre-populated with default search results. **Note:** If no parameters are found, this defaults to two days and all categories.
2	Enter the desired search criterion. For more information about the fields on this screen, see View EDRs for Subscriber fields.
3	Add the EDR Search Categories to search for to the Selected List. To: • Add a search category to the list, select it in the Available List and click **>**. • Add all the search categories to the list, click **>>**. • Remove a search category from the list, select it in the Selected List and click **<**. • Remove all the search categories from the list, click **<<**. **Note:** If no search categories are selected then all the EDRs that match the search criteria will be returned.
4	Click **Search**. **Result:** All the EDRs that match the search criteria are displayed in the EDR search results table at the bottom of the screen. **Tip:** The text See Details in the **Balance Types** column indicates either that more than one balance type was used to charge for that EDR or that no charge was made and hence you must go into the details of the EDR itself.

EDR search results order

The EDR search results initially appear in date order with the most recent first. You can re-order EDRs based on the columns described in the following table.

Click this column	To...
Date	Order EDRs by date. The most recent EDR will be at the top of the list. Click on this column again to place records in reverse date order.
Balance Types	Place EDRs in ascending order of balance type ID. **Note:** This is the internal reference number for the balance type and not the balance type name.
Cost	Order EDRs by cost, from highest cost to lowest cost.
EDR Type	Place EDRs in ascending order of EDR type. Click on the column again to place records in descending order. **Note:** A secondary sort is used to place EDRs with the same EDR type in date order.

Re-ordering search results

Follow this step to re-order the search results.

Step	Action
1	Click on the column in the search results table to use for re-ordering. **Result:** The search results are re-ordered based on the values in the column.

Reversing a charge

Follow these steps to reverse a charge detailed in an EDR record.

Step	Action
1	In the EDRs for Subscriber screen, search for the EDR record to reverse. For details on searching for EDRs see Finding EDRs.
2	Highlight the record in the search results table.
3	Click **Reverse Charge**. **Result:** You see the Reverse Charge prompt.

Step	Action
4	Do one of the following: • If you want to reverse the charge without saving any updates to the subscriber configuration, click **Execute Only**. • If you want to save the updates you have made to the subscriber configuration, and then reverse the charge, click **Save & Execute**.
5	If you clicked **Save & Execute**, and EDR auditing is enabled, then the **Change Reason** dialog displays. Enter the reason for the change in the **Change Reason** field, and click **OK**. The reason can be up to 200 characters long.
6	Click OK when the Reverse Charge prompt displays. The charge is reversed for all the affected balance types and the subscriber data is reloaded. You are then returned to the Edit Subscriber screen.

Viewing EDR details

Follow these steps to view the details for a selected EDR.

Step	Action
1	Select the EDR record to view in the search results table in the *View EDRs for Subscriber* (See example on page 70) screen.
	Click **Display**.
	Result: You see the *EDR Details for Subscriber* (See example on page 75) screen.
	Note: The screen layout and available fields depend on the category and template definition configured for the EDR in CCS. For details, see *EDR Templates* (on page 274).
2	When you have finished viewing that EDR record, click **Close**.
	Result: You return to the View EDRs for Subscriber screen.
3	When you have finished viewing EDR records, click **Close**.
	Result: You return to the Edit Subscriber screen.

EDR Details for Subscriber screen

Here is an example EDR Details for Subscriber screen.

EDR Details for Subscriber 1234

Help

EDR Details

EDR Type: Operator Update   Display Currency EUR ▼

Operator Name	SU	
Wallet Type		
Record Date	2014-02-21 11:05:24	

Balance Costs and Expiries

Balance Name	Original Value	Cost	Old Expiry Date	New Expi
Bad Pin	0	0		
Data	0	0		
Free SMS	0	0		
General Cash	0.00	-5.00		
Monthly Exp	0.00	0.00		
Promotional Cash	0.00	0.00		
Wallet Exp	0.00	0.00		
Yearly Exp	0.00	0.00		

Product Type	Bronze
Previous State	
New State	Pre-use
Old Wallet Expiry	
New Wallet Expiry	Never Expires
Pi Identification	
Subscriber IDs	1234
Change Reason	

Close

Execute Business Process Logic

Introduction

A business process logic (BPL) task comprises a set of actions that fall within the defined business rules of the service provider, and that may be executed for the subscriber. Each business process is defined in the control plan referenced in the BPL record. When the BPL is executed, this control plan is invoked for the current subscriber.

Depending on how the BPL task has been configured, a charge may be imposed for the service provided and SMS notifications may be sent out. For information on how to configure BPL tasks, see *Task Management* (on page 245).

Notes:

• Business process logic tasks are also referred to as tasks.

• This functionality will only be available to you if you have an appropriate license.

Executing a BPL

Follow these steps to execute a BPL for a subscriber.

Note: BPLs can only be executed for existing subscribers.

Step	Action
1	In the Edit Subscriber screen select the Subscriber option where the BPL to execute is located.
	Result: You see a button for each of the available BPLs.
2	Click the button for the BPL to execute.
	Result: You see the Confirm Execute Business Process Logic for Subscriber prompt.

Step	Action
3	If any parameters have been defined for the BPL, enter values for these as prompted.
	Warning: You must enter a value for all mandatory parameters.
4	To save any changes you have made to the subscriber configuration in the Edit Subscriber screens and then execute the BPL, click **Save & Execute**.
	To execute the BPL without saving changes to the subscriber configuration, click **Execute Only**.
	Result: You see the Execute BPL Result prompt.
5	Click **OK**.

View Subscriber Promotions

Introduction

The Edit Subscriber screen can be configured to display the following types of promotion information:

- Subscriber promotion panel showing the list of promotions for which the currently selected subscriber is eligible
- Promotion information for a specific promotion.

Subscriber promotion panel fields

This table describes the function of each field.

Field	Description
Promotion	Lists the promotions for which the current subscriber is eligible.
Status	Displays the global limited liability status value for each promotion. Options are: • Unset • Eligible • Ineligible
Expiry Date	Displays the global limited liability status expiry date for each promotion.

Promotion Info Field example

Here is an example Promotion Info Field in the Edit Subscriber screen. This field has been configured with the **Monthly Spend** Display Name.

Promotion info field fields

The Promotion Info Field displays status, balance and expiry details for a specified promotion. The promotion is specified when the Promotion Info Field is configured in the Subscriber Profile Manager.

This table describes the function of each field.

Field	Description
Name	Promotion name.

Field	Description
Status	Promotion status. Either active or inactive.
Tracker Balance Value	The total value of the tracker balance used to trigger the promotion for the subscriber.
Tracker Balance Expiry Date	Displays the first expiry date for the tracker balance. If an expiry date has not been specified, then "Does not expire" will be displayed. **Note:** This field will only be visible if the **Show Expiry Date** check box was selected when this Promotion Info Field was configured in the SPM.
Individual Limited Liability Balance	The subscriber's total balance held in the limit balance type configured for the promotion.
Individual Limited Liability Expiry Date	Displays the first expiry date for the individual limited liability balance. If an expiry date has not been specified, then `Does not expire` will be displayed.
Max Individual Limited Liability	Maximum individual limited liability configured for the promotion.
Global Liability Status	The options are • Unset • Eligible • Not Eligible

Subscriber Management - Product Type

Overview

Introduction

This chapter explains the Product Type configuration screens.

In this chapter

This chapter contains the following topics.

Product Type

Introduction

The **Product Type** tab lets you view, add, edit, copy and remove product types. For more information about product types, see *Product Types* (on page 11).

For more information about the aspects of a product type which can be configured, see Configuration options summary.

Product Type tab

Here is an example **Product Type** tab.

Before you add a product type

Before you start to add a new product type, ensure you have configured any elements you will use.
Product types may use:

- ACS configuration:
  - Languages
  - Announcement sets

- Holiday sets
- Geography sets
- LNSTRING and LOPREFIX group profile fields
- Control plans which subscribers with this product type will be sent to

For more information, see *ACS User's Guide, ACS Configuration* chapter.

Adding product types

Follow these steps to add a new product type.

Step	Action
1	In the Subscriber Management screen, select the service provider from the Service Provider list.
2	On the **Product Type** tab, click **New**.
	Result: You see the New Product Type screen, as shown in the example below.
	Note: The tabs or options available to you on a screen will depend upon which CCS components have been installed on the system and the Oracle license agreement.

| 3 | Configure this record by completing the required details on the different option panels on this screen. |

Step	Action
	All configuration options must be completed to finalize a product type. However, once the name and the control plans have been defined for the Product Type the configuration can be saved at any point by clicking **Save**.
	For more information about the available options, see Configuration options summary.
4	Click **Save**.

Configuration options summary

This table lists all the product type configuration options and their functionality.

Option	Description	More Information
Name and Periods	Defines the core details of the product type including name and expiry periods.	*Name and Periods* (on page 85)
Control Plans	Defines the control plans which are used for subscribers who have this product type.	*Control Plans* (on page 87)
Announcements	Sets the product type-dependant announcements for some interaction feature nodes.	*Announcements* (on page 91)
Call Barring	This option: • Configures the call barring for the selected product type. • Shows the numbers that are allowed or barred at a product type level.	*Call Barring* (on page 93)
Number Translations	Use to view and maintain the number translation short codes that are mapped to specific termination numbers for the selected product type.	*Number Translations* (on page 95)
Bypass Numbers	Use to view and maintain the bypass numbers that are allowed or barred at the product type level for the selected product type. A bypass number is a number that has a discount applied to it.	*Bypass Numbers* (on page 97)
Second Currency	Configures a second currency for wallets associated with the selected product type.	*Second Currency* (on page 99)
What's New	Use to enable the What's New feature node. This node plays the caller an advertising message and offers the option to divert the call to a service number for further information. For more information about the What's New feature node, see *Feature Nodes Reference Guide*.	*What's New* (on page 101)
Help & Info	Use to enter details for the Help Info Menu feature node. For more information about the Help Info Menu feature node, see *Feature Nodes Reference Guide*.	*Help & Info* (on page 103)
Product Type Swaps	Use to create a product type swap menu. This entails setting a number of options in various parts of the system. There are two stages to this procedure: **1** Create a named event. Perform this once to create the set and event.	*Product Type Swaps* (on page 105)

Option	Description	More Information
	2 Modify the product that you wish to enable swapping from. You need to repeat this stage for every product that has the swap option enabled.	
Node Options	Use to select the options that are offered to the caller on the Main Menu and Personal Options Menu feature nodes in Control Plans associated with this product type. For more information about these feature nodes, see *Feature Nodes Reference Guide*.	*Node Options* (on page 108)
Cumulative Balances	Defines the cumulative balance plan to use with this product type.	*Cumulative Balances* (on page 110)
Subscriber Profile Limitations	Use to set product type limits for LNSTRING and LOPREFIX profile field types. The limits set here override the limits set in the Service Management, Resource Limits screen. **Note:** Profile field limitations may only be set in the Edit product type screen.	*Subscriber Profile Limitations* (on page 112)
Profile	Use to configure the profile fields (excluding LNSTRING and LOPREFIX profile field types) that have been added to the product type. **Note:** Profile fields can only be set in the Edit Product Type screen.	*Profile Fields* (on page 115)

Editing product types

Follow these steps to edit an existing product type.

Step	Action
1	In the Subscriber Management screen, select the service provider from the Service Provider list.
2	From the **Product Type** tab, select the product type to edit.
3	Click **Edit**. **Result:** You see the Edit Product Type screen, as shown in the example below. Note: The tabs or options available to you on a screen will depend upon which CCS components have been installed on the system and the Oracle license agreement.

Step	Action

	Access to elements of this screen are controlled by user permissions. If you cannot see some of the functionality described for this screen, your permissions may have been set to restrict access to that element.
4	Check or update the details on the different option panels as necessary. For more information about the available options, see Configuration options summary.
5	If you have made changes to the product type's details, click **Save**. If you do not want to make changes to the product type's details, click **Cancel**.

Deleting Product Types

Follow these steps to delete an existing product type.

Note: You cannot delete a product type that is in use.

Step	Action
1	In the Subscriber Management screen, select the service provider from the **Service Provider** list.
2	On the **Product Type** tab, select the product type to delete.
3	Click **Delete**. **Result:** You see the Delete confirmation prompt.
4	Click **OK** to delete the record from the database. **Result:** The record is deleted and you see the Product Type successfully deleted prompt.

Step	Action
5	Click **OK**. **Result:** You are returned to the **Product Type** tab.

Rules for Expiry Period Extensions

The system will take the maximum value of the following:

1 Existing expiry period
2 Today's date plus recharge rule expiry period (voucher or credit card)
3 Today's date plus product type minimum expiry extension

Example: If you have:

- A wallet with an expiry date one month in the future
- A credit card or voucher with an expiry date extension of seven days
- Your product type has a minimum expiry date extension of two months

When you recharge, your account expiry period will be today plus two months.

Name and Periods
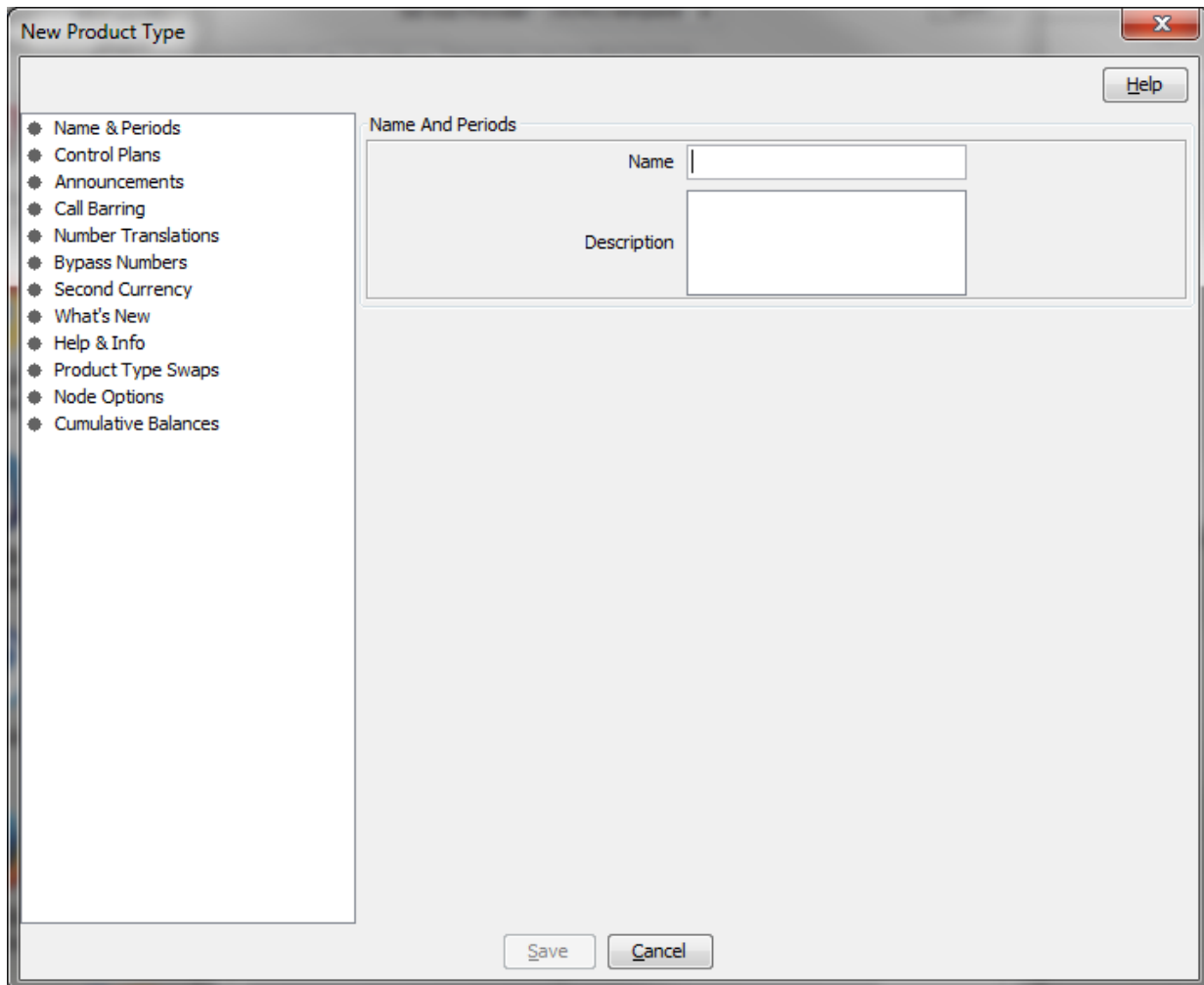
Introduction

The Name & Periods option sets general information about the product type, including:

- Name and description
- Currency defaults
- Expiry and recharge minimums

Name and Periods option

Here is an example New Product Type screen showing the Name and Periods option.

Access to elements of this screen are controlled by user permissions. If you cannot see some of the functionality described for this screen, your permissions may have been set to restrict access to that element.

Name and Period Fields

This table describes the function of each field.

Field	Description
Name	The name of this product type.
Description	A description of this product type. Maximum of 2000 characters.

Adding Name & Period details

Follow these steps to add the name & period details for a product type.

Step	Action
1	In the New Product Type screen, select the Name & Periods option from the left hand list.
	Result: You see the Name & Periods configuration options.
	For an example screen of the Name & Periods options, see Name & Periods option.
2	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see Name & Periods fields.

Editing Name & Period details

Follow these steps to view or change the name & period details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Name & Period option from the left hand menu.
	Result: You see the Name & Period options.
	For an example screen of the Name & Period options, see Name and Periods option.
2	Check or update the name & period details as necessary.
	For more information about the fields in this option, see Name & Periods fields.

Control Plans

Introduction

The Control Plans option configures the control plans to use for incoming and outgoing calls made using subscriber accounts which are associated with this product type.

Control Plans option

Here is an example New Product Type screen showing the Control Plans option.

Control Plan Fields

This table describes the function of each field.

Field	Description
CCS Capability	The service type which will use this configuration. The list displays all the CCS Capabilities a service provider can use.
Control Plan	The control plan subscribers who have this product type and are using this service will use. The Control Plan drop down list displays all the control plans a subscriber can use. **Tip:** This list can be shortened by using the **Search By** field and then **Search**. **Note:** If a subscriber calls the CCS service and no control plan exists for the applicable product type, then their call will be released.

Field	Description
Search By	Use initial characters of the control plan name or combine with % (match on any number of characters), or _ (match on a single character).
	Examples:
	Search for `e%SMS` will find all control plan names beginning with e and containing SMS.
	Search for `e_han%SMS` will find all control plan names beginning with e, containing the string han in positions 3 to 5, and containing SMS.
	The list can be further restricted by entering a maximum number of names to show in the Max Rows field.
Trigger Override	Select the check box if you wish to override the in-session notification trigger for the selected call capability and product type combination.
Override Trigger With	Select the trigger from the drop down list.

Control Plan screen

Here is an example of a Control Plan screen used to add or edit a control plan for a product type.

Adding Control Plans

Follow these steps to add the control plan configuration to a product type.

Step	Action
1	In the New Product Type screen, select the Control Plans option from the left hand list.
	Result: You see the Control Plans configuration options.
	For an example screen of the Control Plan options, see Control Plan option.
2	Click **New**.
	Result: You see the New Control Plan screen.
3	Configure this record by entering data in the fields on this screen.

Step	Action
	For more information about the fields on this screen, see Control Plan fields.
	Note: The **Override Trigger With** field drop down list can only be changed if the **Trigger Override** check box is selected.
4	Click **Apply**.
	Result: Your changes will be temporarily saved and will be displayed in the Edit Product Type screen.

Follow these steps to view or edit the control plan details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Control Plans option from the left hand list.
	Result: You see the Control Plans configuration options.
2	In the Control Plans table select the record to change and click **Edit**.
	Result: You see the Edit Control Plan screen.
3	Check or update the control plan details as necessary.
	For more information about the fields in this option, see Control Plan fields.
	Note: The **Override Trigger With** field drop down list can only be changed if the **Trigger Override** check box is selected.
4	Click **Update**.

Deleting control plans

Follow these steps to delete a control plan from a product type.

Step	Action
1	In the Edit Product Type screen, select the Control Plans option from the left hand list.
	Result: You see the Control Plans configuration options.
2	In the Control Plans table, select the record to delete and click **Delete**.
	Result: You see the Delete Confirmation prompt.
3	Click **OK**.

Announcements

Introduction

The Announcements option configures the announcements which will be played to incoming and outgoing calls made using subscriber accounts which are associated with this product type.

Announcements option

Here is an example New Product Type screen showing the Announcements option.

Access to elements of this screen are controlled by user permissions.   If you cannot see some of the functionality described for this screen, your permissions may have been set to restrict access to that element.

Announcements fields

This table describes the function of each field.

Field	Description
Announcement Set	Under the **Time Left Announcement** section, this field indicates the Announcement Set which contains the Announcement Entry that will be played to Subscribers when they have a limited amount of credit remaining. The drop-down list displays all the Announcement Sets a Service Provider can use.

Field	Description
Announcement Entry	Under the **Time Left Announcement** section, this field indicates the Announcement Entry that will be played to Subscribers when they have a limited amount of credit remaining.
	The drop-down list displays all the Announcement Entries from the selected Time Left Announcement Set.
Announcement Set	Under the **Product Name Announcement** section, this field indicates the Announcement Set which contains the Announcement Entry that will be played to Subscribers when their wallet is swapped from this product type to another type.
	The drop-down list displays all the Announcement Sets a Service Provider can use.
Announcement Entry	Under the **Product Name Announcement** section, this field indicates the Announcement Entry that will be played to Subscribers when their wallet is swapped from this product type to another type.
	The list displays all the Announcement Entries from the selected Product Name Announcement Set.

Adding Announcement details

Follow these steps to add the Announcement details for a product type.

Step	Action
1	In the New Product Type screen, select the Announcements option from the left hand list.
	Result: You see the Announcements configuration options.
	For an example screen shot of the Announcements options, see Announcements option.
2	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see Announcements fields.

Editing Announcements details

Follow these steps to view or change the Announcements details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Announcements option from the left hand menu.
	Result: You see the Announcements options.
	For an example screen shot of the Announcements options, see Announcements option.
2	Check or update the Announcements as necessary.
	For more information about the fields in this option, see Announcements fields.

Call Barring

Introduction

The Call Barring option defines which numbers can be called by subscribers with this product type.

Note: Allowed/barred lists can also be configured at the following levels:

- System-wide

- Service Provider (see the *Barred List* (on page 203) tab)

- Subscriber account (see New/Edit Subscriber screen, *Call Barring* (on page 52) option).

Call Barring option

Here is an example New Product Type screen showing the Call Barring option.

Call Barring fields

This table describes the function of each field.

Field	Description
Number List	The numbers or number prefixes which cannot be called by subscribers with this product type.

Field	Description
List Type	Whether the numbers in the Number List will be allowed or barred.
	Note: Depending on the list type, all the numbers in the list will be either allowed or barred for this product type. It is not possible to have some allowed and some barred numbers in the list.
Ignore	Whether the service should ignore the allowed/barred list for this product type.

Adding Call Barring details

Follow these steps to add the Call Barring details for a product type.

Step	Action
1	In the New Product Type screen, select the Call Barring option from the left hand list.
	Result: You see the Call Barring configuration options.
	For an example screen shot of the Call Barring options, see Call Barring option.
2	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see *Call Barring fields* (on page 94).
	For more information about how to configure the Number List, see Number lists.

Editing Call Barring details

Follow these steps to view or change the Call Barring details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Call Barring option from the left hand menu.
	Result: You see the Call Barring options.
	For an example screen shot of the Call Barring options, see Call Barring option.
2	Check or update the Call Barring details as necessary.
	For more information about the fields in this option, see *Call Barring fields* (on page 94).
	For more information about how to configure the Number List, see Number lists.

Number Translations

Introduction

The Number Translations option defines the short number translations which apply to calls by subscribers with this product type.

Note: Number Translation can also be configured at the following levels:

- System-wide

- Service Provider (see the *Number Translation List* (on page 209) tab), and

- Subscriber account (see New/Edit Subscriber screen, *Number Translation* (on page 54) option).

Number Translations option

Here is an example **New Product Type** screen showing the **Number Translations** option.

Number Translations fields

This table describes the function of each field.

Field	Description
Number List	The short number mappings which apply to subscribers with this product type.
In	The string of digits which are called to access the short number.
Out	The destination number calls to the corresponding In number will be terminated to.

Adding number translation details

Follow these steps to add the Number Translation details for a product type.

Step	Action
1	In the New Product Type screen, select the Number Translations option from the left hand list.
	Result: You see the Number Translations configuration options.
	For an example screen shot of the Number Translations options, see Number Translations option.
2	Configure this record by entering data in the fields on this screen.
	Edit the **Number List** as required:
	• To add a number to the list:
	▪ in the **In** field, type the service short code you want to translate from
	▪ in the **Out** field, type the termination number you want to translate the short service code to, and click **Add**.
	• To remove a number from the list, select the number in the **Number List** grid and click **Delete**.
	For more information about the fields on this screen, see *Number Translations fields* (on page 96).

Editing Number Translation details

Follow these steps to view or change the Number Translation details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Number Translation option from the left hand menu.
	Result: You see the Number Translations options.
	For an example screen shot of the Number Translations options, see Number Translations option.
2	Check or update the Number Translations details as necessary.
	Edit the **Number List** as required:
	• To add a number to the list:
	▪ in the **In** field, type the service short code you want to translate from
	▪ in the **Out** field, type the termination number you want to translate the short service code to, and click **Add**.
	• To remove a number from the list, select the number in the **Number List** grid and click **Delete**.
	For more information about the fields in this option, see *Number Translations fields* (on page 96).

Bypass Numbers

Introduction

The Bypass Numbers option defines the destination numbers which subscribers with this product type can call with the bypass discount being applied.

Notes: Bypass Numbers can also be configured at the following levels:

- System-wide`

- Service Provider (see the Edit Resource Limits - *Bypass Numbers* (on page 199) option).

Bypass Numbers option

Here is an example New Product Type screen showing the Bypass Numbers option.

Bypass Numbers fields

This table describes the function of each field.

Field	Description
Number List	The numbers or number prefixes which subscribers with this product type can call and receive the bypass numbers discount.
List Type	Whether the numbers in the Number List will be allowed or barred from receiving the bypass numbers discount.
	Note: Depending on the list type, all the numbers in the list will be either allowed or barred for this product type. It is not possible to have some allowed and some barred numbers in the list.

Field	Description
Ignore	Whether the service should ignore the allowed/barred list for this product type.

Adding Bypass Number details

Follow these steps to add the Bypass Numbers details for a product type.

Step	Action
1	In the New Product Type screen, select the Bypass Numbers option from the left hand list.
	Result: You see the Bypass Numbers configuration options.
	For an example screen of the Bypass Numbers options, see Bypass Numbers option.
2	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see *Bypass Numbers fields* (on page 98).
	For more information about how to configure the Number List, see Number lists.

Editing Bypass Numbers details

Follow these steps to view or change the Bypass Numbers details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Bypass Numbers option from the left hand menu.
	Result: You see the Bypass Numbers options.
	For an example screen of the Bypass Numbers options, see .Bypass Numbers option.
2	Check or update the Bypass Numbers details as necessary.
	For more information about the fields in this option, see *Bypass Numbers fields* (on page 98).
	For more information about how to configure the Number List, see Number lists.

Second Currency

Introduction

A product type's Secondary Currency provides an additional currency which can be used in subscriber interfaces.   All values are stored in the main product type currency, but can be translated into the secondary currency using the exchange rate between the currency.

For more information about currencies, see *Currency* (on page 174).

For more information about exchange rates, see *Exchange Rates* (on page 186).

Second Currency option

Here is an example New Product Type screen showing the Second Currency option.

Second Currency fields

This table describes the function of each field.

Field	Description
Play balance in 2nd currency	Whether wallets with this product type should have a balance which will be announced in the secondary currency.
	Selecting this option enables the Dual Currency announcements set in the Configure Announcements panel of the New/Edit Currency screen. For more information about creating new currencies, see *Currency* (on page 174).
2nd Currency	The currency which will be the alternate currency for wallets with this product type.

Adding Second Currency details

Follow these steps to add the Second Currency details for a product type.

Step	Action
1	In the New Product Type screen, select the Second Currency option from the left hand menu.
	Result: You see the Second Currency configuration options.
	For an example screen shot of the Second Currency options, see Second Currency option.
2	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see *Second Currency fields* (on page 100).

Editing Second Currency details

Follow these steps to view or change the Second Currency details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Second Currency option from the left hand menu.
	Result: You see the Second Currency options.
	For an example screen shot of the Second Currency options, see Second Currency option.
2	Check or update the Second Currency as necessary.
	For more information about the fields in this option, see *Second Currency fields* (on page 100).

What's New

Introduction

The What's New configuration option defines how the What's New feature node behaves when used in a control plan for this product type. For more information about using the What's New feature node, see the *Feature Nodes Reference Guide*.

What's New option

Here is an example New Product Type screen showing the What's New option.

What's New fields

This table describes the function of each field.

Field	Description
Whats new enabled	Whether the What's New feature node should be available to control plans for subscriber accounts with this product type.
Announcement	The announcement which will be played to a caller when the call traverses the What's New node in the control plan.
Dialed number	The number to route the caller to if they choose to hear more about the advertised feature.

Adding What's New details

Follow these steps to add the What's New details for a product type.

Step	Action
1	In the New Product Type screen, select the What's New option from the left hand menu.
	Result: You see the What's New configuration options.
	For an example screen shot of the What's New options, see What's New option.
2	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see *What's New fields* (on page 102).

Editing What's New details

Follow these steps to view or change the What's New details for a product type.

Step	Action
1	In the Edit Product Type screen, select the What's New option from the left hand menu.
	Result: You see the What's New options.
	For an example screen shot of the What's New options, see What's New option.
2	Check or update the What's New details as necessary.
	For more information about the fields in this option, see *What's New fields* (on page 102).

Help & Info

Introduction

The Help & Info configuration defines how the Help Information feature node behaves when used in a control plan for this product type. For more information about using the Help Information feature node, see the *Feature Nodes Reference Guide*.

Help & Info option

Here is an example New Product Type screen showing the Help & Info option.
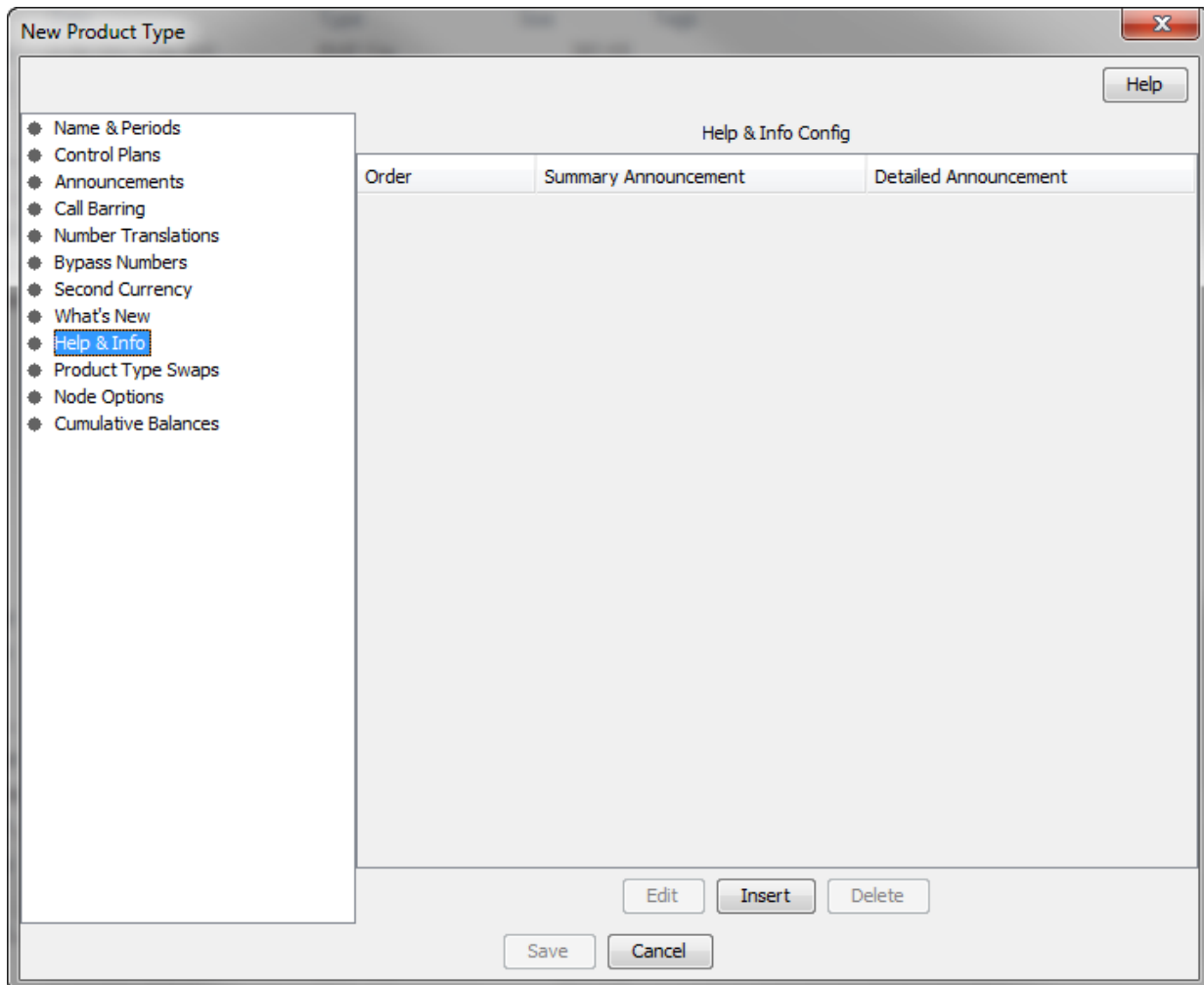
Help & Info fields

This table describes the function of each field.

Field	Description
Order	The number specifying where in the options list this entry should appear. The list is played to a caller as a series of help menu options when the caller accesses the Help & Info menu.
Summary Announcement	The Announcement Entry to play to callers to summarize the contents of this help menu item.
Detailed Announcement	The Announcement Entry to play to callers who choose to listen to the detailed contents of this help menu item.

Adding Help & Info details

Follow these steps to add the Help & Info details for a product type.

Step	Action
1	In the New Product Type screen, select the Help & Info option from the left hand menu.
	Result: You see the Help & Info configuration options.
	For an example screen shot of the Help & Info options, see Help & Info option.
2	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see *Help & Info fields* (on page 104).

Editing Help & Info details

Follow these steps to view or change the Help & Info details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Help & Info option from the left hand menu.
	Result: You see the Help & Info options.
	For an example screen shot of the Help & Info options, see Help & Info option.
2	Check or update the Help & Info details as necessary.
	For more information about the fields in this option, see *Help & Info fields* (on page 104).

Product Type Swaps

Introduction

The Product Type Swap configuration defines how the Product Type Swap feature node behaves when used in a control plan for this Product Type. For more information about using the Product Type Swap feature node, see *Feature Nodes Reference Guide*.

Product Type Swaps option

Here is an example New Product Type screen showing the Product Type Swaps option.
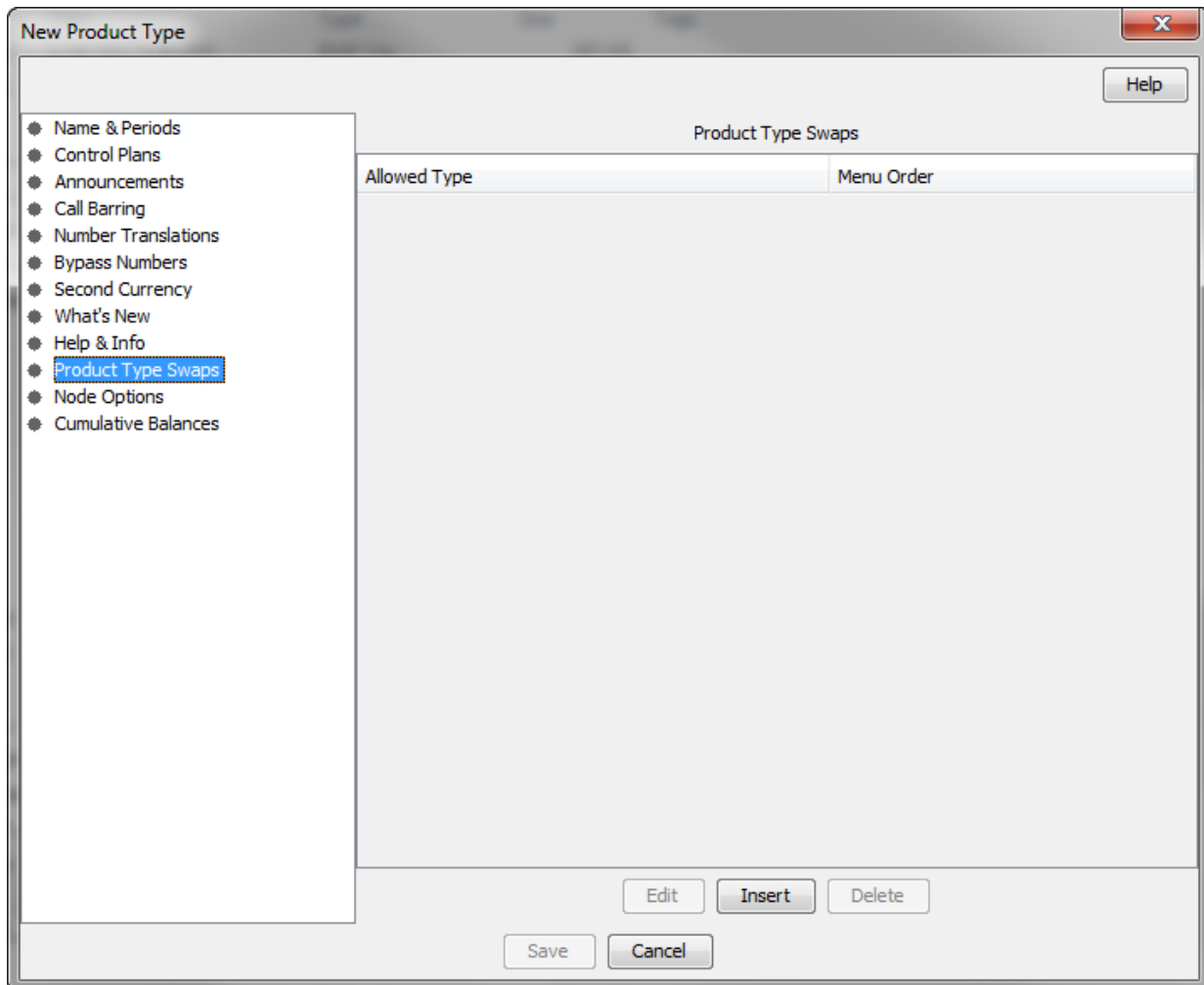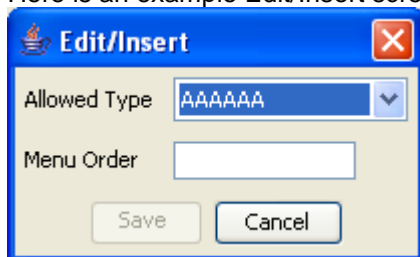
Product Type Swap fields

This table describes the function of each field.

Field	Description
Allowed Type	The product type the subscriber can choose for this menu item.
Menu Order	The number value specifying where in the list of product type menu options this choice occurs.

Edit/Insert screen

Here is an example Edit/Insert screen.

Adding Product Type Swap details

Follow these steps to add the Product Type Swap details for a product type.

Warning: To use product type swaps, you must also have configured a named event set called "Product Type" and it must have a named event in the set called "Product Type Swap". The Product Type Swap named event must have the **Contributes to Monthly Expenditure** check box selected. These values must be exact, or the product type swap will fail.

Step	Action
1	In the New Product Type screen, select the Product Type Swap option from the left hand menu. **Result:** You see the Product Type Swap configuration options. For an example screen shot of the Product Type Swap options, see Product Type Swap option.
2	Click **Insert**. **Result:** You see the *Edit/Insert screen* (See example on page 107).
3	Configure this record by entering data in the fields on this screen. For more information about the fields on this screen, see *Product Type Swap fields* (on page 106).
4	Click **Save** to save the details to the database and return to the New Product Type screen. **Result:** Your changes will be temporarily saved and will be displayed in the New Product Type screen.
5	If required, repeat steps 2-4 until all the recharge options have been configured.

Editing Product Type Swap details

Follow these steps to configure the Product Type Swaps for this product type.

Step	Action
1	In the Edit Product Type screen, select the Product Type Swaps option from the left hand menu. **Result:** You see the Product Type Swaps configuration options. For an example screen of the Product Type Swaps options, see Product Type Swap option.
2	In the Product Type Swap table, select the record to change and click **Insert**. **Result:** You see the *Edit/Insert screen* (See example on page 107).

Step	Action
3	Check or update the Product Type Swap details as necessary.
	For more information about the fields on this screen, see *Product Type Swap fields* (on page 106).
4	Click **Save** to save the details to the database and return to the Edit Product Type screen.
	Result: Your changes will be temporarily saved and will be displayed in the Edit Product Type screen.
5	If required, repeat steps 2-4 until all the recharge options have been configured.

Deleting Product Type Swap details

Follow these steps to delete a Product Type Swap from a product type.

Step	Action
1	In the Edit Product Type screen, select the Product Type Swap option from the left hand menu.
	Result: You see the Product Type Swap configuration options.
	For an example screen shot of the Product Type Swap options, see Product Type Swap option.
2	In the Product Type Swap table, select the record to delete and click **Delete**.
	Result: You see the Delete Confirmation prompt.
3	Click **OK**.
4	If required, repeat steps 2 and 3 until all the Product Type Swaps to delete have been deleted.

Node Options

Introduction

The Node Options option sets product type-specific configuration for these feature nodes:

- Main Menu, and
- Personal Options Menu.

Node Options option

Here is an example New Product Type screen showing the Node Options option.

Node Options fields

This table describes the function of each field.

Field	Description
Allow product type swaps	Whether the Product Swap functionality should be available as a product type swap option on the Main Menu and the Personal Options Menu nodes.
Allow fixed line maintenance	Whether the option to add a fixed line for a prepaid subscriber should be available as an option on the Main Menu and the Personal Options Menu.
Allow outcall	Whether the option making follow-on calls out of the Main Menu node should be available.
Enable help and info	Whether the option of finding more information from the Help & Info Menu should be available on the Main Menu node.
Enable voucher recharge	Whether the option to recharge vouchers should be available.

Field	Description
Balance status warning threshold (system currency: littles)	The amount below which an announcement will be played to the caller warning them about a low account balance. The balance amount will be in the currency of the account.

Adding Node Options details

Follow these steps to add the Node Options details for a product type.

Step	Action
1	In the New Product Type screen, select the Node Options option from the left hand list. **Result:** You see the Node Options configuration options. For an example screen shot of the Node Options options, see Node Options option.
2	Configure this record by entering data in the fields on this screen. For more information about the fields on this screen, see *Node Options fields* (on page 109).

Editing Node Options details

Follow these steps to view or change the Node Options details for a product type.

Step	Action
1	In the Edit Product Type screen, select the Node Options option from the left hand menu. **Result:** You see the Node Options options. For an example screen shot of the Node Options options, see Node Options option.
2	Check or update the Node Options details as necessary. For more information about the fields in this option, see *Node Options fields* (on page 109).

Cumulative Balances

Introduction

The Cumulative Balances option configures the default cumulative balance plan for a product type. The cumulative balance plan defines the set of cumulative balance categories for which announcements can be played using the Cumulative Balances feature node.

For more information about the Cumulative Balances node, see *Feature Nodes Reference Guide*. For details on configuring cumulative balance plans, see *Cumulative Balance Plans* (on page 146).

Note: Balances that have not been assigned to a cumulative balance category cannot be played by the node.

Cumulative Balances option

Here is an example New Product Type screen showing the Cumulative Balances option.
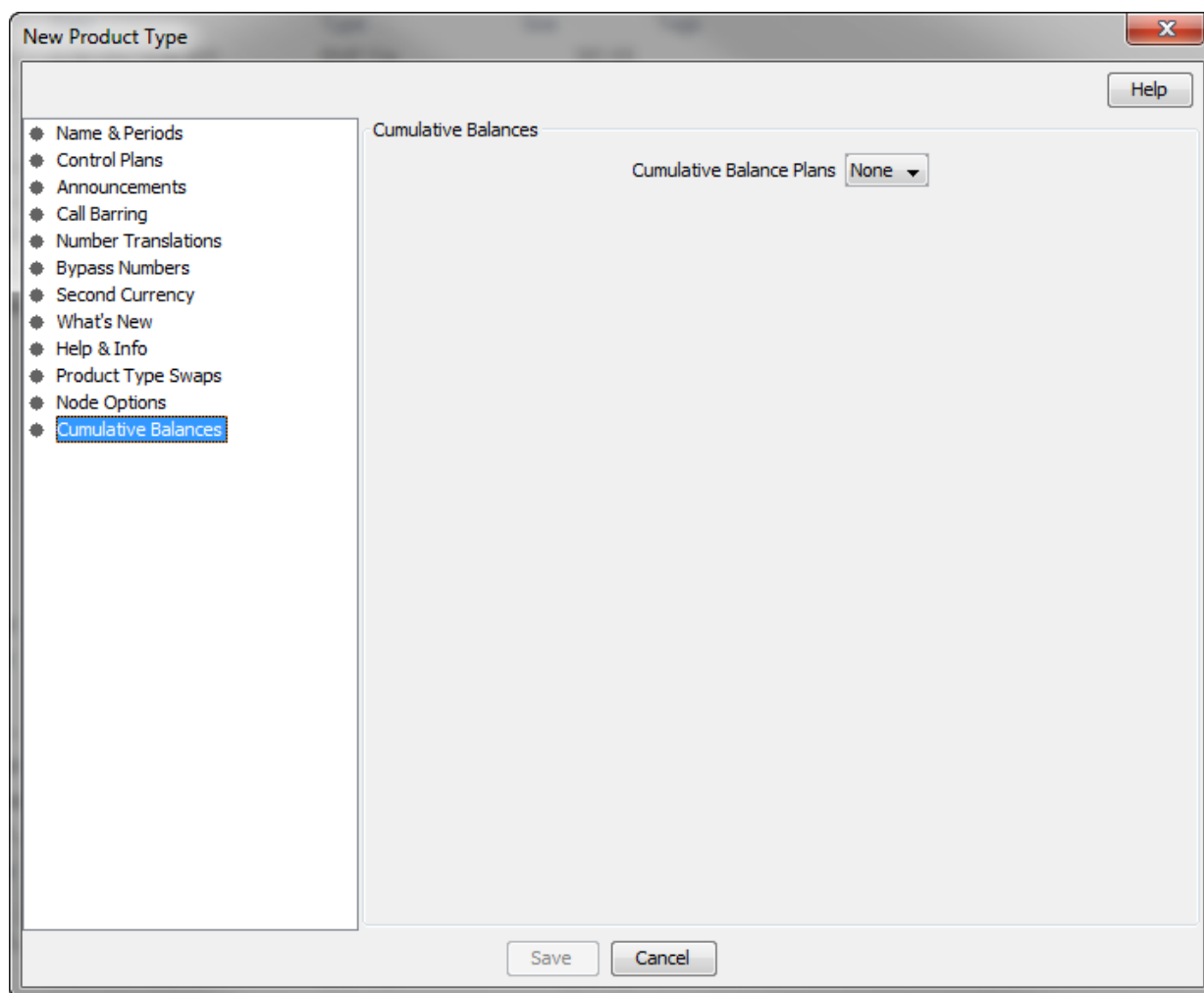
Configuring the cumulative balances option

Follow these steps to configure the default cumulative balance plan for a Product Type.

Step	Action
1	In the New\Edit Product Type screen, select the Cumulative Balances option from the left hand list. **Result:** You see the Cumulative Balances configuration options. For an example screen shot, see Cumulative Balances option.
2	From the **Cumulative Balance Plans** drop down list, select the default cumulative balance plan for the Product Type. The balance categories defined for the plan will be used by the Cumulative Balances node to play cumulative balance announcements. **Notes:** • The default value can be overridden by specifying a value in the node.

Step	Action
	• If None is selected, this indicates there is no default cumulative balance plan associated with the Product Type.
	• Cumulative balance plans and cumulative balance categories are configured in the Wallet Management screen.

Subscriber Profile Limitations

Introduction

You can set Product Type limits for LNSTRING and LOPREFIX profile field types.   The limits set here override the limits set in the Service Management, Resource Limits screen.

Profile groups

The profile fields for which you can set limits are available from the Subscriber Profile Limitations folder in the left hand panel in the Edit Product Type screen. Each group listed in the Subscriber Profile Limitations folder contains the limited profile fields that have been added to that Subscriber group through the SPM. If a field has been added to more than one group then it will be listed more than once.

Note: For more information on:

• Configuring profile fields in ACS, see the *ACS User's Guide*

• Using the SPM to add profile fields to a Subscriber group, see the *SPM User's Guide*

Editing profile field limitations

Follow these steps to set the limits for a product type for a selected profile field where the field type is LNSTRING.

Tip: You can configure service provider limits for profile fields in the **Service Management**>Edit Resource Limits screen.

Step	Action
1	From the left hand list in the Edit Product Type screen, expand the Subscriber Profile Limitations group containing the LNSTRING field you want.
2	Select the LNSTRING field in the group.
	Result: You see the LNSTRING profile field limitations configuration options, such as in this example.

Step	Action

3   Select the **Ignore Limitations** check box, if required:
- When selected, the limits set for the product type are ignored and the resource limits are used.
- When not selected, the limits set here for the product type are used.

4   In the **Min Number Length** field, enter the minimum numeric value for the profile field. Defaults to zero if no value is specified.

5   In the **Max Number Length** field, enter the maximum numeric value for the profile field. Defaults to 255 if no value is specified.

6   Select the **Limitation Prefix Tree Type** from the drop down list. If you select:
- Allowed – The profile field value must match an entry in the number list.
- Barred – The profile field value must not match an entry in the number list.

7   Edit the **Number List**. To:
- Add to the list,
  – Enter a required number in the **New Number** field
  – Click **Add**.
- Delete from the list
  – In the **Number List**, select the number
  – Click **Delete**.

8   Repeat step 7 until all the numbers you want are included.

9   Click **Save**.

Editing profile field limitations

Follow these steps to set the limits for a Product Type for a selected profile field where the field type is LOPREFIX.

Tip: You can configure Service Provider limits for profile fields in the Service Management>Edit Resource Limits screen.

Step	Action
1	From the left hand list in the Edit Product Type screen, expand the Subscriber Profile Limitations group containing the LOPREFIX field you want.
2	Select the LOPREFIX field in the group.
	Result: You see the LOPREFIX profile field limitations configuration options, such as in this example.

3	Tick the **Ignore Limitations** check box, if required:
	• When selected, the limits set for the product type are ignored and the resource limits are used.
	• When not selected, the limits set here for the product type are used.
4	In the **Max Number of Entries** field, type the maximum number of prefixes that may be included in the Number List. Defaults to 100 if no value is specified.
5	In the **Min Number Length** field, type the minimum numeric value for the LOPREFIX field. Defaults to zero if no value is specified.
6	In the **Max Number Length** field, type the maximum numeric value for the LOPREFIX field. Defaults to 255 if no value is specified.

Step	Action
7	Select the **Limitation Prefix Tree Type** from the drop down list. If you select: • Allowed – The LOPREFIX field value must match an entry in the Number List. • Barred – The LOPREFIX field value must not match an entry in the Number List.
8	Edit the **Number List**. To: • Add to the list: Type a required number in the **New Number** field and then click **Add**. • Delete from the list: In the **Number List**, select the number, and then click **Delete**.
9	Repeat step 8 until all the numbers you want are included.
10	Click **Save**.

Profile Fields

Introduction

You can configure the profile fields that have been added to the product type through the SPM. The available profile fields are listed by product type group in the Profile folder in the Edit Product Type screen.

Note: Profile field tags are configured in ACS. The SPM can then be used to add the profile fields to a group in the Edit Product Type screen. For more information on:

• Setting up profile fields in ACS, see *ACS User's Guide*.

• Using the SPM to add profile fields to the product type groups, see the *SPM User's Guide*.

Edit Product Type screen - profile fields example

Here is an example Edit Product Type screen. In this example you see the profile fields that have been added to the PT1 Profile Fields group.

Configuring profile fields

Follow these steps to configure the profile fields in a selected product type group.

Step	Action
1	From the left hand menu in the Edit Product Type screen, select the **Profile** group you want to configure. **Result:** The available profile fields are displayed in the screen. **Tip:** If the profile groups are not currently visible, double click the **Profile** folder in the left hand menu to expand it.
2	Edit the profile field data entry boxes.
3	Click **Save**.

Copying Product Types

Introduction

You can copy product types on the **Product Type** tab.   This facility creates a new product type by copying all the configuration details from a selected product type to a new product type name.   Once the new product type has been created, you can edit its configuration in the Edit Product Type screen.

Copying a product type configuration

Follow these steps to copy a selected product type configuration to a new product type.

Step	Action
1	In the Subscriber Management screen, select the **Service Provider** from the drop down box.
2	From the **Product Type** tab, select the Product Type to copy.
3	Click **Copy**.

Result: You see the Input New Product Type Name screen.
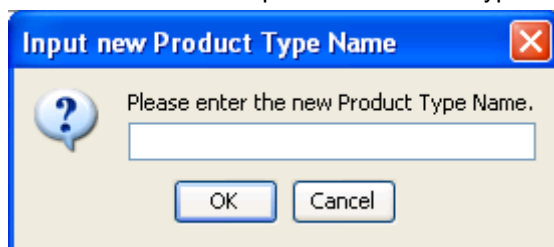
Step	Action
4	Type in the name of the product type to be created.
5	Click **OK**.

Result: The configuration for the selected product type is copied to the new product type. The **Product Type** tab is refreshed and the copied product type appears in the list of product types.

Wallet Management

Overview

Introduction

This chapter explains how to configure the components used to manage wallets.

Warning: The Wallet Management screens are only available if the Rating Management module has been installed on your system and if you are using the VWS domain. If you are using a third party domain, then you will not be able to access these screens.

In this chapter

This chapter contains the following topics.

Wallet Management Module

Introduction
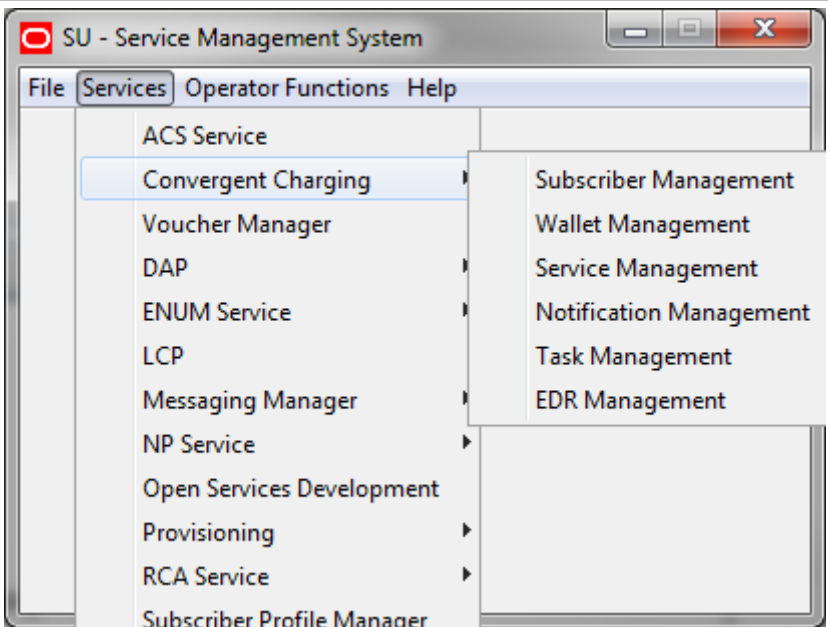
The Wallet Management screen lets you configure components of wallets. It contains the following tabs which are covered in the chapter:

- *Balance Type Translations* (on page 138)
- *Balance Types* (on page 125)
- *Balance Units* (on page 122)
- *Cumulative Balance Plans* (on page 146)
- *Wallet Name Translation* (on page 143)

Accessing Wallet Management screen

Follow these steps to open the Wallet Management screen.

Step	Action
1	Select the **Services** menu from the Service Management System main screen.

Step	Action

2   Select **Convergent Charging > Wallet Management**.

Result: You see the Wallet Management screen.

Wallet Management screen

Here is an example of   Wallet Management screen.

Wallet Management Relationship

This diagram shows the relationship between the various screens available in the Wallet Management module.
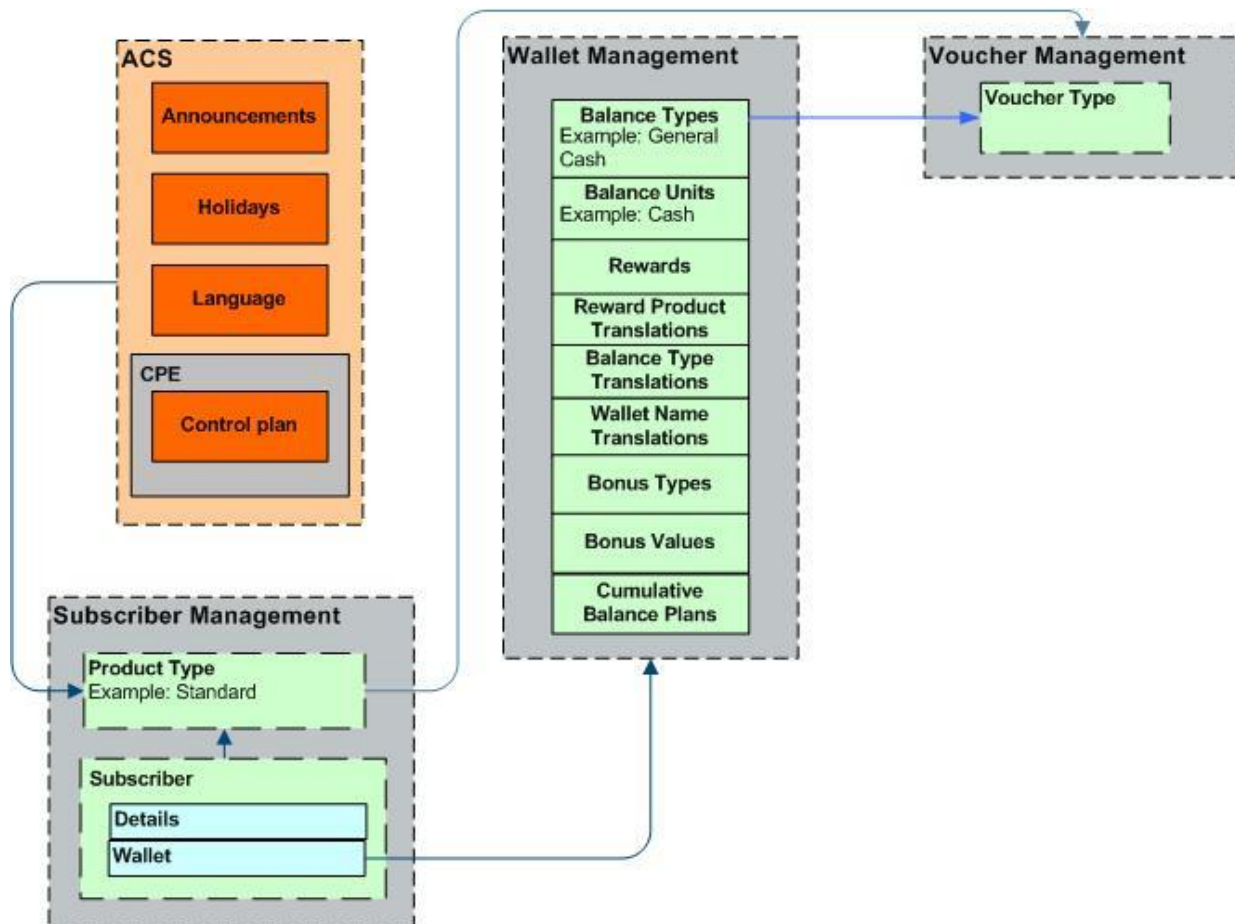
Balance Units

Introduction

This screen enables you to view, add, edit and remove balance units.

Balance units are the type of unit used in balance types. Balance units are either cash or non-cash. Non-cash units include:

- Notifications
- Bad PIN counts,
- Promotional Counters
- Time
- Data.

Note: The functionality that uses time balance units is only available if you have the appropriate license.

Balance Units tab

Here is an example **Balance Units** tab.

Balance Unit screen

Here is an example Balance Unit screen.
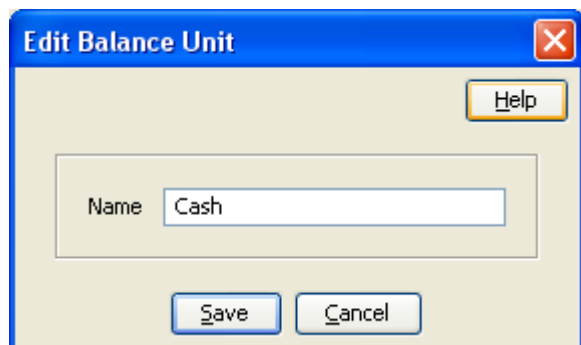
Adding balance units

Follow these steps to add a new balance unit.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the **Balance Units** tab, click **New**.
	Result: You see the New *Balance Unit screen.* (See example on page 124)
3	In the **Name** field, enter the name of the balance unit.
4	Click **Save**.

Editing balance units

Follow these steps to edit an existing balance unit.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the **Balance Units** tab, select the balance unit you want to edit.
3	Click **Edit**.
	Result: You see the Edit *Balance Unit screen* (See example on page 124).
4	Edit the details as described in Adding balance units.
5	Click **Save**.

Deleting balance units

Follow these steps to delete an existing balance unit.

Warning: If you delete a balance unit which is associated with a balance type, your system may become unstable.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the **Balance Units** tab, select the balance unit to delete.
3	Click **Delete**.

Step	Action
	Result: A Delete Confirmation screen appears, similar to that shown below. The type of balance unit shown in the screen will depend on the name of the unit you are deleting.
4	Click **OK**.
	Result: The record will be deleted from the database.

Balance Types

Introduction

The **Balance Types** tab on the Wallet Management screen allows you to view, add, and edit balance types.

Note: The units used for balance types can be either cash, time, data, or units.

Balance type categories

This table describes the different categories of wallet balance types.

Balance Type	Description
Chargeable Balance	Holds the balance types used to cover charges to subscribers. For example: General Cash. These are the only balances that can contribute to expenditure.
Expenditure Balance	Used to accrue daily, weekly, monthly, annual, and total wallet expenditure. Expenditure is calculated based on charges applied to chargeable wallet balance types that have the 'Contributes to Expenditure Plans' flag set.
Fraud Balance	Holds fraud balance types. For example: Bad PIN balances.
Internal Balance	Used by the system for internal accounting purposes. Any balance type that is not chargeable, cross, expenditure, or fraud should be set to internal.
Quota Balance	Used to accrue data quotas. As part of a multi-tariff rating definition, it can then be used to track, and limit, the use of another charging balance cascade.

Expenditure balance types

Expenditure balance types can have one of the following expenditure types:

- Daily
- Weekly
- Monthly
- Yearly
- Wallet

Monthly, yearly, and wallet are always installed, but daily and weekly are only available if you have the Promotion Manager license.

All other balance types must have the **Expenditure Type** field set to `None`. Expenditure is updated by expenditure against chargeable balances which:

- Have the 'Contributes to Expenditure Plans' flag set to 'Y'
- Are included in an expenditure plan which is included in a CLI-DN or named event

Expenditure balance types are also used as a basis for calculating promotions.

Expenditure expiry dates

The expiry date for an expenditure balance is first set when the wallet is activated and then reset when the balance expires. The date set will depend on the expenditure type and the date basis used.

The date basis determines which day of the month and month of the year is assigned to the balance. The options are:

- Balance creation date (default)
- Fixed date
- Wallet activation date
- Wallet expiry date

The expenditure type determines the period used to extend the expiry date. When the expenditure type is:

- Daily, the expiry date will be extended by one day
- Weekly, the expiry date will be extended by seven days
- Monthly, the expiry date will be extended by one month
- Yearly, the expiry date will be extended by one year
- Wallet, the expiry date will be extended to match the current expiry date for the wallet

Example 1

If you set the expiry date calculation basis to 'Fixed Date' for a monthly expenditure balance type, then the specified day of the month will be used to extend the expiry date.

Example 2

If you set the expiry date calculation basis to 'Wallet Activation Date' for a yearly expenditure balance type, then the day and month of the year the wallet was activated will be used to extend the expiry date.

Maximum balances

You can set a maximum balance value for a balance type.   If set, then this value may not be exceeded when a wallet is recharged or updated.

When applying a wallet recharge or update, the maximum balance value will be evaluated against currently available balances only.   Any offset balances defined for the wallet will not be included in the total balance value.

Note: This functionality is applicable to prepaid balance types only.

Maximum balance policy

You can specify the policy to associate with the maximum balance value. This table describes the available policy options.

Policy	Description
Limit Additional Credits	A wallet recharge or wallet update will be restricted to the maximum balance value configured for the balance type for all applicable balances.
	Any unused balance values will be recorded in the EXCEEDED_BALANCE_TYPES and EXCEEDED_VALUES tags in the resulting VWS EDR.

Policy	Description
Reject Credits Over	The default option. You will not be able to apply a wallet recharge or update which would exceed the maximum value configured for any of the balance types in the wallet. This will result in failure and no balances will be updated or recharged.
	The balance types causing the failure will be recorded in the FAILED_BALANCE_TYPES tag in the resulting VWS EDR.

Quota Notifications

You can define quota notifications that will be sent to users when their balance breaches a configured threshold.

On the **Quota Notifications** tab, the following fields are displayed:

- Quota Notification 1
- Notification
- Threshold (%)

The **Quota Notifications** tab enables you to define up to three quota notifications per service provider. For each quota notification, you define the notification to send and the threshold value.

Thresholds are a percentage of the used quota that is in the Quota Tag Set profile fields. When a subscriber's balance breaches a quota of the specified threshold, the defined notification is sent.

For example, if the quota retrieved from the Quota Tag Set Profile field is 50% and the threshold value is 1000 (£10.00), the notification is sent when the subscriber's balance reaches 50% of the defined threshold value, £5.00.

The thresholds apply to all subscribers. However, they can be customized at the subscriber level by using the PI command to set the **Quota Value** and **Quota Threshold** profile fields.

See *CCS Provisioning Interface Commands* for more information about using PI commands to change subscriber profile fields.

Balance Types tab

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

Balance Types help

For help with a new Balance Type screen, see Adding balance types.

For help with editing an existing Balance Type screen, see *Editing balance types* (on page 136).

Balance Type screen

The New Balance Type and Edit Balance Type screens contain tabs which enable you to configure:

- Balance Type Details

- Balance Type Announcements
- Quota Notifications

Balance Type Details tab

Here is an example **Balance Type Details** tab on the Edit Balance Type Screen.

Balance Type Details fields

This table describes the function of each field on the **Balance Type Details** tab.

Field	Description
Name	Enter the name of the balance type. This field is required.
Unit	The balance unit associated with this balance type. The drop-down list displays all available balance units. **Note:** For more information about configuring balance units, see *Balance Units* (on page 122).
Default Type	Indicates if the unit selected in the **Unit** field is the default cash balance type. **Tip:** Only one balance type in CCS should be set as the default type.
Display to Spend Ratio	The ratio value applied to this balance type. This increases the value of this balance type by the entered value when it is used within a rating solution. **Notes:** - Valid range is 0 to 9.99. The default value is 1.00. - This value can only be entered when `the expenditure type` is set to `None`.
Delete After Last Bucket Expiry	Select this check box to delete this balance type when the last bucket expires. **Note:** You may not set this option for fraud balances or the default balance type (normally the General Cash balance type).
Exclude from Creation	Select this check box to exclude this balance type from all new wallets when they are created. Deselecting this check box adds this balance type to all newly created wallets.

Field	Description
Play Announcement if Zero Balance	Select this check box to play an announcement to the caller when the caller's balance is zero.
	Tip: This configuration option is used by feature nodes that inform a subscribers about their balances.
Category	Indicates if the balance type is: • Chargeable • Cross • Expenditure • Fraud • Internal • Quota For more information about balance type categories, see Balance type categories.
	Notes: • The `Quota Balance` option is available only to users with **Quota Balances** SMS permission. • When the quota balance is selected, the **Primary Quota tag Set** and **Secondary Quota Tag Set** fields and the **Quota Notifications** tab become available.
Primary Quota Tag Set	Select the quota limit value for the primary wallet. **Note:** This is available when **category** is set to `Quota Balances`.
Secondary Quota Tag Set	Select the quota limit value for secondary wallet.
Allow Credit	Select this check box if this balance type can have a credit limit. Credit limits are configured in the Convergent Charging, Subscriber Management, Wallets screen.
Expenditure Type	If **Category** is set to **Expenditure Balance**, set this field to how frequently the balance is reset to zero.
	Notes: • If **Category** is set to **Expenditure Balance**, this field is required.
Contributes to Expenditure Plans	Select this check box if charges against balances of this type can increase expenditure balances.
	Notes: • To contribute to the expenditure balance, the charging mechanism (CLI-DN or named event) must specify an expenditure plan. The expenditure balances in the expenditure plan will be increased. • This check box is available for only if **Category** is set to **Chargeable Balances**.
Re-create Bucket on Expiry	Select this check box to recreate a bucket belonging to this balance type on expiry.
	Note: This check box is enabled only if **Category** is set to `Expenditure Balance`.

Field	Description
Delete After Last Bucket Expiry	Select this check box to delete balances of this type when the last bucket expires.
	Note: This check box is not enabled for fraud balances or the default balance types (the general cash balance type).
Max Balance	(Optional) sets the maximum value a balance of this type may have. May be set for these balance categories: • Balance Chargeable • Balance Cross • Balance Fraud In the cash field, type the required value in the units of the balance type and select the **Policy** to use from the drop down list.
	Notes: • For more information on maximum balances, see *Maximum balances* (on page 126). • This field is available to help prevent fraud, and therefore recharges and wallet updates that would take the balance over the configured maximum may be rejected depending on the policy selected.
Expiry Date Calculation	Base the balance type expiry date for tracker balances on one of the following: • Fixed Date • Balance Creation Date • Wallet Expiry Date • Wallet Activation Date If you select `Fixed Date`, you must select the date using the date selector.

Balance Type Announcements tab

Here is an example **Balance Type Announcements** tab on the Edit Balance Type Screen.

Balance Type Announcements fields

This table describes the function of each field on the **Balance Type Announcements** tab.

Field	Description
Name	Name of the balance type. This field is required and must be the same as for the **Balance Type Details** tab.
Expiry Announcement Set	The announcement set to play from when the subscriber's balance expires.
Expiry Announcement Entry	The announcement entry to play to the subscriber if their balance expires.
Single Day Expiry Announcement Set	The announcement set to play from when the subscriber's balance is due to expire in a day.
Single Day Expiry Announcement Entry	The announcement entry to play to the subscriber if their balance is due to expire in a day.
Positive Announcement Set	The announcement set to play from if the subscriber's non-cash balance is positive. **Note:** This field cannot be set if `Cash` is selected in the **Unit** field (**Balance Type Details** tab).
Positive Announcement Entry	The announcement entry to play to the subscriber if their non-cash balance is positive. **Note:** This field cannot be set if `Cash` is selected in the **Unit** field (**Balance Type Details** tab).
Negative/No Credit Announcement Set	The announcement set to play from if the subscriber's balance is negative or has no credit. **Note:** This field cannot be set if `Cash` is selected in the **Unit** field (**Balance Type Details** tab).
Negative/No Credit Announcement Entry	The announcement entry to play to the subscriber if their balance is negative or has no credit. **Note:** This field cannot be set if `Cash` is selected in the **Unit** field (**Balance Type Details** tab).

Quota Notifications tab

Here is an example **Quota Notifications** tab on the Edit Balance Type Screen.

Quota Notifications fields

This table describes the function of each field.

Field	Description
Name	Name of the balance type.
Notification	Select the notification to send to the subscriber from the list.

Field	Description
Threshold (%)	The threshold at which a notification is sent to the subscriber. A maximum of three thresholds can be set.
	Note: Thresholds are the percent of the used quota in the profile location selected in the **Primary Quota Tag Set** and **Secondary Quota Tag Set** fields.The Threshold field gets enabled when you select the notification to send the subscriber.

Adding balance types

Follow these steps to add a new balance type.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the **Balance Types** tab, click **New**.
	Result: You see the New Balance Type Screen, **Balance Type Details** *tab* (See example on page 129).
3	Enter detail data in the available fields on this tab to configure this record.
	For more information about the fields on this tab, see Balance Type Details fields.
	Note: Some fields are unavailable depending on selections in other fields on this tab.
4	Select the **Balance Type Announcements** tab.
5	Configure the announcements from the a vailable drop down lists on this tab. For more information about the fields on this tab, see *Balance Type Announcements fields* (on page 133).
	Note: Depending on the **Unit** selection (on **Balance Type Details** tab), some of these fields will be unavailable.
6	Click **New** to add, edit and delete a currency to announcement maps. See *Currency to Announcement Maps* (on page 136).
	Tip: The **New** button will be available when the **Unit** is Cash (**Balance Type Details** tab).
7	Select the **Quota Notifications** *tab* (See example on page 134).
	Note: This tab is only available when **Category** is set to Quota Balance on the **Balance Type Details** tab.
	For more information about the fields on this tab, see *Quota Notifications fields* (on page 134).
8	For each quota notification, specify the quota notification thresholds by doing the following:.
	• From the **Notifications list**, select the notification to send.
	• In the **Threshold %** field, enter the threshold value.
	Note: These notifications are sent to the subscriber when the thresholds set here have been breached. The thresholds are the percent of the used quota in the profile location selected in the **Primary Quota Tag Set** field and **Secondary Quota Tag Set** field.
	Tip: When saved, the quota notification sets are sorted largest to smallest, so when adding a threshold value, any of the sets can be used. However the notifications are sent in ascending percentage order.

Step	Action
	For example; thresholds for 60, 30 and 90 percent are set in that order, after saving, the list will be in 90, 60 and 30 order, but the first notification is sent after 30% of quota has been used, a second when 60% and a third after 90%.
9	Click **Save**.

Editing balance types

Follow these steps to edit an existing balance type.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the **Balance Types** tab, select the balance type to edit from the table.
3	Perform one of the following:
	• Click **Edit**
	• Double-click on the record
	Result: You see the Edit Balance Type Screen.
4	Edit the fields with the required changes on the **Balance Type Details** tab.
	For information about the available fields, see Balance Type Details fields.
5	Edit the fields with the required changes on the **Balance Type Announcements** tab.
	For information about the available fields, see *Balance Type Announcements fields* (on page 133).
6	If the balance unit is `Cash`, you can add, edit and delete a currency to announcement map for Positive and Negative/No Credit announcements. See *Currency to Announcement Maps* (on page 136).
7	If the **Category** of the balance type is `Quota Balance`, you can configure notifications for the quota on the **Quota Notifications** *tab* (See example on page 134).
	For information about the available fields, see *Quota Notifications fields* (on page 134).
8	Click **Save**.

Deleting balance types

To ensure ongoing stability between CCS and the VWS, the delete function for balance types is not available.

Currency to Announcement Maps

Introduction

As part of setting up a balance type, you can configure currency to announcement maps. Announcements are used in the Cumulative Balances feature node.

Currency to Announcement Mapping screen

Here is an example Currency to Announcement Mapping screen.

Adding a currency to announcement map

Follow these steps to add a currency to announcement map for a cash unit balance type.

Step	Action
1	Open the Balance Type screen for an existing cash unit balance type, as described in steps 1-3 of *Editing balance types* (on page 136).
2	Click **New**. **Result:** You see the *Currency to Announcement Mapping screen* (See example on page 137).
3	From the **Currency One** drop down box, select the primary currency this balance type will use.
4	If this service provider has a second currency configured, select the second currency from the **Currency Two** drop down box.
5	From the **Positive Announcement Set** drop down box, select the announcement set which contains the announcement entry which should be played to the subscriber if their balance is positive.
6	From the **Positive Announcement** drop down box, select the announcement entry which should be played to the subscriber if their balance is positive.
7	From the **Negative Announcement Set** drop down box, select the announcement set which contains the announcement entry which should be played to the subscriber if their balance is negative.
8	From the **Negative Announcement** drop down box, select the announcement entry which should be played to the subscriber if their balance is negative.
9	Click **Save** to save the changes to the database and return to the Balance Type screen. The mapping will appear in the table.

Editing a currency to announcement map

Follow these steps to edit a currency to announcement map for a cash unit balance type.

Step	Action
1	Open the Balance Type screen for an existing cash unit balance type, as described in steps 1-3 of *Editing balance types* (on page 136).
2	Select a mapping from the table and click **Edit**.
	Result: You see the *Currency to Announcement Mapping screen* (See example on page 137).
3	Edit the details, as described in Adding a currency to announcement map.
4	Click **Save**.

Deleting a currency to announcement map

Follow these steps to delete a currency to announcement map for a cash unit balance type.

Step	Action
1	Open the Balance Type screen for an existing cash unit balance type, as described in steps 1-3 of *Editing balance types* (on page 136).
2	Select a mapping from the table and click **Delete**.
	Result: You see the Delete Confirmation prompt.
3	Click **OK** to remove the mapping and return to the Balance Type screen.

Balance Type Translations

Introduction

The **Balance Type Translations** tab lets you view, add, edit and remove translations of balance types.   All SMS Notifications which include balance amounts use these translations.   Short messages which use this method of displaying balances include:

* Short messages generated by the Call Info Text Message feature node
* Recharge confirmation short messages.

Notes:

* If your system lets you specify time costs, then you can define translations for time balance messages.   The time balances are displayed in both seconds and in minutes and seconds. This functionality is only available if you have the appropriate license.

* If no translations of a balance type are provided here for a language, no references to that balance type will be displayed in any short message generated in that language.

Message values

Cash balances

Cash balances in a notification have this format:

```
[Translated Balance Type Name] [Currency Code][Wallet Balance] [Separator]
```
where

- [Translated Balance Type Name] is entered in the **Translated Name** field
- [Currency Code] is the default currency's currency code
- [Wallet Balance] is the subscriber's currency wallet balance
- [Separator] is the character, entered in the **Separator** field, used to separate the main units of the balance value from its sub units.

Example: If the translated name is 'Gen' and the separator is '.', then the translated short message will be:

```
"Your account balance is Gen PLN400.00"
```

Non cash balance messages

A non cash balance notification has this format:

```
[Translated Balance Type Name] [Wallet Balance]
```
Where:

- [Translated Balance Type Name] is entered in the **Translated Name** field
- [Wallet Balance] is the subscriber's balance in the appropriate units

Example: If the translated name is 'Time', and the balance in seconds is 300, then the short message will be:

```
"Your Time balance is 300 seconds"
```

Balance Type Translations tab

Here is an example **Balance Type Translations** tab.

Balance Type Translations Fields

This table describes the balance-type translation fields.

Field	Description
Language	The language the short message is being translated to.
	This field cannot be changed after the record is first saved.
	This list is populated by the **Language** tab on the ACS Tools screen. For more information about configuring languages, see *ACS User's Guide*.

Field	Description
Balance Type	The balance type this translation will be for. This list is populated by the records configured in the **Balance Types** (on page 125) tab. This field cannot be changed after the record is first saved. **Tip:** You can create only one balance-type translation for each language and balance-type combination.
Single Balance Currency Type	If required, you can select a different single balance currency type to use for the balance type. **Note:** This field is available only if the **Balance Type** field is set to a balance type that has a unit of cash.
Dual Balance Currency Type	If required, you can select a different dual-balance currency type to use for the balance type. **Note:** This field is available only if the **Balance Type** field is set to a balance type that has a unit of cash.
Translated Name	The translated balance-type name to send to the subscriber in short messages. If nothing is entered in this field, this part of the message will not be sent. **Tip:** The maximum number of characters allowed is 20.
Single Format for Balance	The structure of the data to send to the subscriber in short messages for a single (or first) currency. • For balance types with a cash unit, the structure of the data to send to the subscriber in short messages when the balance is in one currency. The subscriber's actual details are inserted into the variables. The variables must include the following, in order: `%s %d %c %02d` Where: _(see table below)_ • For balance types with non-cash units (for example, time balances are in seconds), you may only include the %d variable in the text in the **Single Format for Balance** field. _(see table below)_
Dual Format for Balance	The structure of the data to send to the subscriber in short messages for the second currency.

Single Format for Balance, first table:

Variable	Replaced by...	Example
%s	Currency Code	AUD
%d	Main unit of the currency	$
%c	Separator	.
%02d	Subunit of the currency	c

Single Format for Balance, second table:

For balance type unit	%d variable is replaced by
Time	Time balance in seconds
SMS	Number of named events
Bad PIN	Number of bad PIN attempts during the last 24 hours.

Field	Description
	Note: This field is not available for non-cash balance types or balance types that have only one currency.
Separator	The character to use to separate the different balances when put together in an SMS Notification. **Example:** If you enter a comma (,) and there are two balances, General Cash and Promotional Cash, the short message sent in response to a balance inquiry looks like this: `General Cash balance $20.00 , Promotional Cash balance $10.00 .`
Balance Expiry	The balance-expiry text. **Warning:** You must include '%d' in the text. This variable will be converted to the number of days remaining until the balance expires.
No Balance Expiry	The text to output for balances that have no expiry date.

Balance Type Translation screen

Here is an example Balance Type Translation screen.

Adding balance type translations

Follow these steps to add a new balance type translation.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the **Balance Type Translations** tab, click **New**. **Result:** You see the New *Balance Type Translation screen* (See example on page 142).
3	Enter data in the fields to configure this record. For more information about these fields, see *Balance Type Translations Fields* (on page 140).

Step	Action
	Note: The **Single Balance Currency Type** and **Dual Balance Currency Type** fields and the **Dual Format for Balance** field are only available if you select a balance type which has a balance unit of cash from the **Balance Type** drop down list.
4	Click **Save**.

Editing balance type translations

Follow these steps to edit an existing balance type translation.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	In the table on the **Balance Type Translations** tab, select the balance type translation to edit.
3	Click **Edit**.
	Result: You see the Edit *Balance Type Translation screen* (See example on page 142).
4	Edit the fields with the changes to make.
	For more information about the fields on this screen, see *Balance Type Translations Fields* (on page 140).
	Note: The **Language** and **Balance Type** fields cannot be edited.
5	Click **Save**.

Deleting balance type translations

Follow these steps to delete an existing balance type translation.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	In the table on the **Balance Type Translations** tab, select the balance type translation to delete.
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK** to delete the record from the database and return to the **Balance Type Translations** tab.
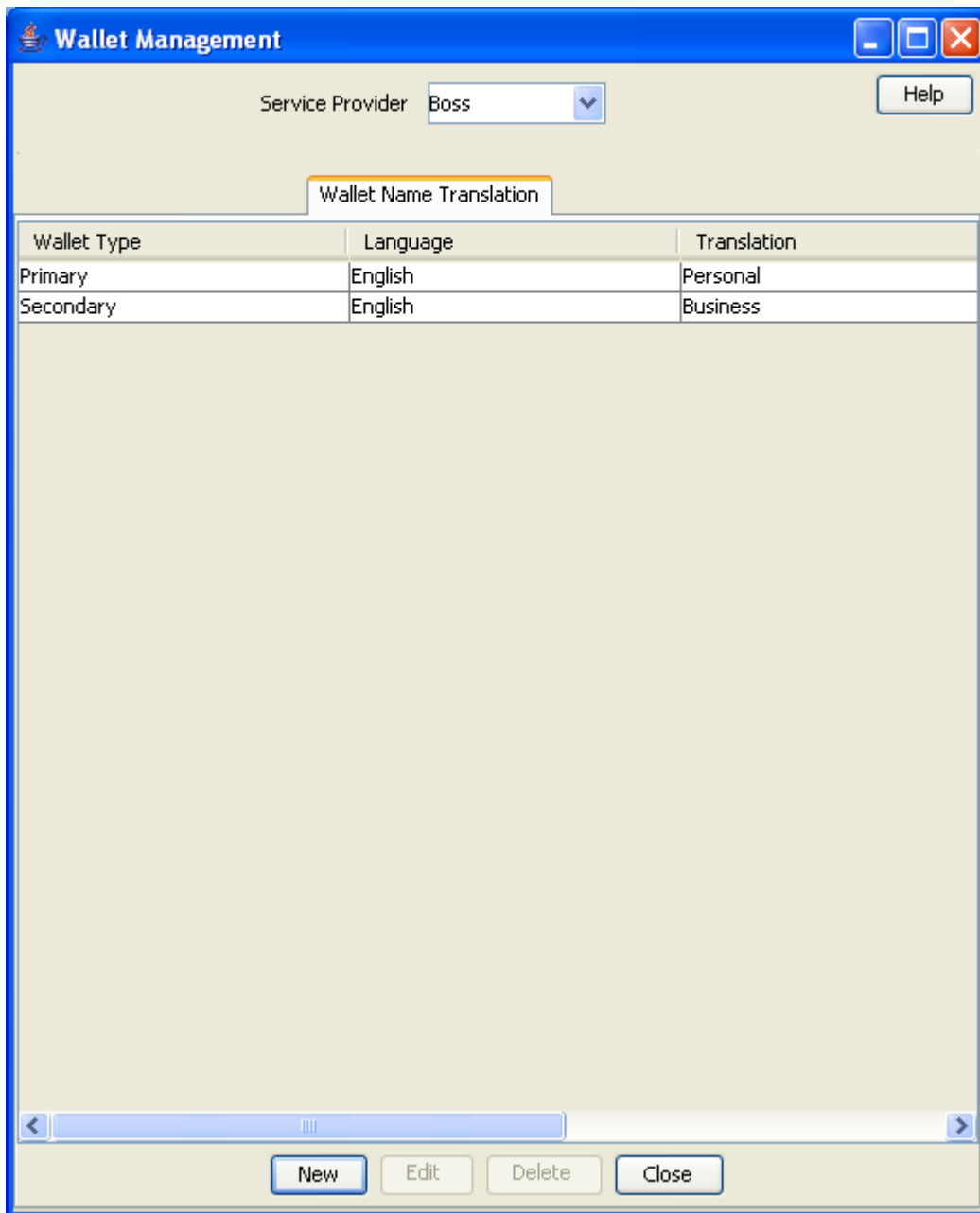
Wallet Name Translation

Introduction

The **Wallet Name Translation** tab lets you view, add, edit and remove translations of wallet type names to the subscriber's language.   A translation is required for each wallet type and language.   The wallet name translations are specified separately for each service provider.

Wallet Name Translation tab

Here is an example **Wallet Name Translation** tab.

Wallet Name Translation screen

Here is an example Wallet Name Translation screen.

Adding wallet name translations

Follow these steps to add a new translation for a wallet type name.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the **Wallet Name Translation** tab, click **New**.
	Result: You see the New *Wallet Name Translation screen* (See example on page 145).
3	From the **Language** drop down box, select the language the wallet type name will be translated to.
4	From the **Wallet Type** drop down box, select the wallet type that will be translated.
5	In the **Translation** field, type the text which will be sent to the subscriber in the short message. This will be sent instead of the default text for this system.
	Tip: If there is a problem with the translation text, the instructions under this field will indicate one of the following:
	• A translation is required (because there is no text in the Translation field)
	• The translation is too long (because there are more than 12 characters in it)
	In the **Wallet Expiry** field, type in the balance expiry text.
	Warning: You must include '%d' in the text. This variable will be converted to the number of days remaining until the wallet expires.
	In the **No Wallet Expiry** field, type the text to output for wallets that have no expiry date.
6	Click **Save**.

Editing a wallet name translation

Follow these steps to edit an existing Wallet Name Translation.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.

Step	Action
2	In the table on the **Wallet Name Translation** tab, select the wallet name translation to edit.
3	Click **Edit**.
	Result: You see the Edit *Wallet Name Translation screen* (See example on page 145).
4	Edit the details as described in *Adding wallet name translations* (on page 145).
	Note: The **Language** and **Wallet Type** fields are for reference only, they are not editable.
5	Click **Save**.

Deleting a wallet name translation

Follow these steps to delete an existing wallet name translation.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	In the table on the **Wallet Name Translation** tab, select the wallet name translation to delete.
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK** to delete the record from the database and return to the **Wallet Name Translation** tab.

Cumulative Balance Plans

Introduction

The Cumulative Balance Plans tab lets you:

- configure the balance categories included in your cumulative balance plans and
- assign balance types to the different balance categories.

The Cumulative Balances node will sum the balances for each balance category in a selected cumulative balance plan and play the relevant announcements.

Cumulative Balance Plans tab

Here is an example **Cumulative Balance Plans** tab.

Cumulative Balance Plan fields

This table describes the function of each field.

Field	Description
Name	Cumulative balance plan name.
Unit Type	Lists the available unit types for balance categories.

Field	Description
Available *Unit_Type* balances	Lists the available balance types for the selected unit type.
Unit_Type categories	Lists the categories that have been configured for the selected unit type. The balance types that have been assigned to each category are listed below the category heading.
Playback Order	- Category - Lists all the categories that have been configured for the cumulative balance plan irrespective of unit type. - Play Order - Lists the order in which balance category announcements will be played by the Cumulative Balances feature node.

Adding cumulative balance plans

Follow these steps to add a cumulative balance plan.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the **Cumulative Balance Plans** tab, click **New.** **Result:** You see the New Cumulative Balance Plan screen.

3	In the **Name** field, type in the new cumulative balance plan name.
4	For each relevant **Unit Type**, add the required balance categories. For details, see Adding balance categories.

Step	Action
5	Use drag and drop to add the required balances to each balance category. To: • add a balance to a balance category, select it in the available balances list and drag it to the required balance category • remove a balance from a balance category, select in the categories list and drag it to the available balances list.

Tip: You can add a balance type to more than one category if required.

6	If required, change the order in which balance categories are played. You can see the current order in the **Playback Order** section. To change the position of a Category in the play order, select it in the **Playback Order** section and click either the **UP** or **DOWN** button.

Note: All the configured categories appear in the Playback Order section irrespective of their Unit Type.

7	Click **Save.**

Editing cumulative balance plans

Follow these steps to edit a cumulative balance plan.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	On the Cumulative Balance Plans tab, select the required cumulative balance plan and click **Edit.**

Result: You see the Edit Cumulative Balance Plan screen.

Step	Action

3	Make the required changes in the available fields. For more information on:

- cumulative balance plan fields, see *Cumulative Balance Plan fields* (on page 147).
- adding balance categories, see Adding balance categories
- editing balance categories, see Editing balance categories, or
- deleting balance categories, see *Deleting balance categories* (on page 155).

4	Click **Save.**

Deleting cumulative balance plans

Follow these steps to delete an existing Cumulative Balance Plan.

Step	Action
1	In the Wallet Management screen, select the service provider from the **Service Provider** list.
2	In the table on the Cumulative Balance Plans tab, select the record to delete.
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK** to delete the record from the database.

Balance Category fields

This table describes the function of each field.

Field	Description
Category Name	A unique name for the balance category. The name can be up to 30 alphanumeric characters long.
Announcement Set	• **Category Announcements** section, this field indicates the Announcement Set which contains the Announcement Entry to be played for Subscribers who belong to this balance category. • **Positive** section, this field indicates the Announcement Set which contains the Announcement Entry to be played for Subscribers with a positive balance in their wallet. • **Negative / No Credit** section, this field indicates the Announcement Set which contains the Announcement Entry to be played for Subscribers with a negative balance in their wallet. • **Days until balance expiration** section, this field indicates the the Announcement Set which contains the Announcement Entry to be played for Subscribers when their balance is about to expire within days. • **Balance Expiration in one day** section, this field indicates the Announcement Set which contains the Announcement Entry to be played for Subscribers when their balance is about to expire within 24 hours.
Announcement Entry	• **Category Announcements** section, this field indicates the Announcement Entry that will be played to Subscribers who belong to this balance category. • **Positive** section, this field indicates the Announcement Set which contains the Announcement Entry that will be played to Subscribers with a positive balance in their wallet. • **Negative / No Credit** section, this field indicates the Announcement Entry that will be played to Subscribers when they run out of credit or have a negative balance in their wallet. • **Days until balance expiration** section, this field indicates the Announcement Entry that will be played to Subscribers when their balance is about to expire soon. • **Balance Expiration in one day** section, this field indicates the Announcement Entry that will be played to Subscribers when their balance is about to expire within 24 hours.
Use unreserved balances	When selected, exclude uncommitted reservations in the available funds played in the announcements (the uncommitted reservation amount is subtracted from the available funds value).
Play Zero Cumulative Balance announcement	To play the announcements even if the cumulative balance for the category is zero, select this check box.
Play Expiry announcement	To play expiry announcements, select this check box.

Adding balance categories

Follow these steps to add a balance category to a cumulative balance plan.

Step	Action
1	In the **Balance Categories** area in the New/Edit Cumulative Balance Plan screen, select the **Unit Type** for which to define balance categories from the drop down list.
	Result: You see the list of available balance types for the Unit Type, and the list of available balance categories.
2	Click **Add Category**.
	Result: You see the Add Balance Category screen.

3	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see Balance Category fields.
4	Click **Apply**.

Step	Action
	Result: You will be returned to the New/Edit Cumulative Balance Plan screen and the new category will be displayed in the balance categories list.

Editing balance categories

Follow these steps to view or edit a cumulative balance category for a Cumulative Balance Plan.

Step	Action
1	In the **Balance Categories** area in the New/Edit Cumulative Balance Plan screen, select the **Unit Type** to view or edit balance categories for from the drop down list. **Result:** You see the list of available balance types for the Unit Type, and the list of available balance categories.
2	Select the category to view or change and click **Modify Category.** **Result:** You see the Modify Balance Category screen.

Step	Action

3	Check or update the Balance Category as necessary.
	For more information about the available fields, see Balance Category fields.
4	If you have made changes to save, click **Apply**.
	If you do not want to make changes to the balance category, click **Cancel**.
	Result: You are returned to the New/Edit Cumulative Balance Plan screen.
5	Use drag and drop to modify the list of balance types included in the balance category.
	Tip: You can add a balance type to more than one category if required.

Step	Action
6	If required, change the order in which balance categories are played. You can see the current order in the **Playback Order** section.
	To change the position of a Category in the play order, select it in the **Playback Order** section and click either the **UP** or **DOWN** button.
	Note: All the configured categories appear in the Playback Order section irrespective of their Unit Type.
7	Click **Save.**

Deleting balance categories

Follow these steps to delete a cumulative balance category from a Cumulative Balance Plan.

Step	Action
1	In the New/Edit Cumulative Balance Plan screen, select the **Unit Type** which holds the balance category you want to delete.
2	Select the balance category record you want to delete and click **Delete Category**.
	Result: You see the Modify Balance Category deletion prompt.
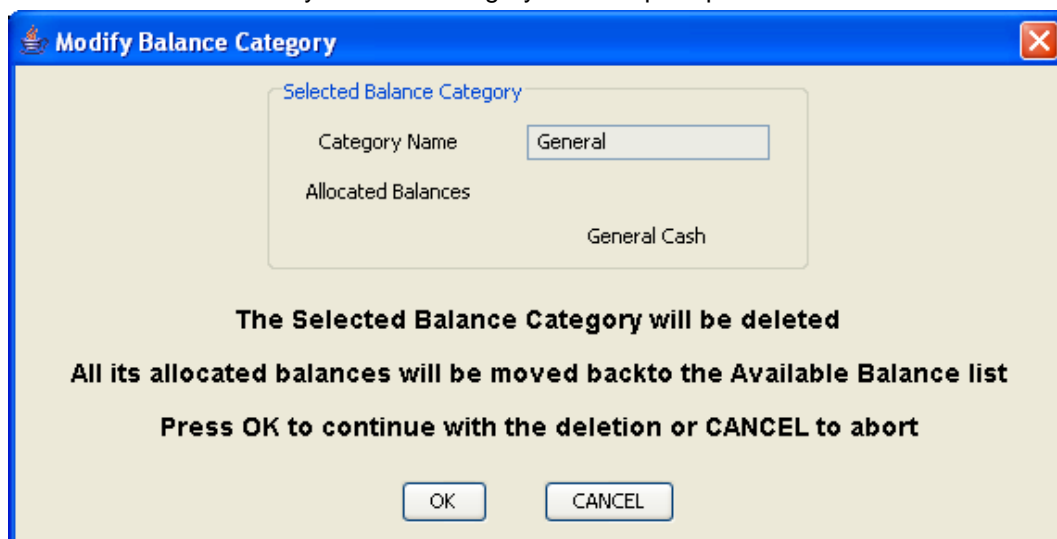
| 3 | Click **OK**. |

Service Management

Overview

Introduction

This chapter explains the service management section of CCS.

In this chapter

This chapter contains the following topics.

Service Management Module

Introduction
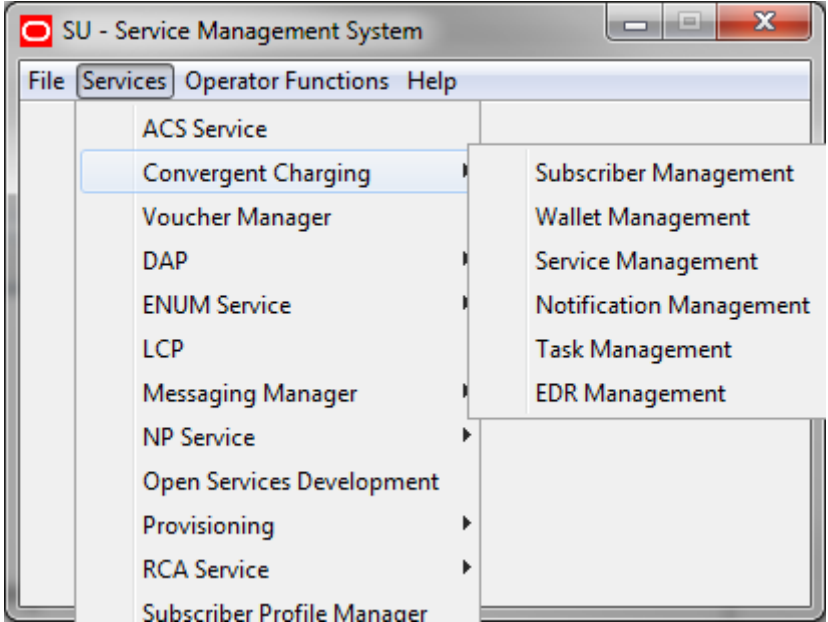
The Service Management screen enables you to configure the service management section of CCS. It contains these tabs:

- *Balance Type Mapping* (on page 215)
- *Barred List* (on page 203)
- *Capability* (on page 205)
- *Channel* (on page 225)
- *Currency* (on page 174)
- *Currency Code* (on page 171)
- *Domain* (on page 161)
- *Exchange Rates* (on page 186)
- *Global Configuration* (on page 184)
- *MFile Generation* (on page 212)
- *Named Event* (on page 228)

- *Number Translation List* (on page 209)
- *Resource Limits* (on page 189)
- *Security* (on page 219)

Accessing the Service Management Screen

Follow these steps to open the Service Management screen.

Step	Action
1	Select the **Services** menu from the SMS main screen.

2	Select **Convergent Charging > Service Management**.
	Result: You see the Service Management screen.

Service Management screen

Here is an example Service Management screen. The screen is displayed with the **MFile Generation** tab open by default.

Tip: Some screens (the **Currency** tab, for example) require scrolling to view all of the columns.

Service Management Relationships

This diagram shows the relationship between the various screens available in the Service Management module.
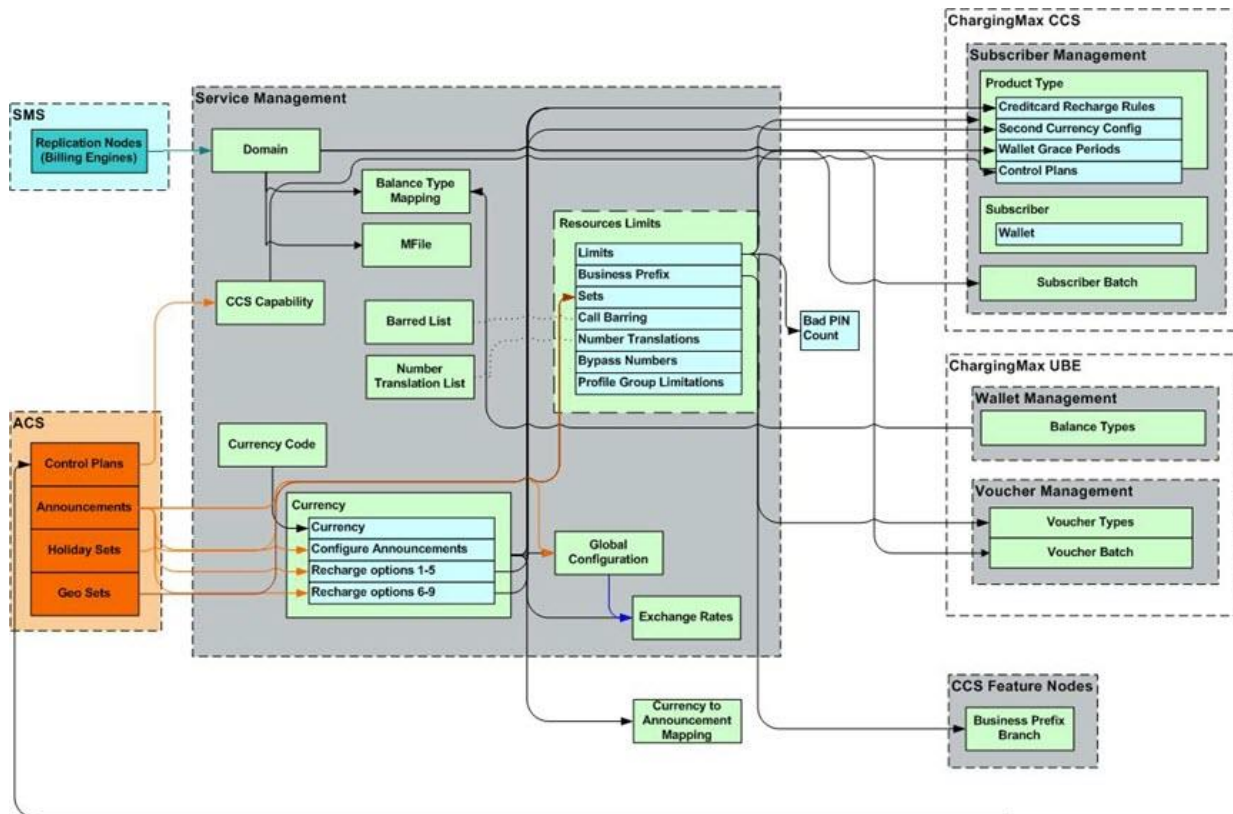
Configuration sequence

This table lists the configuration sequence required to correctly set up the service management part of CCS.

Note: Same numbers indicate configuration independence within the sequence.

Sequence	Data Type
1	*Domain* (on page 161)
1	*Currency Code* (on page 171)
2	*Currency* (on page 174)
3	*Global Configuration* (on page 184)
3	*Resource Limits* (on page 189)
4	*Exchange Rates* (on page 186)
4	*Capability* (on page 205)
5	*Product Type* (on page 79)
6	*Barred List* (on page 203)
6	*Number Translation List* (on page 209)
6	*Security* (on page 219)
6	*Balance Type Mapping* (on page 215)
6	*Channel* (on page 225)

Domain

Introduction to domains

You use the **Domain** tab to configure the following types of domains:

- VWS (Voucher and Wallet Server)
- DIAMETER
- Third-party
- BRM

The tab displays a list of the domains that have been configured. You can configure new domains, and edit, or delete exiting domains.

About Domain Configuration Issues

When you add a new domain or edit an existing domain, the system displays a list of issues in the **Configuration Issues** area of the Domain screen, for any domains that are incorrectly configured. The system automatically updates this list as you resolve the issues by updating the domain configuration. You must resolve all the domain configuration issues before saving the domain.

The following table lists the possible configuration issues, and their resolutions:

Configuration Issue	Resolution
Invalid Name	Specify a unique name for the domain in the **Name** field.
Not Enough Checkboxes	Select the check boxes in the **Manages** area for the features you require. You must select at least one check box.
Invalid Maximum Accounts	Specify a valid number in the **Maximum Accounts** field.
Invalid Maximum Queue Messages	If specified, the value for **Maximum Queue Messages** must be greater than the value for **Minimum Queue Messages**.
Not Enough Domain Nodes	For VWS and DIAMETER domains, you must configure at least one domain node in the **Nodes / Realms** area.
Invalid Username	For BCD domains, you must specify a valid user name of at least one character.
Invalid Password	For BCD domains, you must specify a valid password of at least one character.

Domain tab

Here is an example of the **Domain** tab contents.

Domain screen

Here is an example Domain screen.

Domain fields

This table describes the domain fields in the **BE** area of the Domain screen.

Field	Description
Name	(Required) The unique name of the domain.
Type	(Required) Sets the domain type for this domain. The domain type defines the network element type (such as a Voucher and Wallet Server) for the domain nodes in this domain.
	The list of available domain types is populated when applications are installed. The domain type for the Voucher and Wallet Server is always available.
	Once you have added a node to a domain, this field becomes non-editable.
	For more general information about domain types, see *Domain Types* (on page 5).
	For information about the domain type to choose for an additional installed application, see the application's technical guide.
Maximum Accounts	(Required) Sets the maximum number of subscriber accounts that can be supported by the domain.

Field	Description
Update Username and Password	Select to allow a BCD Client to connect to the BRM communication managers.
Username	Sets the username to use to connect to the BRM communication managers.
Password	Sets the username's password.
Wallet Management Charging	Whether or not wallet management charging functionality is supported for this domain. 'Y' means wallet management charging functionality is supported by the domain and 'N' means it is not. For more information about wallet functionality, see: • *Wallet Management* (on page 119) • *Edit Wallets* (on page 68)
Voucher Management	Whether or not voucher management (including voucher redemption) is supported for this domain. 'Y' means voucher functionality is supported by the domain and 'N' means it is not. For more information about voucher functionality, see Voucher Management.

Third-party domain fields

This table describes the fields in the **Third-Party** area of the Domain screen.   For details on a particular field, see the technical documentation for the application that provides connectivity with the required network element.

Field	Description
Minimum Queue Messages	Minimum queue messages value for third-party billing.
Maximum Queue Messages	Maximum queue messages allowed before the connection is deemed congested.
Connection Retry	The number of connection retries allowed.
Message Timeout	Message timeout value for third-party billing.
Guidance Cache Size	Guidance cache size for third-party billing.

Creating a Domain

When you add a new domain, the system displays a list of issues in the **Configuration Issues** area of the Domain screen, warning you about any configuration that is incorrect. The system automatically updates this list as you configure the domain. For more information about configuration issues, see *About Domain Configuration Issues* (on page 161).

Follow these steps to add a new domain.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Click **New** on the **Domain** tab.

Step	Action
	Result: The New Domain screen displays.
	For information about the fields and check boxes in the New Domain screen, see Domain fields.
3	In the **Name** field, enter a unique name for the domain.
4	From the **Type** list, select one of the following domain types:

- UBE
- A third-party type BE
- A domain type with a DIAMETER prefix
- BCD (for BRM)

The domain type you select determines which fields are enabled. Fields that are disabled, appear grayed out.

Note: The domain type for the Voucher and Wallet Server is UBE.

| 5 | Complete the fields as required. For details about the data to enter for the type of domain you want to create, see: |

- *Specifying a UBE Domain* (on page 165)
- Third-party domain fields
- *Specifying a Diameter Domain* (on page 166)
- *Specifying a BRM Domain* (on page 166)

| 6 | Click **Save**. |
| | **Result:** The new domain is saved, and listed on the **Domain** tab. |

Specifying a UBE Domain

To specify a UBE domain, complete the following fields:

- Type the number of allowed accounts in the **Maximum Accounts** field.
- Select the **Manages** check boxes for the features you require.
- Add at least one domain node to this domain. See *Adding nodes to domains* (on page 166).
  You can edit or delete domain nodes as required. For information about editing domain nodes, see *Editing domain nodes* (on page 169). For information about deleting domain nodes, see *Deleting domain nodes or realms* (on page 171).

For more information about the fields and check boxes on the Domain screen, see Domain fields.

Specifying a Third-Party Domain

To specify a third-party domain, complete the following fields:

- Type the number of allowed accounts in the **Maximum Accounts** field.
- Select the **Manages** check boxes for the features you require.
- In the **Third-Party** area, fill in the relevant fields, as described in Third-Party domain fields.
- Add at least one domain node to this domain. See *Adding nodes to domains* (on page 166).
  You can edit or delete domain nodes as required. For information about editing domain nodes, see *Editing domain nodes* (on page 169). For information about deleting domain nodes, see *Deleting domain nodes or realms* (on page 171).

For more information about the non-third-party fields and check boxes on the Domain screen, see Domain fields.

Specifying a Diameter Domain

To specify a Diameter domain, complete the following fields:

- Type the number of allowed accounts in the **Maximum Accounts** field.
- Select the **Manages** check boxes for the required features.
- In the **Third-Party** area, fill in the **Minimum Queue Messages**, **Maximum Queue Messages** and **Connection Retry** fields, as described in Third-Party domain fields.
- Add at least one realm to this domain. See *Adding realms to domains* (on page 167).

  You can edit or delete realms as required. For information about editing domain realms, see *Editing domain realms* (on page 170). For information about deleting domain realms, see *Deleting domain nodes or realms* (on page 171).

For more information about the non-third-party fields and check boxes on this screen, see Domain fields.

Specifying a BRM Domain

To specify a BRM domain, complete the following fields:

- In the **Name** field, enter BRM
- From the **Type** list, select **BCD**
- In the **Maximum Accounts** field, enter the maximum number of accounts in this domain.
- Select the **Update Username and Password** check box and enter values for **Username** and **Password**, which are used by the BCD Client to connect to the BRM communication managers.
- (Optional) In the **Manages** area, select the **Charging** and **Voucher Management** check boxes.

For more information about the fields and check boxes on the Domain screen, see Domain fields.

Adding nodes to domains

Follow these steps to add a node to a domain.

Step	Action
1	From either the New Domain or Edit Domain screen, click **New**.
	Result: The New *Domain Node screen* (on page 167) appears.
2	Type a unique name for the node in the **Name** field.
3	Select the **Node Number** from the drop down list (the node number must be unique). This is a required field for UBE domains, and optional for third-party domains.
	Notes:
	- Where there is more than one node for a domain, the primary node has the lower number.
	- UBE is the domain type for a Voucher and Wallet Server.
4	Type the IP address for the node in the **Address** field.
	Note: This field is automatically populated if you select a **Node Number.** You can edit this address if required.
5	Type the client port address in the **Client Port** field.
6	Type the internal port address in the **Internal Port** field.

Step	Action
7	If this is a third-party domain, enter values for the following fields. See the relevant third-party billing technical documentation for more information: • **Minimum Weight** • **Maximum Weight** • **Stable Weight** • **Unstable Weight** **Note:** These fields appear grayed out for UBE domain nodes.
8	Click **Save**. **Result:** The new node is saved and then listed in the **Nodes / Realms** area of the New or Edit Domain screen.

Domain Node screen

Here is an example Domain Node screen.

Adding realms to domains

Follow these steps to add a realm to a diameter domain.

Step	Action
1	From either the New Domain or Edit Domain screen, click **New**. **Result:** The New *Domain Realm screen* (on page 168) appears.
2	Type a unique name for the realm in the **Name** field.

Step	Action
3	Type the identity of the realm in the **Identity** field.
	Example: `realm1.telcoexample.com`
4	(Optional) Enter a value in the **Stable Weight** field. Defaults to 1.
5	Click **Save**.
	Result: The new realm is saved and then listed in the **Nodes / Realms** area of the New or Edit Domain screen.

Domain Realm screen

Here is an example Domain Realm screen.

Editing Domains

When you edit a domain, the system displays a list of issues in the **Configuration Issues** area of the Domain screen, warning you about any configuration that is incorrect. The system automatically updates this list as you edit the domain configuration. For more information about configuration issues, see *About Domain Configuration Issues* (on page 161).

Follow these steps to edit a domain.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the domain to edit from the table in the **Domain** tab.
3	Click **Edit**.
	Result: The Edit Domain screen appears.

Step	Action
4	Change the following fields as required: • Domain name in the **Name** field • Maximum number of accounts in the **Maximum Accounts** field • **Wallet Management Charging** • **Voucher Management** check box. See Domain fields for a description of these fields and check boxes.
5	If this is a non-UBE domain, you may also change the following fields as required. If the domain is: • BCD: – **Update Username and Password** check box – **Username** – **Password** • third-party: – **Minimum Queue Messages** – **Maximum Queue Messages** – **Connection Retry** – **Allow Adaptation** check box – **Message Timeout** – **Enable Guidance** check box and **Guidance Cache Size** • DIAMETER: – **Minimum Queue Messages** – **Maximum Queue Messages** – **Connection Retry** For details, see the relevant BCD, third-party billing or Diameter technical documentation. **Note:** UBE is the domain type for a Voucher and Wallet Server.
6	Depending on the type of domain: • For UBE and third-party domains, you can edit the domain nodes as required. See *Adding nodes to domains* (on page 166), *Editing domain nodes* (on page 169) or *Deleting domain nodes or realms* (on page 171) procedures. • For DIAMETER domains, you can edit the domain realms as required. See *Adding realms to domains* (on page 167), *Editing domain realms* (on page 170), or *Deleting domain nodes or realms* (on page 171).
7	Click **Save**. **Result:** The domain changes are saved and reflected in the **Domain** tab table.

Editing domain nodes

Follow these steps to edit a domain node.

Step	Action
1	From the table in the **Nodes / Realms** area in either the New Domain or Edit Domain screen, select the node you want to update and click **Edit**. **Result:** The Edit *Domain Node screen* (on page 167) appears.

Step	Action
2	Update the following fields as required: • Node address in the **Address** field • Client port address in the **Client Port** field • Internal port address in the **Internal Port** field
3	If this is a third-party domain, update the following fields as required. See the relevant third-party billing technical documentation for more information: • **Minimum Weight** • **Maximum Weight** • **Stable Weight** • **Unstable Weight** **Note:** These fields appear grayed out for UBE domain nodes.
4	Click **Save**. **Result:** The node is saved.

Editing domain realms

Follow these steps to edit a domain realm.

Step	Action
1	From the table in the **Nodes / Realms** area of either the New Domain or Edit Domain screen, select the realm you want to update and click **Edit**. **Result:** The Edit *Domain Realm screen* (on page 168) appears.
2	Update the following fields as required: • **Identity** • **Stable Weight**
3	Click **Save**. **Result:** The realm is saved.

Deleting domains

Follow these steps to delete a domain.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the domain to delete from the table in the **Domain** tab.
3	Click **Delete**. **Result:** The Delete Confirmation screen appears.
4	Click **OK**. **Result:** The domain is deleted from the Domain tab table.

Deleting domain nodes or realms

Follow these steps to delete a node or a realm from a domain.

Step	Action
1	From the table in the **Nodes / Realms** area of either the New Domain, or Edit Domain screen, select the node or realm that you want to delete, and click **Delete**.
	Result: The delete confirmation screen appears.
2	Click **Apply**.
	Result: The node or realm is marked for deletion. It is then deleted from the database when you click **Save** in the Edit or New Domain screen.
	Note: To be able to save the domain in the Domain screen, the domain must have at least one node or realm configured.

Currency Code

Introduction

The **Currency Code** tab enables you to view, create, edit and delete the currency codes that are available in the system.

Currency Code tab

Here is an example of the **Currency Code** tab.

Currency Code screen

Here is an example Currency Code screen.

Adding a Currency Code

Follow these steps to add a new currency code.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	On the **Currency Code** tab, click **New**. **Result:** You see the New *Currency Code screen* (on page 173).
3	Enter the three-letter currency code in the **Code** field.
4	Enter a description of the currency code in the **Description** field.
5	Click **Save**.

Editing a Currency Code

Follow these steps to edit an existing currency code.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the currency code to edit from the table on the **Currency Code** tab.
3	Click **Edit**. **Result:** You see the Edit *Currency Code screen* (on page 173).
4	If required, change the three-letter currency code in the **Code** field.
5	If required, change the description of the currency code in the **Description** field.
6	Click **Save**.

Deleting a Currency Code

Follow these steps to delete an existing currency code.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.

Step	Action
2	Select the currency code to delete from the table on the **Currency Code** tab.
3	Click **Delete**.
	Result: The Delete Confirmation prompt appears.
4	Click **OK** to delete the record from the database.
	Result: The record is deleted and the Currency prompt is displayed.
5	Click **OK**.

Currency

Introduction

The **Currency** tab enables you to:

- Configure the default system currency
- View currencies which have been set up in the system

When setting up the system for the first time, it is important to set the default currency before configuring the rest of the system (and after configuring the VWSs).

For each new currency entered into the system, a rate of exchange between the new currency and the system currency must be set. This exchange rate is set on the **Exchange Rates** (on page 186) tab of the Service Management screen.

Currency entry components

When adding a new currency to CCS, a number of inter-related components must be completed before the new currency can be used.

These components are configurable from the New Currency and Edit Currency screens, and are as follows:

- Configure Announcements
- Configuring Recharge Options 1-5
- Configuring Recharge Options 6-9

Recharging Credit Cards - required components

The following currency components are required for recharging credit cards.

- Configuring Recharge Options 1-5
- Configuring Recharge Options 6-9

Each caller has a maximum of nine recharge options per currency available. The announcement entry and set are selected for each option. The option announcements work as follows:

Caller options	The system will play the balance announcement...
1	followed by the "Press * to cancel" as defined by the announcement set selected in the **One option** section.
2	followed by the "Press * to cancel" as defined by the announcement set selected in the **Two options** section.
3	followed by the "Press * to cancel" as defined by the announcement set selected in the **Three options** section.

Caller options	The system will play the balance announcement...
4	followed by the "Press * to cancel" as defined by the announcement set selected in the **Four options** section.
5	followed by the "Press * to cancel" as defined by the announcement set selected in the **Five options** section.
6	as defined by the announcement set selected in the **Five options and on** section. *Plus* the recharge announcement set selected in the **Recharge option six** section followed by the "Press * to cancel"
7	as defined by the announcement set selected in the **Five options and on** section. *Plus* the recharge announcement set selected in the **Recharge options 6-7** section followed by the "Press * to cancel"
8	as defined by the announcement set selected in the **Five options and on** section. *Plus* the recharge announcement set selected in the **Recharge options 6-8** section followed by the "Press * to cancel"
9	as defined by the announcement set selected in the **Five options and on** section. *Plus* the recharge announcement set selected in the **Recharge options 6-9** section followed by the "Press * to cancel"

Example announcements

A caller has six options for their account.

The first announcement, defined in the **Five options and on** field, is configured to play the following:

```
"Your balance is x Big_Currency and y Small_Currency
To recharge by Recharge_Option_1 Big_Currency, press 1
To recharge by Recharge_Option_2 Big_Currency, press 2
To recharge by Recharge_Option_3 Big_Currency, press 3
To recharge by Recharge_Option_4 Big_Currency, press 4
To recharge by Recharge_Option_5 Big_Currency, press 5"
```
The next announcement, defined in the **Recharge option six** field, will play the following:

```
"To recharge by Recharge_Option_6 Big_Currency, press 6
Press * to cancel."
```
If *Big_Currency* is dollars and *Small_Currency* is cents, the announcements played would be like this:

"Your balance is two dollars and twenty five cents
To recharge by five dollars press 1
To recharge by ten dollars press 2
To recharge by twenty dollars press 3
To recharge by fifty dollars press 4
To recharge by one hundred dollars press 5"

"To recharge by two hundred dollars, press 6
Press * to cancel."

Currency tab

Here is an example of the **Currency** tab.

Currency details

All configuration options must be completed to finalize a currency so it can be used. However, the configuration can be saved at any point by clicking **Save**.

To configure a currency as a default currency for the system, configure the currency here, and then set it as the default in the *Global Configuration* (on page 184) screen.

Follow these steps to add currency details for a new currency.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	On the **Currency** tab, click **New**.
	Result: The New Currency screen displays with the Currency options.
3	Enter the symbol that represents the main unit of the currency in the **Big Symbol** field (for example, € for euros).
4	Enter the symbol that represents the subunit of the currency in the **Little Symbol** field (for example, c for cents).
5	Select the currency name from the **Name** drop down box.
	Note: Only valid currency names are available from the list.
	Result: The **Currency Code** field is populated by the system. This shows the currency code that identifies the currency.
6	Enter the separator used to separate the main unit from the subunit of the currency in the **Separator** field.
	Examples: In the currency of:
	• Euros - the separator is a comma (for example, 3,20)
	• Dollars - the separator is a decimal point (for example, $4.00)
7	Enter the ratio of subunits to main units of currency in the **Base** field.
	Example: 100 cents per euro = a ratio of 100.
8	Click **Save**.
9	Configure the *Announcements* (on page 178).
10	Configure the announcements for *Recharge options 1-5* (on page 179).
11	Configure the announcements for *Recharge options 6-9* (on page 181).

Currency screen

Here is an example Currency screen.

Announcements

Follow these steps to add the confirmation prompt announcement for a new currency.

Step	Action
1	Select the **Configure Announcements** option in the New Currency screen.
	Result: You see the *Configure Announcements option* (on page 179), displaying the Confirmation Prompt configuration.
2	Select from the **Confirmation Prompt** section:
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller when prompting for caller confirmation of a recharge
3	Click **Save**.

Configure Announcements option

Here is an example Configure Announcements option.
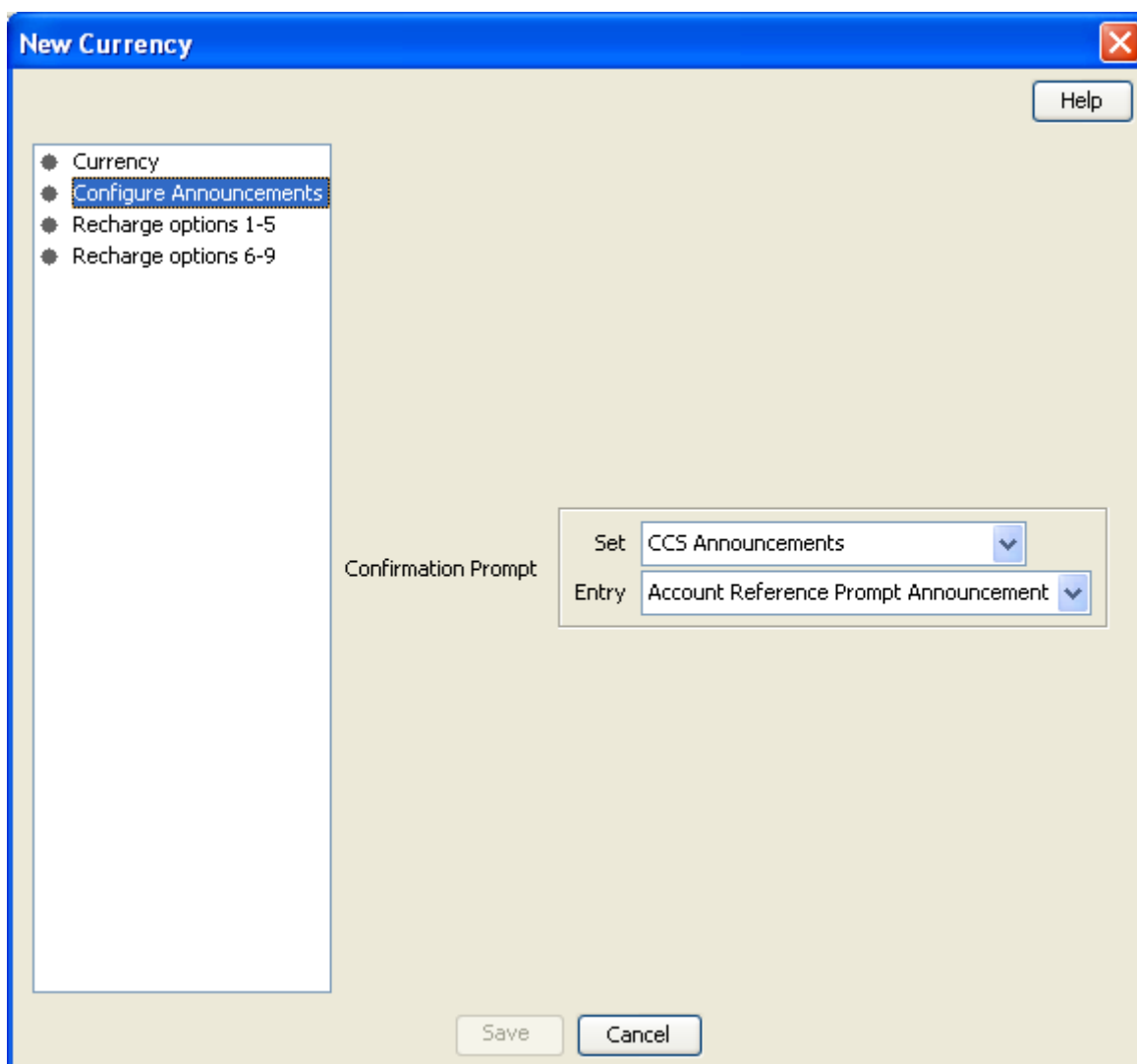
Recharges 1-5

Follow these steps to add the announcements for recharge options 1-5 for a new currency.

Step	Action
1	Select the **Recharge options 1-5** option in the New Currency screen.
	Result: You see the *Recharge options 1-5* (on page 181), displaying announcements for currency Recharge one to five, plus more than five.
2	Select from the **One option** section:
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have one recharge option
3	Select from the **Two options** section:
	• The Announcement Set from the **Set** drop down box

Step	Action
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have two recharge options.
4	Select from the **Three options** section:
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have three recharge options.
5	Select from the **Four options** section:
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have four recharge options.
6	Select from the **Five options** section:
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have five recharge options.
7	Select from the **Five options and on** section:
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have more than five recharge options.
8	Click **Save**.

Recharge options 1-5

Here is an example Recharge options 1-5.

Recharges 6-9

Follow these steps to add the announcements for recharge options 6-9 for a new currency.

Step	Action
1	Select the **Recharge options 6-9** option from the New Currency screen. **Result:** You see the *Recharge options 6-9* (on page 183), displaying announcements for currency recharge six to nine.
2	Select from the **Recharge option six** section: • The Announcement Set from the **Set** drop down box • The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have six recharge options. This will include the announcements set from **Five options and on**.
3	Select from the **Recharge options 6-7** section:

Step	Action
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have seven recharge options.
	This will include the announcements set from **Five options and on**.
4	Select from the **Recharge options 6-8** section:
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have eight recharge options.
	This will include the announcements set from **Five options and on**.
5	Select from the **Recharge options 6-9** section:
	• The Announcement Set from the **Set** drop down box
	• The Announcement Entry from the **Entry** drop down box that is to be played to a caller if they have nine recharge options.
	This will include the announcements set from **Five options and on**.
6	Click **Save**.

Recharge options 6-9

Here is an example Recharge options 6-9.

Editing a currency

Follow these steps to edit the details of an existing Currency record.

To configure a Currency as a Default Currency for the system, configure the Currency here, and then set it as the default in the *Global Configuration* (on page 184) screen.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the record o edit from the **Currency** tab table.
3	Click **Edit**. **Result:** The Edit Currency screen displays, showing the Currency options.
4	Edit the currency details as described in *Currency details* (on page 176).

Step	Action
	Warning: You cannot change the **Base** once set.
5	Click **Save**.

Deleting a currency

Follow these steps to delete an existing currency configuration record.

To remove a currency as a default currency for the system, see the *Global Configuration* (on page 184) screen.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the record to delete from the **Currency** tab table.
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK** to delete the record from the database.
	Result: The record is deleted and the Currency prompt displays.
5	Click **OK**.

Global Configuration

Introduction

You set the following global configuration on the **Global Configuration** tab in the Service Management window:

- The system currency. The required currency must have already been added to the system using the procedures in *Currency* (on page 174).
- The mapping of languages that the system currency is announced in. See *Adding or editing a language map* (on page 186) and *Deleting a language map* (on page 186).

Global Configuration tab

Here is an example **Global Configuration** tab.

Adding or editing a language map

Language maps determine what language the system currency is announced in.

Follow these steps to add a new, or edit an existing language map.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the **Global Configuration** tab, click **Edit**.
	Result: You see the Edit Global Configuration screen.
3	Select the Language Menu Option Mapping option.
	Result: The screen displays the Language menu option mapping section.
4	To add a new mapping: • Click **Insert** To edit an existing mapping: • Select the **Language** item to change from the table • Click **Edit** **Result:** You see the Edit/Insert screen.
5	Select the **Language** from the drop down list.
6	For a new mapping, enter the key mapping number in the **Key Mapping** field.
	Warning: This cannot be changed once saved.
7	Click **Save** to update the table.
8	Click **Save** to the details to the database.

Deleting a language map

Follow these steps to delete a language map.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the **Global Configuration** tab, click **Edit**.
	Result: You see the Edit Global Configuration screen.
3	Select the Language Menu Option Mapping option.
	Result: The screen displays the Language menu option mapping section.
4	Select the **Language** item to delete from the table.
5	Click **Delete**.
6	Click **Save** to the details to the database.

Exchange Rates
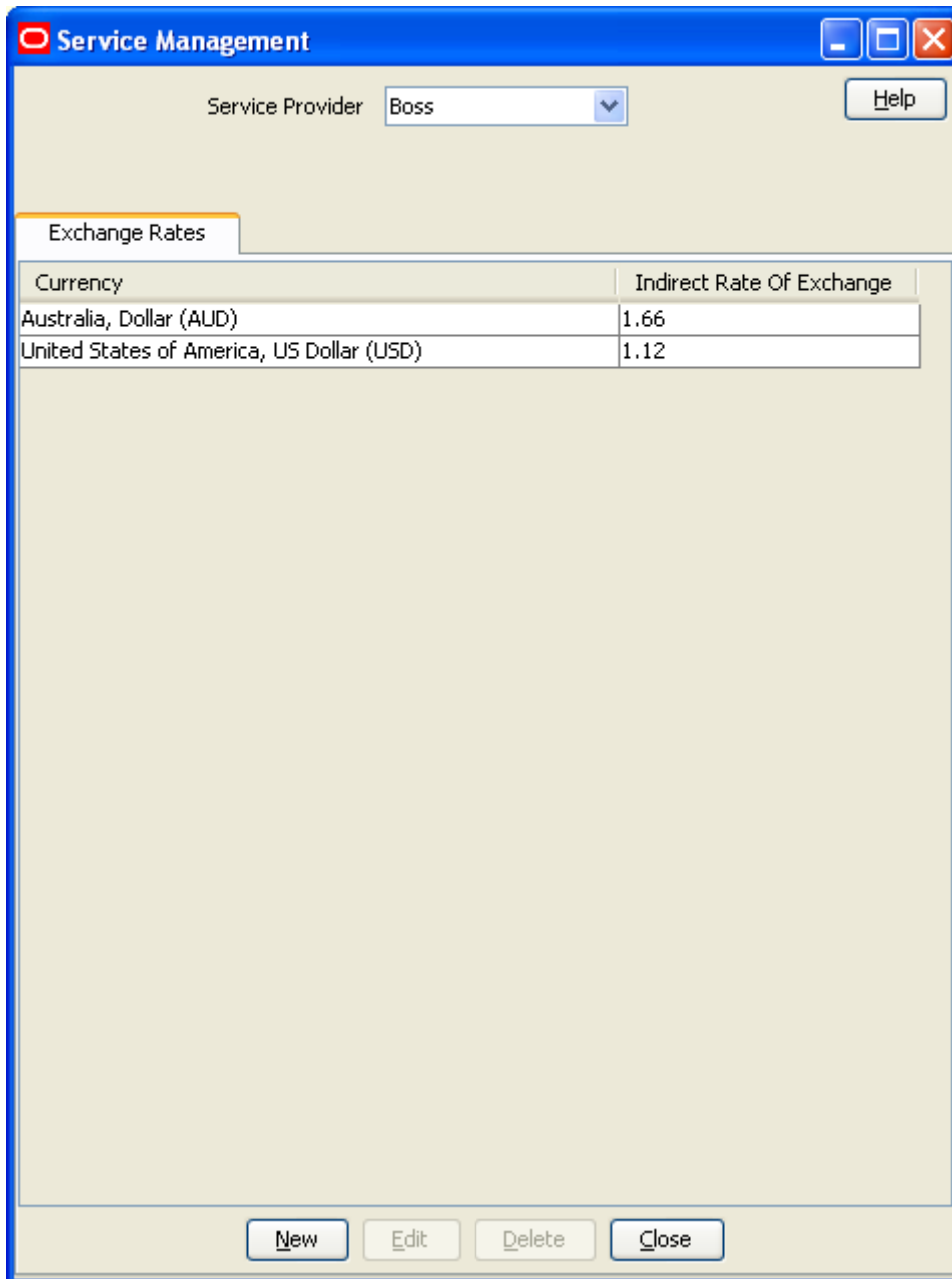
Introduction

The **Exchange Rates** tab allows you to view, add, edit and delete the Exchange Rates that are available in the system.

Account balances are stored in the System Currency, then converted to the user's selected Currency by the indirect rate of exchange set in this tab.

Exchange Rates tab

Here is an example of the **Exchange Rates** tab.

Exchange Rate screen

Here is an example Exchange Rate screen.

Adding an exchange rate

Follow these steps to add a new Exchange Rate record.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the **Exchange Rates** tab, click **New**. **Result:** The New *Exchange Rate screen* (on page 188) appears with the default System Currency displayed in the **System Currency** field.
3	Select the Currency to convert the System Currency to from the **Currency** drop down box. The list will display all available Currencies that are set up on the **Currency** tab.
4	Type the value which the System Currency will be multiplied by to establish the Currency value in the **Indirect Rate of Exchange** field. The indirect rate of exchange is the value of 1 unit of System Currency in the selected Currency. **Example:** If the Indirect Rate of Exchange is set to 4, 1 unit of the System Currency will result in 4 of the configured Currency units. Consequently if an Account Balance is 100 Zloty, and the Exchange Rate to Euros is set at 0.22, the Account Balance will be converted to 22 Euros.
5	Click **Save**.

Editing an exchange rate

Follow these steps to edit an existing Exchange Rate.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the **Exchange Rates** tab, select the Exchange Rate to edit.
3	Click **Edit**. **Result:** The Edit *Exchange Rate screen* (on page 188) appears.

Step	Action
4	Enter the value which the System Currency will be multiplied by to establish the Currency value in the **Indirect Rate of Exchange** field.
	The indirect rate of exchange is the value of 1 unit of System Currency in the selected Currency.
	Example: If the Indirect Rate of Exchange is set to 4, 1 unit of the System Currency will result in 4 of the configured Currency units. Consequently if an Account Balance is 100 Zloty, and the Exchange Rate to Euros is set at 0.22, the Account Balance will be converted to 22 Euros.
5	Click **Save**.

Deleting exchange rates

Follow these steps to delete an existing Exchange Rate record.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the **Exchange Rates** tab, select the Exchange Rate to delete.
3	Click **Delete**.
	Result: The Delete Confirmation prompt appears.
4	Click **OK** to delete the record from the database.
	Result: The record is deleted and you see the Exchange Rate successfully deleted message.
5	Click **OK**.

Resource Limits

Introduction

The Resource Limits screens enable the service provider's resource limits to be specified.   These limits prevent a service provider from using more than the specified number of:

- Product types
- Voucher types

All configuration options must be completed to finalize a resource limit; however the configuration can be saved at any point by clicking **Save**.

Notes:

- All service providers must have resource limits configured for them.

- Resource limits can only be set for existing service providers. Service providers are added as ACS customers in the ACS Customers screen. For more information about adding new service providers, see *ACS User's Guide*.

Resource Limits Tab

Here is an example **Resource Limits** tab.

Resource Limits Tab Fields

The **Resource Limits** tab contains display-only fields, showing the limits and the current usage of the resource.   The following table shows where you set the value in each limit field.

Field	Where Set
Maximum Product Types Maximum Voucher Types	Edit Resource Limits screen, Limits option.

Field	Where Set
Global Business Prefix Account Number Prefix	Edit Resource Limits screen, Business Prefix option.

Edit Resource Limits Screen

Here is an example of Edit Resource Limits screen.
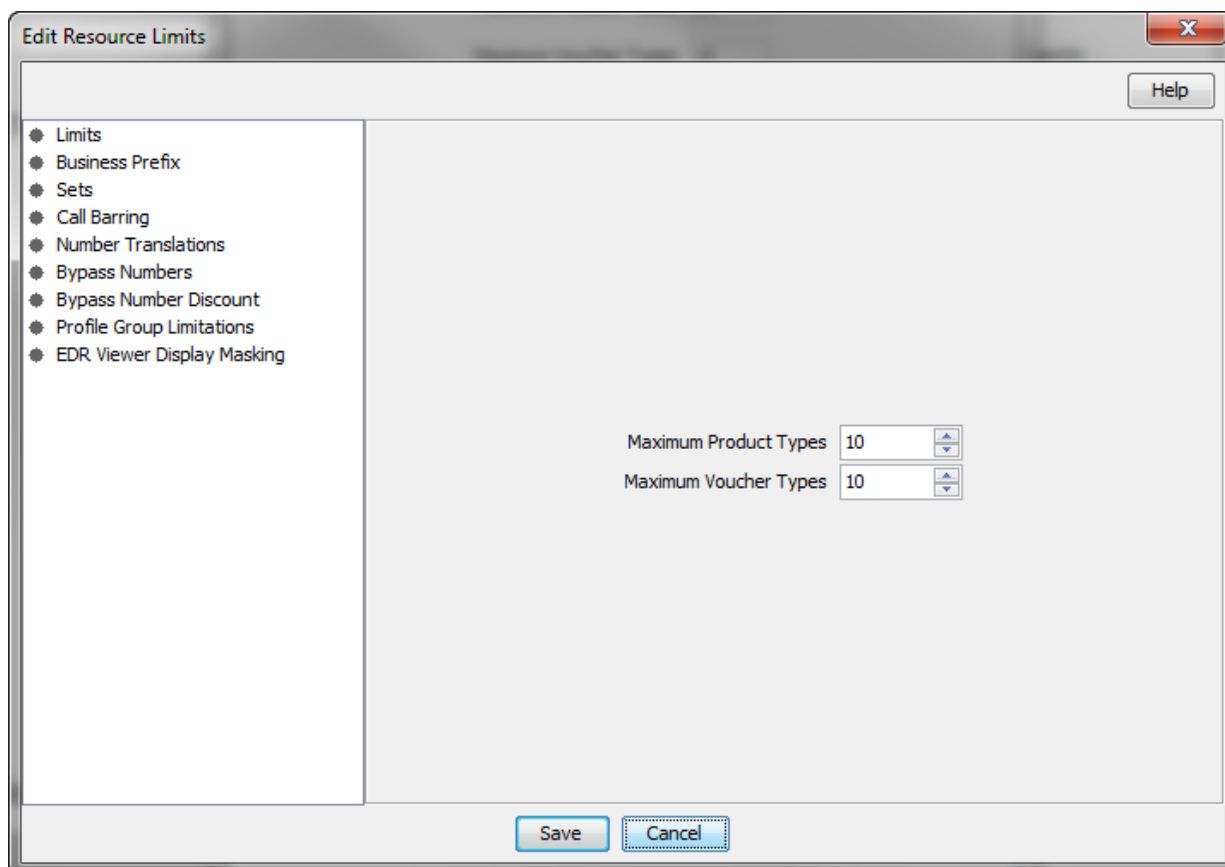
Configuration options summary

This table lists all the resource limits configuration options and their functionality.

Note: The service provider is also known as the customer in ACS.

Option	Description
Limits	Sets the resource limits for a service provider that prevent the service provider from using more than the specified number of product types and voucher types.
Business Prefix	Sets: • The global business prefix that a subscriber enters at the beginning of a dialed telephone number to ensure that the call charge is logged against the primary business wallet of their account • The account number prefix for a service provider. When you create a new subscriber, the first two digits of the subscriber card number are automatically set to the specified account number prefix. You must

Option	Description
	specify a unique value in the range of 10 to 99, or leave blank if you do not want to use a specified account number prefix.
Sets	Sets which public resource sets are available to a service provider.
Call Barring	Sets the numbers that are allowed or barred at service provider level.
Number Translations	Sets number translation mappings for the service provider, and displays them in the Short Codes list. The service short codes are mapped to termination numbers. When the short code is dialed, the call is routed to the termination number.
Bypass Numbers	Sets the bypass numbers that are allowed or barred at service provider level. A bypass number is a number that has a discount applied to it. The discount that applies to bypass numbers is set in the Bypass Discount panel.
Profile Group Limitations	Sets default limits for LNSTRING and LOPREFIX profile group fields. The limits set for the product type will override the limits set here.
	For more information about setting product type limits, see *Subscriber Profile Limitations* (on page 112).

For information on setting each resource limit, see Editing Resource Limits.

Editing Resource Limits

Follow these steps to edit an existing resource limit.

Step	Action
1	Select the service provider from the Service Provider list in the Service Management screen.
2	Click **Edit** on the **Resource Limits** tab.
	The Edit Resource Limits screen displays.
3	Select the required options and edit the details of the record. See:
	• Limits
	• *Business Prefix* (on page 193)
	• *Sets* (on page 194)
	• *Call Barring* (on page 195)
	• *Number Translations* (on page 197)
	• *Bypass Numbers* (on page 199)
	• *Profile Group Limitations* (on page 201)
4	Click **Save**.

Limits

Follow these steps to add limits to Resource Limits for a service provider.

Step	Action
1	Select the customer from the **Service Provider** drop down box.
2	From the **Resource Limits** tab of the Resources screen, click **Edit**.
	The configurable limits display in the Edit Resource Limits screen. For more information, see Resource Limits tab fields.
3	In the relevant fields, set the maximum number of the following resources that the service provider may use:

Step	Action

- Product types
- Voucher types

Tip: It is not possible to set the resources allowed to a value lower than the number of resources already used, as displayed on the **Resource Limits** tab. To reduce the numbers that the service provider may use in the case where the maximum number has been reached, you must first reduce the number that the service provider uses.

4	Click **Save**.

Business Prefix

Follow these steps to configure the Global Business Prefix number for the service provider.

Step	Action
1	Select **Business Prefix** in the left hand menu in the Edit Resource Limits screen.
	The *Business Prefix option* (on page 194) fields display.
2	(Optional) Specify the global business prefix by entering the digits and special characters for the prefix in the **Global Business Prefix** field. You can include any of the following allowed values in the prefix: 0-9, #, and *.
	The subscriber must enter this prefix at the beginning of a dialed telephone number to enable the call to be charged to their business wallet instead of their personal wallet.
	You must include the Business Prefix Branch feature node in the control plan to enable the global business prefix feature. For more information about control plans, see the *CPE User's Guide*. For more information about the Business Prefix Branch feature node, see *Feature Nodes Reference Guide*.
3	(Optional) Specify the prefix that will be prepended to a subsriber's card ID by entering the two digit prefix in the **Account Number Prefix** field. Specify a value between 10 and 99 that is unique to this service provider, or leave blank if you do not want to use account number prefixes.
4	Click **Save**.

Business Prefix option

Here is an example Business Prefix option panel on the Edit Resource Limits screen.

Sets

Follow these steps to configure private reusable data set limits for service providers.

Step	Action
1	Select the **Sets** option from the left hand menu in the Edit Resource Limits screen.
	The *Sets option* (on page 195) displays, and shows a list of all the public data sets.
2	In the **Allocation Public Geography Sets** section, select the check box for each geography set that you want to make available to the service provider.
	You create geography sets on the **Geography** tab of the ACS Configuration screen.
3	In the **Allocate Public Announcement Sets** section, select the check box for each announcement set that you want to make available to the service provider.
	You create announcement on the **Announcements** tab of the ACS Configuration screen.
4	In the **Allocate Public Holiday Sets** section select the check box for each holiday set that you want to make available to the service provider.
	You create holiday sets on the **Holidays** tab of the ACS Configuration screen.
5	Click **Save**.

For more information about the ACS Configuration screen, see *ACS User's Guide.*

Sets option

Here is an example Sets option on the Edit Resource Limits screen.

Call Barring

This manages allowed/ barred lists for service providers.

Allowed/barred lists can also be set at these levels:

- System-wide
- Product type (see the New or the Edit Product Type screen *Call Barring* (on page 93) option)
- Subscriber account (see the New or the Edit Subscriber screen, *Call Barring* (on page 52) option)

Follow these steps to configure call barring for customers.

Step	Action
1	Select the **Call Barring** option from the left hand menu in the Edit Resource Limits screen.
	The *Call Barring option* (on page 197) displays, showing the Allowed/Barred List configuration for the service provider.

Step	Action
2	Select whether the listed numbers will be allowed or barred from the **List Type** drop down list in the **Service Allowed/Barred List** section.
	Note: All numbers in the list are allowed, or all numbers are barred, according to the list type. It is not possible to have some allowed and some barred numbers in the list.
3	Select the **Ignore** check box if you want the service to ignore the allowed/barred list.
4	Edit the number list in the **Service Provider Allowed/Barred List** section. To: • Add numbers to the list: ▪ In the **New Number** field, enter the number ▪ Click **Add**. • Delete numbers from the list: ▪ Select the number in the **Number List** field ▪ Click **Delete**.
5	If required, repeat step 4 until the number list is complete.
6	Click **Save**.

Call Barring option

Here is an example Call Barring option on Edit Resource Limits screen.

Number Translations

This manages number translation lists for service providers.

You can also set number translations at these levels:

- Global
- Product type
- Subscriber account

Follow these steps to configure the number translation list limits for the service provider.

Step	Action
1	Select the **Number Translations** option from the left hand menu in the Edit Resource Limits screen.

Step	Action
	The *Number Translations option* (on page 199) displays, listing the configured short codes.
2	Edit the number list in the **Short Codes** section.

To add a number to the list:
a.   In the **In** field, enter the service short code to translate.
b.   In the **Out** field, enter the termination number that the short service code translates to.
c.   Click **Add**.

To delete a number from the list:
a.   Select the number in the **Number List** table.
b.   Click **Delete**.

Step	Action
3	Repeat step 2 until all the codes are included.
4	Click **Save**.

Number Translations option

Here is an example Number Translations-Short Codes option on the Edit Resources screen.

Bypass Numbers

Follow these steps to configure the bypass numbers at a service provider level.

Tip: Bypass Numbers can also be configured at the following levels:

- Global
- Product type

Step	Action
1	Select the **Bypass Numbers** option from the left hand menu in the Edit Resource Limits screen. The *Bypass Numbers option* (on page 201) displays, showing the bypass numbers configuration for the service provider.

Step	Action
2	Select the **List Type** from drop down box in the **Service Provider Bypass Numbers** section.
	Note: The list type determines whether the listed bypass numbers are all barred, or all allowed.
3	Select the **Ignore** check box if the service is to ignore the number list.
4	Edit the number list in the **Service Provider Bypass Numbers** section.
	To add a number to the list:
	a. Enter a bypass number in the **New Number** field
	b. Click **Add**.
	To delete a number from the list:
	a. Select the number from the **Number List**
	b. Click **Delete**.
5	Repeat step 4 until the number list is complete.
6	Click **Save**.

Bypass Numbers option

Here is an example Bypass Numbers option on the Edit Resources screen.

Profile Group Limitations

Follow these steps to configure the service provider-level limits for LNSTRING and LOPREFIX profile field types.

Tip: You can override the limits set here by setting the profile field type limits for the product type.

Step	Action
1	Open the **Profile Group Limitations** group in the Edit Resource Limits screen, and select the profile field that you want to set limits for. The *Profile Group Limitations option* (on page 203) displays the configuration for the selected field.
2	Select the **Ignore Limitations** check box if required: • When selected, the limits are ignored and the system default resource limits are used.

Step	Action
	• When not selected, the limits set here are used.
3	In the **Max Number of Entries field**, if present, type the maximum number of prefixes that may be included in the Number List. Defaults to 100 if no value is specified.
	Note: This field is only available for LOPREFIX type fields.
4	In the **Min Number Length** field type the minimum numeric value for the Profile Group Field. Defaults to zero if no value is specified.
5	In the **Max Number Length** field type the maximum numeric value for the profile group field. Defaults to 255 if no value is specified.
6	Select the **Limitation Prefix Tree Type** from the drop down list. If you select: • Allowed – The profile group field value must match an entry in the Number List. • Barred – The profile group field value must not match an entry in the Number List.
7	Edit the **Number List**. To add a number to the list: a. Enter a required number in the **New Number** field. b. Click **Add**. To delete a number from the list: a. Select the number from the **Number List**, select the number. b. Click **Delete**.
8	Repeat step 7 until the number list is complete.
9	Click **Save**.

Profile Group Limitations option

Here is an example Profile Group Limitations option on the Edit Resource Limits screen.

Deleting resource limits

Customers must have resource limits. You can only change the values, not delete them.

Barred List

Introduction

The **Barred List** tab enables you to view, add or delete numbers that are either allowed or barred from use.

This list manages allowed/ barred lists system wide.

You can also set barred allowed lists at these levels:

- Service provider

- Product type. See *Call Barring* (on page 93).

Barred List tab

Here is an example of the **Barred List** tab.

Adding numbers to the barred list

Follow these steps to edit the service allowed/barred numbers list.

Step	Action
1	From the **Barred List** tab, click **Edit**.
	Result: You see the *Edit Service Allowed/Barred Numbers List screen* (on page 205).

Step	Action
2	In the **Service Allowed/Barred List** section, select the **List Type** from the drop down list. This determines whether the listed numbers will be allowed or barred.
	Note: All numbers in the list are allowed, or all numbers are barred, according to the list type. It is not possible to have some allowed and some barred numbers in the list.
3	If you want the service to ignore the allowed/barred list, select the **Ignore** check box.
4	To edit the **Number List**:
	• Add a number:
	▪ Enter the number to add in the **New Number** field
	▪ Click **Add**
	• Delete a number:
	▪ Select the number to remove from the list
	▪ Click **Delete**
5	If required, repeat step 4 until all the numbers are listed.
6	Click **Save**.

Edit Service Allowed/Barred Numbers List screen

Here is an example Edit Service Allowed/Barred Numbers List screen.

Capability

Introduction

The **Capability** tab allows you to define global capabilities. You can specify the default control plan for the capability, the service trigger, called party number, and the EDR type to output.

Capabilities are associated with *control plans* (on page 87) in the Product Type screen.

The default capabilities are VOICE_MO (originating) and VOICE_MT (terminating).

Capability tab

Here is an example **Capability** tab.

Capability fields

This table describes the function of each field.

Field	Description
Name	The name given to this capability definition.
	The name is used as the identifier in the *Control Plans* (on page 87) option in the Product Type screen.

Field	Description
Service	The service name that triggers this capability.
	Service names are defined in **/IN/service_packages/ACS/etc/acs.conf**
	For more information about configuring service names, see *ACS Technical Guide*.
CdPN (Called Party Number on New and Edit screens)	The called party number used when matching the capability definition. (Optional.)
Default Control Plan	The default control plan invoked by this capability definition. The default control plan is run when the calling party number is not a known subscriber.
	The control plan drop down list displays all the control plans a subscriber can use.
	Tip: This list can be shortened by using the **Search By** field and then **Search**.
Search By	Use initial characters of the control plan name or combine with % (match on any number of characters), or _ (match on a single character).
	Examples:
	Search for `e%SMS` will find all control plan names beginning with e and containing SMS.
	Search for `e_han%SMS` will find all control plan names beginning with e, containing the string han in positions 3 to 5, and containing SMS.
	The list can be further restricted by entering a maximum number of names to show in the **Max Rows** field.
Statistics Category	In license reports, calls on this capability will be reported against the service specified in this field.
	For more information about License reports, see *License* (on page 292).
Statistics Protocol	In license reports, calls on this capability will be reported against the protocol specified in this field.
Bearer Capability	The bearer capability (InitialDP itc field (information transfer capability)) used when matching the capability definition. (Optional.)
CDR Type	The regular call EDR type to use for the capability.
In-Session Notifications	You can select an in-session notifications trigger for the call capability, if required. The trigger defines the control plan to invoke, and the associated session data to pass to it to handle in-session notifications reported by the charging system.

Capability Screen

Here is an example Capability screen.

Adding a capability

Follow these steps to add a new Capability definition.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	On the **Capability** tab, click **New**. **Result:** You see the New *Capability Screen* (on page 208).
3	Configure this record by entering data in the fields on this screen. For more information about the fields on this screen, see *Capability fields* (on page 206).
4	Click **Save**.

> **Warning:** You must restart the SLEE in order for the changes to take effect. For more information about restarting the SLEE, see *SLEE Technical Guide*.

Editing a capability

Follow these steps to edit a Capability definition.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	On table on the **Capability** tab select the record to edit and click **Edit**.
	Result: You see the Edit *Capability Screen* (on page 208).
3	Edit the fields to reflect the required changes.
	For more information about the fields on this screen, see *Capability fields* (on page 206).
4	Click **Save**.
	Warning: The SLEE will need to be restarted in order for the changes to take effect.

Deleting a capability

Follow these steps to delete an existing Capability definition.

Warning: Caution should be used when deleting existing capabilities as the system may become unstable if a capability is deleted that is used by a configured service, such as CCS_BPL.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the record to delete from the table on the **Capability** tab.
3	Click **Delete**.
	Result: The Delete Confirmation displays.
4	Click **OK**.
	Results:
	• The record is deleted from the database.
	• The Capability confirmation prompt displays.
5	Click **OK**.
	Warning: The SLEE will need to be restarted in order for the changes to take effect.

Number Translation List

Introduction

The **Number Translation List** tab enables you to view, add, edit and delete the service short codes that are mapped to specific termination numbers within the CCS service.

In this tab, the numbers which are displayed in the **In** column are service short codes which are mapped to the termination numbers displayed in the **Out** column.   Incoming calls use the service short codes, which are then routed to the outgoing termination numbers.

This manages number translation lists system-wide.

The translation list exists at three other levels, in the order they are set.   These are:
• Level 1 Service Provider

- Level 2 Product Type
- Level 3 Subscriber account Level

These are checked in the order they are placed in the control plan.

Number Translation List tab

Here is an example **Number Translation List** tab.

Edit Service Short Codes/Number Translation List screen

Here is an example Edit Service Short Codes/Number Translation List screen.

Editing numbers in the translation list

Follow these steps to edit the numbers on the Number Translation List.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	From the **Number Translation List** tab, click **Edit**.
	Result: You see the *Edit Service Short Codes/Number Translation List screen* (on page 211).
3	In the **Service Short Codes** section, edit the Number List as required. To: • Add a number pair: ▪ In the **In** field, enter the service short code you want to map to a termination number ▪ In the **Out** field, enter the termination number you want to translate the short service code to ▪ Click **Add** • Delete a number pair: ▪ In the Number List table, select the number ▪ Click **Delete**.

Step	Action
4	If required, repeat step 3 to add/delete more numbers in the Number List.
5	Click **Save**.

MFile Generation

Introduction

MFiles are used to store data which is not changed very often (for example, tariffs). MFiles are compiled on the Voucher and Wallet Server nodes to provide a fast lookup for a subset of the data in the E2BE database. You can generate a separate CCS Rating MFile and CCS Product Catalogue MFile for each service provider. This enables you to manage MFiles separately for each service provider. You generate MFiles from the **MFile Generation** tab.

Note: All the relevant tariff information must be established before the **MFile Generation** tab is available.

For more information about MFiles, see *VWS Technical Guide*.

MFile distribution process

This table describes the MFile distribution process.

Stage	Description
1	Through the New or Edit MFile Generation screen, the administrator updates the details contained in the MFile and clicks **Save**. **Result:** The data and an update request are transferred to the VWS nodes.
2	When the update request arrives on the VWS, **ccsMFileCompiler**: a. Creates a new MFile from the updated data in the E2BE database b. Sends a request to the beServer to reload the MFile
3	Then **ccsMFileLoader**: a. Reloads the new MFile b. Updates the E2BE database to indicate that the new MFile has been reloaded

MFile Generation Tab

Here is an example **MFile Generation** tab. The **MFile Generation** tab displays the list of MFiles that have been generated for the service provider.
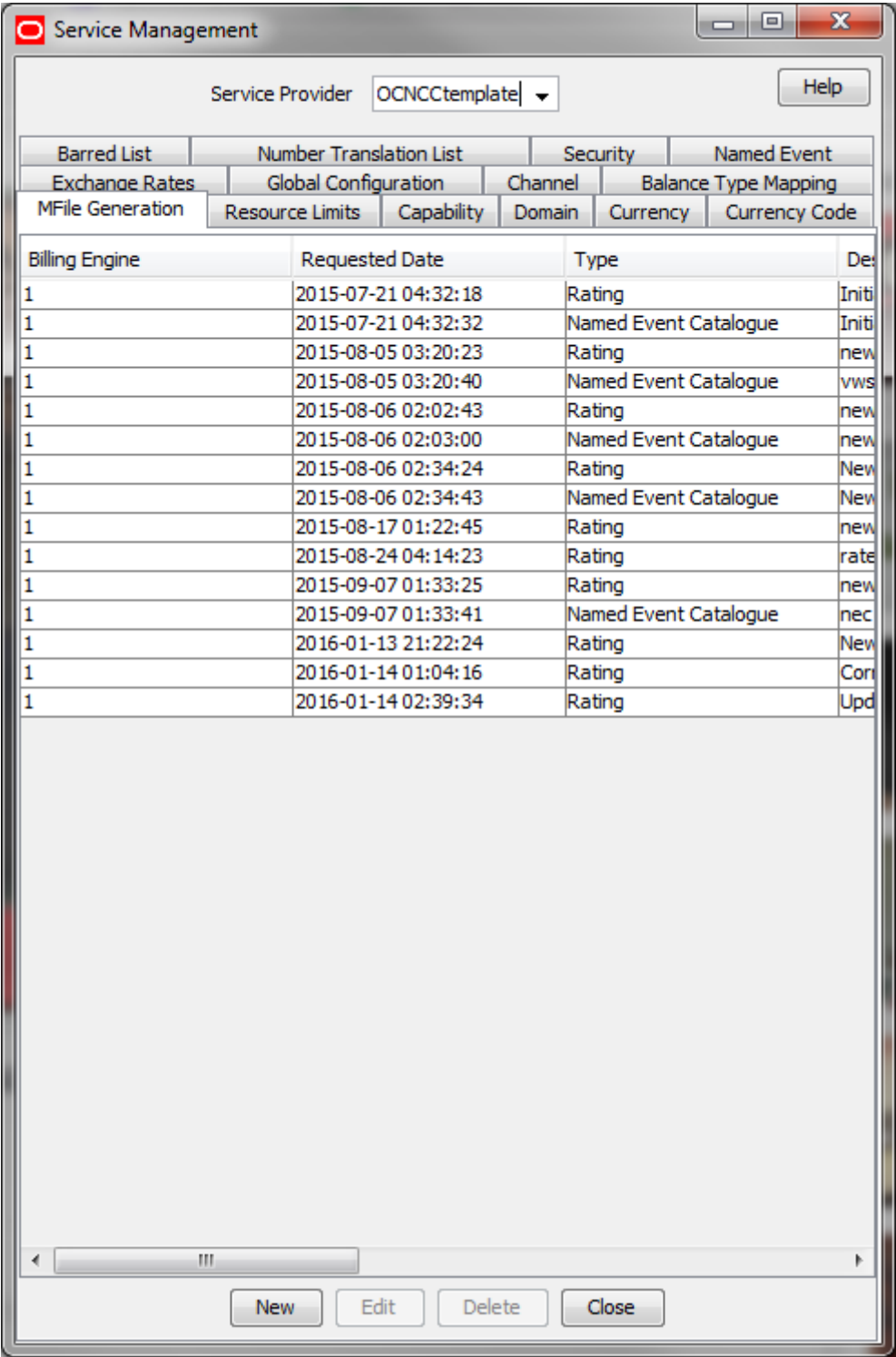
MFile Fields

This table describes the function of each field.

Field	Description
Domain	The Voucher and Wallet Server pair you will send the MFile to.
	This field is populated by the **Domain** (on page 161) tab.
	This field cannot be edited once it is initially saved.
Description	The description of the MFile.
Request Date	The date the MFile was last requested to run.
	Note: This field is only available on the Edit MFile screen.
Type	Whether the MFile is for:
	• Rating
	• Named event catalogue

MFile Configuration screen

Here is an example Edit MFile Configuration screen.

Adding an MFile

Follow these steps to add a new MFile for a selected service provider.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	From the **MFile Generation** tab, click **New**.
	Result: You see the New *MFile Configuration screen* (on page 214).
3	Configure this record by entering data in the fields on this screen.
	For more information about the fields on this screen, see *MFile Fields* (on page 214).
4	Click **Save**.
	Result: ccsMFileCompiler on the VWS nodes within the chosen domain builds up a new MFile and notifes the VWS processes.

Editing an MFile

Follow these steps to edit an existing MFile generation record.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the table on the **MFile Generation** tab, select the MFile generation record to edit.
3	Click **Edit**.
	Result: You see the Edit *MFile Configuration screen* (on page 214).
4	In the **Description** field, update the description of the MFile.
	For more information about the fields in this screen, see *MFile Fields* (on page 214).
5	Click **Save**.

Deleting an MFile

Follow these steps to delete an existing MFile generation record.

Note: There must be a current MFile when the Voucher and Wallet Servers are restarted.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the table on the **MFile Generation** tab, select the MFile to delete.
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK**.
	Result: You see the MFiles confirmed delete prompt.
5	Click **OK**.

Balance Type Mapping

Introduction

The **Balance Type Mapping** tab is used for:

- Mapping third-party balance types to Convergent Charging Controller balance types (for example, from ECE balance types to Convergent Charging Controller balance types).
- Filtering wallet recharges for wallets distributed across a third-party charging domain.

Balance type mapping allows the feature nodes that operate against balance types to function for third-party balance types and on the VWS.

Note: If balance type mapping is not defined for a balance type, wallet recharges are sent to the VWS by default.

Balance Type Mapping tab

Here is an example **Balance Type Mapping** tab.

Balance type mapping fields

This table describes the function of each field.

Field	Description
Balance Type	List of available balance types. This list is restricted to chargeable balance types.
	When you select None, Convergent Charging Controller uses the balance type mapping configuration for filtering wallet recharges through the charging domain. See Scenarios.

Field	Description
Third-Party Resource	The third-party balance ID to map to the Convergent Charging Controller balance type. This text field accepts letters, digits, and spaces.
Third-Party Resource Scale	The conversion scale for converting balance values between Convergent Charging Controller balance types and third-party balance types. For example, if Convergent Charging Controller uses hundredths of seconds for time balances, but the BRM equivalent uses seconds, the scaling factor converts the BRM seconds to the Convergent Charging Controller hundredths of seconds. **Note:** This field accepts: • Positive and negative numbers. • Number values up to 10000. • Numbers with up to 5 decimal places.
Domain Type	List of available non-VWS domain types. This field associates the balance type mapping configuration with the specified domain.

Scenarios

This table describes the results of voucher redemptions in different balance type mapping scenarios.

Voucher Type	Result
Subscriber applies a split domain voucher type	Given a subscriber who has a wallet in both the VWS and BCD domains and a balance type that has balances defined in both domains: When the voucher is applied to the subscriber's wallet, the balances in both domains are modified at the same time.
Subscriber applies a VWS domain voucher type	Given a subscriber who has a wallet in both the VWS and BCD domains and a voucher that has balances only in the VWS domain: When the voucher is applied to the subscriber's wallet, only balances in the VWS domain are modified.
typeSubscriber applies BCD domain voucher type	Given a subscriber who has a wallet in both the VWS and BCD domains and a voucher type that has balances in the BCD wallet domain: When the voucher is applied to the subscriber's wallet, only the balances in the BCD domain are modified.

This table describes the results of actions by a screen user who wants to associate a chargeable balance type with a domain.

Scenario	Result
Create a new mapping between a chargeable balance type and a domain	When the user selects a chargeable balance type and a domain type and clicks the **Save** button, the balance type will be associated with the domain type.

Scenario	Result
Creating a new mapping between a chargeable balance type and a non-VWS domain	When the user selects a chargeable balance type and a non-VWS domain and clicks the **Save** button, the balance type will be associated with the domain type.

New Balance Type Mapping dialog box

Here is an example New Balance Type Mapping dialog box.

Adding balance type mapping

Follow these steps to add a new balance type mapping.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	On the **Balance Type Mapping** tab, click **New**. **Result:** You see the New Balance Type Mapping Configuration screen.
3	Configure this record by entering data in the fields on this screen. For more information about these fields, see Balance type mapping fields fields.
4	Click **Save**.

Editing balance type mapping

Follow these steps to edit an existing balance type mapping.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the record to edit from the table on the **Balance Type Mapping** tab.
3	Click **Edit**. **Result:** You see the Edit Balance Type Mapping Configuration screen.
4	Edit the fields to reflect the required changes. For more information about this screen, see Balance type mapping fields.
5	Click **Save**.

Deleting balance type mapping

Follow these steps to delete an existing balance type mapping.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the record to delete from the table on the **Balance Type Mapping** tab.
3	Click **Delete**. **Result:** The Delete Confirmation displays.
4	Click **OK**.

Security

Introduction to security

The **Security** tab allows you to configure the security for vouchers.

About Voucher Security

Introduction to voucher security

Authentication rules are used to ensure voucher security. Authentication rules must be created before they can be used for voucher batches.

For more information about vouchers, see *Voucher Manager User's Guide*.

The CB-10 voucher security features enable you to define authentication rules for CB-10 HRN SHA256, CB-10 HRN SHA512 and CB-10 HRN AES256 encryptions. Specify the encryption method when creating voucher batches and redeeming vouchers.

Ensure the following are installed and activated on your system to be visible on your screens:

- CB-10 voucher security features
- CB10 HRN SHA256 authentication module
- CB10 HRN SHA512 authentication module
- CB10 HRN AES256 authentication module

Note: CB-10 voucher security will only be available to you if you have an appropriate license. For more information about activation, see *CCS Installation and Removal Guide*.

Voucher Security Tab

Here is an example of the **Voucher Security** tab in the **Security** tab.

Security fields

This table describes the function of each field.

Note: The S, R1, R2, and R3 fields apply to CB10 HRN and SDK-developed PAMs only and will only be visible in the screens if the CB-10 Voucher Security features have been activated. For more information about how these fields are related to each other, and how they are used in CB-10 authentication rules, see CB-10 field relationship diagram.

Field	Description
Name	Name for the authentication rule. Maximum length 50 characters.

Field	Description
PAM	Pluggable Authentication Module name. This field is populated by the system with the PAMs which have been enabled on this platform. **Note:** • To review the licenses which have been activated on your platform, see *CCS Installation and Removal Guide*. • The full list of PAMs is a combination of fixed list of product-provided PAMs plus any SDK-developed PAMs that have been installed.
Iterations	The number of hash iterations to use for PAM of CB10 HRN SHA256 or CB10 HRN SHA512. Default is 1. Can be a positive number up to 99999. This field is used if a CB10 HRN SHA PAM is selected.
Number Length	Voucher number length. This field is non-editable and is calculated for a PAM of CB10 HRN SHA256 or CB10 HRN SHA512 as the sum of S+R1+R2+R3.
PIN Length	Voucher PIN length (digits). This field is available only for existing vouchers and is non-editable.
Salt	This field applies to DES rule definition only. This field is available only for existing vouchers and is non-editable.
S	Length of the serial number (the number must be between 0 and 20).
R1	Length of the first redundancy layer (must be between 0 and 20). A higher number provides a greater level of security.
R2	Length of the second redundancy layer (must be between 0 and 20). A higher number provides a greater level of security.
R3	Length of the third redundancy layer (must be set to 0, 1 or 2). A higher number provides a greater level of security.

Authentication rules

Authentication rules are used by the voucher batch creation and voucher redemption processes. The authentication rule associated with a voucher batch determines which encryption algorithm to use when generating the voucher numbers in the batch. Following encryption algorithms are supported:

• CB10 HRN SHA256
• CB10 HRN SHA512
• CB10 HRN AES256

Note: You cannot edit or delete an authentication rule that is used to create a voucher batch. Voucher batches created in previous versions of the product can continue to use the old rules they were created with. Old authentication rules are not available for new voucher batches.

CB-10 HRN Creation

The CB10 HRN creation provided by the CB10 HRN authentication module generates voucher numbers using the:

• CB-10 HRN private keys (K1, K2 and K3) for the service provider
• S, R1, R2 and R3 security parameters defined for the authentication rule

The CB-10 HRN creation algorithm does not support voucher PINs and therefore the PIN length is always set to 0.

A unique set of CB-10 HRN private keys (K1, K2 and K3) is required for each service provider. These keys are generated in one of the following ways:

- Generated automatically when a new service provider is created
- Generated or regenerated for service providers who existed before the CB-10 HRN authentication was activated using the **Generate** button for one of the CB10 HRN SHA or AES PAM modules

Note: If a voucher batch is already created for a service provider using the CB-10 creation algorithm then you cannot:

- Regenerate the K1, K2, and K3 private keys for the selected service provider

- Edit the associated authentication rule

CB-10 HRN SHA Hashing

CB-10 HRN private keys are created when:

- a new service provider is created
- a **Generate** button is clicked for a CB10 or SDK PAM Authentication module and the service provider does not have any CB-10 vouchers created yet

Clicking a **Generate** button also generates hash/encryption keys for the specific PAM Authentication module that are used for hashing/encrypting the CB10 or SDK-created HRN. **Generate** buttons are disabled if the service provider already has a voucher batch created using the specific PAM Authentication module.

For example, after a voucher batch is created for a service provider using an authentication rule specifying a PAM of CB10 HRN SHA256, you cannot change or update the hash key for CB10 HRN SHA256.

PAMs that use SHA hashing can specify the number of hash iterations to apply, the default is 1 iteration.

Decryption to retrieve the HRN is not supported for SHA-based PAMs as the SHA operation is not reversible.

CB-10 HRN AES Encryption

Similar to CB-10 HRN SHA hashing, AES encryption keys are created when the **Generate** button for the CB10 HRN AES256 PAM or a SDK-developed PAM using AES Encryption is clicked.

Once a service provider has a voucher batch created with Authentication Rules using the PAM, the Generate button for the PAM is no longer enabled.

PAMs that use AES encryption do not use iterations and in this case the **Iterations** field for the Authentication Rule is set to 1.

Because AES-256 is a symmetric encryption algorithm, its encrypted value can be decrypted. If the capability of decrypting voucher private secrets is required those vouchers must be created using an Authentication rule that specifies either a PAM of CB10 HRN AES256 or an SDK-developed PAM that supports decryption.

Generating CB-10 HRN keys and SHA/AES hash/encryption keys

Follow these steps to generate or regenerate CB-10 HRNGEN private keys, SHA hash keys and AES keys for a service provider.

Step	Action
1	Select the customer from the **Service Provider** drop down box.
2	On the **Security** tab, click **Generate** for one of the following: • CB10 HRN SHA256 Key Generation • CB10 HRN SHA512 Key Generation • CB10 HRN AES256 Key Generation • SDK *Display Name* Key Generation **Note:** *Display Name* is the chosen name for a PAM plugin developed with the SDK. The buttons are visible on the tab if the CB-10 Voucher Security features are activated. **Generate** buttons are disabled if a voucher is already created for the service provider using the associated voucher authentication PAM module. **Result:** You see the appropriate Key Generation completed message box appear.
3	Click **OK**.

Rule priority

When redeeming vouchers the different encryption algorithms are matched against the voucher HRN (hidden resource number) based on the length of the HRN. If the length of the HRN cannot be uniquely matched to an encryption algorithm, then an attempted match is made against each authentication rule in turn. The priority given to each authentication rule is determined by the order in which they appear in the table in the tab.

Changing rule priority

Follow these steps to change the order of priority for an authentication rule.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the table on the **Voucher Security** tab, select the authentication rule to move.
3	Click: • **Up** - to move the rule up one row and raise its priority • **Down** - to move the rule down one row and lower its priority
4	Click **Save**.

Authentication Rule screen

Here is an example Authentication Rule screen.

Adding an authentication rule

Follow these steps to add a new authentication rule.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	On the **Security** tab, select the **Voucher Security** tab, then click **New**. **Result:** You see the New Authentication Rule screen.
3	Configure this record by entering data in the fields on this screen. For more information about the fields on this screen, see Security fields. **Notes:** • To use the selected PAM, you must first complete key generation. See *Generating CB-10 HRN keys and SHA/AES hash/encryption keys* (on page 223). • Different fields will be enabled depending on which authentication module you select and in the case of an SDK-developed authentication module how that module has been configured.
4	Click **Save**.

Editing an authentication rule

Follow these steps to edit an authentication rule.

Note: You will not be able to edit a rule for which there is an associated voucher batch.

Step	Action
1	Select the **Service Provider** from the drop down box.
2	Select the rule to edit from the table on the **Voucher Security** tab.
3	Click **Edit**.

Step	Action
	Result: You see the Edit Authentication Rule screen.
4	Edit the fields to reflect the changes you need to make.
	For more information about the fields on this screen, see Security fields.
	Note: Different fields will be enabled depending on which authentication module you select.
5	Click **Save**.

Deleting an authentication rule

Follow these steps to delete an existing authentication rule.

Note: You will not be able to delete a rule for which there is an associated voucher batch.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	In the table on the **Voucher Security** tab, select the authentication rule to delete.
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK**.

Channel

Introduction

The **Channel** tab allows you to configure the promotion channels for the Balance Recharge.

Channel tab

Here is an example **Channel** tab.

Channel screen

Here is an example Channel screen.

Channel fields

This table describes the function of each field.

Field	Description
Channel	The name of the promotional channel. The following global channels are preconfigured upon installation: • ATM • Any • MPOS • Other • Voucher
Description	A description of the channel
Global	If selected, the channel is global, rather than specific to the selected service provider.

Adding a Channel

Follow these steps to add a new channel.

Step	Action
1	Select the **Service Provider** from the drop down box.
2	On the **Channel** tab, click **New**. **Result:** You see the New Channel screen.
3	Configure this record by entering data in the fields on this screen. For more information about the fields on this screen, see *Channel fields* (on page 227).
4	Click **Save**.

Editing a Channel

Follow these steps to edit an existing channel.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the record to edit from the table on the **Channel** tab.
3	Click **Edit**. **Result:** You see the Edit Channel screen.
4	Edit the fields to reflect the changes you need to make. For more information about the fields on this screen, see *Channel fields* (on page 227).
5	Click **Save**.

Deleting a Channel

Follow these steps to delete an existing channel.

Step	Action
1	Select the service provider from the **Service Provider** list in the Service Management screen.
2	Select the record to delete from the table on the **Channel** tab.
3	Click **Delete**. **Result:** The Delete Confirmation displays.
4	Click **OK**. **Results:** The record is deleted from the database.

Named Event

Introduction

The **Named Event** tab allows you to set up and maintain activities, other than calls, that may incur a charge. The values you specify here are the base values for the events, and may be overridden by values specified in a Named Event Catalogue.

The event may be sending a short text message, a product type swap, a credit transfer, or a connection to recharge facilities. The named events can be changed by the Named Event feature node for that event in the control plan.

Event subscription

A named event catalogue event subscription is a named event that allows a subscriber to 'subscribe' to an unlimited use of a particular service without being charged during the subscribed period.

As such it will be possible to define a subscribable named event that is charged on first use and sets up a subscription to allow future uses in the subscription period to be charge free.

When this named event is used, an automatic subscription to the service is created which will then follow a normal life cycle.

If the subscription is already active, the user will not pay for the named event until the subscription expires.

Note: Event Subscription is not available if the UBE domain does not have 'Charging Management' configured or when there is no UBE domain configured.

Balance type cacades

Events can be configured to be billed across multiple balance types in a pro-rata fashion.

Example: If the Cash cost for an event is $10 and the Time cost is 120 seconds, and you only have a cash balance of $5, then the event would use your remaining $5, and then 60 seconds to pay for the rest of the event.

Named Event tab

Here is an example **Named Event** tab.

Named Event grid

This table describes the content of each table column on the **Named Event** tab.

Field	Description
Named Event	The name of the named event.
Change User	Name of the user who created or modified the event.
Change Date	Date of of creation or modification of event.

Adding named event set

Follow these steps to add a new named event set.

Step	Action
1	On the **Named Event** tab, click **New Set**. **Result:** The New Named Event Set screen appears.
2	In the **Name** field, type the name of the new named event.
3	Click **Save**.

Editing named event sets

Follow these steps to edit an existing named event set.

Step	Action
1	On the **Named Event** tab, select the named event to edit from the **Event Set** drop down box.
2	Click **Edit Set**.
3	Modify the **Name** as required.
4	Click **Save**.

Deleting named event sets

Follow these steps to delete an existing named event set.

Step	Action
1	On the **Named Event** tab, select the named event set to delete from the **Event Set** drop down box.
2	Click **Delete Set**. **Result:** You see the Delete Confirmation prompt.
3	Click **OK** to delete the record from the database. **Result:** The record is deleted and you see the Named Events prompt.
4	Click **OK**.

Adding named events

Follow these steps to add a new named event to a named event set.

Step	Action
1	On the **Named Event** tab, select the required **Event Set** from the drop down box.
2	Click **New**.
3	Configure this record by entering data in the fields on this screen.
4	Click **Save**.

Editing named events

Follow these steps to edit an individual named event in a selected named event set.

Step	Action
1	On the **Named Event** tab, select the **Event Set** from the drop down box.
2	In the table on the tab, select the record to edit.
3	Click **Edit**.
4	Edit the details as required.
5	Click **Save**.

Deleting named events

Follow these steps to delete an existing named event.

Note: When you delete a named event, the named event is automatically removed from any named event catalogues to which it has been allocated.

Step	Action
1	On the **Named Event** tab, select the **Event Set** from the drop down box.
2	Select the record to delete.
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK** to delete the record from the database.
	Result: You see record deleted confirmation message.
5	Click **OK**.

Notifications Management

Overview

Introduction

This chapter explains how to configure Profile Notifications.

In this chapter

This chapter contains the following topics.

Notifications Introduction

Profile Notifications

Profile notifications are SMSs which are sent to subscribers when their profile fields are changed. They can be used to inform subscribers about events which have happened to their accounts.

Profile notifications are different from control plan feature node notifications or periodic charge notifications, though these notifications use SMS notifications and DAP templates.

Notifications can be delivered through the ACS Notifications subsystem, or the Data Access Pack notifications subsystem.   To use the DAP notifications, you must have DAP installed.

For more information about how profile notifications are delivered, see *CCS Technical Guide*.

CCS component

Profile notifications are part of the Convergent Charging solution and build on functionality provided by CCS.   To fully understand how notifications work, you must also refer to *CCS User's Guide*.

Preconditions

Preconditions are used to determine when an update to the Subscriber profile will trigger a Profile Notification message. Each precondition is evaluated based on a selected profile field and the Precondition Type configured for it.

You can specify more than one precondition per notification message. If you specify more than one precondition, then these must all be joined together, either using an 'And' or an 'Or' operator. Use:

- And to generate the notification only if all the preconditions are met.
- Or to generate the notification if any of the preconditions are met.

Tip: If you do not specify any preconditions for the notification message, then it will be triggered unconditionally.

This table describes the available Precondition Types.

Precondition Type	Availability	Description
Field Created	All field types	The precondition is met when the selected profile field is not present in the old subscriber profile but is present in the new subscriber profile.
Field Modified	All field types	The precondition is met when the old and new values for the selected profile field are different.
Field Removed	All field types	The precondition is met when the selected profile field is present in the old subscriber profile but is no longer present in the new subscriber profile.
Check Old Value or Check New Value	Only available for integer, byte, Boolean and date field types	Compares the old or new value for the selected profile field with a specified value. See *Checking profile field values* (on page 234) for details.

Checking profile field values

The Check Old Value and Check New Value precondition types provide the facility to trigger Profile Notifications based on a precondition expression that compares the selected Profile Field with a specified value.

Precondition expressions have one of the following formats:

1 `<Profile Field Value> <Compare Operator> <Compare Value 1>`
2 `(<Profile Field Value> '>' <Compare Value 1>) And (<Profile Field Value> '<' <Compare Value 2>)`

Tips:

- If the selected Profile Field is a Boolean field, then its value may only be compared with the Boolean values 'True' or 'False'. The precondition is met if the Profile Field value matches the specified Boolean value.

- For format 2, the precondition is met if the profile field value is between 'Compare Value 1' and 'Compare Value 2' ".

This table describes the parameters used in precondition expressions.

Parameter	Description
Profile Field Value	The value for the selected Profile Field from either the old or the new subscriber profile, depending on the Precondition Type.
Compare Operator	Determines how the comparison is made. If you select: = the expression evaluates to true if the value from the Profile Field is equal to the specified Compare Value != the expression evaluates to true if the value from the Profile Field is not equal to the specified Compare Value < the expression evaluates to true if the value from the Profile Field is less than the specified Compare Value > the expression evaluates to true if the value from the Profile Field is greater than the specified Compare Value **Note:** If you select Not Used, no comparison will be made.
Compare Value 1	The first value against which the Profile Field Value will be compared.

Parameter	Description
Compare Value 2	The second value against which the Profile Field Value will be compared. This must be greater than Compare Value 1. **Note:** Compare Value 2 may only be set if you selected the '>' Compare Operator for Compare Value 1.

User access

User access to the Notification Management functionality is managed through the User Templates defined in the SMS User Management screen. For more information on creating and maintaining user templates, refer to the *SMS User's Guide*.

Notification Management Module

Introduction
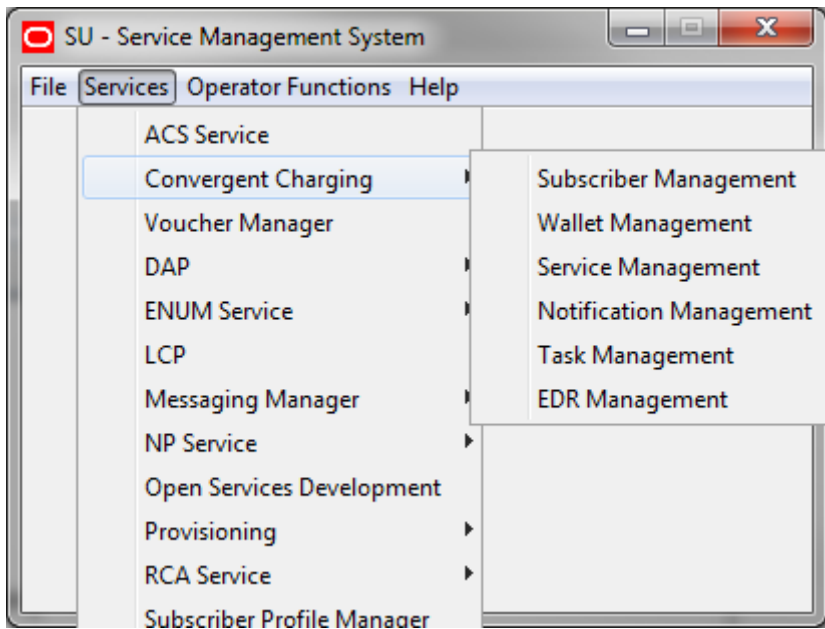
The **Notification Management** screen lets you configure Profile Notifications.

The Notification Management screen contains this tab:

- *Profile Notifications* (on page 236).

Accessing the Notification Management screen

Follow these steps to open the Notification Management screen.

Step	Action
1	Select the **Services** menu from the SMS main screen.

2	Select **Convergent Charging > Notification Management**. **Result:** You see the Notification Management screen.

Notification Management screen

Here is an example Notification Management screen.

Profile Notifications

Introduction

The **Profile Notifications** tab lets you configure Profile Notifications that are triggered by changes to subscriber profiles.

Each profile notification is configured by specifying:

- whether a DAP and/or a notification is sent
- the Preconditions used to qualify when the notification will be triggered
- the DAP Template used to generate the DAP notification message, and
- the Profile Notification Fields that will be substituted for the parameters defined in the DAP Template.

For more information about configuring Notifications, see *ACS User's Guide*.

For more information about configuring DAP Templates, see *DAP User's Guide*.

Profile Notifications tab

Here is an example **Profile Notifications** tab.

Adding profile notifications

Follow these steps to add a new Profile Notification. This can trigger the relevant type of notification from the system.

Step	Action
1	In the Notification Management screen, select the **Service Provider** from the drop down box.
2	On the **Profile Notifications** tab, click **New**.
	Result: You see the New Profile Notification screen.

Step	Action

3   In the **Name** field, type the Profile Notification name.

4   Select the **DAP Operation** you want to use to construct the DAP notification message.

Tip: If you selected **No DAP** then a DAP notification will not be triggered and you must select an SMS Template for the notification instead.

5   From the **Suppress DAP Notification** drop down list, select **Not Used** if you do not want to suppress DAP notifications. To suppress DAP notifications, select the Suppress Notification field. All notifications for a profile update that include this field with a value set to True will be suppressed.

Note: The suppress field will be reset to false when a notification has been suppressed.

6   Select the **SMS Template** you want to use to construct the notification message.

Tip: If you selected **No SMS** then a notification will not be triggered and you must ensure a DAP Template is selected for the notification instead.

7   From the **Suppress Notification** drop down list, select **Not Used** if you do not want to suppress notifications. To suppress notifications, select the **Suppress Notification** field. All notifications for a profile update that include this field with a value set to True will be suppressed.

Note: The suppress field will be reset to false when a notification has been suppressed.

Step	Action
8	In the **Precondition Join** field select the operator to use to join the preconditions listed in the Preconditions table. Choose: • **And** to trigger a notification only when all the preconditions evaluate to true. • **Or** to trigger a notification if any of the preconditions evaluates to true.
9	In the **Preconditions** panel, specify the preconditions that will trigger the profile notification. For details, see *Adding profile preconditions* (on page 241).
10	In the **Fields** panel, configure a profile notification field for each parameter defined in the DAP Template. For details, see *Adding profile notification fields* (on page 243). **Tip:** It is recommended that you use the fields evaluated by the preconditions.
11	Click **Save**.

Editing profile notifications

Follow these steps to edit an existing Profile Notification.

Step	Action
1	In the Notification Management screen, select the **Service Provider** from the drop down box.
2	On the **Profile Notifications** tab, select the Profile Notification to edit.
3	Click **Edit**. **Result:** You see the Edit Profile Notification screen.

Step	Action

4	Edit the profile notification configuration as described in Adding profile notifications.
5	Click **Save**.

Deleting profile notifications

Follow these steps to delete an existing Profile Notification.

Step	Action
1	In the Notification Management screen, select the **Service Provider** from the drop down box.
2	On the **Profile Notifications** tab, select the Profile Notification to delete.
3	Click **Delete**. **Result:** You see the Delete Confirmation prompt.
4	Click **OK** to delete the record from the database. **Result:** You see the Profile Notifications message box.
5	Click **OK**.

Adding profile preconditions

Follow these steps to add a precondition to a profile notification.

Step	Action
1	On the **Preconditions** panel in the New Profile Notification screen, click **Add**.

Result: You see the Add Profile Precondition Field screen.

2	Select the **Profile Field** to evaluate in the precondition.
3	Select the **Precondition Type** from the drop down list. For more information on precondition types, see *Preconditions* (on page 233).

Note: The list of available precondition types depends on the data type of the selected profile field.

4	If you selected either **Check Old Value** or **Check New Value**, follow steps 5 to 9. Otherwise go to step 9.
5	If the selected Profile Field is a BOOLEAN field, select True or False from the drop down list and go to step 9. Otherwise go to step 6.

Note: The precondition is met if the Profile Field value and the selected BOOLEAN value are the same.

6	Select the **Compare Operator** from the drop down list.

Note: If you select Not Used, no comparison will be made.

7	In the **Compare Value 1** field, enter the value you want to compare with the value from the subscriber profile field. In the case of DATE type profile fields, select the date you want from the drop down lists.

Step	Action
8	If you selected the '>' Compare Operator, then you may enter a second compare value in the **Compare Value 2** field if required, To enter a date in the Compare Value 2 field, select the **Use Date** check box.
	Note: The precondition is met if the profile field value is greater than Compare Value 1 and less than Compare Value 2.
9	Click **Ok**.

Editing profile preconditions

Follow these steps to edit an existing Precondition for a Profile Notification.

Step	Action
1	In the **Preconditions** panel in the New/Edit Profile Notification screen, select the row for the Precondition you want.
2	Click **Edit**.
	Result: You see the Edit Profile Precondition Field screen.

Step	Action
3	Edit the precondition details as described in *Adding profile preconditions* (on page 241).
4	Click **Ok**.
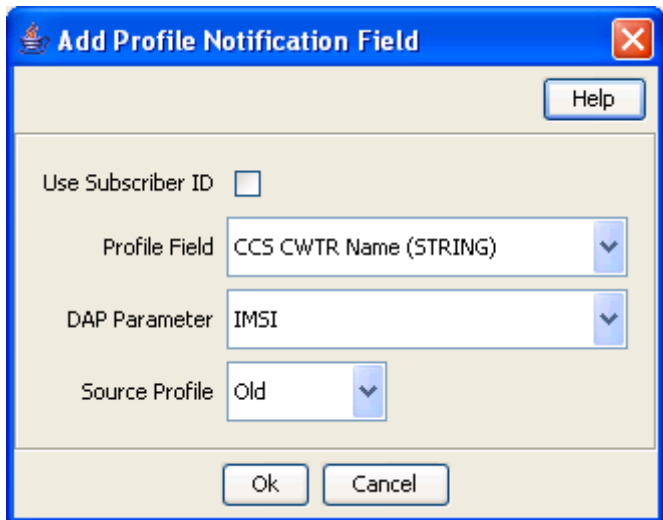
Deleting profile preconditions

Follow these steps to delete an existing Precondition for a Profile Notification.

Step	Action
1	In the **Preconditions** panel on the New/Edit Profile Notification screen, select the row for the Precondition to delete.
2	Click **Delete**.
3	Click **Save**.
	Result: The record is deleted from the database.
	Tip: The record is not deleted from the database until you click **Save**. Prior to this point you can reverse any changes by clicking **Cancel**.

Adding profile notification fields

Follow these steps to add a field to a profile notification.

Step	Action
1	On the **Fields** panel in the New Profile Notification screen, click **Add**. **Result:** You see the Add Profile Notification Field screen.
2	If you need the MSISDN (subscriber ID) to be made available to DAP for the XML request, select the **Use Subscriber ID** check box.
3	Select the **Profile Field** to use in the notification message.
4	Select the **DAP Parameter** from the drop down list. **Warning:** You must configure a profile notification field for all the DAP parameters defined in the DAP template. Once a DAP parameter has been used it is removed from the list of available parameters.
5	Select the **Source Profile**. Select: • Old - to substitute the Profile Field value from the old subscriber profile for the selected DAP parameter. • New - to substitute the Profile Field value from the new subscriber profile for the selected DAP parameter.
6	Click **Ok**.

Editing profile notification fields

Follow these steps to edit the configuration for a Profile Notification field.

Step	Action
1	On the **Fields** panel in the New/Edit Profile Notification screen, select the row for the Profile Notification Field you want to edit.
2	Click **Edit**. **Result:** You see the Edit Profile Notification Field screen.

Step	Action

| 3 | Edit the details as described in *Adding profile notification fields* (on page 243). |
| 4 | Click **Ok**. |

Deleting profile notification fields

Follow these steps to delete an existing Field for a Profile Notification.

Step	Action
1	In the **Fields** panel on the New/Edit Profile Notification screen, select the row for the field to delete.
2	Click **Delete**.
3	Click **Save**.
	Result: The record is deleted from the database.
	Tip: The record is not deleted from the database until you click **Save**. Prior to this point you can reverse any changes by clicking **Cancel**.

Task Management

Overview

Introduction

This chapter explains how to configure BPL tasks.

In this chapter

This chapter contains the following topics.

Task Management Module

Introduction

The **Task Management** screen lets you configure Business Process Logic tasks. BPL tasks can be used to execute tasks specified in control plans.

The Task Management screen contains these tabs:

- *Business Process Logic* (on page 247), and
- *BPL Response Mapping* (on page 253).

Configuring BPL tasks overview

CCS enables you to configure complex actions which can be triggered from the Edit Subscriber screen using the Business Process Logic (BPL) task buttons. A BPL task executes a set of pre-configured actions which are defined in an associated control plan.
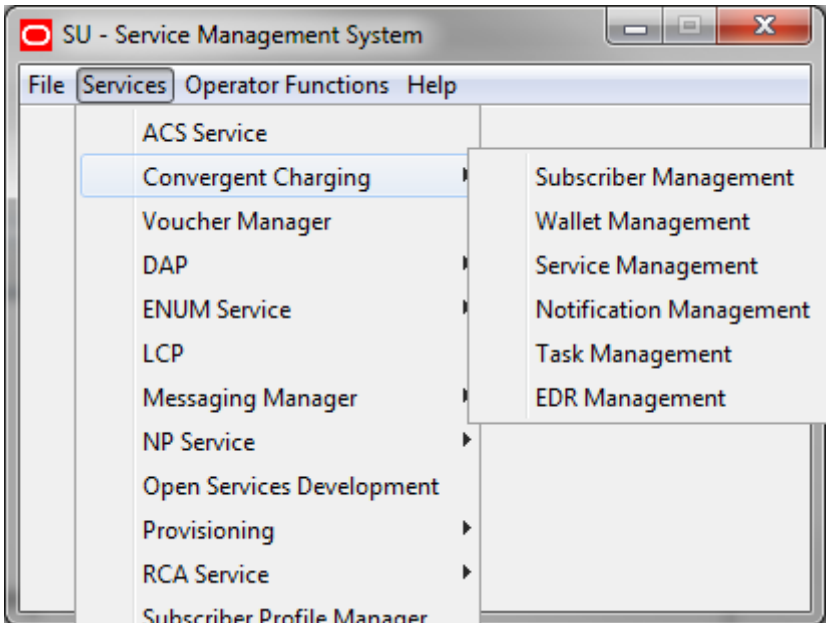
To configure a BPL task, complete following steps:

Step	Action
1	Configure the background building blocks required to set up the BPL's control plan, for example: • Profile fields • Notifications • Named events • Balance types
2	Using the CPE, build the control plan the BPL task will run. Note, the control plan defines the BPL logic. Feature nodes which require interaction cannot be used in BPL task control plans. For more information about the CPE, see *CPE User's Guide*.

Step	Action
3	On the *Business Process Logic* (on page 247) tab, define the BPL task (including mapping the control plan to the BPL).
4	On the *BPL Response Mapping* (on page 253) tab, configure the BPL Responses that translate the success and failure responses returned by the control plan into messages for the user who triggers the BPL task.
5	Using the Subscriber Profile Manager, configure the BPL task to appear on the Edit Subscriber screen from where it can be triggered. For more information about the Subscriber Profile Manager, see *SPM User's Guide*.

Accessing the Task Management screen

Follow these steps to open the Task Management screen.

Step	Action
1	Select the **Services** menu from the SMS main screen.
2	Select **Convergent Charging > Task Management**. **Result:** You see the Task Management screen.

Task Management screen

Here is an example Task Management screen.

Business Process Logic

Introduction

The **Business Process Logic** tab lets you configure the business processes that may be executed either through the Edit Subscriber screens or through the PI.

Business Process Logic tab

Here is an example **Business Process Logic** tab.

Business Process Logic screen

Here is an example Business Process Logic screen.

Adding business process logic tasks

Follow these steps to add a new business process logic (BPL) task.

Step	Action
1	In the Task Management screen, select the **Service Provider** from the drop down box.
2	On the **Business Process Logic** tab, click **New**. **Result:** You see the New *Business Process Logic screen* (See example on page 249).

Step	Action
3	In the **Short Name** field, enter a unique name for the BPL task. This can be up to 16 characters long. The short name is used to identify the BPL task in BPL execution requests to the smsTrigDaemon.
	Note: It is also used by the PI when initiating a BPL request using the CCSBPL=EXE command.
4	In the **Full Name** field, enter a unique full name for the BPL task. It can be up to 64 characters long.
	The full name appears in the Edit Subscriber screen on the label of the button associated with the BPL task.
5	From the **Control Plan** drop down list, select the control plan to be executed by the BPL task.
	The drop down list displays all the control plans a subscriber can use.
	Tip: This list can be shortened by using the **Search By** field and then **Search**.
6	In the **Description** field, enter a description for the BPL task.
7	In the **Service Handle** field, enter the BPL service application name on the SLC.
	Warning: This field is required. It should be set to 'CCS_BPL' unless you are using a non-default configuration. In this case additional configuration of xmlTrigDaemon, SLEE and slee_acs is required. Refer to *XML TCAP Interface Technical Guide* for details.
8	In the **PI Security Level** field, enter the PI security level number. Valid values are in the range 0 to 99.
	Note: The PI security level is used to limit which users may execute the BPL task through the PI. Users who have a PI security level that is lower than the PI security level for the BPL task will not be able to execute it.
	For more information about the PI, see *PI User's Guide*.
9	Select the **Wallet Selection** check box if you want to be able to select the wallet the BPL task applies to, when the BPL task is executed through the screens.
10	Add any BPL parameters that may be required during execution of the BPL task. You can add up to six parameters.
	These parameters are filled out by the user on the Confirm Execute BPL prompt when the BPL is executed. For details see Adding a BPL parameter.
	Warning: BPLparameters must correspond to the extension parameters (4 to 9) defined in the **acs.conf** configuration file. For more information about the **acs.conf,** see *ACS Technical Guide*.
11	Click **Save**.

Editing business process logic tasks

Follow these steps to edit an existing business process logic task.

Step	Action
1	In the Task Management screen, select the **Service Provider** from the drop down box.
2	In the table on the **Business Process Logic** tab, select the task to edit.
3	Click **Edit**.
	Result: You see the Edit *Business Process Logic screen* (See example on page 249).
4	Edit the details as described in *Adding business process logic tasks* (on page 249).

Step	Action
5	Click **Save**.

Deleting business process logic tasks

Follow these steps to delete an existing business process logic task.

Step	Action
1	In the Task Management screen, select the **Service Provider** from the drop down box.
2	In the table on the **Business Process Logic** tab, select the task to delete.
3	Click **Delete**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK**.
	Result: The BPL task and any associated BPL parameters are deleted from the database, and you see the Delete Successful prompt.
5	Click **OK**.

Adding BPL parameters

Follow these steps to add a new parameter to a BPL task.

Warning: This parameter must correspond to an INAP extension parameter configured in **acs.conf.** For more information about this configuration, see *ACS Technical Guide*.

Step	Action
1	In the New or the Edit Business Process Logic screen, click **New**.
	Result: You see the New *BPL Parameter screen* (See example on page 252).
2	In the **Display Name** field enter the parameter's name. This will be displayed next to a data entry box on the Confirm Execute BPL prompt when you execute the BPL task.
	For more information about executing BPL tasks, see *CCS User's Guide*.
3	If a value must be supplied for this parameter in order to execute this BPL task, select the **Mandatory** check box.
4	Click **Ok**.
	Result: The new parameter appears in the BPL Parameters table.
5	To change the order in which the parameter appears in the table, select it in the table and then:
	• Click **Up** to move the parameter up one row.
	• Click **Down** to move it down one row.
	Tip: The order in which the parameters appear in the table determines which INAP extension parameter they correspond to. The parameter in the first row corresponds to extension parameter 4. The parameter in the next row corresponds to extension parameter 5, and so on.
6	Click **Save**.
	Result: The changes are saved to the database.

BPL Parameter screen

Here is an example BPL Parameter screen.

Editing a BPL parameter

Follow these steps to edit an existing BPL parameter.

Step	Action
1	In the New or the Edit Business Process Logic screen, select the record to edit in the BPL Parameters table.
2	Click **Edit**.
	Result: You see the Edit *BPL Parameter screen* (See example on page 252).
3	In the **Display Name** field enter a new name for the parameter, if required.
4	Select or deselect the **Mandatory** check box as required.
	Warning: You must supply a value for this parameter at run time if this field is selected.
5	Click **Ok**.
6	To change the order in which the parameter appears in the table, use the **Up** and **Down** buttons: • Click **Up** to move the parameter up one row. • Click **Down** to move it down one row.
	Tip: The order in which the parameters appear in the table determines which INAP extension parameter they correspond to. The parameter in the first row corresponds to extension parameter 4. The parameter in the next row corresponds to extension parameter 5, and so on.
7	Click **Save**.
	Result: The changes are saved to the database.

Deleting BPL parameters

Follow these steps to delete an existing BPL parameter.

Step	Action
1	In the BPL Parameters table on the New or the Edit Business Process Logic screen, select the BPL parameter to delete.
2	Click **Delete**.
3	Click **Save**.
	Result: The record is deleted from the database.
	Tip: The record is not deleted from the database until you click **Save**. Prior to this point you can reverse any changes by clicking **Cancel**.

BPL Response Mapping

Introduction

The **BPL Response Mapping** tab lets you map user friendly messages and their translations to the responses received from the SLC when a BPL task is executed.

BPL Response Mapping tab

Here is an example **BPL Response Mapping** tab.

BPL Response screen

Here is an example BPL Response screen.

Adding BPL responses

Follow these steps to add a new BPL response.

Step	Action
1	In the Task Management screen, select the **Service Provider** from the drop down box.
2	Select the **BPL Response Mapping** tab.
3	From the **BPL** drop down box, select the BPL task for which to configure a new response, and click **New Response**. **Result:** You see the New *BPL Response screen* (See example on page 254).
4	From the **Response Template** drop down list, select the BPL response to configure.
5	If the **Response Number** field is available, enter the response number. **Tip:** This field is only available where the response template contains the '%d' variable. The '%d' is replaced by the response number when you save the response.
6	Click **Save**.

Editing BPL responses

Follow these steps to edit an existing BPL response.

Step	Action
1	In the Task Management screen, select the service provider from the **Service Provider** list.
2	Select the **BPL Response Mapping** tab.
3	From the **BPL** list, select the BPL task for which the response is configured.
4	From the **Response** list, select the response to edit and click **Edit Response**. **Result:** You see the Edit *BPL Response screen* (See example on page 254).
5	If required, select a different **Response Template**.
6	If required, specify a different **Response Number**.
7	Click **Save**.

Deleting BPL responses

Follow these steps to delete an existing BPL response and any related message mappings.

Step	Action
1	In the Task Management screen, select the **Service Provider** from the drop down box.
2	Select the **BPL Response Mapping** tab.
3	From the **BPL** drop down list, select the BPL task which has the error to delete.
	From the **Response** drop down list, select the response you want to delete.
4	Click **Delete Response**.
	Result: You see the Delete Confirmation prompt.
5	Click **OK**.
	Result: You see the BPL Responses delete success prompt.
6	Click **OK**.
	Result: The BPL response and any related message translations are deleted from the database.

Adding translations for BPL responses

Follow these steps to add a new translation for a BPL response.

Step	Action
1	On the **BPL Response Mapping** tab in the Task Management screen, select the **BPL** from the drop down box.
2	From the **Response** drop down list, select the response for which to map a new message translation.
3	Click **New Message**.
	Result: You see the New *BPL Response Message screen* (See example on page 256).
4	From the **Language** drop down box, select the language for the response message.
	Tip: The language to use is configured in the ACS Tools screen, **Language** tab. During execution, the configured screens runtime language will determine which message is shown. If a language is not specifically configured then the default screens language is used. This will be either the default language for the service provider, or the global default language (as configured in the ACS Tools screen). For more information about setting languages, see *ACS User's Guide.*
5	In the **Display Message** field, enter the message text.
6	Click **Save**.

BPL Response Message screen

Here is an example BPL Response Message screen.

Editing translations for BPL responses

Follow these steps to edit a translation for a BPL response message.

Step	Action
1	On the **BPL Response Mapping** tab in the Task Management screen, select the **BPL** from the drop down box.
2	From the **Response** drop down list, select the response.
3	In the table, select the message translation to edit and click **Edit Message**.
	Result: You see the Edit *BPL Response Message screen* (See example on page 256).
4	From the **Language** drop down box, select a different language if required.
5	Edit the **Display Message** as required.
6	Click **Save**.

Deleting translations for BPL responses

Follow these steps to delete message mapping for a BPL response.

Step	Action
1	On the **BPL Response Mapping** tab in the Task Management screen, select the **BPL** from the drop down box.
2	From the drop down list, select the **Response** you want.
3	Select the row in the table for the message mapping to delete and click **Delete Message**.
	Result: You see the Delete Confirmation prompt.
4	Click **OK**.
	Result: You see the BPL Response Mapping prompt.
5	Click **OK**.
	Result: The record is deleted from the database.

Response Mappings and Control Plans

Introduction

This section shows an example BPL control plan for a periodic charge subscription.   It explains how to correctly set up the nodes in the control plan in conjunction with the response mappings configured in the Task Management screen.

Example Control Plan

Here is an example BPL control plan for a periodic charge subscription.
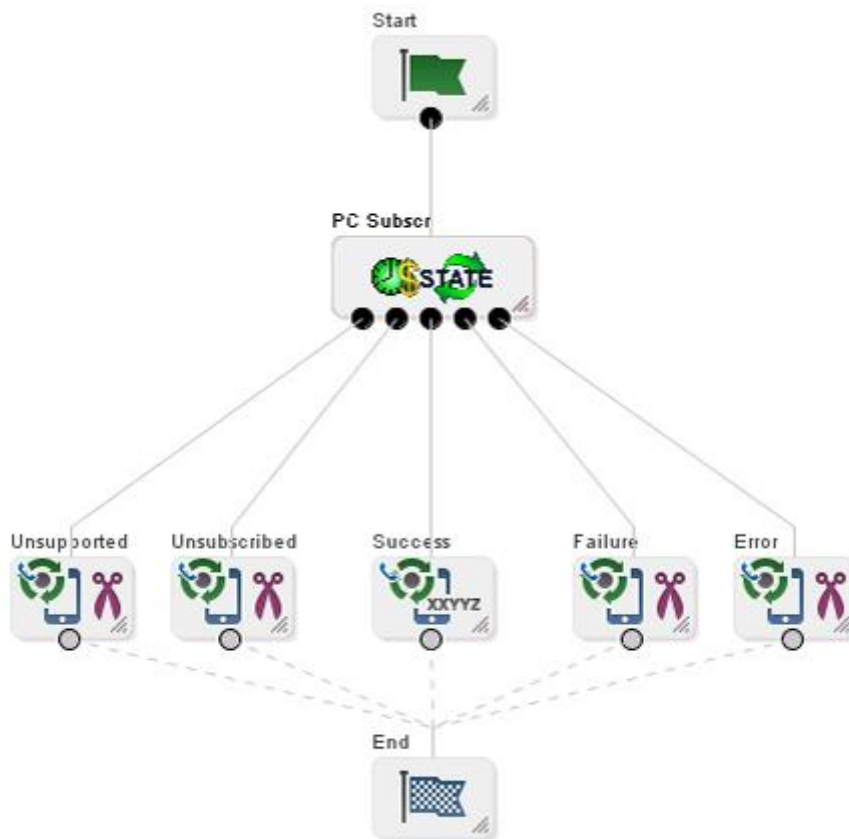
Success response mapping

In the example, the Success branch of the Periodic Charge Subscription node connects to a Terminate Unchanged feature node. When the control plan executes successfully a '200 OK' message will be returned to the triggering daemon. This is reported as a simple Success response for which no mapping is required.

Note: An alternative is to use a Found response to convey a particular message for success scenarios. This is triggered by the Unconditional Termination feature node entering your Connect To number (Termination Number), which will be used in the Found mapping.

Disconnect call response mappings

In the example, a Disconnect Call node is connected to each of the other exits from the Periodic Charge Subscription node:

- Not supported
- Unsubscribed
- Failure
- Error

When a Disconnect node exit is taken, this results in a '406 Not Acceptable' response with the configured Cause value. This means that the configured Cause value must be mapped to a Not Acceptable response mapping.

Note: You should not set the Cause value to 31 as this has a special meaning. It is interpreted as '404 Not Found' by the triggering daemon, which means that either the subscriber or the control plan has not been found. If you use this code then you will not be able to determine whether the error means one of the following:

- There has been an unexpected control plan error.

- The subscriber has not been found.

EDR Management

Overview

Introduction

This chapter explains how to configure the components used to manage EDRs.

Warning: The EDR Management screens are only available if the Subscriber Management module has been installed on your system and if you are using the VWS domain. If you are using a third party domain, then you will not be able to access these screens.

In this chapter

This chapter contains the following topics.

EDR Management Module

Accessing the EDR Management screen

Follow these steps to open the EDR Management screen.

Step	Action
1	Select the **Services** menu from the SMS main screen.

Step	Action
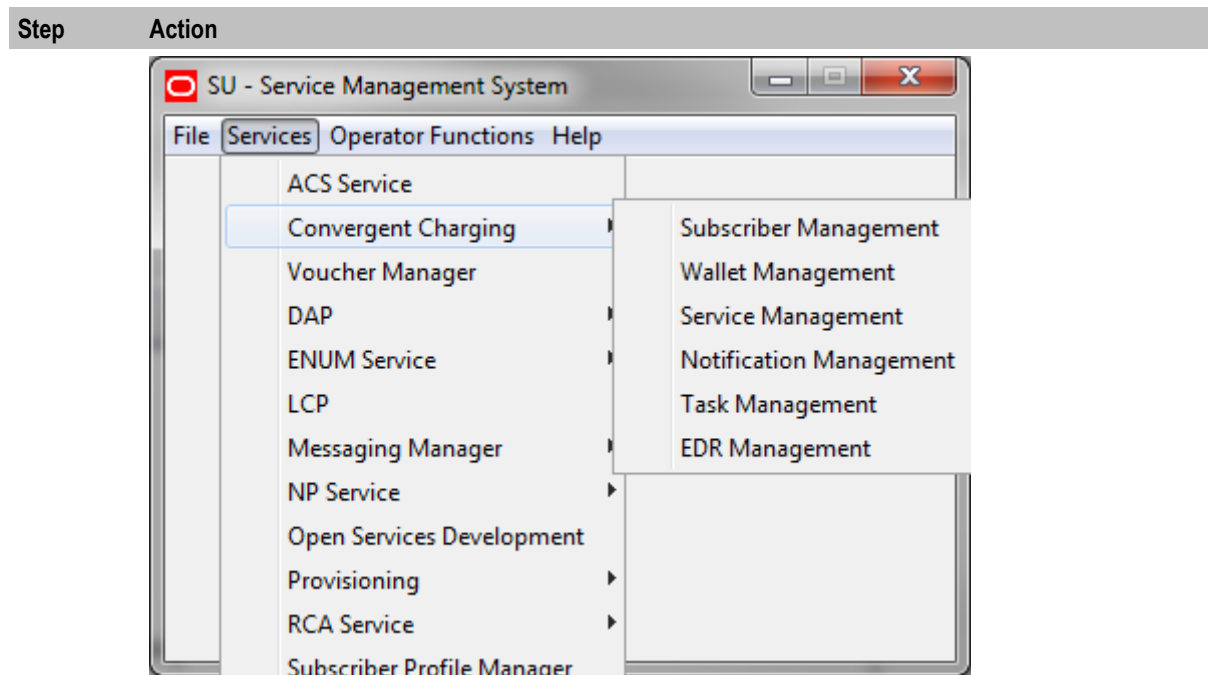
| 2 | Select **Convergent Charging > EDR Management**. |
| | **Result:** You see the EDR Management screen. |

EDR Management relationships

This diagram shows the relationships between the various screens available in the EDR Management module.

Note: The lines are colored differently for clarity and have no other meaning.
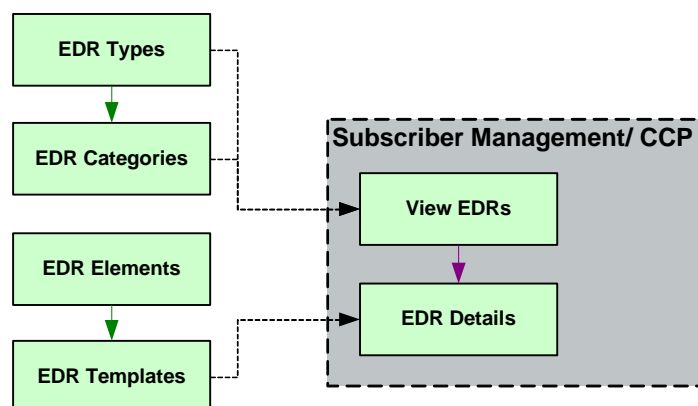
EDR Management screen

Here is an example EDR Management screen.
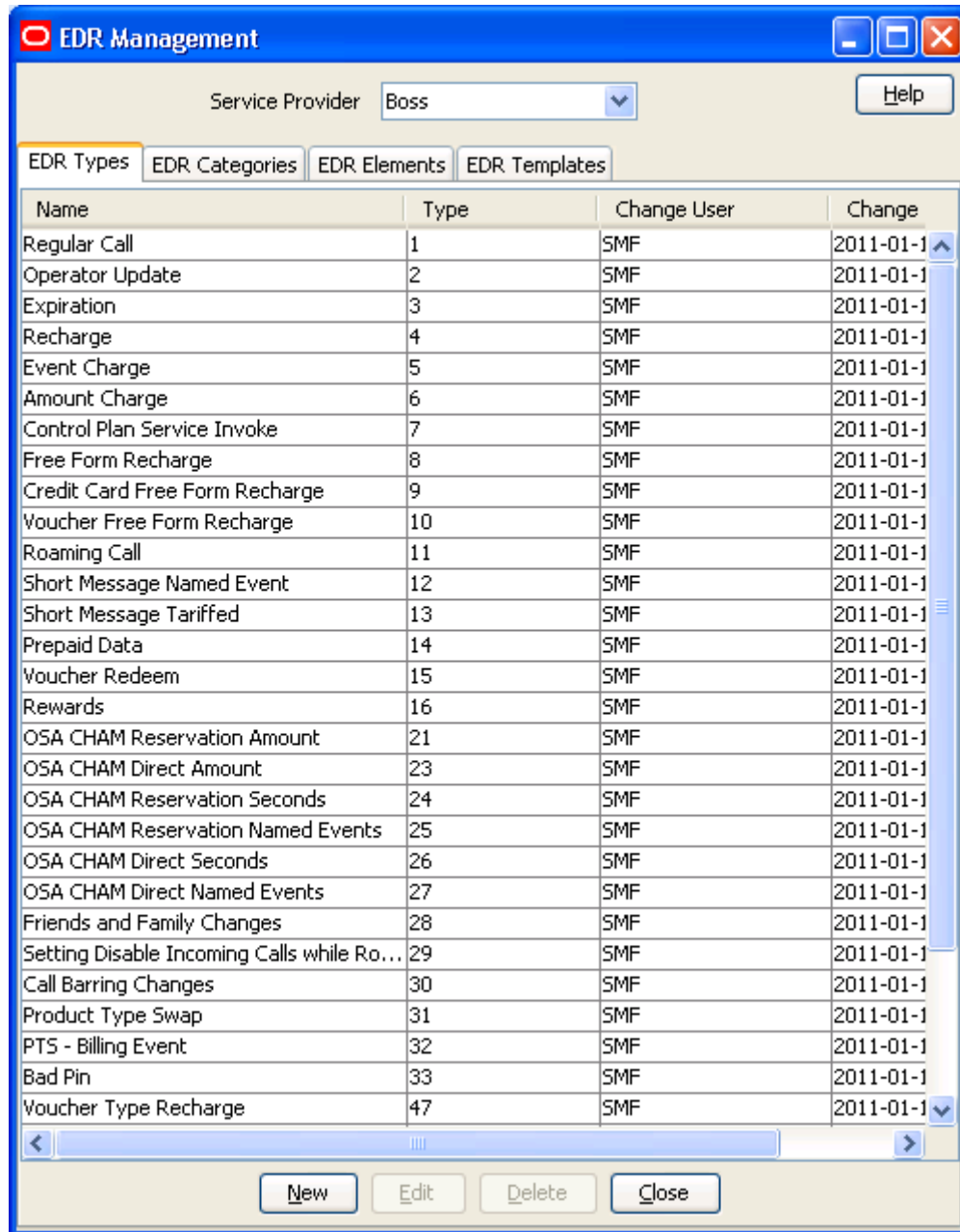
Introduction

The EDR Management screen lets you configure how EDRs are searched for and displayed in the *View EDRs* (on page 69) screen. It contains these tabs:

- *EDR Types* (on page 262)
- *EDR Categories* (on page 265)
- *EDR Elements* (on page 269)
- *EDR Templates* (on page 274)

- EDR Viewer Columns

EDR Types

Introduction

This screen enables you to add, modify or delete EDR types.

EDR types set records for each EDR type based on EDR type number.   The EDR type number is reported as the CDR_TYPE field in each EDR.

Note: The standard CCS EDR types are configured on installation.

Example EDR 1 for single tariff rated call

```
BILLING_ENGINE_ID=21|SCP_ID=366273322|SEQUENCE_NUMBER=487291|CDR_TYPE=1|RECORD_DATE=
20070423190107|ACCT_ID=83|
ACCT_REF_ID=83|CLI=01206233252|ACS_CUST_ID=1|BALANCE_TYPES=1|BALANCES=49880|COSTS=12
0|ACCOUNT_TYPE=22|CASCADE_ID=44|RATES=60|LENGTHS=2810.00|DISCOUNTS=0|
MAX_CHARGE=500|DURATION=120.00|DURATION_CHARGED=120.00|TN=01473|TCS=20070423181310|
TCE=20070423181510|CS=S|DISCOUNT_TYPE=S*W*R|WALLET_TYPE=1|FCA=01473254338|END_CALL_R
EASON=14
```

EDR Types tab

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

Adding EDR types

Follow these steps to add a new EDR type.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On EDR Types tab, click **New**. **Result:** You see the New EDR Type screen.

Step	Action

3	In the **Name** field, type a unique name for this EDR type.
4	In the **EDR Type** field, type a unique EDR type number. This must correspond to the value of the CDR_TYPE in EDRs of this type.
	For more information about EDR type numbers, see *EDR Definitions Operations Guide*.
5	Click **Save**.

Editing EDR types

Follow these steps to edit an existing EDR type.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On the EDR Types tab, select the EDR type you want to edit.
3	Click **Edit**.
	Result: You see the Edit EDR Type screen.

4	Edit the details as described in *Adding EDR types* (on page 263).
5	Click **Save**.

Deleting EDR types

Follow these steps to delete an existing EDR type.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On the EDR Types tab, select the EDR type you want to delete.
3	Click **Delete**.
	Result: A Delete Confirmation prompt appears.

Step	Action
4	Click **OK**.
	Result: The record is deleted and a confirmation prompt appears.
5	Click **OK**.

EDR Categories

Introduction

This screen enables you to add, modify or delete EDR categories.

EDR categories group EDR types into sets. You can search on EDR Category in the View EDRs for Subscriber screen.

Note: The standard CCS EDR categories are configured on installation.

EDR Categories tab

Here is an example **EDR Categories** tab.

Adding EDR categories

Follow these steps to add a new EDR category.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On EDR Category tab, click **New**.
	Result: You see the New EDR Category screen.

Step	Action

3	In the **Category Name** field, type a unique name for this EDR category.
4	From the **Available List** field, select an EDR type to add to this EDR category.

> **Notes:**
>
> • The Available List is populated by the entries in the EDR Types tab.
>
> • It will display any EDR type which has not been used for any other EDR category.

5	Click **>**.
	Result: The EDR type highlighted in step 4 will be moved to the **Selected** list.
	Note: To move all EDR types to the Selected List, click **>>**.
6	Repeat steps 4 and 5 until you have moved all the EDR types which should be part of this EDR category are in the Selected List.
7	Click **Save**.
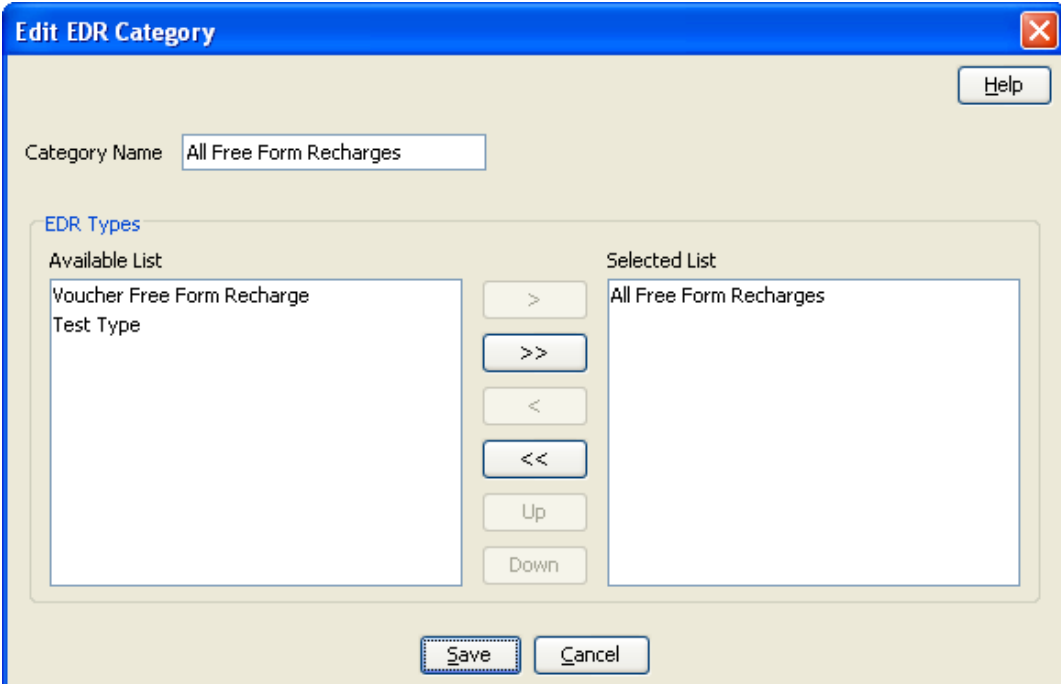
Editing EDR categories

Follow these steps to edit an existing EDR category.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On the EDR Categories tab, select the EDR category you want to edit.
3	Click **Edit**.
	Result: You see the Edit EDR Category screen.

Step	Action

4	Add any new EDR types to this EDR category as described in *Adding EDR categories* (on page 266).
5	If you want to remove any EDR types from this EDR category, select it from the Selected List and click **<**.
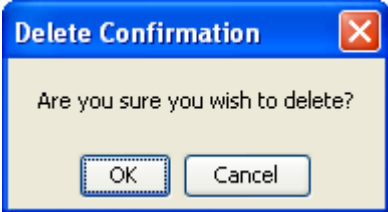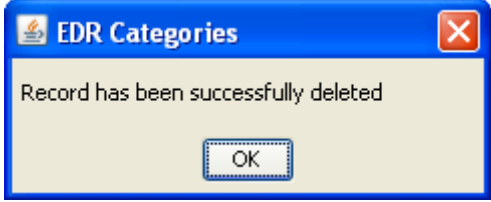
Note: To remove all EDR types from the list, click **<<**.

6	Click **Save**.

Deleting EDR categories

Follow these steps to delete an existing EDR category.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On the EDR Categories tab, select the EDR category you want to delete.
3	Click **Delete**.

Result: A Delete confirmation prompt appears.

4	Click **OK**.

Result: The EDR category is deleted and the EDR Categories prompt appears.

Step	Action

5	Click **OK**.

EDR Elements

Introduction

This screen enables you to add, modify or delete EDR elements.   EDR elements define how data is handled in the graphic elements on the EDR Details for Subscriber screen.   They are reusable and are used to define EDR templates.

Note: The standard CCS EDR elements are configured on installation.

EDR Elements tab

Here is an example **EDR Elements** tab.

Adding EDR elements

Follow these steps to add a new EDR element.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On EDR Elements tab, click **New**.
	Result: You see the New EDR Element screen.

Step	Action

3	In the **Element Name** field, type a unique name for this EDR element. This string will be used as the field name for this element in the EDR Details for Subscriber screen.
4	From the **Field Type** list, select the type of EDR field this element will correlate to.
5	If you selected a text field type from the **Field Type** list, enter the tag from the EDR in the **EDR Tag** field. This string must match the name of a field in an EDR exactly.
	For more information about the fields included in EDRs, see *EDR Definitions Operations Guide*.
6	If you would like to mask the field for users who do not have permission to view the content, select the Display Masked checkbox.
7	If you selected a table field type from the Field Type drop down list, complete the EDR Tags table as described in *Adding EDR Tag entries* (on page 272).
8	Click **Save**.

Editing EDR elements

Follow these steps to edit an existing EDR element.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On the EDR Elements tab, select the EDR element you want to edit.
3	Click **Edit**.
	Result: You see the Edit EDR Element screen.

Step	Action

4	Edit the details as described in Adding EDR elements.
5	Click **Save**.

Deleting EDR elements

Follow these steps to delete an existing EDR element.
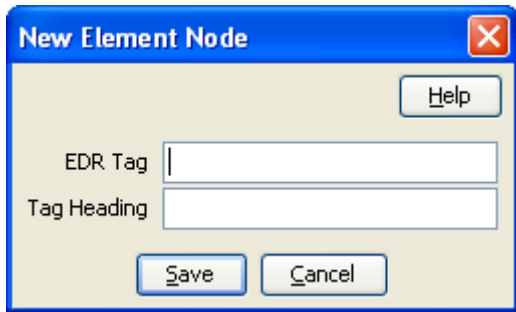
Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On the EDR Elements tab, select the EDR element you want to delete.
3	Click **Delete**. **Result:** A Delete confirmation prompt appears.
4	Click **OK**. **Result:** The EDR element is deleted and the EDR Elements prompt appears.
5	Click **OK**.

Adding EDR Tag entries

Follow these steps to add a new record to the EDR Tags table.
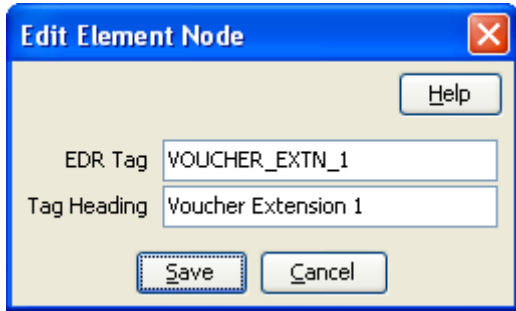
Step	Action
1	In the New EDR Element screen or the Edit EDR Element screen, click **New** in the EDR Tags area. **Result:** The New Element Node screen will appear.

Step	Action

2	In the **EDR Tag** field, enter the tag from the EDR. This string must match the name of a field in an EDR exactly.
	For more information about the fields which appear in EDRs, see *EDR Definitions Operations Guide*.
3	In the **Tag Heading** field, enter the name of the column this tag's details will appear under in the EDR Details for Subscriber screen.
4	Click **Save**.
	Result: The EDR element node will be added to the EDR Tags table in the New EDR Element screen.

Editing EDR Tag entries

Follow these steps to add a new record to the EDR Tags table.

Step	Action
1	In the New EDR Element screen or the Edit EDR Element screen, select the EDR tag you want to edit from the EDR Tags table, and click **Edit**.
	Result: The Edit Element Node screen will appear.

2	Edit the fields as described in *Adding EDR Tag entries* (on page 272).
3	Click **Save**.

Deleting EDR Tag entries

Follow these steps to add a new EDR element.

Step	Action
1	In the New EDR Element screen or the Edit EDR Element screen, select the EDR tag you want to delete from the EDR Tags table, and click **Delete**.
	Result: The Delete Confirmation prompt will appear.

Step	Action
2	Click **OK**.

EDR Templates

Introduction

This screen enables you to add, modify or delete EDR templates.   EDR templates are used on the EDR Details for Subscriber screen to display the information in the EDR.

Note: The standard CCS EDR templates are configured on installation.

EDR Templates tab

Here is an example **EDR Templates** tab.

Adding EDR templates

Follow these steps to add a new EDR template.

Step	Action
1	In the EDR Management screen, select the service provider from the Service Provider List.
2	On **EDR Templates** tab, click **New**. **Result:** The New EDR Template screen is displayed.

Step	Action

3	In the **Template Name** field, type a unique name for this template.
4	From the **EDR Category** list, select the category EDRs with this template should be associated with.
5	From the **Available List** field, select an EDR element you want to display in this template and click **>**.
	Note: To use all the EDR elements in the Available List, click **>>**.
6	The display order of the elements in the Selected List is used to set the order in which the fields appear in the View EDRs for Subscriber screen.
	To change the display order for an element in the Selected List, select the element you want to move, and click the **Up** or **Down** button.
7	Click **Save**.

Example template

These two screens show an EDR template, and the EDR Details screen using that EDR template.

Editing EDR templates

Follow these steps to edit an existing EDR template.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On the **EDR Templates** tab, select the EDR template you want to edit.
3	Click **Edit**.
	Result: You see the Edit EDR Template screen.

Step	Action

4	Edit the details as described in *Adding EDR templates* (on page 275).
5	If you want to remove any EDR elements from this EDR template, select it from the Selected List and click **<**.
	Note: To remove all EDR elements from the list, click **<<**.
6	Click **Save**.

Deleting EDR templates

Follow these steps to delete an existing EDR template.

Step	Action
1	In the EDR Management screen, select the **Service Provider** from the drop down box.
2	On the EDR Templates tab, select the EDR template you want to delete.
3	Click **Delete**.
	Result: A Delete confirmation prompt appears.
4	Click **OK**.
	Result: The EDR template is deleted and the EDR Templates prompt appears.
5	Click **OK**.

EDR Viewer Columns

Introduction

The EDR Viewer Columns tab enables you to edit the list of optional EDR fields that you can display in the EDR Viewer in addition to the standard fields that are displayed for each type of EDR. You access the EDR Viewer from the Edit Subscriber screen.

EDR Viewer Columns tab

Here is an example **EDR Viewer Columns** tab.

Editing optional EDR columns for display in the EDR Viewer

Follow these steps to edit the list of additional EDR elements that you can display in the EDR Viewer.

Step	Action
1	In the EDR Management screen, select the service provider from the Service Provider List.
2	On the **EDR Viewer Columns** tab, click **Edit**. **Result:** The Edit EDR Viewer Columns screen dialog opens and displays a predefined list of EDR elements.

Step	Action
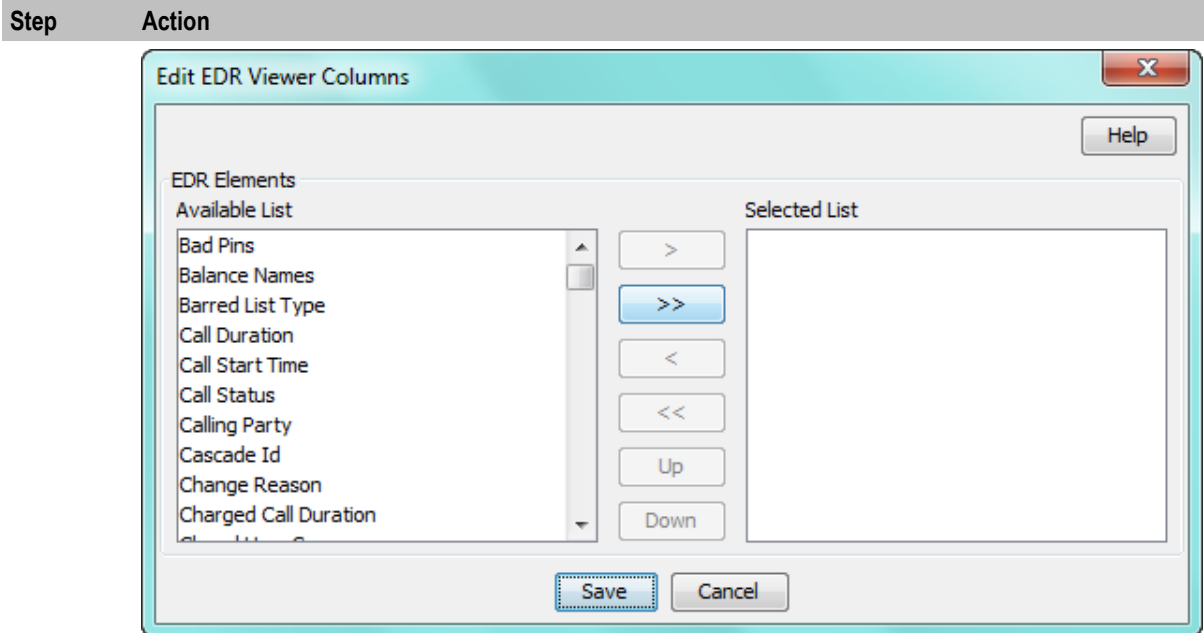
3   Select each EDR element that you want to display in the EDR Viewer from the **Available List** in turn and move it to the **Selected List** by clicking **>**.

   Note: To use all the EDR elements in the **Available List**, click **>>**. To remove an EDR element from the Selected List click **<**, or click **<<** to remove all the selected EDR elements

4   The display order of the elements in the **Selected List** is used to set the order in which the fields appear in the EDR Viewer.

   To change the display order for an element in the **Selected List**, select the element you want to move, and click the **Up** or **Down** button.

5   Click **Save**.

CCS Reports

Overview

Introduction

This chapter explains how to perform CCS reports.

In this chapter

This chapter contains the following topics.

Running CCS Reports

Introduction

CCS provides a series of reports which enable operators to report on system activity.   These reports are managed and run using the **Reports Function** screen.

Accessing the Report Functions menu

For instructions about how to access the Report Functions menu and how to use the reporting options, refer to the The Report Functions chapter in the *SMS User's Guide.*

Report Functions screen

CCS Reports are listed on the Report Functions screen under the CCS branch of the Available Reports tree.
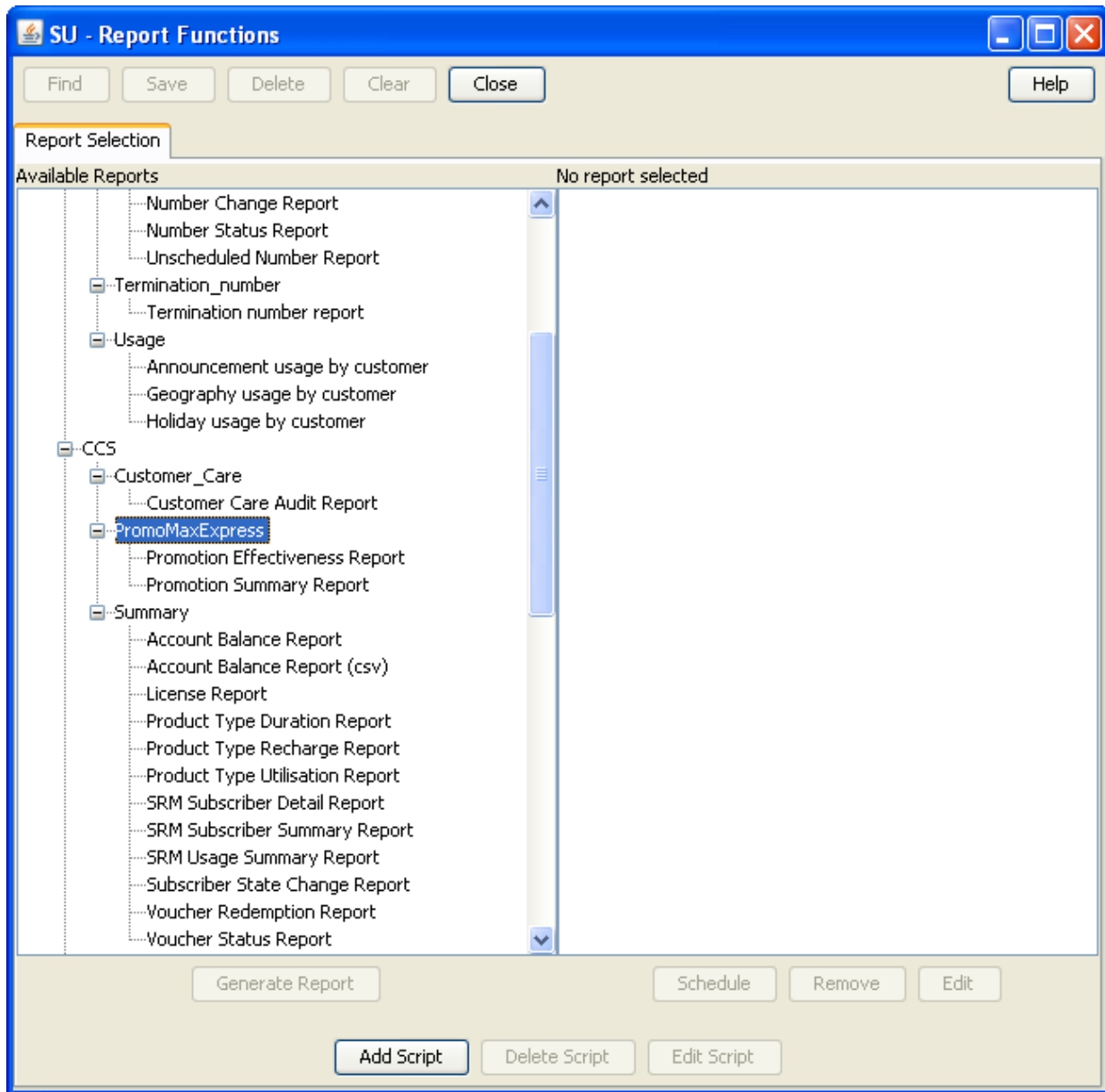
Date ranges

The following EDR-based reports all have start and end date parameters:

- Product Type Utilisation
- Product Type Duration
- Product Type Recharge
- Reward Application Report
- Subscriber State Change
- Voucher Redemption

The start date specifies the beginning of the date range and is inclusive.

The end date specifies the end of the date range and is exclusive.

For example, 1/3/2006 – 1/4/2006 will include all EDRs in March, but none from April.

Date formats can be one of the following:

- `YYYYMMDD`
- Relative dates

Relative dates

To schedule periodic reports, a date range relative to the current date can be specified by using one of the following formats:

- `9991MMDD`
  MM and DD specify a number of months and days to go back from today's date
- `9992MMDD`
  MM and DD specify a number of months and days to go back from the start of the current month

Examples

Daily report: To report on the previous day:

- Start date: `99910001`
- End date: `99910000`

Weekly report: To report on the previous week:

- Start date: `99910007`
- End date: `99910000`

Monthly report: To report on the previous month:

- Start date: `99920100`
- End date: `99920000`

CCS Reports

Unit values all reports

For any reports:

- Monetary values are reported in system major currency; for example, US $1.10 is reported as **1.10** where the currency base is 100 and the number of decimal places is 2.
- Dates are reported in YYYYMMDDHHMMSS format.
- Time values are reported in hundredths of seconds (1/100 seconds).
- SMS values are reported in numbers of SMS messages.

Note: Time values are stored in the database in hundredths of seconds, however, the PI outputs, and the UI displays time values in seconds.

Customer Care Audit

The Customer Care Audit report provides basic reporting detailing potentially suspicious account activity based around user screen operations.

This report uses the following EDR types to collate the information:

- 2   Operator Update

- 3   Account Delete
- 4   Recharge
- 8   Freeform Recharge
- 9   Credit Card Recharge
- 10 Freeform Voucher
- 33 Bad PIN
- 48 Voucher Update

The Generate Report screen has several optional fields that may be used to restrict the report information.

Notes:

- If either the "USER" or "MSISDN" fields are provided, the "Transaction Threshold" parameter will additionally limit the reporting information to the User Agent/ specified MSISDN combinations which exceed the threshold activity limit during the reporting period for all screen initiated operations.

- If "Transaction Threshold" is specified without "USER" or "MSISDN" values then the report will report only on those User Agents/MSISDN combinations which have breached the threshold activity limit during the reporting period.

- If the "Terminal" parameter is specified then the report will be based on values for the terminal whose ip address is specified.   The ip address can include wildcards.

- The optional parameters may be used in any combination to generate the required report.

- The report will collate the results and group by User Agent and then MSISDN.

- The report may be run multiple times in parallel with various parameter combinations.

- If scheduling the report it will be possible to specify the period of the report without setting dates (for example: last 2 months, last 2 weeks).

- If there is no activity for a User Agent then the User Agent will not be reported upon.

Report example 1

Customer Care Report with optional MSISDN set.

```
PrePaid Charging - Customer Care Audit Report
=============================================
Reporting Period: January 2008 - January 2008

User Agent      : All
MSISDN          : 441234567890
Threshold       : 0

JANUARY 2008

USER: ACS_ADMIN

MSISDN                  All       Standard   Adjustments   Reversals
======                  =======   ========   ===========   =========
441234567890            1         0          0             0
------                  -------   --------   -----------   ---------
Sub-total:              1         0          0             0

USER: ADMINISTRATOR

MSISDN                  All       Standard   Adjustments   Reversals
======                  =======   ========   ===========   =========
441234567890            0         1          1             0
------                  -------   --------   -----------   ---------
Sub-total:              0         1          1             0

USER: ALEX
```

```
MSISDN                  All       Standard  Adjustments   Reversals
======                  =======   ========  ===========   =========
441234567890            0         0         0             0
------                  -------   --------  -----------   ---------
Sub-total:              0         0         0             0

USER: CCS_ADMIN

MSISDN                  All       Standard  Adjustments   Reversals
======                  =======   ========  ===========   =========
441234567890            0         0         0             1
------                  -------   --------  -----------   ---------
Sub-total:              0         0         0             1

======                  =======   ========  ===========   =========
Total:                  1         1         1             1
```

Report example 2

Customer Care Report with no optional parameters set.

```
PrePaid Charging - Customer Care Audit Report
=============================================
Reporting Period: 2 January 2008 - 3 January 2008

User Agent    : All
MSISDN        : All
Threshold     : 0

JANUARY 2008

USER: ACS_ADMIN

MSISDN                  All       Standard  Adjustments   Reversals
======                  =======   ========  ===========   =========
441234567890            3         0         0             0
441234567891            0         2         0             0
441234567892            8         0         2             0
441234567893            7         0         1             2
------                  -------   --------  -----------   ---------
Sub-total:              18        2         3             2

USER: ADMINISTRATOR

MSISDN                  All       Standard  Adjustments   Reversals
======                  =======   ========  ===========   =========
441234567890            0         0         0             4
441234567894            0         0         2             0
------                  -------   --------  -----------   ---------
Sub-total:              0         0         2             4

======                  =======   ========  ===========   =========
Total:                  18        2         5             6
```

Report example 3

Customer Care Report with optional Terminal set.

```
PrePaid Charging - Customer Care Audit Report
=============================================
Reporting Period: 1 January 2008 - 31 January 2008

User Agent    : All
MSISDN        : All
Threshold     : 0
Terminal      : 192.168.24.57

JANUARY 2008

User Agent : SU
```

```
Terminal   : 192.168.24.57

MSISDN                   All       Standard   Adjustments   Reversals
======                   =======   ========   ===========   =========
3214123                  1         1          0             0
448888                   12        12         0             0
448889                   1         1          0             0

User Agent : SU
------                   -------   --------   -----------   ---------
Sub-total:               14        14         0             0

======                   =======   ========   ===========   =========
Total:                   14        14         0             0
```

Promotion Effectiveness Report

This Promotion Effectiveness Report provides statistics on the effectiveness of promotion within the group of affected subscribers (subscribers that received promotion).

Promotion effectiveness is computed by comparing the number of subscribers eligible for the promotion to the number of subscribers who received the promotion.

The effectiveness report includes the following information:

- Promotion name
- Number of subscribers eligible for promotion, calculated when report is run.
- Number of subscribers who received a reward from the promotion, calculated when the report is run.
- Percentage figure indicating the effectiveness.

Example

```
Prepaid Charging - Promotion Effectiveness Report
=================================================
Reporting Period: 1 January 2009 - 1 January 2009

JANUARY 2009

Service Name: Boss
=================================================================
Promotion Name                                 Eligible Subscribers Promotions Applied
Effectiveness
---------------------------------------------- -------------------- ------------------ ----
---------
Monthly >10 Reward then Gen Cash +1                    90                   0
    0 %
Monthly > 20 then Gen cash +1-50                                90                   0
      0 %
sanity test                                                    90                   0
      0 %
MJH_Reward                                                     90                   0
      0 %
SL Reward 01                                                   90                   0
      0 %
SL Reward 02                                                   90                   0
      0 %
test reward                                                    90                   0
      0 %
SL Test                                                        90                   0
      0 %
TP_Promo1                                                      90                   0
      0 %
SL Test 2                                                      90                   0
      0 %
SL Test ME 10                                          90                   0
    0 %
SL Test ME 20                                          90                   0
    0 %
```

```
Tony1                                                    90                       0
      0 %
testmbv-21                                               90                       0
      0 %
Activation Credit-106                                    90                       0
    0 %
MJH_11-21                                                90                       0
    0 %
act test-83                                              90                       0
    0 %
Daily Start  21  Expiry                                  90                       0
    0 %


Service Name: MigrationSP
===============================================================
Promotion Name                               Eligible Subscribers Promotions Applied
Effectiveness
-------------------------------------------------- ------------------- ------------------ ----
---------
SL Test 04 with Reward Product                            2                       0
0 %
MIG_Daily_EXP_010                                         2                       0
0 %
MIG_BV010                                                 2                       0
0 %
MIG_BV0101                                                2                       0
0 %
MIG_BV0102                                                2                       0
0 %
MIG_BV0103                                                2                       0
0 %
MIG_BV0104                                                2                       0
0 %
MIG_BV020                                                 2                       0
0 %
MIG_BV0201                                                2                       0
0 %
MIG_BV0202                                                2                       0
0 %
SL Test                                                   2                       0
0 %
SL Test1                                                  2                       0
0 %
SL Test2                                                  2                       0
0 %
MIG_Daily_Time_RTR_020                                    2                       0
0 %
MIG_Wallet_SMS_RTR_030                                    2                       0
0 %
MIG_Act_4-109                                             2                       0
0 %
MIG_Act_1-108                                             2                       0
0 %
MIG_Act_2-108                                             2                       0
0 %
MIG_Act_3-108                                             2                       0
0 %
MIG_Credit_4-1564                                         2                       0
0 %
MIG_Credit_1-1567                                         2                       0
0 %
MIG_Credit_2-1567                                         2                       0
0 %
MIG_Credit_3 -1567                                        2                       0
0 %
test01                                                    2                       0
0 %
```

Promotion Summary Report

The Promotion Summary Report provides promotion information over a specified period.

The summary report includes the following information:

- Promotion name
- Promotion status (Active or Inactive)
- Promotion global limited liability status (Unset, Eligible, Not Eligible)
- Promotion start date
- Promotion end date
- Total number of promotion rewards applied for the current promotion, calculated when the report is run.
- Total value of multi-balance rewards applied for the current promotion, calculated when the report is run.
- Total number of product type swaps for the current promotion, calculated when the report is run.

Example

```
Prepaid Charging - Promotion Summary Report
===================================
Reporting Period: 1 January 2009 - 1 January 2009

JANUARY 2009

Service Name: Boss
================================================================
Promotion Name                                    Active   GLL Status   Start Date      End
Date       Num Promos Value       Prod Swaps
Monthly >10  Reward then Gen Cash +1              Inactive Unset        20091026000000
20101026000000 0           0           0
Monthly > 20 then Gen cash +1-50                  Inactive Unset        20090926000000
20091224000000 0           0           0
sanity test                                       Inactive Unset        20091124000000
20091224000000 0           0           0
MJH_Reward                                        Inactive Unset        20090820000000
20091120000000 0           0           0
SL Reward 01                                      Inactive Unset        20081028000000
20101028000000 0           0           0
SL Reward 02                                      Inactive Unset        20081028000000
20101028000000 0           0           0
test reward                                       Inactive Unset        20091028000000
20111028000000 0           0           0
SL Test                                           Inactive Unset        NULL            NULL
0          0           0
TP_Promo1                                         Inactive Unset        NULL            NULL
0          0           0
SL Test 2                                         Inactive Unset        NULL            NULL
0          0           0
SL Test ME 10                                     Active   Unset        NULL            NULL
0          0           0
SL Test ME 20                                     Active   Unset        NULL            NULL
0          0           0
Tony1                                             Inactive Unset        NULL            NULL
0          0           0
testmbv-21                                        Inactive Unset        20090819130016
20090823170016 0           0           0
Activation Credit-106                             Inactive Unset        20081123160027
20101123160027 0           0           0
MJH_11-21                                         Inactive Unset        20091027060055
20101027060055 0           0           0
act test-83                                        Inactive Unset        20081028100016
20100828100016 0           0           0
Daily Start  21  Expiry                           Inactive Unset        20091026000000
20101026000000 0           0           0

Service Name: MigrationSP
```

```
================================================================
Promotion Name                                  Active   GLL Status   Start Date     End
Date       Num Promos Value      Prod Swaps
SL Test 04 with Reward Product                   Active   Unset        20091115000000
20101130000000 0          0          0
MIG_Daily_EXP_010                                Active   Unset        20091015000000
20101015000000 0          0          0
MIG_BV010                                        Active   Unset        NULL           NULL
0          0          0
MIG_BV0101                                       Active   Unset        NULL           NULL
0          0          0
MIG_BV0102                                       Active   Unset        NULL           NULL
0          0          0
MIG_BV0103                                       Active   Unset        NULL           NULL
0          0          0
MIG_BV0104                                       Active   Unset        NULL           NULL
0          0          0
MIG_BV020                                        Active   Unset        NULL           NULL
0          0          0
MIG_BV0201                                       Active   Unset        NULL           NULL
0          0          0
MIG_BV0202                                       Active   Unset        NULL           NULL
0          0          0
SL Test                                          Active   Unset        NULL           NULL
0          0          0
SL Test1                                         Active   Unset        NULL           NULL
0          0          0
SL Test2                                         Active   Unset        NULL           NULL
0          0          0
MIG_Daily_Time_RTR_020                           Active   Unset        20091015000000
20101015000000 0          0          0
MIG_Wallet_SMS_RTR_030                           Active   Unset        20091015000000
20101015000000 0          0          0
MIG_Act_4-109                                    Active   Unset        20091102110031
20091128110031 0          0          0
MIG_Act_1-108                                    Active   Unset        20090926110035
20100126150035 0          0          0
MIG_Act_2-108                                    Active   Unset        20091026110042
20101026110042 0          0          0
MIG_Act_3-108                                    Active   Unset        20091026110042
20091231230042 0          0          0
MIG_Credit_4-1564                                Active   Unset        20091026110058
20101026110058 0          0          0
MIG_Credit_1-1567                                Active   Unset        20091026110005
20101026110005 0          0          0
MIG_Credit_2-1567                                Active   Unset        20091026110009
20101026110009 0          0          0
MIG_Credit_3 -1567                               Active   Unset        20091026120000
20101026120000 0          0          0
test01                                           Active   Unset        20090901000000
20100904000000 0          0          0
```

Account Balance

The Account Balance report details the wallet information for each subscriber.   It is ordered by Product Type and Wallet State.

The report shows the current status of wallets at the time it was run.   This means you may not get the same results if the report is re-run.

Tip: Balances for shared wallets will be identified by enclosing the Wallet ID in square brackets [ ].

Account Balance (csv)

The Account Balance (csv) report lists the following wallet information for each subscriber. Items in the report are comma separated:

CLI, wallet ID, product type name, wallet state, wallet expiry date, balance type name, balance value [, balance type name, balance value]

The balance type name and balance value is repeated for each balance. Values for:

- Monetary balances, are reported in system major currency; for example, US $1.10 is reported as **1.10** where the currency base is 100 and the number of decimal places is 2.
- Time balances are reported in hundredths of seconds (1/100 seconds).
- SMS balances are reported in numbers of SMS messages; for example, the Free SMS balance would be the number of free SMS messages.

Note: No header or footer information is provided as this report is intended for use by third parties only.

License

The report provides statistics on licensable elements of CCS, such as:

- throughput figures for various protocols, and
- use of specific software components.

In this report, any lines of the following format are set by the Statistics Category field in the Capability configuration:

```
PrePaid Charging <Type>, Protocol=<protocol>, Domain Type=<domain>
```

For more information about configuring these entries, see *Capability* (on page 205).

Example

```
PrePaid Charging - License Report
=================================

Reporting Period: 23 August 2007 - 21 November 2007

Service                                        Metric    Value
-------                                        ------    -----

Universal Service Management System            Users     88784
Universal Service Management System - Cluster Pack  Users  0
Universal Application Server                   Users     88784
Control Plan Editor                            Feature   Enabled
PrePaid Charging Subscriber Profile Manager    Feature   Enabled
PrePaid Charging Voucher Management            Users     88784
PrePaid Charging Rewards                       Users     0
PrePaid Charging Service Bundles               Users     88784
PrePaid Charging Peer to Peer                  Users     88784
PrePaid Charging Data, Protocol=SMPP, Domain Type=UBE  SMAPS  0
PrePaid Charging Voice, Protocol=CAP3, Domain Type=UBE  CAPS  0
PrePaid Charging Voice, Protocol=CS1, Domain Type=UBE  CAPS  0
PrePaid Charging Voice, Protocol=ISUP, Domain Type=UBE  CAPS  0
USSD Self Care                                 Users     0
SMS Self Care                                  Users     0
```

Product Type Duration

The Product Type Duration report details the total call duration per month.   This report documents the sum of the duration of inter-net (roaming) and intra-net (non-roaming) calls per month per product type.

The following EDR types are used:

- 1   Regular Call, and
- 11 Roaming Call.

Note: Partial EDR records may be produced for data charging when config parameter **createEDRForMidSessionCommit** is set to True.   Partial EDR records are recognised by the tag and value MID_SESSION=True.   These records are ignored for this report.

Product Type Recharge

The Product Type Recharge report details the number and amount of voucher recharges and other types of recharges (such as credit card recharge) per month per product type per balance type.   The amount for each balance type is shown in a separate column.

Tip: Recharges for deleted balance types are listed under "Other Balance Type".

The following EDR types are used:

- 4   Voucher Recharge
- 8   Freeform Recharge
- 9   Creditcard Recharge
- 10 Voucher Freeform Recharge
- 15 Voucher Redeem, and
- 16 Rewards.

Note: Partial EDR records may be produced for data charging when config parameter **createEDRForMidSessionCommit** is set to True.   Partial EDR records are recognised by the tag and value MID_SESSION=True.   These records are ignored for this report.

Product Type Utilisation

The Product Type Utilisation report details the number of calls and notifications per month based on whether or not they are roaming.

This reports on the number of calls per month per product type for the following:

- Intra-net Calls (EDR type 1)
- Inter-net Calls (EDR type 11)
- Intra-net Notifications (EDR type 12)
- Inter-net Notifications (EDR type 13)

Note: Partial EDR records may be produced for data charging when config parameter **createEDRForMidSessionCommit** is set to True.   Partial EDR records are recognised by the tag and value MID_SESSION=True.   These records are ignored for this report.

Reward Application Report

The Reward Application Report details the number of rewards by Service Provider per Product Type for the date range.

When collating the report details, totals will be generated on the service provider boundary covering all product types within the service providers.

If a Product Type does not have any rewards applied it will still be detailed within the report count, with the value set to 0.

The following EDR types are used:

- 1   Regular Call.

Note: Partial EDR records may be produced for data charging when config parameter **createEDRForMidSessionCommit** is set to True.   Partial EDR records are recognised by the tag and value MID_SESSION=True.   These records are ignored for this report.

Report example

```
UBE WM – Reward Recharge
========================


Reporting Period: September 2006 - September 2006


SEPTEMBER 2006
Service Name:  MVNO Alpha
Product Type   General  SMS    Data
============   =======  =====  ====
Bronze             100   254    123
Silver            1432   432     54
Gold              6523  4321   1432
Hybrid             652   432     21
Student             21   120      0
============   ========  =====  ====
Total             8728  5559   1630


Service Name:  MVNO Beta
Product Type   Basic Reward  Product Swap  Mixed
===========   ============  ============  =====
Basic                    0             0    123
Executive             1245            34   5234
===========   ============  ============  =====
Total                 1245            34   5357
```

Subscriber State Change

The Subscriber State Change report indicates the number of subscribers that changed to a particular state per product type per month.   If a subscriber has moved to the new state more than once in the reporting period, then each instance will be reported.

This report has a third report parameter (after start and end dates) that provides a drop-down list for selecting the new state to be reported on.

For example, selecting **Active** as the state will generate a report showing the number of subscribers that were activated.

The following EDR types are used:

- 1   Regular Call
- 2   Operator Updates
- 3   Expiration
- 4   Voucher Recharge
- 5   Friends & Family, Friends & Destination Config Change
- 6   Direct Amount Charge
- 8   Freeform Recharge
- 11   Roaming Call
- 12   Intra-net Notifications
- 13   Inter-net Notifications
- 14   GPRS Volume/Duration Charge
- 16   Rewards
- 31   Product Type Swap
- 32   Product Type Swap
- 33   Read Secret Code
- 49   Periodic Charge

Note:

- A subscriber may not be in the new state at the time this report is run, therefore no direct comparison with the results of this report and the current subscriber state can be made.

- Partial EDR records may be produced for data charging when config parameter **createEDRForMidSessionCommit** is set to True.   Partial EDR records are recognised by the tag and value MID_SESSION=True.   These records are ignored for this report.

Entering Relative Dates

Relative dates can be used in **Start Date (YYYYMMDD)** and **End Date (YYYYMMDD)** when configuring the **Generate Report 'Subscriber State Change Report**' parameters.

The fields accept a *YYYYMMDD* date format where *YYYY*, *MM*, and *DD* specify the Year, Month and Day, respectively. Setting the year as 9991 will allow you to set a relative date MM months and DD days before today. Setting the year as 9992 will allow you to set a relative date MM months and DD days before the first day of this month.

The following are some relative date input examples:

- 99910001 specifies yesterday (0 months and 1 day before today)
- 99910000 specifies today (0 months and 0 days before today)
- 99920100 specifies the first day of last month (1 month and 0 days before the first day of this month)
- 99920001 specifies the last day of last month (0 months and 1 day before the first day of this month)

Voucher Activity

The Voucher Activity report details all user activity associated with the creation and modification of vouchers.

Report example

This is an example Voucher Activity report with only dates set.

```
Voucher Activity Report
=======================

Reporting Period: 17 January 2011 - 17 February 2011

User Name: OPS$SMF_OPER
=======================================
Date of Change  Time of Change  Action
Voucher Number or Range
--------------  --------------  -------------------------------------------------------------
-----------  ----------------------
30-JAN-11       20:15           Voucher Batch Created ()
1000012/1000020
30-JAN-11       21:35           Voucher Batch Created ()
9100000/9100100
30-JAN-11       21:43           Voucher Batch Created ()
9100000/9100100
30-JAN-11       21:45           Voucher Batch Created ()
9100000/9100100
30-JAN-11       22:26           Voucher Batch Created ()
8800000/8800100
31-JAN-11       00:12           Voucher Batch Created ()
9100000/9100100
31-JAN-11       00:23           Voucher Batch Created ()
8800000/8800100
31-JAN-11       03:18           Voucher Batch Created ()
7700000/7700100
31-JAN-11       03:21           Voucher Batch Created ()
7700000/7700100
31-JAN-11       03:28           Voucher Batch Created ()
6600000/6600100
```

```
01-FEB-11        05:28          Voucher Batch Created ()
6100000/6100100


User Name: SU
======================================
Date of Change  Time of Change  Action
Voucher Number or Range
-------------  -------------- --------------------------------------------------------------
----------- ----------------------
28-JAN-11        04:22          Voucher Type Created (Tax_Vouchers)
30-JAN-11        20:11          Voucher Type Created (Sam's Voucher Type)
30-JAN-11        21:08          Voucher Batch Edited (:Status Changed to A:)
1000012/1000020
30-JAN-11        21:08          Voucher Validated (Failure)
1000016
30-JAN-11        21:37          Voucher Batch Edited (:Status Changed to A:)
9100000/9100100
30-JAN-11        21:41          Voucher Batch Deleted ()
9100000/9100100
30-JAN-11        21:44          Voucher Batch Deleted ()
9100000/9100100
30-JAN-11        21:45          Voucher Batch Edited (:Status Changed to A:)
9100000/9100100
30-JAN-11        22:28          Voucher Batch Edited (:Status Changed to A:)
8800000/8800100
31-JAN-11        00:11          Voucher Batch Deleted ()
9100000/9100100
31-JAN-11        00:13          Voucher Batch Edited (:Status Changed to A:)
9100000/9100100
31-JAN-11        00:23          Voucher Batch Deleted ()
8800000/8800100
31-JAN-11        03:19          Voucher Batch Edited (:Status Changed to A:)
7700000/7700100
31-JAN-11        03:20          Voucher Batch Deleted ()
7700000/7700100
31-JAN-11        03:29          Voucher Batch Deleted ()
6600000/6600100
31-JAN-11        03:38          Voucher Batch Deleted ()
7700000/7700100
01-FEB-11        05:28          Voucher Batch Edited (:Status Changed to A:)
6100000/6100100
06-FEB-11        22:22          Voucher Type Created (test)
06-FEB-11        22:23          Voucher Type Created (JRE)
06-FEB-11        22:30          Voucher Batch Deleted (JRE)
06-FEB-11        22:30          Voucher Type Created (JRE)
07-FEB-11        00:55          Voucher Validated (Failure)
1111
07-FEB-11        00:57          Voucher Validated (Failure)
1111
17-FEB-11        01:28          Voucher Validated (Success)
12300014886
17-FEB-11        01:28          Voucher Validated (Failure)
1230004886
17-FEB-11        01:28          Voucher Validated (Failure)
123000
17-FEB-11        01:41          Voucher State Changed (F:Frozen for Testing)
1230001
17-FEB-11        01:41          Voucher Validated (Success)
12300014886
17-FEB-11        02:01          Voucher State Changed (C:changed to created)
1230001
17-FEB-11        02:23          Voucher State Changed (D:Delete)
8880001
17-FEB-11        02:23          Voucher State Changed (D:Delete)
8880002
17-FEB-11        02:33          Voucher State Changed (A:Re-activated)
8880001
17-FEB-11        03:15          Voucher Type Deleted (long name
1111111111111111111111111111111111111111a)
17-FEB-11        04:01          Voucher Recharged (Failure)
33300017165
```

```
17-FEB-11       04:01          Voucher Recharged (Failure)
33300017165
17-FEB-11       04:02          Voucher Recharged (Failure)
33300017165
17-FEB-11       04:04          Voucher Recharged (Failure)
33300053126
17-FEB-11       04:08          Voucher State Changed (A:)
3000025
17-FEB-11       04:14          Voucher Recharged (Failure)
33300047331
17-FEB-11       04:24          Voucher Recharged (Failure)
79790017616
17-FEB-11       04:27          Voucher Recharged (Failure)
79790017616
```

Voucher Redemption

The Voucher Redemption report details the number of vouchers redeemed per month per product type per voucher type.   It also shows totals for each Voucher Type Scenario.

The following EDR type is used:

- 15 Voucher Redeem.

Note:

- Redemptions of deleted voucher types are listed under "Other Type".

- Partial EDR records may be produced for data charging when config parameter **createEDRForMidSessionCommit** is set to True.   Partial EDR records are recognised by the tag and value MID_SESSION=True.   These records are ignored for this report.

Report example

This is an example Vouchers report with only dates set.

```
UBE WM - Voucher Redemption Recharge
====================================

Reporting Period: 1 January 2008 - 10 January 2008

JANUARY 2008
============
Service Name: Boss
Product Type                  Basic Recharge       Multi-Balance
============================= ==================== ====================
Local Product                                  46                   39
Standard Product                              123                  378
Premium Product                                92                   85
Premium Plus Product                            2                    5
============================= ==================== ====================
Total:                                        243                  507

Service Name: Test
Product Type              Test Voucher
============================= ====================
Test Product                                   11
============================= ====================
Total:                                         11
```

Voucher Status

The Voucher Status report details all vouchers in the system with details about their current state.

The generation of each report results in the creation of two files, namely a detail file and a control file. The format of the detail file is a CSV file.

Report example

This is an example Voucher Status report CSV data imported into a spreadsheet program.

VoucherNumber	VoucherState	VoucherRedeemingCLI	VoucherTopUpTime	VoucherBatchID	PreUseExpiryDate	VoucherType
1000000008	R	888888888893	2805201322003300	81	2805201415001400	$10 Cash $5 promo
1000000001	R	888888888893	2805201322052000	81	2805201415001400	$10 Cash $5 promo
1000000000	R	888888888893	2805201322223600	81	2805201415001400	$10 Cash $5 promo
1000000005	R	888888888893	2805201322414400	81	2805201415001400	$10 Cash $5 promo
1000000010	R	888888888893	2805201323291100	81	2805201415001400	$10 Cash $5 promo
1000000003	A			81	2805201415001400	$10 Cash $5 promo
1000000002	A			81	2805201415001400	$10 Cash $5 promo
1000000004	A			81	2805201415001400	$10 Cash $5 promo
1000000006	A			81	2805201415001400	$10 Cash $5 promo
1000000007	A			81	2805201415001400	$10 Cash $5 promo
3302000000	C			101		$10 Cash $5 promo
3302000001	C			101		$10 Cash $5 promo
3302000002	C			101		$10 Cash $5 promo