

**Oracle® Communications
Convergent Charging Controller**

Voucher Manager User's Guide

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About This Document

Scope

The scope of this document includes all functionality a user must know in order to effectively operate the CCS Voucher Management feature. It does not include detailed design of the service.

Audience

This guide is written primarily for administrators who are responsible for creating and maintaining Vouchers. 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*
- *Charging Control Services Technical Guide*
- *Charging Control Services User's Guide*
- *Control Plan Editor User's Guide*
- *Feature Nodes Reference Guide*
- *Service Management System User's Guide*
- *Voucher Manager Technical Guide*

Document Conventions

Typographical Conventions

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

Formatting Convention	Type of Information
Special Bold	Items you must select, such as names of tabs. Names of database tables and fields.
<i>Italics</i>	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.
<i>variable</i>	Used to indicate variables or text that should be replaced with an actual value.
menu option > menu option >	Used to indicate the cascading menu option to be selected. Example: Operator Functions > Report Functions
hypertext link	Used to indicate a hypertext link.

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

System Overview

Overview

Introduction

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

In this chapter

This chapter contains the following topics.

Vouchers Introduction.....	1
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Vouchers Introduction

Introduction

Vouchers are credit coupons which are used to add value to wallet balances.

Telcos can create and distribute the vouchers according to their preference and need. They can be distributed in card form or as mail-out discount offers. They may be purchased from the telco.

CCS provides systems for:

- Creating voucher types and batches
- Securing vouchers (through PINs)
- Redeeming vouchers
- Automatic deletion of archived vouchers

Note: Vouchers are sometimes referred to as scratch cards.

CCS component

Note: Vouchers are part of the Prepaid Charging solution and build on functionality provided by CCS. To fully understand how tasks work, also see *CCS User's Guide*.

Voucher data

Each voucher contains this data:

- Product types they can be used for
- Balance type to credit
- Amount to be credited
- Expiry date for each new bucket
 - Pre-Use expiry period sets date a voucher must first be used or its balance will expire

- Balance expiry period sets the time after a voucher is first used after which any outstanding voucher balance will expire

Vouchers used for recharge may affect multiple balance types.

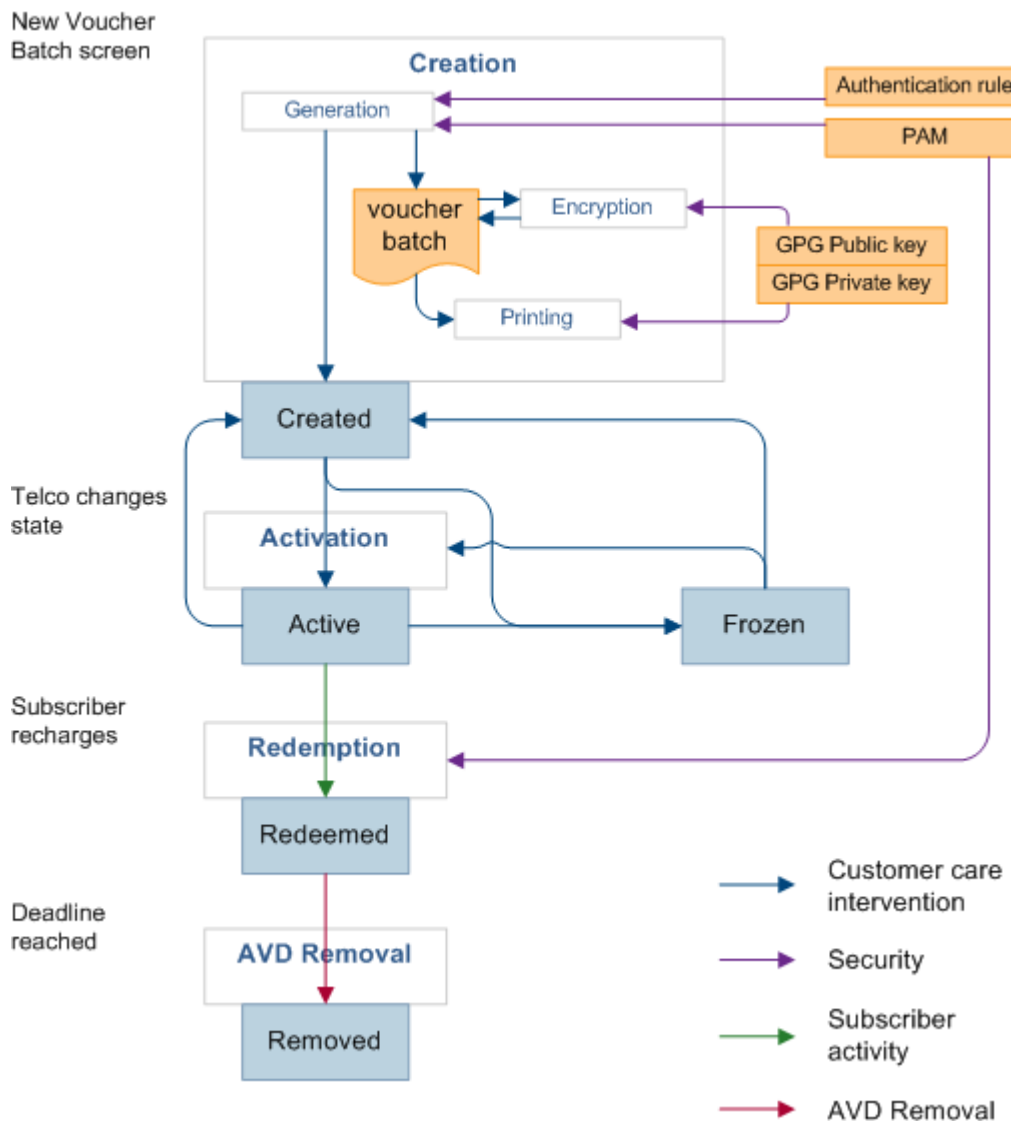
Voucher types

Voucher types provide a voucher's core data. It also defines how a recharge can be applied. For more information about voucher types, see *Voucher Type* (on page 10).

Voucher life cycle

This diagram shows the life cycle of a voucher.

Note: Voucher batches have a slightly different life cycle.



Voucher states

Here is the list of voucher and voucher batch states:

- Created
- Active
- Frozen

When you create a voucher batch the batch state is set to Created. You must set the batch state to Active if you want to redeem the vouchers in the batch. You may also need to set the state of each voucher within the batch to Active.

Note: A voucher may only be redeemed if it is in an active state and the voucher batch it belongs to is also in an active state.

Reported voucher state

The status of an individual voucher or a range of vouchers within a batch can be updated. This means that individual vouchers within the batch may have different states to the batch itself. When the batch and voucher states are different, the batch state may override the voucher state so that the reported state of the voucher is different to its actual state.

This table shows what the reported voucher state will be for the available voucher and batch states.

Actual Voucher State	Created Batch	Active Batch	Unavailable Batch
Created	Voucher reported as created	Voucher reported as created	Voucher reported as frozen
Active	Voucher reported as created	Voucher reported as active	Voucher reported as frozen
Frozen	Voucher reported as created	Voucher reported as frozen	voucher reported as frozen
Deleted	Voucher reported as created	Voucher reported as deleted	voucher reported as frozen

Redeeming vouchers

Vouchers can be redeemed by:

- Providing voucher details using the IVR menu set up in a control plan
- Customer service representatives using the Voucher Recharge tab on the Voucher Management screen.

Redeeming a voucher changes wallet balances and voucher status. Voucher recharges add value to the personal wallet by default. The business wallet can be selected using normal wallet selection features. If the subscriber only has one wallet, their recharge is automatically applied to that wallet. Wallet balance changes are made using VWS's voucher subsystem.

Automatic voucher deletion

Vouchers that have been redeemed will be archived on a weekly basis. The archived vouchers will be automatically deleted from the VWS after a configurable number of weeks have elapsed.

The number of weeks to keep archived vouchers is set on the *AVD Configuration* (on page 38) tab. This tab also displays the date ranges for which redeemed vouchers will be deleted.

User access

User access to the Voucher Manager functionality is managed through the user templates defined in the SMS User Management screen. For more information about creating and maintaining user templates, see *SMS User's Guide*.

Security

Voucher PINs

Vouchers generally come with a PIN. PINs validate the voucher by number.

Note: Voucher PINs are different from Bad-PIN counts for credit cards.

For more information about how PINs are generated and checked, see *CCS Technical Guide*.

Generating GPG keys

A public and private GPG key can be generated from a pass-phrase. The private key is held only by the print shop and used only to decode the encrypted batch file. The public key is used to encrypt the file and must therefore be supplied to the operator who will be responsible for generating the voucher batch file.

For more information about using GPG keys with exported files, see *Print Shop Operations Guide*.

CB-10 voucher security

If CB-10 voucher security functionality is installed and activated on your system and the HRNGEN private keys and SHA hash keys are generated, you can use CB10 and CB10 HRN encryption when creating voucher batches. The authentication rules for generating CB10 and CB10 HRN encryption parameters are configured on the **Security** tab on the CCS Service Management screen.

Note: For more information about CB10 authentication rules, see *CCS User's Guide*. For more information about enabling the CB10 voucher security feature, see *Installation Guide*.

Power Charge Scenarios

Introduction

A scenario is an alternative set of multiple balances that is associated with a voucher type. When a voucher is redeemed, a subscriber can select a particular scenario from the different options available for redeeming the voucher.

Note: It is possible for a scenario to increment a balance, or extend the expiry date for the balance, or both.

Examples of scenarios

A single voucher can be redeemed in multiple ways, depending on the options available at redemption. The subscriber is presented with a list of scenarios and prompted to select one.

For example, a voucher can be redeemed one of the following ways:

- 120 minutes of international calling (180 minutes during a special promotion)
- 200 short messages made within a 30 day period (300 SMS during a special promotion)
- Gold customers will receive an additional 10% on their chosen option

Redemption rules

Scenarios are applied and redeemed according to the following rules:

- The default scenario value '0' will always be applied in addition to any selected scenario.
- The scenario name selected by the subscriber must match a scenario defined against the voucher type for the recharge to occur.
- If only one scenario exists against the voucher type, no scenario needs to be selected.

Redemption notifications

When a subscriber's account is changed due to a voucher being redeemed, a real-time wallet notification is sometimes sent to the subscriber's handset. For more information about wallet notifications, see Real-Time Wallet Notifications.

For vouchers which are redeemed with a scenario, a notification template must be configured for each scenario. The notification template is selected by matching the scenario number to the digit on the end of the notification template name.

Example: For a basic recharge notification with two scenarios, the following two notifications must be configured:

- BasicRecharge1
- BasicRecharge2

Voucher Management

Overview

Introduction

This chapter explains how to create and manage vouchers.

In this chapter

This chapter contains the following topics.

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Voucher Manager Module

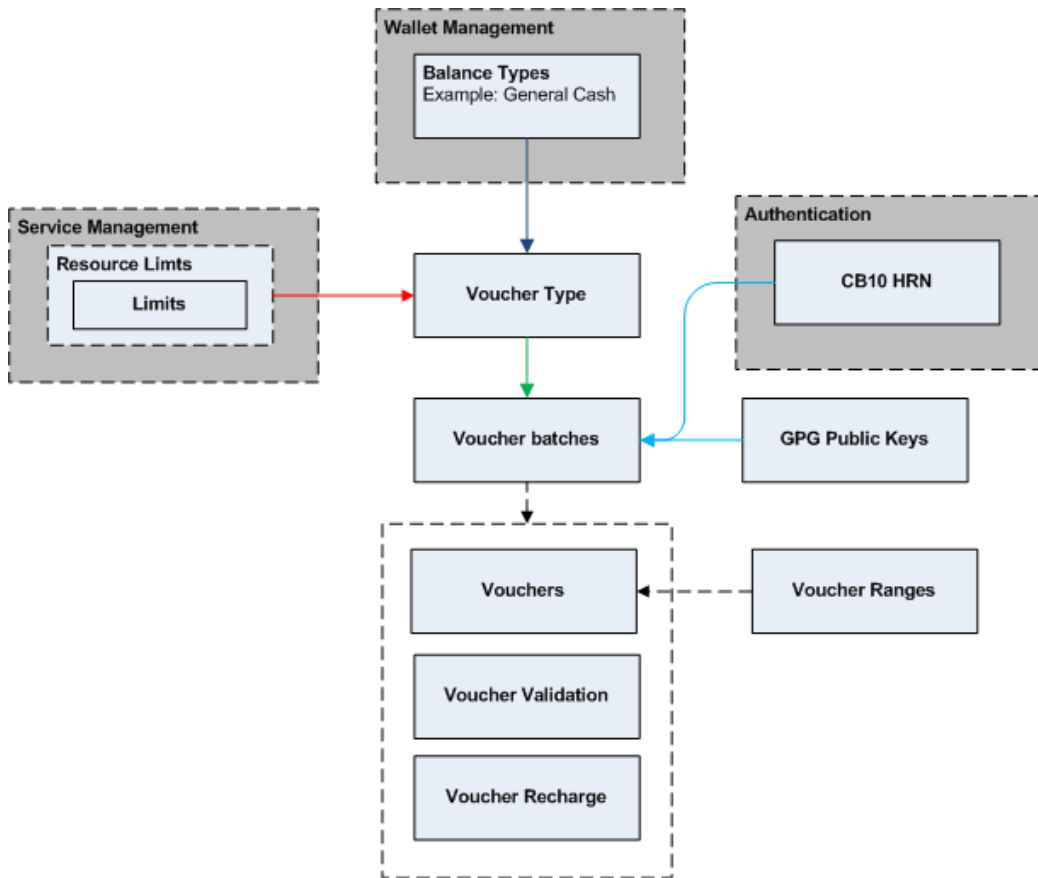
Introduction

The Voucher Management screen allows you to configure vouchers. It contains these tabs:

- *Voucher Type* (on page 10)
- *Voucher Batches* (on page 20)
- *Vouchers* (on page 29)
- *Voucher Validation* (on page 32)
- *Voucher Ranges* (on page 34)
- *GPG Public Keys* (on page 36)
- *AVD Configuration* (on page 38)

Voucher management relationships diagram

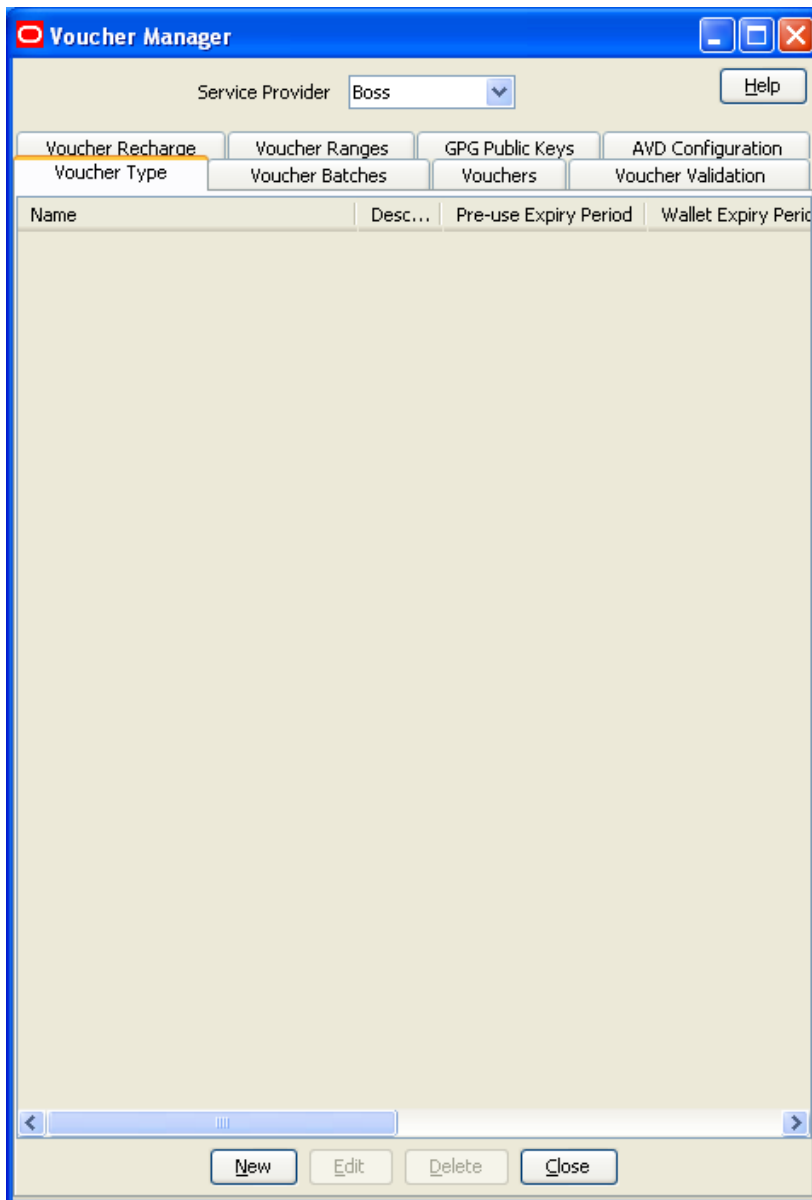
This diagram shows the relationships between the various screens available in the Voucher Manager module.



The arrows show which screen populates a drop down field on the target screen and consequently the order in which screens must be filled in. The objects in shaded boxes are screens in different modules or applications which have a relationship with this module.

Voucher Manager screen

Here is an example Voucher Manager screen.

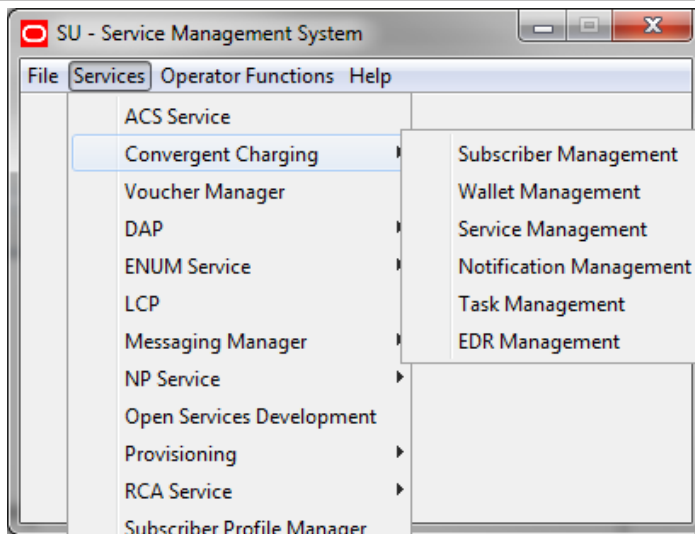


Accessing the Voucher Manager screen

Follow these steps to open the Voucher Manager 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 **Voucher Manager**.

Result: You see the Voucher Manager screen.

Voucher Type

Introduction

The **Voucher Type** tab allows you to add, modify, or delete voucher types.

The voucher type determines the tariff plan, the restriction control plan, and the value of the calls for which recharges (including vouchers) are valid.

For each voucher type, you can:

- Define multiple balance types, see *Multiple balance type* (on page 10)
- Associate tax plans to voucher type recharges, see *Tax Plan*
- Define power charge scenarios, see *Power charge scenarios* (on page 11)

Voucher types define core details and restrictions for recharges such as vouchers and the balance increase part of credit transfers.

For more information about redeeming vouchers, see *Vouchers Introduction* (on page 1). For more information about credit transfers, see *Transfer Management in CCS User's Guide*.

Multiple balance type

You can add more than one balance type to a voucher type. When a recharge or voucher is redeemed, all balance types associated with the voucher type are recharged. This can include both monetary balance types (such as general cash or promotional cash) and non-monetary balance types (such as free SMS or time). You can add more than one entry for the same balance type, with different details for each entry, including:

- Unique expiry dates and extension policies
- The period during which this balance type entry can be recharged

- The product types for which this balance type entry can be recharged

Power charge scenarios

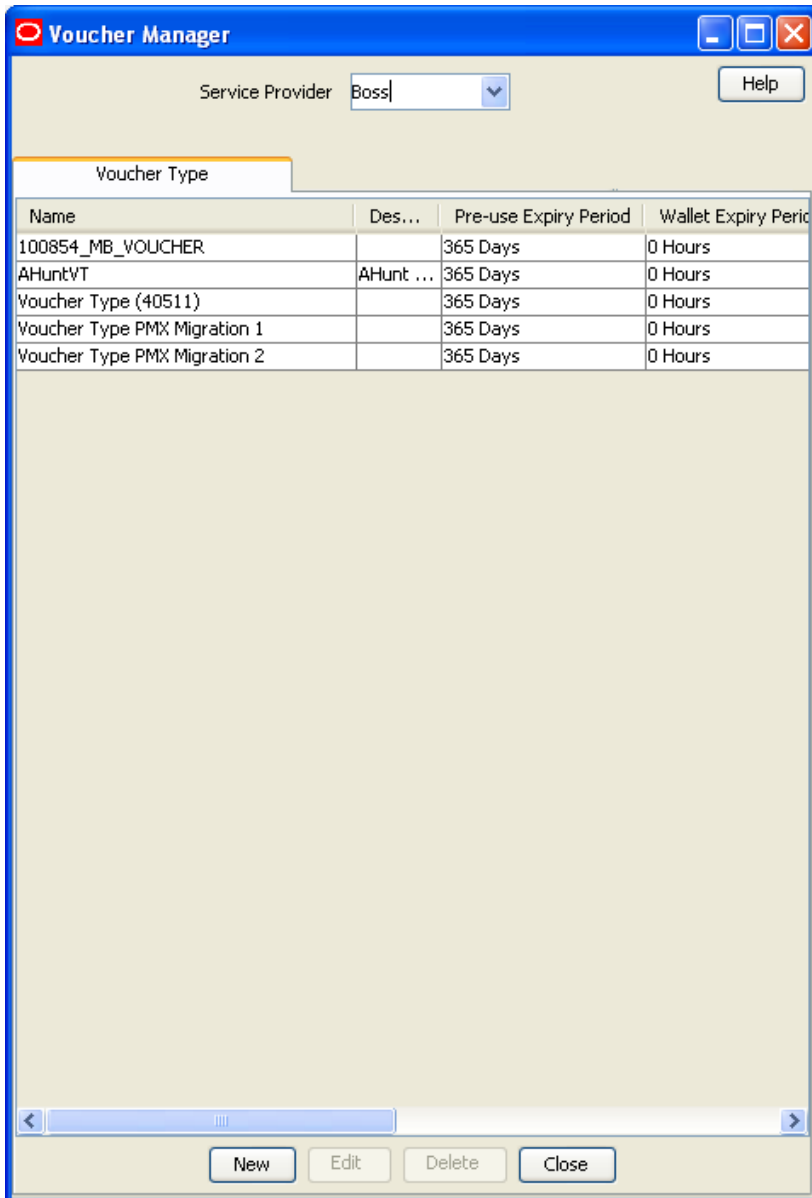
You can associate recharge scenarios to a balance type for a voucher type. The voucher type can then be redeemed in multiple ways depending on the scenario options available when it is redeemed. Scenarios can include both monetary balance types, such as general cash or promotional cash, and non-monetary balance types, such as free SMS or time. You can do one or more of the following:

- Increment a balance
- Extend the expiry date for the balance

Note: The scenarios functionality will only be available in the screens if it has been activated. For more information about activating scenarios, see *CCS Technical Guide*.

Voucher Type tab

Here is an example Voucher Type tab.



New Voucher Type Screen Diagram

Here is an example New Voucher Type screen. For more information about voucher types, see *Voucher Type* (on page 10).

More Information:

For more information about voucher type fields, see *Voucher Types* fields.

Voucher Types fields

This table describes the function of each field.

Field	Description
Name	<p>A unique name for the voucher type.</p> <p>Note: If this voucher type uses scenarios and you will be sending real-time wallet notifications for recharges, this field must be reflected in the name of the template you use for the notification. For more information about the required format, see <i>CCS Technical Guide</i>.</p>
CDR Description	<p>The description to use for EDRs which are produced by vouchers with this voucher type.</p> <p>Tip: You can use a maximum of 100 characters.</p>

Field	Description
Description	A brief description of the voucher type.
Pre-use Expiry Period	The period (in days and hours) between this voucher being issued and when it will expire. Example: If a voucher has a pre-use expiry period of seven days, the holder of the voucher has seven days from the date of issue to begin using the voucher. If not used in seven days, the voucher expires and is no longer valid.
Scenario	The scenarios to associate with the balance type when the voucher is redeemed. Tip: You can add multiple scenarios to the same balance type by adding different scenario values. Note: This panel will only be visible on the tab if the scenarios functionality has been activated. For more information about activating scenarios see <i>CCS Technical Guide</i> .
Multi-Balances	The details of the changes vouchers with this type make to balance types when the voucher is redeemed. For more information about the fields in these records, see Balance type fields. Tip: You can add multiple balance types to the same voucher type and you can specify the product type for each balance type. You can include the same balance type more than once.

Adding voucher types

Follow these steps to add a new voucher type.

Step	Action
1	In the Voucher Management screen, select the Service Provider from the drop down box.
2	From the Voucher Type tab, click New . Result: You see the New Voucher Type screen.
3	Start to configure this record by entering data in the fields in the top left of this screen. For more information about the fields on this screen, see Voucher Types fields.
4	If the Scenario panel is visible in the screen, then add the scenarios to associate with the balance type when vouchers of this type are redeemed. For details, see <i>Adding scenarios to a voucher type</i> (on page 15). Tip: You can add multiple scenarios to the same balance type by adding different scenario values. Note: The Scenario panel will only be visible in the screen if the Scenarios functionality has been activated on your system.
5	Add the balance types that this type of voucher recharges when it is redeemed. For details, see <i>Adding balance types to a voucher type</i> . Tip: You can add multiple balance types to the same voucher type and you can specify the product type for each balance type. You can include the same balance type more than once.
6	Click Save .

Editing voucher types

Follow these steps to edit an existing voucher type.

Step	Action
1	In the Voucher Management screen, select the Service Provider from the drop down box.
2	On the Voucher Type tab, select the record to edit.
3	Click Edit . Result: You see the Edit Voucher Type screen. For information about voucher type fields, see Voucher Types fields.
4	Make the changes that you need to by editing the fields in this screen.
6	Add the scenarios to associate with the balance type when vouchers of this type are redeemed. For details, see <i>Adding scenarios to a voucher type</i> (on page 15). Tip: You can add multiple scenarios to the same balance type by adding different scenario values.
7	Add the balance types that this type of voucher recharges when it is redeemed. For details, see <i>Adding balance types to a voucher type</i> . Tip: You can add multiple balance types to the same voucher type and you can specify the product type for each balance type. You can include the same balance type more than once.
8	Click Save .

Deleting voucher types

Follow these steps to delete an existing voucher type.

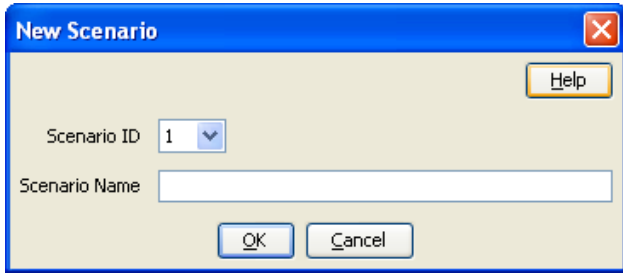
Step	Action
1	In the Voucher Management screen, select the Service Provider from the drop down box.
2	In the table on the Voucher Type tab, select the record to delete.
3	Click Delete . Result: You see the Delete Confirmation prompt.
4	Click OK to delete the record from the database. Result: The record is deleted and you see the Voucher Type prompt.
5	Click OK .

Adding scenarios to a voucher type

Follow these steps to add a scenario to the scenario list on the New or Edit Voucher Type screens.

Step	Action
1	In the Scenario area, click Add . Result: You see the New Scenario screen.

Step	Action
------	--------



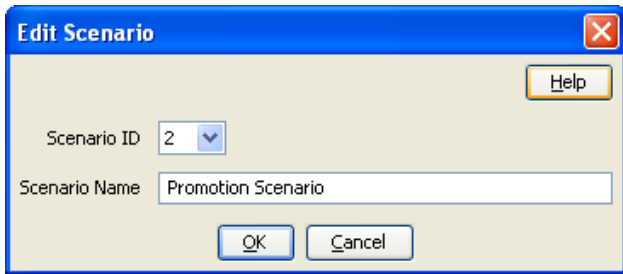
- 2 From the **Scenario ID** drop down list, select the scenario number to associate to the scenario.
- 3 In the **Scenario Name** field, enter a name for the scenario.
- 4 Click **Save**.
Result: You are returned to the New/Edit Voucher Type screen and the new scenario is added to the list of scenarios.

Editing scenarios for a voucher type

Follow these steps to edit a scenario in the scenario list on the New, or Edit Voucher Type screen.

Step	Action
------	--------

- 1 In the New or Edit Voucher Type screen, select the scenario to edit.
- 2 In the **Scenario** area, click **Edit**.
Result: You see the Edit Scenario screen.



- 3 Edit the details as described in *Adding scenarios to a voucher type* (on page 15).
- 4 Click **Save**.

Deleting scenarios for a voucher type

Follow these steps to delete a scenario in the scenario list on the New, or Edit Voucher Type screen.

Step	Action
------	--------

- 1 In the New or the Edit Voucher Type screen, select the scenario to delete.
- 2 Click **Delete**.
Result: The record is deleted from the list of scenarios.

Balance type fields

This table describes the function of each field.

Field	Description
Action	Provides three actions: <ul style="list-style-type: none"> • Recharge – The recharge value is added to the current balance value • Replace Balance – The recharge value replaces the current balance value • Reload Counter – The balance value is a counter for the number of reloads of the selected balance type
New Bucket	Whether to create a new bucket for the balance type when the voucher is redeemed.
Balance Type	The balance type to recharge when vouchers of this type are redeemed. This field is populated by the records on the Balance Types tab. Note: Any valid balance type can be selected. This includes non cash balance types, such as time.
Value	The amount to recharge the balances of the balance type selected in the Balance Type field.
Expiry Policy	How to apply the expiry period for this balance type when vouchers of this type are redeemed. Select: <ul style="list-style-type: none"> • Best – The system selects the best policy option for the subscriber depending on their particular circumstances. • First – The expiry is set to the date of the first use of the balance. The following fields exist when the <code>jnlp.ECEExtensions</code> application property is true. These fields are only applicable when using an ECE charging domain. Select: <ul style="list-style-type: none"> • First Use with Offset – The expiry is set a number of months or hours after the first use of the balance • First Use – Account Cycle – The expiry is set to the date of the first use of the balance, plus a number of account cycles • First Use – Bill Cycle – The expiry is set to the date of the first use of the balance, plus a number of billing cycles

Field	Description
Balance Expiry Period	<p>The period between when the voucher is activated and when the balance expires. Enter one of:</p> <ul style="list-style-type: none"> • Days and hours • Months • Cycles (if First Use- Account Cycle or First Use – Billing Cycle is selected in Expiry Policy) <p>Example: If a voucher has an expiry period of 30 days, the holder of the voucher has 30 days from the date the voucher is first used, to use the outstanding voucher balance. At the end of the expiry period any outstanding voucher balance expires.</p> <p>Note: Month expiries set expiry dates measured in calendar months. If a bucket is created on the 31st of the month, and the expiry will be on month which has 30 days or less, the expiry date is set for the 1st of the month after. For example, a two-month bucket created on the 31st of December will expire on the 1st of March.</p> <p>Tip: The <code>expireAtMidnight</code> configuration option in <code>eserv.config</code> overrides the displayed hour for expiry and will expire the balance only at midnight on the expiry date. For further information about this configuration option, see <i>VWS Technical Guide</i>.</p>
Credit Available	<p>Select one of the following:</p> <ul style="list-style-type: none"> • Now – Credit is available immediately • In – Activates Dates/Hours and Months, from which you can set when credit becomes available in specified number of days and hours, or months • On – Activates the date selector, from which you can set the exact date when credit becomes available <p>Note: You can only specify Credit Available for chargeable or cross balance types.</p>
Scenario	<p>The scenario which will apply this balance.</p> <p>Notes:</p> <ul style="list-style-type: none"> • This field will only be visible in the screen if the scenarios functionality has been activated. For more information about activating scenarios, see <i>CCS Technical Guide</i>. • Only required if more than one scenario has been defined for this voucher type. • The scenario value 'Default (All)' indicates that the balance type applies to all scenarios. If scenarios have been defined, you cannot use the default scenario. • If only one scenario has been defined, you do not have to specify a scenario.
Allowed Product Types	<p>The product types which vouchers of this type can recharge for this balance type.</p> <p>Tip: An empty Allocated list means that the balance type can be recharged for all product types.</p>
Configuration Restriction	<p>Restricts the day, month and year that a balance starts and ends. Select the following:</p> <ul style="list-style-type: none"> • Applies From – Sets the date when balances of this type can be redeemed by vouchers of this type. To activate this field, select the check box to the left of the field, then, in the date selection boxes, select the day, month

Field	Description
	<p>and year for the end date.</p> <ul style="list-style-type: none"> • Applies Until – Sets the date when balances of this type can no longer be redeemed by vouchers of this type. To activate this field, select the check box to the left of the field, then, in the date selection boxes, select the day, month and year for the end date.

Adding balance types to a voucher type

Follow these steps to add a balance type to the current voucher type.

Note: To add multiple balance types to the voucher type, repeat this process as required.

Step	Action
1	<p>In the Multi-Balances area at the bottom of the New or the Edit Voucher Type screen, click New.</p> <p>Result: You see the New Multi-Balance screen.</p>
2	<p>Start to configure this record by entering data in the fields in the top of this screen. For more information about the fields on this screen, see Balance type fields.</p>
3	<p>In the Allowed Product Types section select the Product Types for which the voucher can recharge this balance type. To:</p> <ul style="list-style-type: none"> • Allocate a product type, select it in the Available list and click the '>>' button • Remove an allocated product type, select it in the Allocated list and click the '<<' button. <p>Tip: An empty Allocated list means that the balance type can be recharged for all product types.</p>
4	<p>Click Save.</p> <p>Result: The balance type details are saved, and you return to the Voucher Type screen.</p>

Editing balance types for a voucher type

Follow these steps to edit an existing balance type for the current voucher type.

Step	Action
1	<p>In the New or Edit Voucher Type screen, select the balance type record to edit from the Multi-Balances table.</p>
2	<p>Click Edit.</p>
3	<p>Edit the fields to reflect the changes you need to make.</p> <p>For more information about the fields in this screen, see Balance type fields.</p>
4	<p>If required, in the Allowed Product Types section select the Product Types for which the voucher can recharge this balance type. To:</p> <ul style="list-style-type: none"> • Allocate a product type, select it in the Available list and click the '>>' button • Remove an allocated product type, select it in the Allocated list and click the '<<' button. <p>Tip: An empty Allocated list means that the balance type can be recharged for all product types.</p>

Step	Action
5	Click Save . Result: The modified balance type record is saved, and you return to the Voucher Type screen.

Deleting balance types for a voucher type

Follow these steps to delete an existing balance type from a voucher type.

Step	Action
1	In the New or the Edit Voucher Type screen, select the balance type record to delete from the Multi-Balances table.
2	Click Delete . Result: You see the Delete Multi-Balance prompt.
3	Click Apply to delete the record from the database.

Voucher Batches

Introduction

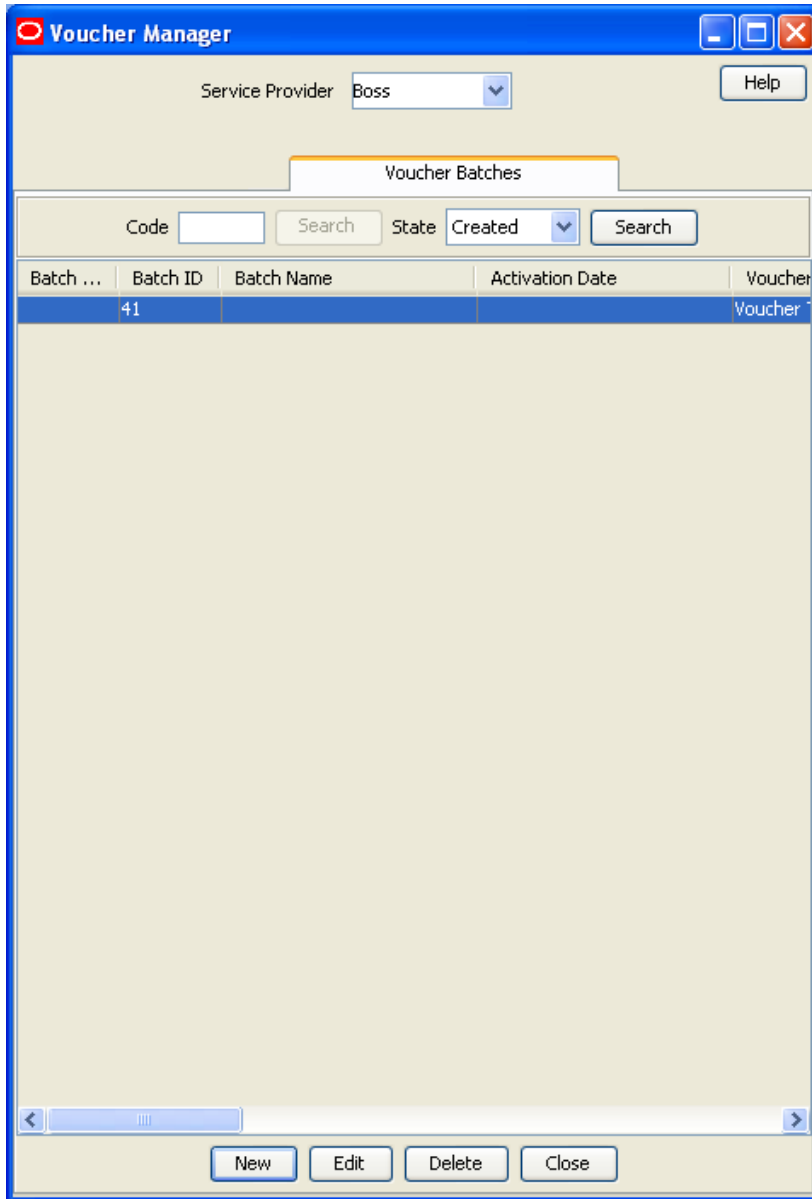
The **Voucher Batches** tab lets you search, display, create, and delete batches of vouchers for the selected customer.

You use the New Voucher Batch screen to create a simple voucher batch file, eliminating the need to generate the batch from the command line.

Tip: Configuration for the voucher tool used to create voucher batches is defined in **eserv.config**. For more information about **eserv.config**, see *CCS Technical Guide*.

Voucher Batches tab

Here is an example **Voucher Batches** tab.



New Voucher Batch Screen

Here is an example New Voucher Batch screen. To add a voucher batch, see *Adding voucher batches* (on page 25). To edit a voucher batch, see *Editing voucher batches* (on page 26).

The screenshot shows a window titled "New Voucher Batch" with a "Help" button in the top right corner. The window contains the following fields and controls:

- Domain: DCDDomain (dropdown)
- Authentication Rule: Voucher Authentication Rules (dropdown)
- GPG Public Key: (dropdown)
- Voucher Type: 50 Euros (dropdown)
- Initial Voucher State: Created (dropdown)
- Batch Expiry: (text input) Use Default
- Batch Name: DCDBatch (text input)
- Batch Code: (text input)
- Voucher Number Length: 10 (text input)
- Voucher PIN Length: 4 (text input)
- Start Voucher Number: 4000000010 (text input)
- End Voucher Number: 4000000019 (text input)
- Batch Size: 10 (text input)
- Pause Time: 10 (text input)
- CDR Description: DCDBatch 1 (text input)
- Remote Filename: Batch-20141215133712 (text input)
- GPG Public Key Description: (text area)

At the bottom of the window are "Save" and "Cancel" buttons.

More Information:

For more information about voucher batch fields, see Voucher Batch fields.

Voucher Batch fields

This table describes the functions of Voucher Batch fields.

Field	Description
Batch Code	<p>The identifier which will be used to group the vouchers in this batch. This field can be used to group vouchers from several batches.</p> <p>Note: This field is not available:</p> <ul style="list-style-type: none"> On the Edit Voucher Batch screen, and cannot be changed after the batch is generated
Batch Id	<p>The batch ID for the voucher batch.</p> <p>This field is automatically populated when the vouchers are first generated. It cannot be changed and is only visible on the Voucher Batches tab.</p>
Domain	<p>The domain where the voucher batch was created.</p> <p>This field is only available on the New Voucher Batch screen.</p>
Batch Name	<p>The unique name for the batch. It can be up to 50 characters long and is optional.</p>
Activation Date	<p>Activation date of the voucher batch.</p> <p>This field cannot be changed after the batch is activated.</p> <p>Note: This field is not available on the New Voucher Batch screen.</p>
Voucher Type	<p>The type of the vouchers in this batch.</p> <p>This field is populated by the Voucher Types tab. For more information, see <i>Voucher Type</i> (on page 10).</p> <p>This field cannot be changed after the batch is generated.</p>
Expiry Date	<p>The expiry date of the vouchers in this batch.</p> <p>This field enables a user to specify the voucher expiry date, which sets a batch to expire on a specific day and shows users that a batch is no longer active and not available for use.</p>
State	<p>Displays the state of the voucher batch. Available states are:</p> <ul style="list-style-type: none"> Active Created Unavailable Expired <p>Note: This is different to the state of the individual vouchers within the batch. These states are available within the Voucher Batch Search screen but not in the New Voucher Batch screen.</p>
Description	<p>Reason for the voucher state change.</p> <p>Note: This field is only displayed in the New Voucher Batch screen, not in the Voucher Batch Search screen.</p>
Initial Voucher State	<p>The state new vouchers in a batch will be in when they are first generated.</p> <p>This field allows individual vouchers or ranges of vouchers in a voucher batch to be made Active as an additional security feature for service providers.</p> <p>In the New Voucher Batch screen a new batch should normally be created with the Initial Voucher State set to Active. This sets the individual voucher records in the batch to Active in the <code>CCS_VOUCHER_REFERENCE</code> table. Once the batch has been created, the Voucher Batches tab should be used to set the batch status to Active.</p>

Field	Description
	<p>This sets the batch record in <code>CCS_VOUCHER_BATCH</code> to Active enabling all vouchers in the batch.</p> <p>If a new batch is created with the Initial Voucher State set to Created, then vouchers can only be redeemed when their state has been reset to Active in the Vouchers tab (for individual activation) or in the Voucher Ranges tab (for a range of vouchers).</p> <p>To enable vouchers, set both the batch state and the voucher state to Active.</p> <p>Note: This is different to the state of the voucher batch (which is automatically set to Created when the batch is first generated).</p> <p>This field is only displayed in the New Voucher Batch screen, not in the Voucher Batch Search screen.</p>
Voucher Number Length	<p>The number of digits in the voucher number. This is set by the authentication rule for this voucher batch and cannot be changed after the batch is generated.</p> <p>Note: This field is only displayed in the New Voucher Batch screen, not in the Voucher Batch Search screen.</p>
Start Voucher Number	<p>Displays the number of the first voucher in the batch and the starting point for the voucher number range.</p> <p>Note: The length of the voucher number must match the voucher number length defined for the authentication rule being used. You can use a voucher number range more than once for CB10 HRN encrypted vouchers with or without GPG selected. Vouchers are generated from unused voucher numbers from the range.</p> <p>This field cannot be changed after the batch is generated.</p>
End Voucher Number	<p>Displays the number of the last voucher in the batch and the ending point for the number range. The value must be greater than the start of range value and have a matching number of digits.</p> <p>Note: This field cannot be changed after the batch is generated.</p>
Start Serial Number	<p>Displays the serial number of the first voucher in the batch.</p> <p>Note: This field is automatically populated and cannot be changed after the batch is generated. It is not available on the New Voucher Batch screen.</p>
End Serial Number	<p>Displays the serial number of the last voucher in the batch.</p> <p>Note: This field is automatically populated and cannot be changed after the batch is generated. It is not available on the New Voucher Batch screen.</p>
Batch Size Original Count	<p>The number of vouchers in this batch. This can be equal to or less than the difference between the start voucher number and the end voucher number.</p> <p>Note: This field cannot be changed after the batch is generated.</p>
Authentication Rule	<p>Indicates which encryption scheme the voucher batch has been created with. This field cannot be changed after the batch is generated.</p> <p>This list is populated by records from the Security tab in the Service Management screen. For more information about the Security tab, see <i>CCS User's Guide</i>.</p>
GPG Public Key	<p>The GPG Public key to use to encrypt the voucher batch export file. The key must have been imported and verified on the SMS. If you do not want to use a GPG Public key, select the blank entry.</p> <p>Note: This field is only available for voucher batch files generated using an</p>

Field	Description
	authentication rule based on DES PIN encryption or CB10 HRN encryption. This field is only available on the New Voucher Batch screen. For more information about GPG public keys, see <i>GPG Public Keys</i> (on page 36).
Pause Time	The time in seconds to pause after loading each 100 vouchers for writing to the export file. Note: This field is only displayed in the New Voucher Batch screen, not in the Voucher Batch Search screen.
Creation Date	The creation date of the batch.
CDR Description	Description to use for this voucher batch in any EDRs that are created for vouchers from this batch.
Remote Filename	The name of the voucher batch export file to write the details of the generated vouchers to. Note: This field is only displayed in the New Voucher Batch screen, not in the Voucher Batch Search screen.

Finding voucher batches

Follow these steps to search for an existing voucher batch.

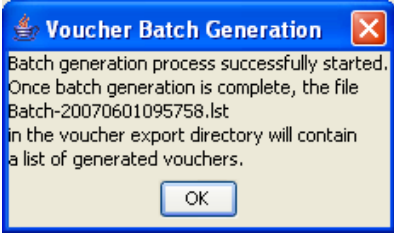
Step	Action
1	In the Voucher Manager screen, choose the Service Provider from the drop down list.
2	On the Voucher Batches tab, enter the search strings you are using to find the required batch. Perform one of the following: <ul style="list-style-type: none"> Enter the first few characters of the specified batch code in the Code field and click Search Select the Voucher Batch state from the State drop down box and click Search <p>Note: There are three states:</p> <ul style="list-style-type: none"> Active Created Unavailable <p>Result: The Voucher Batches table will display the first 100 records matching the search criteria. Results include creation date.</p>
3	If the required voucher batch is not displayed and more than 100 records were returned, enter a longer search string and click Search again.

Adding voucher batches

Follow these steps to add a new voucher batch.

Note: The values for the voucher number length and voucher PIN length are determined by the authentication rule selected and cannot be edited. The **GPG Public Key Description** field is for information only.

Step	Action
1	In the Voucher Manager screen, select the Service Provider from the drop down box.

Step	Action
2	From the Voucher Batches tab, click New . Result: You see the <i>New New Voucher Batch Screen</i> (on page 22).
3	Enter data in the fields to configure this record. For more information about the fields on this screen, see <i>Voucher Batch fields</i> .
4	Click Save . Result: The batch generation process is started and you see the <i>Voucher Batch Generation</i> prompt.
	
5	Click OK . Result: You see the <i>Voucher Batch Progress bar</i> . The COMPLETE message is displayed in the bar once the batch has been successfully created.
6	Click ' x ' to close the progress bar.

Checking voucher batch status

Follow these steps to check the status of an existing voucher batch.

Step	Action
1	Read the <i>ccsSmsORB</i> output log. For more information about the <i>ccsSmsORB</i> , see <i>CCS Technical Guide</i> .
2	Check for any error messages from the actual voucher-creation process.
3	Go to the <code>/IN/service_packages/CCS/voucher/export/</code> directory.
4	Check that the following file exists: <i>remote_filename.lst.print</i> Where: <i>remote_filename</i> is the name entered in the Remote Filename field of the <i>New Voucher Batch</i> screen.
5	If the file exists, is larger than 0 bytes in size and contains full records, the voucher batch job has been created successfully. If the file does not exist, is 0 bytes in size or only contains headers, the voucher batch job has failed. You will need to repeat the procedure in <i>Adding voucher batches</i> (on page 25).

Editing voucher batches

Follow these steps to edit an existing Voucher Batch.

Note: The **Voucher Batch**, **Edit Voucher Batch**, and **Vouchers** tabs have a creation date read-only value which preserves the creation date when a batch is edited.

Step	Action
1	In the <i>Voucher Manager</i> screen, select the Service Provider from the drop down box.

Step	Action
2	On the Voucher Batches tab enter the search criteria for the required voucher batch in the search fields and click Search . For details on finding voucher batches, see <i>Finding voucher batches</i> (on page 25).
3	In the table on the tab, select the record you want to edit and click Edit . Result: You see the <i>Edit Voucher Batch Screen</i> (on page 28).
4	Edit the fields with the changes to make. You can update only the following fields: <ul style="list-style-type: none">• CDR Description• Voucher Batch Status Tip: For descriptions of voucher batches fields, see Voucher Batch fields.
5	Click Save .

Edit Voucher Batch Screen

Here is an example Edit Voucher Batch screen. To edit a voucher batch, see *Editing voucher batches* (on page 26).

The screenshot shows a window titled "Edit Voucher Batch" with a close button (X) in the top right corner. Inside the window, there is a "Help" button in the top right. The main area contains the following fields:

- Activation Date: [Empty text box]
- Creation Date: 2014-10-15 10:30:29
- Batch Expiry: 2014-12-30 13:43:59 [Calendar icon] Use Default
- Voucher Type: 50 Euros
- CDR Description: [Empty text box]
- Batch Name: [Empty text box]
- Domain: UBE
- Voucher Batch Status: Created [Dropdown arrow]
- Description: [Empty text box]
- State Change User: [Empty text box]
- Start Voucher Number: 3690000100
- End Voucher Number: 3690000100
- Original Count: 1
- Start Serial Number: 101305
- End Serial Number: 101305
- Authentication Rule: Voucher Authentication Rules

At the bottom of the dialog, there are "Save" and "Cancel" buttons.

More Information:

For more information about voucher batch fields, see Voucher Batch fields.

Deleting voucher batches

Follow these steps to delete an existing voucher batch.

Step	Action
1	In the Voucher Manager screen, select the service provider from the Service Provider list.
2	On the Voucher Batches tab enter the search criteria for the voucher batch to delete and click Search . For more information about finding voucher batches, see <i>Finding voucher batches</i> (on page 25).
3	In the table on the tab, select the record to delete. Note: Selecting Delete on an active batch will calculate if the batch is stale. Only active batches that are stale and unavailable batches can be deleted.
4	The Delete Voucher Batch prompt displays. Confirm your desire to delete the voucher batch by clicking OK . Result: The voucher batch is deleted.

Vouchers

Introduction

The **Vouchers** tab allows you to select a voucher owned by the selected service provider and set it to an active or frozen state.

If you set a voucher from an 'active' voucher batch to 'frozen', then the voucher can no longer be redeemed. If a voucher batch is in a 'created' or 'unavailable' state, then although you will be able to set a voucher within the batch to an 'active' state in this screen, you will not be able to redeem it. You may only redeem an active voucher if the voucher batch it belongs to is also in an 'Active' state.

The **Vouchers** screen shows **Archive Date**, the calculation date when archiving may take place, and **Batch Activated**, the date the batch was activated.

Note: If scenarios have been installed and activated on your system, then the **Scenario** field will be visible in the **Vouchers** tab. Otherwise this field will not be visible. For more information about installing and activating scenarios, see *CCS Technical Guide*.

Vouchers tab

Here is an example Vouchers tab.

Voucher Manager

Service Provider: Phil_Cust3

Help

Voucher Recharge | Voucher Ranges | GPG Public Keys | AVD Configuration
 Voucher Type | Voucher Batches | **Vouchers** | Voucher Validation

Voucher Number:

Serial Number: Search

Voucher Number: 00005

Serial Number: 19

Private Secret: 5745D7FC8ED9C757994C68A37A0AAD9C
 Decrypt

HRN:

Batch Name: VB4

Batch ID: 21

Batch Code: AD

Batch State: Active

Batch Activated: 2017-06-05 10:44:58

Batch Expiry: 2018-06-05 10:44:58

Voucher Status: Created

Description:

State Change User:

Voucher Type: PhilVT3

Scenario: 0

Voucher Created: 2017-06-05 10:00:27

Voucher Redeemed:

Wallet Reference: No information available

Save Close

Changing voucher states

Follow these steps to change the state of an existing Voucher.

Step	Action
1	In the Voucher Manager screen, select the Service Provider from the drop down box.
2	<p>In the Vouchers tab, enter one of the following:</p> <ul style="list-style-type: none"> • Voucher number or HRN in the Voucher Number field • Voucher serial number in the Serial Number field <p>Click Search.</p> <p>Tip: When searching on the voucher number, the number entered must be the length of the voucher number as defined for the authentication rule for this voucher.</p> <p>Result: The fields on the tab will display the details for the voucher searched for.</p>
3	<p>From the Voucher Status drop down box, select the status the voucher should have.</p> <p>Available statuses are:</p> <ul style="list-style-type: none"> • Active • Created • Frozen • Deleted <p>Note: If you want to be able to redeem the voucher, set its status to <code>Active</code>.</p> <p>If the voucher has been redeemed already:</p> <ul style="list-style-type: none"> • This field is grayed out (indicating the value cannot be changed) • The status will be <code>Used</code> <p>If the voucher has been deleted this field is grayed out (indicating the value cannot be changed).</p>
4	Click Save .

Decrypting voucher private secret

Follow these steps to decrypt a voucher private secret.

Step	Action
1	In the Voucher Manager screen, select the Service Provider from the drop down box.
2	<p>In the Vouchers tab, enter one of the following:</p> <ul style="list-style-type: none"> • Voucher number or HRN in the Voucher Number field • Voucher serial number in the Serial Number field <p>Click Search.</p> <p>Tip: When searching on the voucher number, the number entered must be the length of the voucher number as defined for the authentication rule for this voucher.</p> <p>Result: The fields on the tab will display the details for the voucher searched for.</p> <p>The Decrypt button and the HRN field are displayed only if:</p> <ul style="list-style-type: none"> • The user has an allocated template with the access permission for private secret decryption. • The Authentication Rule associated with the voucher supports private secret decryption.

Step	Action
3	Click Decrypt . Result: The HRN field will display the decrypted voucher private secret.

Voucher Validation

Introduction

Use the **Voucher Validation** tab to test whether a given voucher signature (the voucher number and secret digits) is valid.

Note: You will only have access to this facility if you have sufficient user privileges.

Voucher Validation tab

Here is an example **Voucher Validation** tab.

The screenshot shows a window titled "Voucher Manager" with a blue title bar. Inside, there's a "Service Provider" dropdown menu currently showing "Boss" and a "Help" button. A tab labeled "Voucher Validation" is selected. Below the tab, there are four input fields: "Voucher Signature" (with a "Validate" button), "Voucher Status" (displaying "No Voucher To Check"), "Description", and "State Change User".

Validating a voucher

Follow these steps to validate a voucher.

Step	Action
1	In the Voucher Manager screen, select the Service Provider from the drop down box.

Step	Action
2	In the Voucher Signature field in the Voucher Validation tab, enter the voucher number or HRN. Do not include any spaces. Tip: The voucher number to use for searching must be the length of the voucher number as defined for the authentication rule for this voucher.
3	Click Validate . Result: The Voucher Status field shows the validity of the voucher.

Voucher validation results

This table lists the possible messages displayed when you validate a Voucher.

Message	Description
No Voucher to Check	You clicked Validate before entering the voucher signature.
Voucher Is Valid	The signature has been confirmed by the SMS.
Voucher Is Not Valid	The signature was not recognized by the SMS.

Voucher Ranges

Introduction

The **Voucher Ranges** tab enables you to change the state of a group of vouchers. The vouchers are a defined range of voucher numbers.

Voucher Ranges tab

Here is an example **Voucher Ranges** tab.

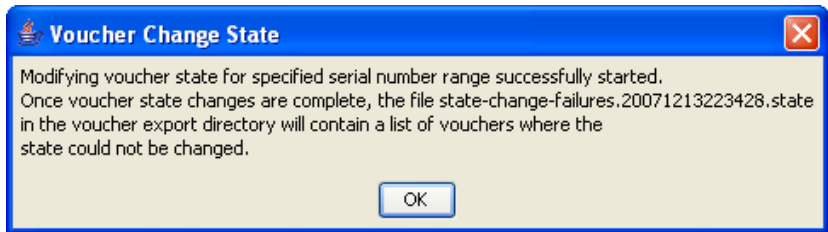
Activating voucher ranges

Follow these steps to change the state of a range of vouchers.

Step	Action
1	In the Voucher Manager screen, select the Service Provider from the drop down box.
2	On the Voucher Ranges tab, from the Voucher Batch drop down list, select the voucher batch which contains the range to change.

Note: The voucher batch corresponds with the **Batch ID** field in the Voucher Batches screen.

Step	Action
3	From the Voucher State drop down list, select the new state the vouchers in the range should be. Note: If you want to be able to redeem the vouchers you must set the voucher state to active.
4	In the Start Serial No field, enter the lowest voucher serial number in the voucher range you want to change.
5	In the End Serial No field, enter the highest voucher serial number in the voucher range you want to change. Note: The range must be 100,000 vouchers or less.
6	In the Description field, enter a description for the voucher range, if required.
7	Click Change . Result: The Confirm Voucher Change Operation prompt will appear.
8	Click OK . Result: The Voucher Change State prompt will appear.



9 Click **OK**.

GPG Public Keys

Introduction

The **GPG Public Keys** tab allows you to:

- Import new GPG public keys into CCS
- Verify imported keys

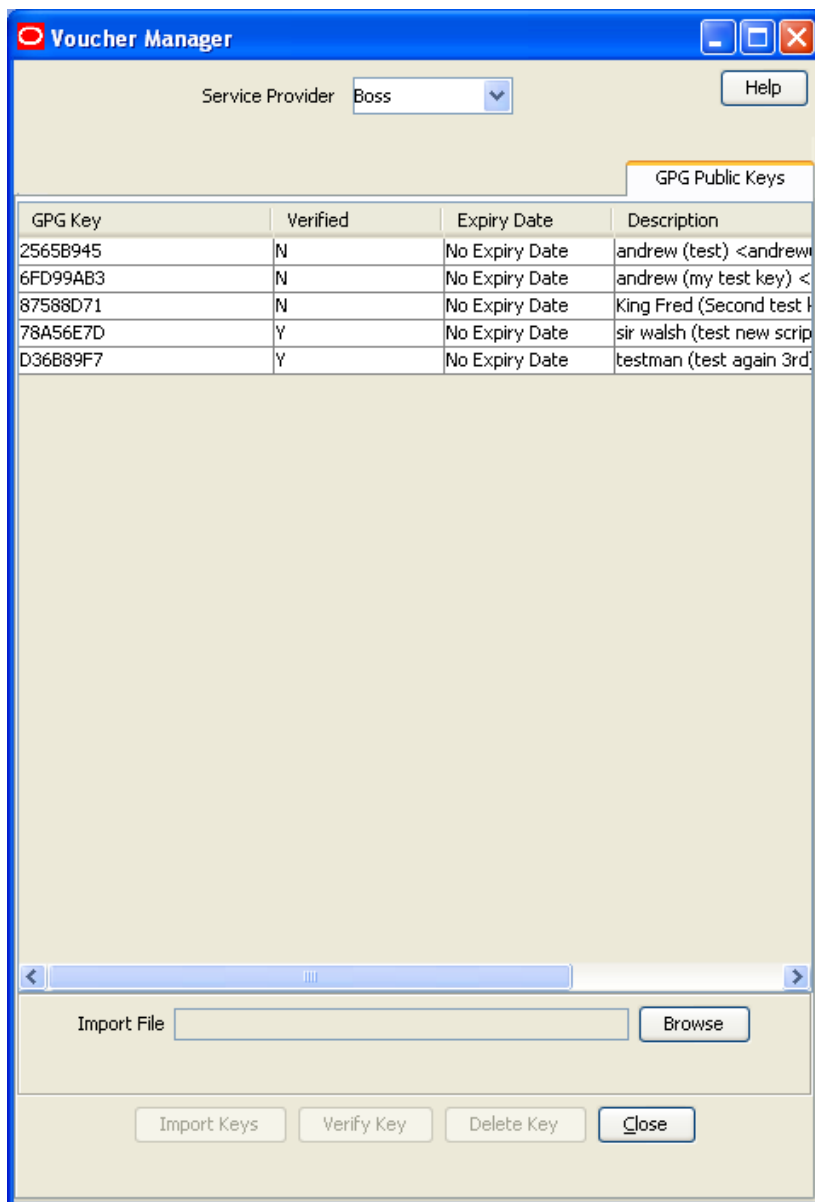
GPG keys are used to increase security when creating voucher batch export files for printing.

Once a public key has been verified it can be used as part of the security mechanism for creating voucher batches.

Note: You cannot remove public keys from the SMF database or from the GPG key-ring store on the SMS.

Public Keys tab

Here is an example **GPG Public Keys** tab.



Importing GPG public keys

Follow these steps to import new GPG public keys from a specified file.

Step	Action
1	In the Voucher Manager screen, select the Service Provider from the drop down box.
2	Select the GPG Public Keys tab.
3	In the Import File field, enter the path and filename of the file containing the new GPG public keys or click Browse to select the file.
4	Click Import Keys .

Step	Action
	Note: This button becomes enabled once the import file has been specified.
	Result: Any keys not currently in the system are imported from the file and you see the GPG Key Importation prompt.
5	Click OK . Result: The GPG Public Keys tab is refreshed to include the new keys.

Verifying public keys

Follow these steps to verify a GPG public key.

Step	Action
1	In the Voucher Manager screen, select the Service Provider from the drop down box.
2	In the table on the GPG Public Keys tab, select the GPG Key to verify. Tip: If the value in the Verified column for this key is 'Y', then it has already been verified.
3	Click Verify Key . Result: You see the GPG Key Importation validation prompt.
4	Click OK .

Deleting GPG public keys

Follow these steps to delete GPG public keys.

Step	Action
1	In the Voucher Manager screen, select the Service Provider from the drop down box.
2	In the table on the GPG Public Public Keys tab, select the public key to delete.
3	Click Delete . Result: The Confirmation prompt appears.
4	Click OK to confirm.

AVD Configuration

Introduction

The **AVD Configuration** tab allows you to:

- Update the common configuration that will be used on the SMS and across all VWS voucher domains by the automatic voucher delete process.
- View the date ranges for vouchers that are in the process of being deleted for each of the configured VWS domain nodes.

Notes:

- Automatic voucher deletion (AVD) is performed on a regular basis by the `ccsBeAvd` binary processes. For information about `ccsBeAvd`, see *CCS Technical Guide*.

- You manage the configuration of ccsBeAvd from the **AVD Configuration** tab. This tab also lists the current tasks that the ccsBEAvd binary processes are required to perform. However, it does not show the progress of the deletion of the redeemed vouchers from the VWS domain nodes.

AVD Configuration tab

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

Service Provider: OCNCC

Help

Voucher Type | Voucher Batches | Vouchers | Voucher Validation
 Voucher Recharge | Voucher Ranges | GPG Public Keys | AVD Configuration

Keep Redeemed Vouchers For: 1 (Weeks)

Archive Frozen Vouchers:

Node Configuration

Max Records to Process: 100000

Commit After Num Rows: 5

Batch Size: 10

Sleep Time: 3 (Secs)

Node Status

Domain Name	Node Name	Redeem Start Date	Redeem End Date
DCDDomain	DCDRealm		
DCDDomain	SMS		
UBE	SMS		

Save Close Refresh

AVD Configuration fields

This table describes the configuration fields in the **AVD Configuration** tab.

Field	Description
Keep Redeemed Vouchers For	Sets the number of weeks for which redeemed voucher records will be kept on the SMS and VWS nodes. Must be between 1 and 26 weeks.
Archive Frozen Vouchers	Globally archives frozen vouchers.
Max Records to Process	Sets the maximum number of voucher records to delete per run of the automatic deletion process (ccsBeAvd) on the VWS. Must be between 1 and 999999. Note: The frequency and times that the ccsBeAvd process is run on each VWS node is controlled by the crontab for the ccs_oper user. For more information, see <i>Charging Control Services Technical Guide</i> .
Commit After Num Rows	Sets the number of redeemed voucher records for ccsBeAvd to delete on the VWS node before committing the changes to the database. You must specify a value between 1 and 9999. If the value you specify is <ul style="list-style-type: none"> Less than the value for Batch Size, then ccsBeAvd commits the changes after deleting the number of vouchers defined by Batch Size. More than the value for Batch Size, then ccsBeAvd continues to delete batches of voucher records until the value of Commit After Num Rows is exceeded. Then it commits the changes to the database. Note: It is not possible to roll back changes once they have been committed.
Batch Size	Sets the maximum number of redeemed voucher records to delete in a single batch. You must specify a value between 1 and 999999.
Sleep Time	Sets the amount of time (in seconds) for ccsBeAvd to wait after the number of vouchers defined by Batch Size are deleted. You must specify a value between 1 and 999999 seconds. Note: This allows the system processing time for other jobs.

Node Status fields

The **Node Status** table on the **AVD Configuration** tab lists the deletion tasks currently under progress by the automatic deletion process on each VWS node. If there are no entries it means that currently there are no vouchers to delete on any VWS node.

This table describes the fields listed in the **Node Status** table.

Note: These fields are read-only and cannot be changed. The values in these fields are updated automatically by the automatic voucher deletion process.

Field	Description
Domain Name	The voucher domains that are currently undergoing automatic voucher deletion processing. Note: You configure domains on the Domain tab in the Service Management screen. See the Service Management chapter in <i>CCS User's Guide</i> for details.
Node Name	The defined domain nodes from which voucher records to be deleted.
Redeem Start Date	The start date of the date range for which redeemed vouchers to be deleted.

Field	Description
Redeem End Date	The end date of the date range for which redeemed vouchers to be deleted.
Voucher Batch	The batch IDs of the the voucher batch to be deleted.
Voucher Serial	The serial number of the first voucher in each batch to be deleted.

Changing AVD configuration

Follow these steps to change AVD configuration.

Step	Action
1	In the Voucher Manager window, click on the AVD Configuration tab. Result: You see the current AVD configuration details. See AVD Configuration tab.
2	Edit the fields to reflect the changes you need to make. For more information about the fields on this tab, see AVD Configuration fields.
3	Click Save .

Glossary of Terms

CCS

- 1) Charging Control Services component.
- 2) Common Channel Signalling. A signalling system used in telephone networks that separates signalling information from user data.

CDR

Call Data Record

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

Convergent

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

cron

Unix utility for scheduling tasks.

crontab

File used by cron.

DTMF

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

HRN

Hidden Reference Number or Human Readable Number

IVR

Interactive Voice Response - systems that provide information in the form of recorded messages over telephone lines in response to user input in the form of spoken words or, more commonly, DTMF signalling.

PIN

Personal Identification Number

Service Provider

See Telco.

SMS

Depending on context, can be:

- Service Management System hardware platform

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

Telco

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

Telecommunications Provider

See Telco.

VWS

Oracle Voucher and Wallet Server (formerly UBE).

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