## Contents

About This Document

Document Conventions

### Chapter 1

**CCS WSDL Operations**

- Overview ................................................................. 1
- WSDL Operations .......................................................... 1
- RechargeRequest ......................................................... 4
- RechargeResult .......................................................... 10
- RechargeFault ........................................................... 10
- ServiceProviderQueryRequest ........................................ 11
- ServiceProviderQueryResult ........................................ 11

**NCC Glossary of Terms** .................................................. 13

**Index** ............................................................................. 15
About This Document

Scope
The scope of this document includes all the information required to configure WSDL parameters for different NCC products.

Audience
The audience for this document includes system administrators responsible for the monitoring, maintenance, and configuration of the Oracle NCC IN applications.

Prerequisites
A solid understanding of UNIX and a familiarity with IN concepts are an essential prerequisite for safely using the information contained in this technical guide.

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

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

Related documents
The following documents are related to this document:

- *OSD User's & Technical Guide*
- *CCS Technical Guide*
Document Conventions

Typographical Conventions

The following terms and typographical conventions are used in the Oracle Communications Network Charging and Control (NCC) documentation.

<table>
<thead>
<tr>
<th>Formatting convention</th>
<th>Type of information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Bold</td>
<td>Items you must select, such as names of tabs.-names of database tables and fields.</td>
</tr>
<tr>
<td>Italic</td>
<td>Name of a document, chapter, topic or other publication. Emphasis within text.</td>
</tr>
<tr>
<td>Button</td>
<td>The name of a button to click or a key to press. Example: To close the window, either click Close, or press Esc.</td>
</tr>
<tr>
<td>Key+Key</td>
<td>Key combinations for which the user must press and hold down one key and then press another. Example: Ctrl+P, or Alt+F4.</td>
</tr>
<tr>
<td>Monospace</td>
<td>Examples of code or standard output.</td>
</tr>
<tr>
<td>Monospace Bold</td>
<td>Text that you must enter.</td>
</tr>
<tr>
<td>variable</td>
<td>Used to indicate variables or text that should be replaced.</td>
</tr>
<tr>
<td>menu option &gt; menu option &gt;</td>
<td>Used to indicate the cascading menu option to be selected, or the location path of a file. Example: Operator Functions &gt; Report Functions. Example: /IN/html/SMS/Helptext/</td>
</tr>
<tr>
<td>hypertext link</td>
<td>Used to indicate a hypertext link on an HTML page.</td>
</tr>
</tbody>
</table>

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

Introduction

This chapter explains the WSDL parameters used for implementing Recharge Web Services in Charging Control Services.

In this chapter

This chapter contains the following topics.

- WSDL Operations
- RechargeRequest
- RechargeResult
- RechargeFault
- ServiceProviderQueryRequest
- ServiceProviderQueryResult

WSDL Operations

Introduction

WSDL is an XML based language that provides a model for describing web services. OSD provides a mechanism to dynamically bind incoming/outgoing XML (via the OSD interface) to/from profile fields in a running Control Plan.

In addition, it can generate a WSDL file automatically from a combination of Control Plans and OSD configuration. When the Control Plan is compiled, it may be linked to an operation name. This results in a WSDL operation (for example: request, response and fault XML messages). WSDL operations are based on using profile fields from inbound and outbound extensions profile blocks.

Operations list for CCS

The following table lists WSDL operations developed for CCS and their corresponding functions.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>RechargeRequest</td>
<td>Initiates recharge operation based on the profile field values obtained from the inbound extensions profile blocks.</td>
</tr>
<tr>
<td>RechargeResult</td>
<td>Returns a connect message to the OSD interface including the outgoing extensions containing the profile fields.</td>
</tr>
<tr>
<td>RechargeFault</td>
<td>Defines exception handling scenarios.</td>
</tr>
<tr>
<td>ServiceProviderQueryRequest</td>
<td>Sends a message requesting the ID of the service provider linked to the specified calling party.</td>
</tr>
<tr>
<td>ServiceProviderQueryResult</td>
<td>Returns the ID of the service provider to whom the calling party ID belongs.</td>
</tr>
</tbody>
</table>
Sample WSDL operation

Here is a Recharge Request and Response operation generated by WSDL during Control Plan compilation.

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:css="http://eng-host06-z12/wsdls/RWS/CCS_WebServices.wsdl">
    <soapenv:Header/>
    <soapenv:Body>
        <css:RechargeRequest xmlns="http://eng-host06-z12/wsdls/RWS/CCS_WebServices.wsdl">
            <Wallet_Type_Name>Primary</Wallet_Type_Name>
            <CC_Calling_Party_Id>6242255555</CC_Calling_Party_Id>
            <Transaction_ID>66666</Transaction_ID>
            <Dealer_Name>RAJ</Dealer_Name>
            <Reference>Hello</Reference>
            <Channel>Voucher</Channel>
            <Bearer>Voice</Bearer>
            <Recharge_List_List>
                <Recharge_List>
                    <Balance_Type_Name>General Cash</Balance_Type_Name>
                    <Recharge_Amount>2000</Recharge_Amount>
                    <Balance_Expiry_Extension_Period>31</Balance_Expiry_Extension_Period>
                    <Bucket_Creation_Policy>0</Bucket_Creation_Policy>
                </Recharge_List>
                <Recharge_List>
                    <Balance_Type_Name>Free SMS</Balance_Type_Name>
                    <Recharge_Amount>20</Recharge_Amount>
                    <Balance_Expiry_Extension_Period>31</Balance_Expiry_Extension_Period>
                    <Bucket_Creation_Policy>0</Bucket_Creation_Policy>
                </Recharge_List>
                <Recharge_List>
                    <Balance_Type_Name>Time Bal</Balance_Type_Name>
                    <Recharge_Amount>2000</Recharge_Amount>
                    <Balance_Expiry_Extension_Period>31</Balance_Expiry_Extension_Period>
                    <Bucket_Creation_Policy>0</Bucket_Creation_Policy>
                </Recharge_List>
            </Recharge_List_List>
            <Wallet_Expiry_Extension_Period>0</Wallet_Expiry_Extension_Period>
            <Wallet_Expiry_Extension_Policy>0</Wallet_Expiry_Extension_Policy>
        </css:RechargeRequest>
    </soapenv:Body>
</soapenv:Envelope>
```

Connection to eng-host06-z12 closed by foreign host.
HTTP/1.1 200 OK
Date: Mon, 26 Oct 2009 22:09:49 GMT
Server: eServGlobal OSD Interface
Content-Length: 446
Content-Type: text/xml
Connection: close

<?xml version="1.0"?>
<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Body>
    <m:RechargeResult xmlns:m="http://eng-host06-z12/wsdls/RWS/CCS_WebServices.wsdl">
      <Service_Provider>11</Service_Provider>
    </m:RechargeResult>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

Example WSDL

Here is an example of the full WSDL code generated for Recharge Web Services.

<?xml version="1.0"?>
<definitions name="CCS_ServiceProvider"
  targetNamespace="http://eng-host06-z12/wsdls/RWS/CCS_ServiceProvider.wsdl"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:tns="http://eng-host06-z12/wsdls/RWS/CCS_ServiceProvider.wsdl"
  xmlns="http://schemas.xmlsoap.org/wsdl/">
  <types>
    <xs:schema
targetNamespace="http://eng-host06-z12/wsdls/RWS/CCS_ServiceProvider.wsdl"
    xmlns:eServGlobal="http://eng-host06-z12/wsdls/eServGlobal"
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    xmlns="http://eng-host06-z12/wsdls/RWS/CCS_ServiceProvider.wsdl">
      <xs:import namespace="http://eng-host06-z12/wsdls/eServGlobal"
                   schemaLocation="http://eng-host06-z12/wsdls/eServGlobal.xsd"/>
      <xs:element name="ServiceProviderQueryRequest" type="ServiceProviderQueryRequestType"/>
      <xs:element name="ServiceProviderQueryResult" type="ServiceProviderQueryResultType"/>
      <xs:element name="ServiceProviderQueryFault" type="ServiceProviderQueryFaultType"/>
      <xs:complexType name="ServiceProviderQueryRequestType">
        <xs:sequence>
          <xs:element name="CC_Calling_Party_Id" type="eServGlobal:NumericString" minOccurs="1"/>
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="ServiceProviderQueryResultType">
        <xs:sequence>
          <xs:element name="Service_Provider" type="xs:int" minOccurs="0"/>
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="ServiceProviderQueryFaultType">
        <xs:sequence>
          <xs:element name="errorCode" type="xs:int"/>
        </xs:sequence>
      </xs:complexType>
    </xs:schema>
  </types>
  <message name="ServiceProviderQueryInput">
    <part name="body" element="tns:ServiceProviderQueryRequest"/>
  </message>
</definitions>
RechargeRequest

Description

The RechargeRequest message is responsible for triggering the recharge operation. It combines calling party, recharge and wallet information obtained from the inbound extensions profile blocks.

This message, when received on a Control Plan bound to CCS_WebServices, will generate a 'Recharge' operation.

Parameters

The following parameters are available for RechargeRequest message.

Wallet_Type_Name

Syntax:  

<Wallet_Type_Name>str</Wallet_Type_Name>

Description: Specifies the name of the wallet type that will be recharged.

Type: String
Chapter 1

**Wallet_Type_Name**

**Optionality:** Optional

**Allowed:**
- Primary
- Secondary

**Default:** Primary

**Example:** `<Wallet_Type_Name>Primary</Wallet_Type_Name>`

**CC_Calling_Party_Id**

**Syntax:** `<CC_Calling_Party_Id>int</CC_Calling_Party_Id>`

**Description:** This is the subscriber ID of the account to recharge.

**Type:** Integer

**Optionality:** Mandatory

**Allowed:**

**Default:**

**Notes:**

**Example:** `<CC_Calling_Party_Id>6422555555</CC_Calling_Party_Id>`

**Transaction_ID**

**Syntax:** `<Transaction_ID>int</Transaction_ID>`

**Description:** Indicates the transaction ID as provided by third-party systems.

**Type:** Integer

**Optionality:** Optional

**Allowed:**

**Default:**

**Notes:**

This is tracked for auditing purposes only and is placed in the EDR produced by the billing engine.

**Example:** `<Transaction_ID>66666</Transaction_ID>`

**Dealer_Name**

**Syntax:** `<Dealer_Name>str</Dealer_Name>`

**Description:** Indicates the dealer name as provided by third-party systems.

**Type:** String

**Optionality:** Optional

**Allowed:**

**Default:**

**Notes:**

This is tracked for auditing purposes only and is placed in the EDR produced by the billing engine.

**Example:** `<Dealer_Name>ABC</Dealer_Name>`

**Reference**

**Syntax:** `<Reference>str</Reference>`

**Description:** A free-form reference that may be provided by the caller of the web service.

**Type:** String

**Optionality:** Optional

**Allowed:**
Default:
Notes: If a tracker plan has the Reference field configured, the value must be a prefix of the Reference value provided in the recharge request so that the tracker plan can apply. See CCS User's Guide for more detail.
Example: <Reference>GENERAL CASH</Reference>

Channel
Syntax: <Channel>str</Channel>
Description: The channel by which the recharge is performed.
Type: String
Optionality: Optional
Allowed: Default:
Notes: If a tracker plan has the Channel field configured, the value must match the Channel value provided in the recharge request so that the tracker plan can apply. See CCS User's Guide for more detail.
Example: <Channel>Voucher</Channel>

Bearer
Syntax: <Bearer>str</Bearer>
Description: The bearer by which the recharge was performed.
Type: String
Optionality: Optional
Allowed: Default:
Notes: If a tracker plan has the Bearer field configured, the value must match the Bearer value provided in the recharge request so that the tracker plan can apply. See CCS User's Guide for more detail.
Example: <Bearer>Voice</Bearer>

Recharge_List_List
Syntax: <Recharge_List_List>array</Recharge_List_List>
Description: This list contains details for individual balance amounts by which the wallet balances are recharged.
Type: Array
Optionality: Optional
Allowed: Default:
Notes: The list can be left empty; in which case, a voucher type must be specified in the Control Plan specifying its own balance type values for a recharge to apply. No list is equivalent to an empty list.
Example: <Recharge_List_List>
  <Recharge_List>
    <Balance_Type_Name>GeneralCash</Balance_Type_Name>
    <Recharge_Amount>2000</Recharge_Amount>
    <Balance_Expiry_Extension_Period>31</Balance_Expiry_Extension_Period>
    <Balance_Expiry_Extension_Policy>1</Balance_Expiry_Extension_Policy>
  </Recharge_List>
</Recharge_List_List>
Recharge List

Syntax:

```xml
<Recharge_List>
  array
  </Recharge_List>
</Recharge_List_List>
```

Description: Start of a recharge list entry.

Type: Array

Optionality: Optional

Allowed:

Default:

Notes: All fields contained in the list are optional.

Example:

```xml
<Recharge_List>
  <Balance_Type_Name>GeneralCash</Balance_Type_Name>
  <Recharge_Amount>2000</Recharge_Amount>
  <Balance_Expiry_Extension_Period>31</Balance_Expiry_Extension_Period>
  <Balance_Expiry_Extension_Policy>1</Balance_Expiry_Extension_Policy>
  <Bucket_Creation_Policy>0</Bucket_Creation_Policy>
  </Recharge_List>
</Recharge_List>
```

Balance_Type_Name

Syntax:

```xml
<Balance_Type_Name>General_str</Balance_Type_Name>
```

Description: The name of the balance type on the CCS system to recharge.

Type: String

Optionality: Optional

Allowed:

Default:

Notes:

Example: 

```xml
<Balance_Type_Name>General Cash</Balance_Type_Name>
```

Recharge_Amount

Syntax:

```xml
<Recharge_Amount>int</Recharge_Amount>
```

Description: The amount by which the balance type will be recharged.

Type: Integer

Optionality: Optional

Allowed:

Default:

Notes:

Example: 

```xml
<Recharge_Amount>2000</Recharge_Amount>
```
**Balance_Expiry_Extension_Period**

**Syntax:**

```
<Balance_Expiry_Extension_Period>int</Balance_Expiry_Extension_Period>
```

**Description:**

The number of months by which the expiry period of the balance type will be extended.

**Type:** Integer

**Optionality:** Optional

**Allowed:**

**Default:**

**Notes:**

**Example:**

```
<Balance_Expiry_Extension_Period>12</Balance_Expiry_Extension_Period>
```

**Balance_Expiry_Extension_Policy**

**Syntax:**

```
<Balance_Expiry_Extension_Policy>int</Balance_Expiry_Extension_Policy>
```

**Description:**

Specifies how to apply the balance expiry extension amount.

**Type:** Integer

**Optionality:** Optional

**Allowed:**

This is an enumeration supporting the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>best</td>
<td>The best expiry date for the subscriber is chosen from:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- current expiry date</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- the current expiry + the product type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- current expiry + provided extension</td>
</tr>
<tr>
<td>1</td>
<td>extend</td>
<td>Extend the current expiry date by the provided extension.</td>
</tr>
<tr>
<td>2</td>
<td>extendFromToday</td>
<td>Set the expiry date to the request timestamp + the provided extension.</td>
</tr>
<tr>
<td>3</td>
<td>override</td>
<td>Do not use. This is only applicable where an explicit expiry date can be provided. Currently, this option is not available.</td>
</tr>
<tr>
<td>4</td>
<td>dontChange</td>
<td>No expiry date change will be applied.</td>
</tr>
</tbody>
</table>

**Default:**

**Notes:**

**Example:**

```
<Balance_Expiry_Extension_Policy>1</Balance_Expiry_Extension_Policy>
```

**Bucket_Creation_Policy**

**Syntax:**

```
<Bucket_Creation_Policy>int</Bucket_Creation_Policy>
```

**Description:**

Defines the bucket creation policy for wallets.

**Type:** Integer
Optionality: Optional
Allowed:
- 0 - extend current bucket
- > 0 - add a new bucket with the recharge amount
Default: 0
Notes:
Example: <Bucket_Creation_Policy>0</Bucket_Creation_Policy>

Wallet_Expiry_Extension_Period
Syntax: <Wallet_Expiry_Extension_Period>int</Wallet_Expiry_Extension_Period>
Description: The number of months by which to extend the expiry of the wallet.
Type: Integer
Optionality: Optional
Allowed:
Default:
Notes:
Example: <Wallet_Expiry_Extension_Period>0</Wallet_Expiry_Extension_Period>

Wallet_Expiry_Extension_Policy
Syntax: <Wallet_Expiry_Extension_Policy>int</Wallet_Expiry_Extension_Policy>
Description: Specifies how to apply the wallet expiry extension amount.
Type: Integer
Optionality: Optional
Allowed: This is an enumeration supporting the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>best</td>
<td>The best expiry date for the subscriber is chosen from:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- current expiry date</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- the current expiry + the product type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- current expiry + provided extension</td>
</tr>
<tr>
<td>1</td>
<td>extend</td>
<td>Extend the current expiry date by the provided extension.</td>
</tr>
<tr>
<td>2</td>
<td>extendFromToday</td>
<td>Set the expiry date to the request timestamp + the provided extension.</td>
</tr>
<tr>
<td>3</td>
<td>override</td>
<td>Do not use. This is only applicable where an explicit expiry date can be provided. Currently, this option is not available.</td>
</tr>
<tr>
<td>4</td>
<td>dontChange</td>
<td>No expiry date change will be applied.</td>
</tr>
</tbody>
</table>
Default:
Notes:
Example:  

```
<Wallet_Expiry_Extension_Policy>0</Wallet_Expiry_Extension_Policy>
```

### RechargeResult

**Description**

The RechargeResult message returns in a connect message to the OSD interface including the outgoing extensions which contains the profile fields required to send to OSD, prior to the completion of the control plan.

**Parameters**

The following parameter is available for RechargeResult.

#### Service Provider

**Syntax:**

```
<Service_Provider>int</Service_Provider>
```

**Description:**

The ID of the service provider to whom the recharging subscriber account belongs.

**Type:** Integer

**Optionality:** Optional

**Example:**

```
<Service_Provider>11</Service_Provider>
```

### RechargeFault

**Description**

These are extensions to the standard SOAP release causes for OSD. They are used in the errorCode parameter of SOAP faults sent to ASPs when failures occur.

See *OSD User's & Technical Guide* for further information.

**Release cause list**

The following error codes apply.

<table>
<thead>
<tr>
<th>Code</th>
<th>Cause</th>
<th>OSD Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>No Balances</td>
<td>No recharge list was provided and a voucher type was not applied.</td>
</tr>
<tr>
<td>16</td>
<td>Invalid Wallet Type</td>
<td>The specified wallet type is not supported (that is, not one of Primary or Secondary).</td>
</tr>
<tr>
<td>17</td>
<td>Wallet Not Found</td>
<td>The wallet does not exist on the billing engine.</td>
</tr>
<tr>
<td>18</td>
<td>Wallet Not Rechargeable</td>
<td>The state of the wallet does not allow recharge (Frozen, Suspended or Terminated).</td>
</tr>
<tr>
<td>19</td>
<td>Invalid Recharge Value</td>
<td>A provided recharge value was not valid (for example: missing balance type name).</td>
</tr>
</tbody>
</table>
### Code, Cause, OSD Meaning

<table>
<thead>
<tr>
<th>Code</th>
<th>Cause</th>
<th>OSD Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Communication Error</td>
<td>Unable to communicate with the billing engine to perform the recharge.</td>
</tr>
<tr>
<td>5</td>
<td>System Error</td>
<td>This is a standard OSD error code. All other errors in the web service control plan will produce this code.</td>
</tr>
</tbody>
</table>

### ServiceProviderQueryRequest

**Description**

The ServiceProviderQueryRequest sends a message requesting the ID of the service provider linked to the specified calling party.

**Parameters**

The following parameter is available for ServiceProviderQueryRequest.

**CC_Calling_Party_Id**

- **Syntax:** `<CC_Calling_Party_Id>int</CC_Calling_Party_Id>`
- **Description:** This is the subscriber ID of the account for which the service provider is to be queried.
- **Type:** Integer
- **Optionality:** Mandatory
- **Allowed:**
- **Default:**
- **Notes:**
- **Example:** `<CC_Calling_Party_Id>6422255555</CC_Calling_Party_Id>`

### ServiceProviderQueryResult

**Description**

The ServiceProviderQueryResult message returns the ID of the service provider to whom the querying calling party ID belongs.

**Parameters**

The following parameter is available for ServiceProviderQueryResult.

**Service_Provider**

- **Syntax:** `<Service_Provider>int</Service_Provider>`
- **Description:** The ID of the service provider associated to the querying calling party ID.
- **Type:** Integer
- **Optionality:** Optional
- **Allowed:**
- **Default:**
- **Notes:**
Example: <Service_Provider>11</Service_Provider>
**NCC Glossary of Terms**

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

**EDR**
Event Detail Record

Note: Previously CDR. The industry standard for CDR is EDR (Event Detail Record). Over time EDR will replace CDR in the NCC documentation.

**HTML**
HyperText Markup Language, a small application of SGML used on the World Wide Web.
It defines a very simple class of report-style documents, with section headings, paragraphs, lists, tables, and illustrations, with a few informational and presentational items, and some hypertext and multimedia.

**IN**
Intelligent Network

**Oracle**
Oracle Corporation

**SGML**

**SOAP**

**WSDL**
Web Services Description Language.

**XML**
eXtensible Markup Language. It is designed to improve the functionality of the Web by providing more flexible and adaptable information identification.
It is called extensible because it is not a fixed format like HTML. XML is a `metalanguage’ — a language for describing other languages—which lets you design your own customized markup languages for limitless different types of documents. XML can do this because it's written in SGML.