Oracle® Communications Convergent Charging Controller

Web Services Description Language Reference Guide Release 6.0.1

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About This Document

Scope

The scope of this document includes all the information required to configure WSDL parameters for different Convergent Charging Controller products.

Audience

The audience for this document includes system administrators responsible for the monitoring, maintenance, and configuration of the Oracle Convergent Charging Controller 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:

- Open Services Development User's and Technical Guide
- Charging Control Services Technical Guide

Document Conventions

Typographical Conventions

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

Formatting Convention	Type of Information		
Special Bold	Items you must select, such as names of tabs.		
	Names of database tables and fields.		
Italics	Name of a document, chapter, topic or other publication.		
	Emphasis within text.		
Button	The name of a button to click or a key to press.		
	Example: To close the window, either click Close , or press Esc .		
Key+Key	Key combinations for which the user must press and hold down one key and then press another.		
	Example: Ctrl+P or Alt+F4.		
Monospace	Examples of code or standard output.		
Monospace Bold	Text that you must enter.		
variable	Used to indicate variables or text that should be replaced with an actual value.		
menu option > menu option >	Used to indicate the cascading menu option to be selected.		
	Example: Operator Functions > Report Functions		
hypertext link	Used to indicate a hypertext link.		

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

CCS WSDL Operations

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.......1 RechargeRequest.......4

WSDL Operations

Introduction

WSDL is an XML based language that provides a model for describing web services. Open Services Development (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.

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

ServiceProviderQueryFault	Refer to standard OSD error codes in Open Services Development
	User's and Technical Guide.

Sample WSDL operation

Here is a Recharge Request and Response operation generated by WSDL during control plan compilation.

```
<?xml version="1.0" encoding="UTF-8" ?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"</pre>
xmlns:ccs="http://eng-host06-z12/wsdls/RWS/CCS WebServices.wsdl">
  <soapenv:Header/>
  <soapenv:Body>
     <ccs:RechargeRequest xmlns="http://eng-host06-</pre>
z12/wsdls/RWS/CCS WebServices.wsdl">
            <Wallet Type Name>Primary</Wallet Type Name>
            <CC Calling Party Id>6422255555</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>
           <Balance Expiry Extension Policy>1/Balance Expiry Extension 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>
           <Balance Expiry Extension Policy>1/Balance Expiry Extension Policy>
                         <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>
           <Balance Expiry Extension Policy>1/Balance Expiry Extension Policy>
                          </Recharge List>
            </Recharge List List>
           <Wallet Expiry Extension Period>0</Wallet Expiry Extension Period>
           <Wallet Expiry Extension Policy>0</Wallet Expiry Extension Policy>
     </cs:RechargeRequest>
  </soapenv:Body>
</soapenv:Envelope>
Connection to eng-host06-z11 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
```

Example WSDL

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

```
<?xml version="1.0"?>
<definitions name="CCS ServiceProvider"</pre>
        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://enq-host06-z12/wsdls/RWS/CCS ServiceProvider.wsdl"
        xmlns="http://schemas.xmlsoap.org/wsdl/">
        <types>
          <xs:schema</pre>
                                                  targetNamespace="http://eng-host06-
    z12/wsdls/RWS/CCS ServiceProvider.wsdl"
                       xmlns:eServGlobal="http://enq-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"</pre>
            schemaLocation="http://eng-host06-z12/wsdls/eServGlobal.xsd"/>
                    <xs:element name="ServiceProviderQueryRequest"</pre>
            type="ServiceProviderQueryRequestType"/>
                    <xs:element name="ServiceProviderQueryResult"</pre>
            type="ServiceProviderQueryResultType"/>
                    <xs:element name="ServiceProviderQueryFault"</pre>
            type="ServiceProviderQueryFaultType"/>
                    <xs:complexType name="ServiceProviderQueryRequestType">
                    <xs:sequence>
                             <xs:element name="CC Calling Party Id"</pre>
            type="eServGlobal:NumericString" minOccurs="1"/>
                    </xs:sequence>
            </xs:complexType>
            <xs:complexType name="ServiceProviderQueryResultType">
                    <xs:sequence>
                            <xs:element name="Service Provider" type="xs:int"</pre>
            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>
        <message name="ServiceProviderOueryOutput">
                <part name="body" element="tns:ServiceProviderQueryResult"/>
        <message name="ServiceProviderQueryFaultOutput">
                <part name="body" element="tns:ServiceProviderQueryFault"/>
        </message>
        <portType name="ServiceProviderQueryPortType">
                <operation name="ServiceProviderQueryOperation">
                        <input message="tns:ServiceProviderQueryInput"/>
                        <output message="tns:ServiceProviderQueryOutput"/>
                        <fault message="tns:ServiceProviderQueryFaultOutput"/>
                </operation>
        </portType>
        <binding name="ServiceProviderOueryBinding"</pre>
   type="tns:ServiceProviderQueryPortType">
            <soap:binding style="document"</pre>
    transport="http://schemas.xmlsoap.org/soap/http"/>
                <operation name="ServiceProviderQueryOperation">
                    <soap:operation soapAction="http://eng-host06-</pre>
        z12/wsdls/RWS/CCS ServiceProvider/ServiceProviderQuery"/>
                        <input>
                                 <soap:body use="literal"/>
                        </input>
                        <output>
                                 <soap:body use="literal"/>
                        </output>
                        <fault>
                                 <soap:body use="literal"/>
                        </fault>
                </operation>
        </binding>
        <service name="ServiceProviderQuery">
            <port name="ServiceProviderQueryPort1"</pre>
   binding="tns:ServiceProviderQueryBinding">
                    <soap:address location="http://eng-host06-z11:4270"/>
            </port>
        </service>
</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

Optionality:

Optional

Allowed:

Primary Secondary

Default:

Primary

Notes:

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>6422255555</CC Calling Party Id>

Transaction_ID

Syntax:

<Transaction ID>int</Transaction ID>

Description:

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

Type: Optionality: Integer 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

Description: Type:

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

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: Optionality: String

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 Charging Control Services 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:

Nataa.

Notes: If a tracker plan has the Channel field configured, the value must match the

 ${\tt Channel} \ \ \textbf{value provided in the recharge request so that the tracker plan can}$

apply. See Charging Control Services 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 Charging Control Services 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 Extens</pre>

ion_Period>

<Balance Expiry Extension Policy>1</Balance Expiry Extensi</pre>

on Policy> <Bucket Creation Policy>0</Bucket Creation Policy> </Recharge List> </Recharge List List>

Recharge List

<Recharge List> Syntax:

array

</Recharge List>

Description: Start of a recharge list entry.

Type: Array Optionality: Optional

Allowed:

Default:

Notes: All fields contained in the list are optional.

<Recharge List> Example: <Balance Type Name>GeneralCash/Balance Type Name>

<Recharge Amount>2000</Recharge Amount>

<Balance Expiry Extension Period>31/Balance Expiry Extens

ion Period>

<Balance Expiry_Extension_Policy>1/Balance_Expiry_Extensi

on Policy>

<Bucket Creation Policy>0</Bucket Creation Policy>

</Recharge List>

Balance_Type_Name

Syntax: <Balance Type Name>General str

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

Type: String Optionality: Optional

Allowed:

Default:

Notes:

Example: <Balance Type Name>General Cash/Balance Type Name>

Recharge_Amount

Syntax: <Recharge Amount>int/Recharge Amount>

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

Type: Integer Optionality: Optional

Allowed:

Default:

Notes:

Example: <Recharge Amount>2000</Recharge Amount>

Balance_Expiry_Extension_Period

Syntax: <Balance Expiry Extension Period>int</Balance Expiry Extensi

on 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_

n Period>

Balance_Expiry_Extension_Policy

Syntax: <Balance Expiry Extension Policy>int</Balance Expiry Extensi

on Policy>

Description: Specifies how to apply the balance expiry extension amount.

Type: Integer Optionality: Optional

Allowed: This is an enumeration supporting the following values:

Value	Name	Action
0	best	The best expiry date for the subscriber is chosen from:
1	extend	Extend the current expiry date by the provided extension.
2	extendFromT oday	Set the expiry date to the request timestamp + the provided extension.
3	override	Do not use. This is only applicable where an explicit expiry date can be provided. Currently, this option is not available.
4	dontChange	No expiry date change will be applied.

Default: Notes:

_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</pre>

Period>

Description:

The number of months by which to extend the expiry of the wallet.

Type: Optionality: Integer

Optional

Allowed:

Default:

Notes:

Example:

<Wallet Expiry Extension Period>0</Wallet Expiry Extension P</pre>

eriod>

Wallet_Expiry_Extension_Policy

Syntax:

<Wallet Expiry Extension Policy>int</Wallet Expiry Extension</pre>

Policy>

Description:

Specifies how to apply the wallet expiry extension amount.

Type:

Integer

Optionality:

Optional

Allowed:

This is an enumeration supporting the following values:

Value	Name	Action	
0	best	The best expiry date for the subscriber is chosen from:	
1	extend	Extend the current expiry date by the provided extension.	
2	extendFromT oday	Set the expiry date to the request timestamp + the provided extension.	
3	override	Do not use. This is only applicable where an explicit expiry date can be provided. Currently, this option is not available.	
4	dontChange	No expiry date change will be applied.	

Default:

Notes:

Example: <Wallet Expiry Extension Policy>0</Wallet Expiry Extension P

olicy>

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

Allowed: Default: Notes:

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 Open Services Development User's and Technical Guide for further information.

Release cause list

The following error codes apply.

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

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

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:

<CC Calling Party Id>6422255555</CC Calling Party Id> Example:

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

Description: The ID of the service provider associated to the querying calling party ID.

Integer Type: Optionality: Optional

Allowed: Default: Notes:

Chapter 1

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.

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".

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

SGML

Standard Generalized Markup Language. The international standard for defining descriptions of the structure of different types of electronic document.

SOAP

Simple Object Access Protocol. An XML-based messaging protocol.

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.

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