Oracle® Communications Network Charging and Control

Web Services Description Language Reference Guide

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Contents

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:

- *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 Network Charging and Control (NCC) documentation.

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

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

Chapter 1

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

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/"
xmlns:ccs="http://eng-host06-z12/wsdls/RWS/CCS_WebServices.wsdl">
   <soapenv:Header/>
   <soapenv:Body>
      <ccs:RechargeRequest xmlns="http://eng-host06-
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>
                           <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>

            <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>
                           <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>
      </ccs: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
```

```
Connection: close

<?xml version="1.0"?>
<SOAP-ENV:Envelope
     xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
     xmlns:xsd="http://www.w3.org/2001/XMLSchema"
     SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding">
     <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>
        <message name="ServiceProviderQueryOutput">
                <part name="body" element="tns:ServiceProviderQueryResult"/>
        </message>
        <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="ServiceProviderQueryBinding"
    type="tns:ServiceProviderQueryPortType">
            <soap:binding style="document"
    transport="http://schemas.xmlsoap.org/soap/http"/>
                <operation name="ServiceProviderQueryOperation">
                    <soap:operation soapAction="http://eng-host06-
        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"
    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: 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 *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:

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 *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
        ion_Period>
        <Balance_Expiry_Extension_Policy>1</Balance_Expiry_Extensi
```

```
        on_Policy>
        <Bucket_Creation_Policy>0</Bucket_Creation_Policy>
    </Recharge_List>
</Recharge_List_List>
```

Recharge_List

Syntax:
```
<Recharge_List>
    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.
Example:
```
<Recharge_List>
    <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`*`</Balance_Type_Name>`
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_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:

Value	Name	Action
0	best	The best expiry date for the subscriber is chosen from: • current expiry date • the current expiry + the product type • current expiry + provided extension
1	extend	Extend the current expiry date by the provided extension.
2	extendFromToday	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: `<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:

Value	Name	Action
0	best	The best expiry date for the subscriber is chosen from: • current expiry date • the current expiry + the product type • current expiry + provided extension
1	extend	Extend the current expiry date by the provided extension.
2	extendFromToday	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_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

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:
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>`

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.

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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