XML Gateway with BPEL - B2B and A2A integrations are now simpler and faster than ever

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Introduction

With so much emphasis being made on utilizing Service Oriented Architecture (SOA) to integrate existing systems, first step towards this goal is to examine XML standards as this is how data is going to be exchanged in future. XML has been used extensively in SOA to create data which is wrapped in a nearly exhaustive description container. The core XML technology set was developed in response to eBusiness requirements for distributed Internet architectures. It now also represents a foundation data representation and management layer for SOA.

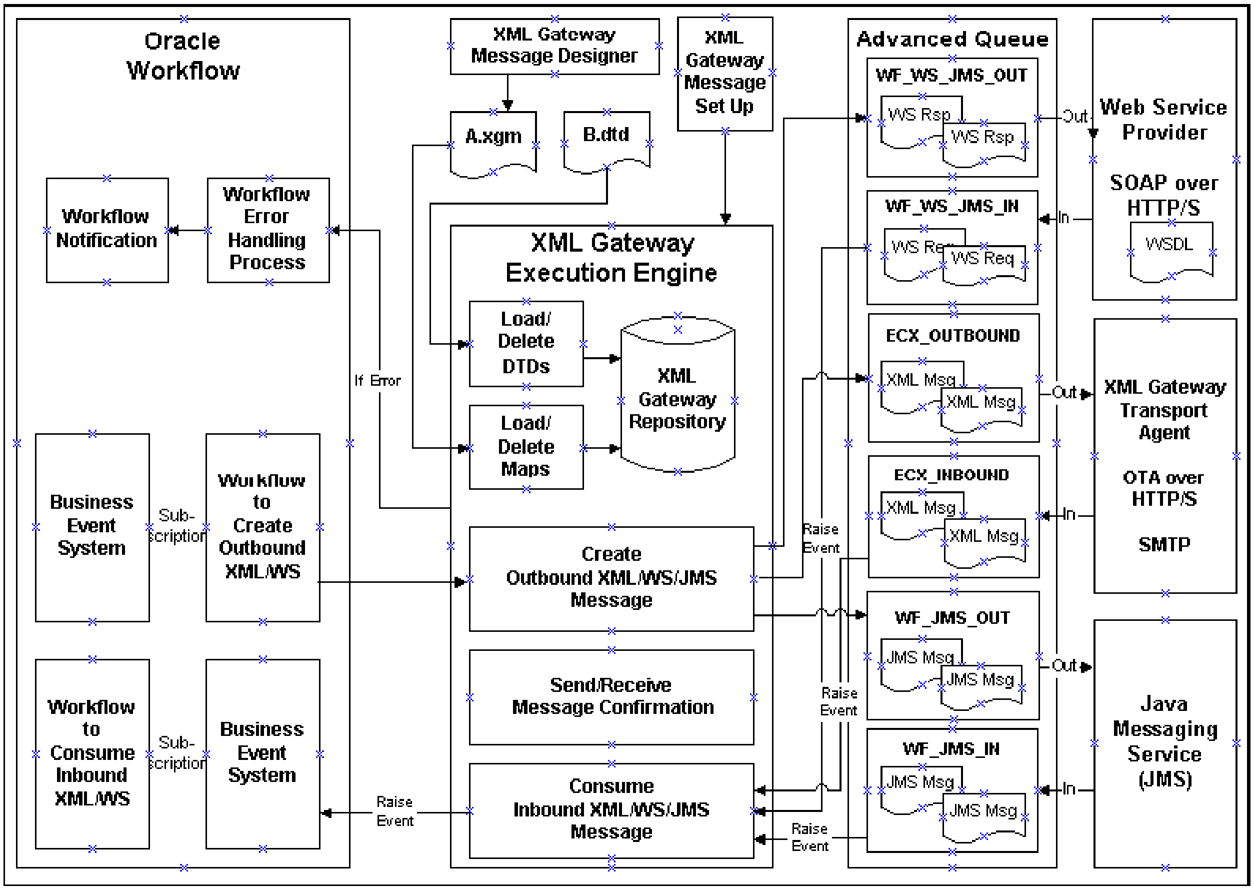
E-business best practices demand that companies electronically integrate their systems. Information must flow quickly, efficiently, and seamlessly throughout the global supply chain. Seamless information flow in an ever expanding trading partner base requires an application integration infrastructure that is flexible enough to accommodate the integration requirements of any and all applications that must integrate with the Oracle E-Business Suite. This paper will examine how Oracle XML gateway coupled with Oracle workflow business event system and BPEL can be utilized to integrate both internal and external systems. This white paper supplements the presentation "XML Gateway with BPEL - B2B and A2A integrations made easier" that was presented at OAUG Collaborate 08

This paper builds on a wealth of information already available from Oracle and other vendors in the form of white papers, presentations and guides. In areas where a white-paper or a publicly available document exists, we simply refer to the available document for implementation considerations. In areas where no publicly available document exists, we will dive into implementation details. The end of this paper contains an appendix of all referenced sources of information that can assist with implementing some of the ideas outlined in this white paper.

XML Gateway Architecture

The services supported by Oracle XML Gateway are grouped into four functional areas as follows:

- Message Designer
- XML Gateway Setup
- Execution Engine
- Transport Agent



Ref: XML Gateway User Guide

Message Designer

Use the XML Gateway Message Designer to perform the following three functions:

Define Data Source and Data Target

Each message map must contain data source and data target. The XML Message Designer supports RDBMS to XML, XML to RDBMS and XML to XML combinations with respect to data source and data target. RDBMS-based data definitions can be based on database tables, database views, Application Open Interface tables, or Application APIs.

Map Source Data to Target Data

This is where transformation happens, this is a two step process first we map the data structures (level mapping). This is very important especially if you have inbound transaction that's represented using three levels and you'll now have to collapse this to two level outbound document or vice-versa. The XML Gateway Message Designer supports both expanding and collapsing hierarchies to ensure that data can be retrieved from or populated into the Oracle E-Business Suite data model. Second step is to map each individual element. Message Designer user interface displays the data source and the data target in adjacent windows. A simple drag and drop between the source and target data elements creates a map relationship.

Identify Data Transformation and Process Control Functions

This is the step that gives the flexibility that we often required when transforming data. The common data transformation functions involve math functions and string manipulation in addition to conversions between the Oracle and OAG formats representing date, operating amount, quantity, and amount values. The common process control functions involve calling procedures or database functions to extend the integration with the Oracle E-Business Suite. For ex: use standard oracle API's to populate WHO columns, derive org_id etc etc.

Note: One question I have noticed in many forums is how to get the Message Designer, well here's how

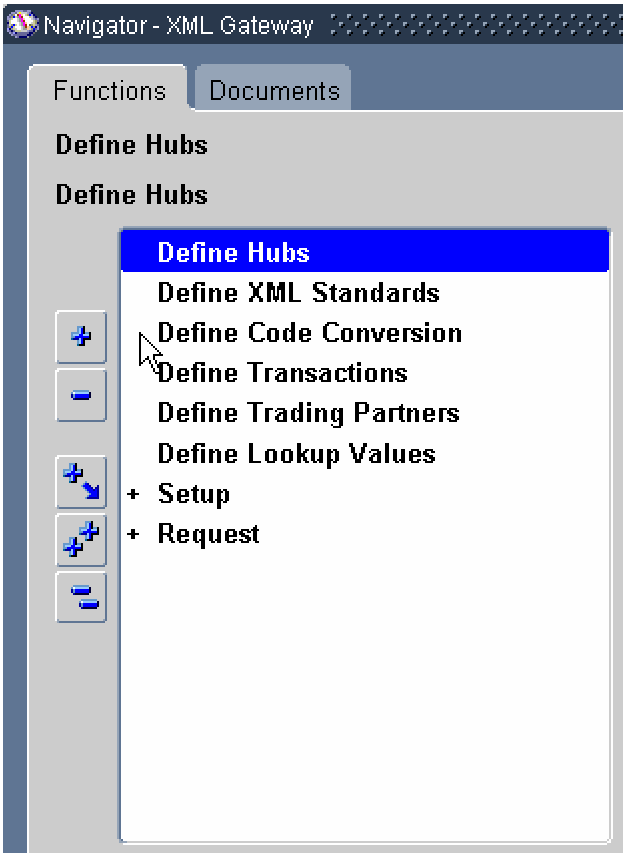
Its part of Oracle Workflow 2.6 Client (Builder) and can be downloaded from Metalink as a patch.

Platform is "Microsoft Windows (32-bit) Client"

a) Log into Metalink.
b) Click on the Patches&Updates tab
c) Click Simple search
d) Give the patch Number as 4066964
e) for Platform select "Microsoft Windows (32-bit) Client"
f) Click on Go.

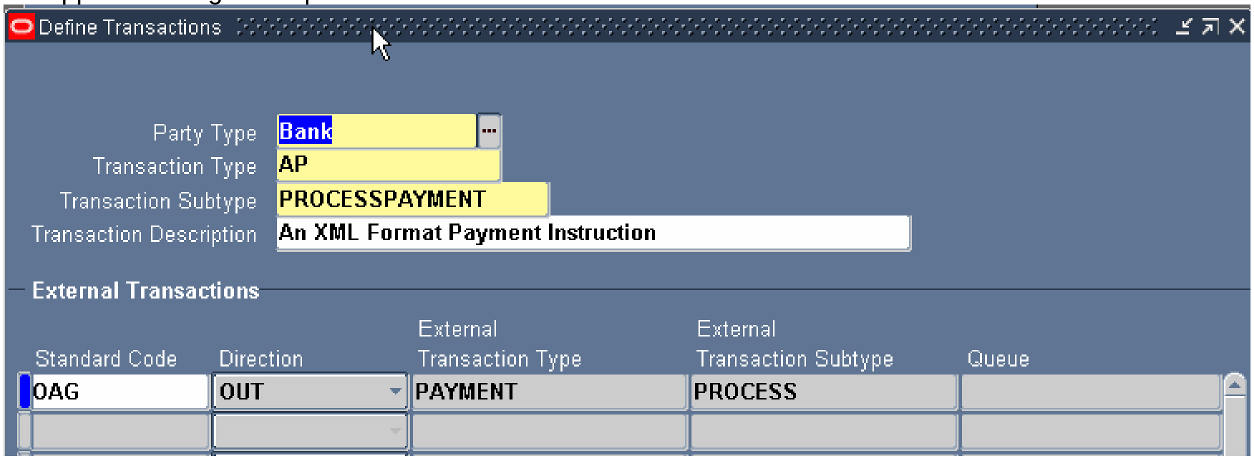
XML Gateway Setups

There are three major setups in Oracle XML Gateway, if you have prior experience with Oracle e-Commerce gateway the steps are similar to what you do there



Define Transactions

Use Oracle XML Gateway to define a cross-reference between the Oracle transaction name and the external transaction name. The external transaction name will be based on what is meaningful per the XML standard used by the recipient. The external transaction name will appear on the message envelope to support message transport.



Define Transactions

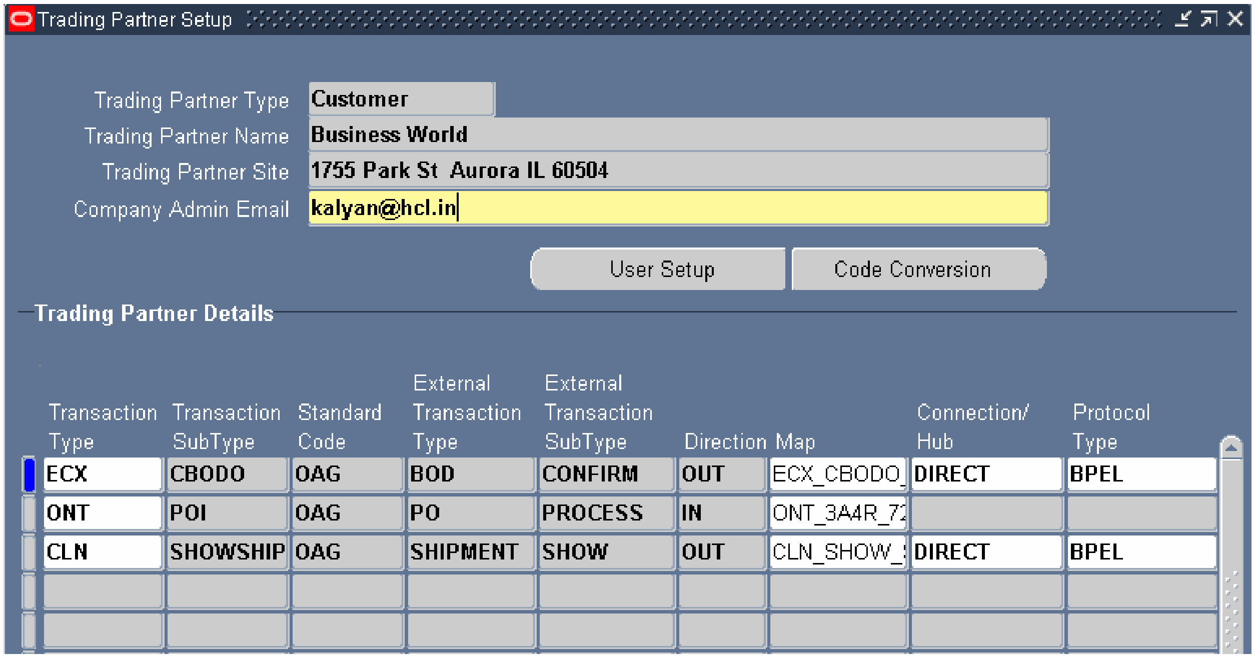
Party Type	Bank
Transaction Type	AP
Transaction Subtype	PROCESSPAYMENT
Transaction Description	An XML Format Payment Instruction

External Transactions

Standard Code	Direction	External Transaction Type	External Transaction Subtype	Queue
OAG	OUT	PAYMENT	PROCESS	

Define Trading Partner or Hub

E-Business may be conducted directly with a business partner, commonly known as a trading partner, or via a hub, such as Oracle Exchange, where many buyers and sellers converge to conduct electronic commerce



Trading Partner Setup

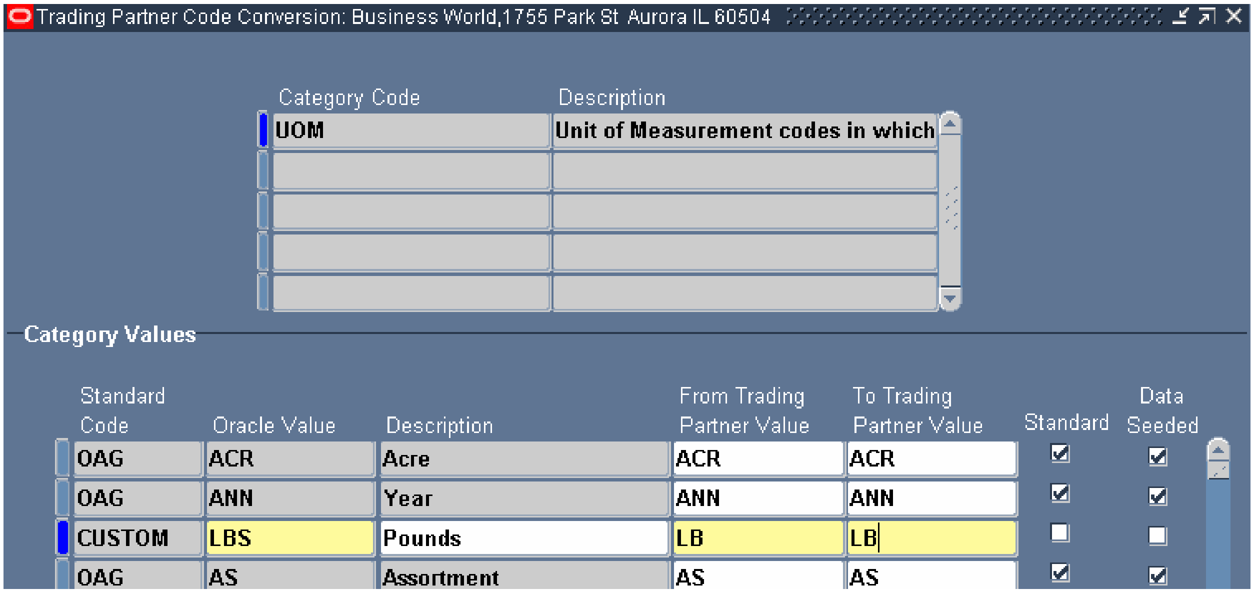
Trading Partner Type	Customer
Trading Partner Name	Business World
Trading Partner Site	1755 Park St Aurora IL 60504
Company Admin Email	kalyan@hcl.in

Trading Partner Details

Transaction Type	Transaction SubType	Standard Code	External Transaction Type	External Transaction SubType	Direction	Map	Connection/ Hub	Protocol Type
ECX	CBODO	OAG	BOD	CONFIRM	OUT	ECX_CBODO_	DIRECT	BPEL
ONT	POI	OAG	PO	PROCESS	IN	ONT_3A4R_72		
CLN	SHOWSHIP	OAG	SHIPMENT	SHOW	OUT	CLN_SHOW_	DIRECT	BPEL

Define Code Conversions

With Oracle XML Gateway, you can cross-reference Oracle codes to codes that are meaningful to your recipient. Conversely, you can cross-reference codes you receive from your partner to codes that are meaningful to your Oracle Application. Common examples of Oracle E-Business Suite codes requiring code conversion are units of measure and currency code



Trading Partner Code Conversion: Business World,1755 Park St Aurora IL 60504

Category Code	Description
UOM	Unit of Measurement codes in which

Category Values

Standard Code	Oracle Value	Description	From Trading Partner Value	To Trading Partner Value	Standard	Data Seeded
OAG	ACR	Acre	ACR	ACR	☑	☑
OAG	ANN	Year	ANN	ANN	☑	☑
CUSTOM	LBS	Pounds	LB	LB	□	□
OAG	AS	Assortment	AS	AS	☑	☑

Execution Engine

The XML Gateway Execution Engine is responsible for interacting with several Oracle technologies to process and transport XML messages to and from Trading Partners for B2B integration, or other information systems both within and outside the enterprise for A2A integration. Below are four most important Oracle technologies that XML Gateway Execution Engine uses

Oracle Workflow Business Event System

Oracle XML Gateway leverages the Oracle Workflow Business Event System to publish and subscribe to application business events of interest to automatically trigger message creation or consumption.

Oracle E-Business Suite

The XML Gateway Execution Engine interfaces with the Oracle E-Business Suite via business events and event subscriptions to retrieve data from or populate data into the Oracle e-Business Suite tables.

Oracle Advanced Queuing

The XML Gateway Execution Engine interfaces with Oracle Advanced Queuing to stage outbound XML messages or receive inbound XML messages for processing.

Oracle Workflow

The XML Gateway Execution Engine interfaces with Oracle Workflow to actively notify the XML Gateway system administrator regarding system or process errors, or the Trading Partner contact for data errors.

Transport Agent

The Transport Agent server is a Java-based servlet that uses the Transport Agent Messaging Protocol to support the following:

a) Simple to install, configure and manage
b) Guaranteed, exactly once delivery of messages
c) Complete audit and history tracking of messages sent/received
d) Support outbound email delivery of messages (SMTP)
e) Support the HTTP/S Application protocol
f) Support server certificate authentication (when using SSL mode)
g) Provide built in Application user authentication to Oracle e-Business Suite and Oracle Exchange

The Oracle Transport Agent interfaces with Oracle Advanced Queuing and uses Oracle Workflow's Business Event System to send and receive of XML documents from Trading Partners. The sending of XML documents through OTA is simply a type of workflow using the ECX_STANDARD.SEND function activity to send through the ECX_OUTBOUND queue for OTA to dequeue and send. The receiving of inbound XML documents do not necessarily have to use OTA; however, it is up to the recipient to accept and process the XML. OTA is designed to accept inbound XML and enqueue it on the ECX Inbound queue for the ECX Inbound Agent Listener to process on to the ECX Transaction queue where the ECX Transaction Agent Listener will complete the processing of the inbound XML

Oracle Workflow Business Event System

The Oracle Workflow Business Event System is an application service that leverages the Oracle Advanced Queuing (AQ) infrastructure to communicate business events between systems. The Business Event System consists of the Event Manager and workflow process event activities. The Business Event System allows us to

a) Define business events
b) Register event subscriptions to these business events
c) Raise these business events
d) Route messages to and from business to business exchanges
e) Route messages to and from legacy applications

Business Event

A business event is simply any event which is of importance to either development team or business users and might happen as part of daily business activities. For example, the creation of sales order might be a business event that's of importance to business users, where as order failing in import tables might be of interest to development team. Business events are represented within workflow processes by event activities. By including event activities in a workflow process, you can model complex processing or routing logic for business events beyond the options of directly running a predefined function or sending the event to a predefined recipient

Event Subscription

An event subscription is a registration indicating that a particular event is significant to a particular system and specifying the processing to perform when the triggering event occurs. Event subscriptions to a business event typically perform following actions

a) Execution of PL/SQL code
b) Send the business event to a predefined workflow process
c) Send and receive messages from Trading partners

Raise Event

In addition to raising events from your applications or through workflows, you can raise events that do not require additional parameters manually using the Raise Event web page from the Oracle Workflow home page. When you raise an event, the Event Manager searches for and executes any active subscriptions by the local system to that event with a source type of Local, and also any active subscriptions by the local system to the Any event with a source type of Local. You can also raise events using PL/SQL code.

Integration with XML Gateway

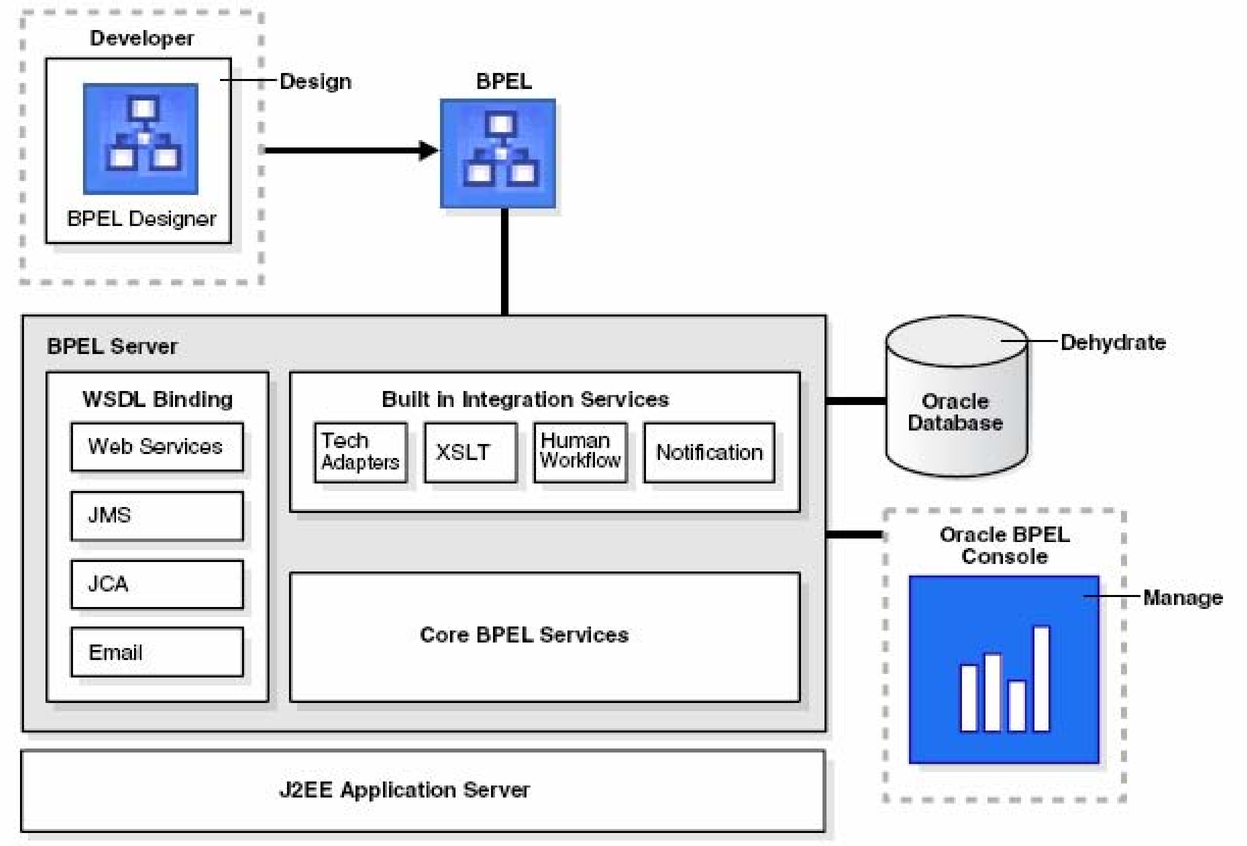
By using the built in Subscription Action Types “Send Trading Partner Message” and “Receive Trading Partner Message” we can integrate Oracle Workflow Business Event System with XML Gateway. Detailed step-by-step instructions are provided in following sections of this paper to create a Business Event, add a Subscription to the business event and then raise the event to send a XML message to your trading partner.

Business Process Execution Language

Web Services Business Process Execution Language OASIS Standard WS-BPEL 2.0 (or BPEL for short) is a language for specifying business process behavior based on Web Services. BPEL is an XML-based language for enabling task sharing across multiple enterprises using a combination of Web services. BPEL is based on the XML schema, simple objects access protocol (SOAP), and Web services description language (WSDL). BPEL is an orchestration language, it specifies an executable process that involves message exchanges with other systems, such that the message exchange sequences are controlled by the orchestration designer.BPEL provides enterprises with an industry standard for business process orchestration and execution. Using BPEL, you design a business process that integrates a series of discrete services into an end-to-end process flow. This integration reduces process cost and complexity.

Oracle BPEL Process Manager provides a user-friendly and reliable solution for designing, deploying, and managing BPEL business processes. Oracle BPEL Process Manager consists of three key components

- BPEL Designer (JDeveloper)
- BPEL Server
- BPEL Console



Features

JDeveloper BPEL Designer

- Native BPEL support
- Drag-and-drop process modeler
- Universal description, discover, and integration (UDDI) and Web services inspection language (WSIL) service browser
- Visual XPath editor
- One-click build and deploy

Oracle BPEL Console

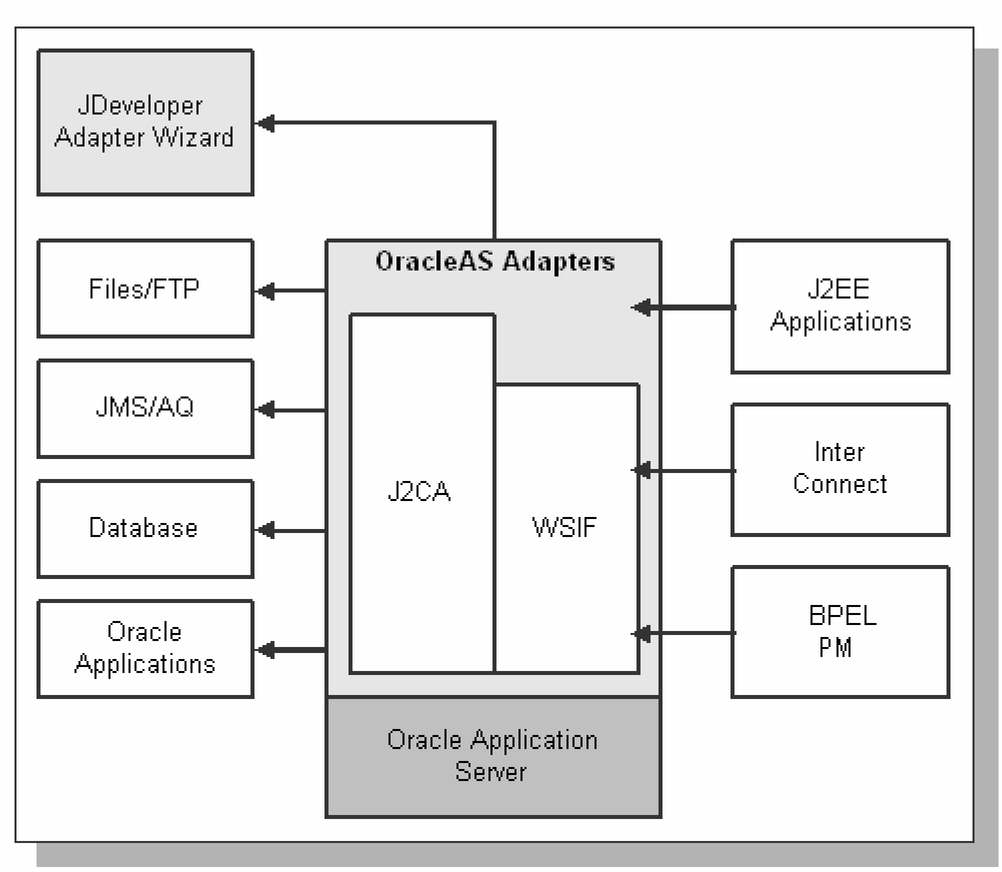
- Visual monitoring
- Auditing
- BPEL debugging
- Process versioning
- In-flight administration
- Process performance monitoring statistics
- Partitioning/domains

Oracle BPEL Server

- Comprehensive BPEL version 1.1
- Synchronous and asynchronous messaging
- Context dehydration
- Advanced exception management
- Side-by-side versioning
- Large XML documents

Oracle Applications Adapter

OracleAS Adapter for Oracle Applications is based on J2CA 1.0 standards and deployed as a resource adapter in the same Oracle Application Server Containers for J2EE (OC4J) container as BPEL Process Manager. The architecture of OracleAS Adapter for Oracle Applications is similar to the architecture of technology adapters



Oracle Applications is a set of integrated business applications that runs entirely on the Internet. Oracle Applications offers you the following:

- Reduced costs
- Increased revenue across front-office and back-office functions
- Access to current, accurate, and consistent data

NOTE: Please see reference section for links from Oracle® to learn more

USE CASE STEPS

This section is truly for supplementing the presentation titled “XML Gateway with BPEL - B2B and A2A integrations made easier”. We’ll see step by step instructions for end-to-end-flow

1. Create a table in your custom schema

```
CREATE TABLE xxorder_extract
   (ordno                    NUMBER,
   ordwt                     NUMBER,
   rdate                     DATE,
   city                      VARCHAR2(30),
   zip                       VARCHAR2(10),
   xml_extracted                DATE)
/
```

2. Create a view to be used in XML gateway

```
CREATE OR REPLACE VIEW xxorder_extract_v (
   ordno,
   ordwt,
   rdate,
   city,
   zip )
AS
select ORDNO, ORDWT , RDATE , CITY , ZIP from xxOrder_extract where XML_extracted is null
/
```

3. How data gets inserted into this table is up to you for simplicity we’ll manually insert the data

```
Insert into xxorder_extract values ( 1001,1300.56,’01-MAY-2008’, ‘Denver’ ,’80401’, NULL);
Insert into xxorder_extract values ( 1002,1434,’02-MAY-2008’, ‘Sunnyvale’ ,’94085’, NULL);
Insert into xxorder_extract values ( 1003,16100,’01-MAY-2008’, ‘Chicago’ ,60515, NULL);

Commit;
```

4. Create a DTD and save it as orders.dtd

```
<?xml version = "1.0" encoding = "UTF-8"?>
<!ELEMENT ORDER_DETAILS (ORDER+ )* >
<!ELEMENT ORDER (ORDNO+ ,ORDWT+,RDATE+,CITY*,ZIP+ )* >
<!ELEMENT ORDNO (#PCDATA ) >
<!ELEMENT ORDWT (#PCDATA ) >
<!ELEMENT RDATE (#PCDATA ) >
<!ELEMENT CITY (#PCDATA ) >
<!ELEMENT ZIP (#PCDATA ) >
```

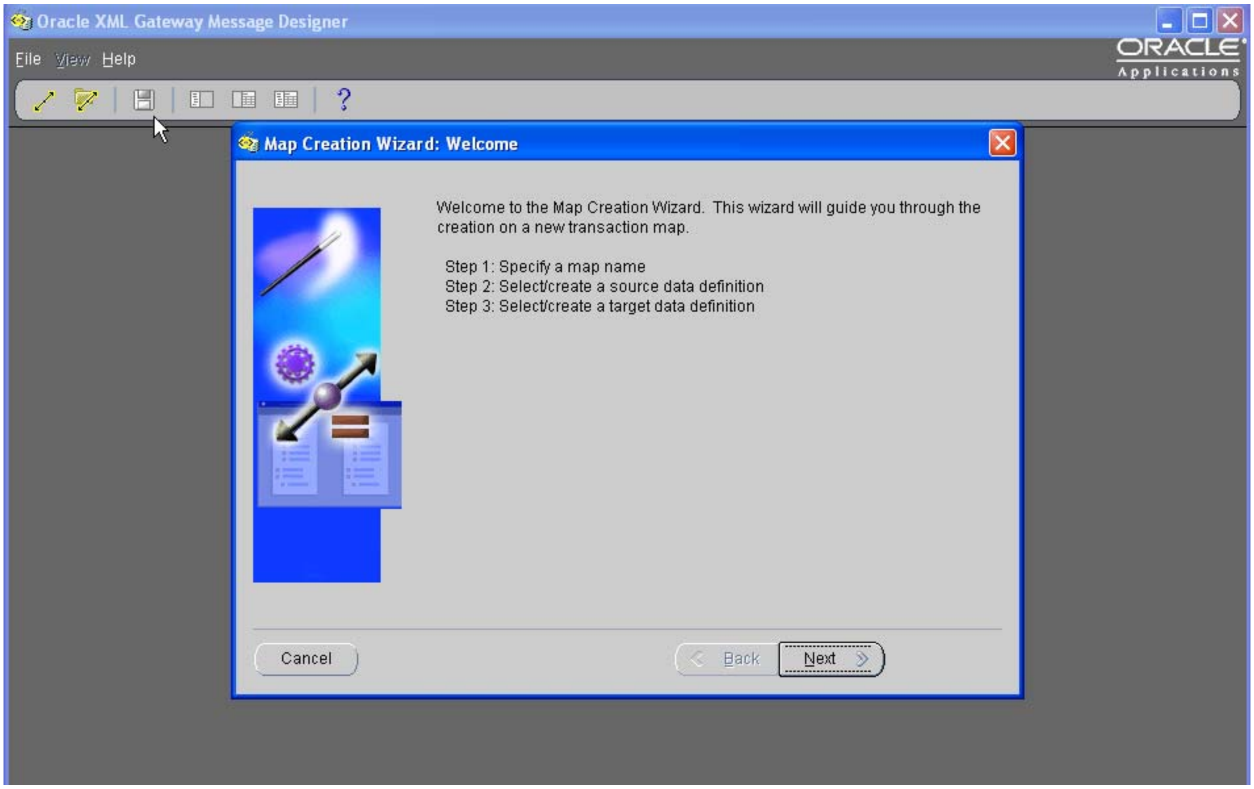
5. Use this command to upload the dtd into oracle

   java LoadDTDToClob<DB username><DB password><Hostname>:<Port>:<SID><mydtd.dtd> <RootElementName><Location>

   ex: java oracle.apps.ecx.loader.LoadDTDToClob apps apps hcl034.hcltech.com:1521:orcl orders.dtd ORDER_DETAILS ecx/oag72

6. Create XML Gateway map

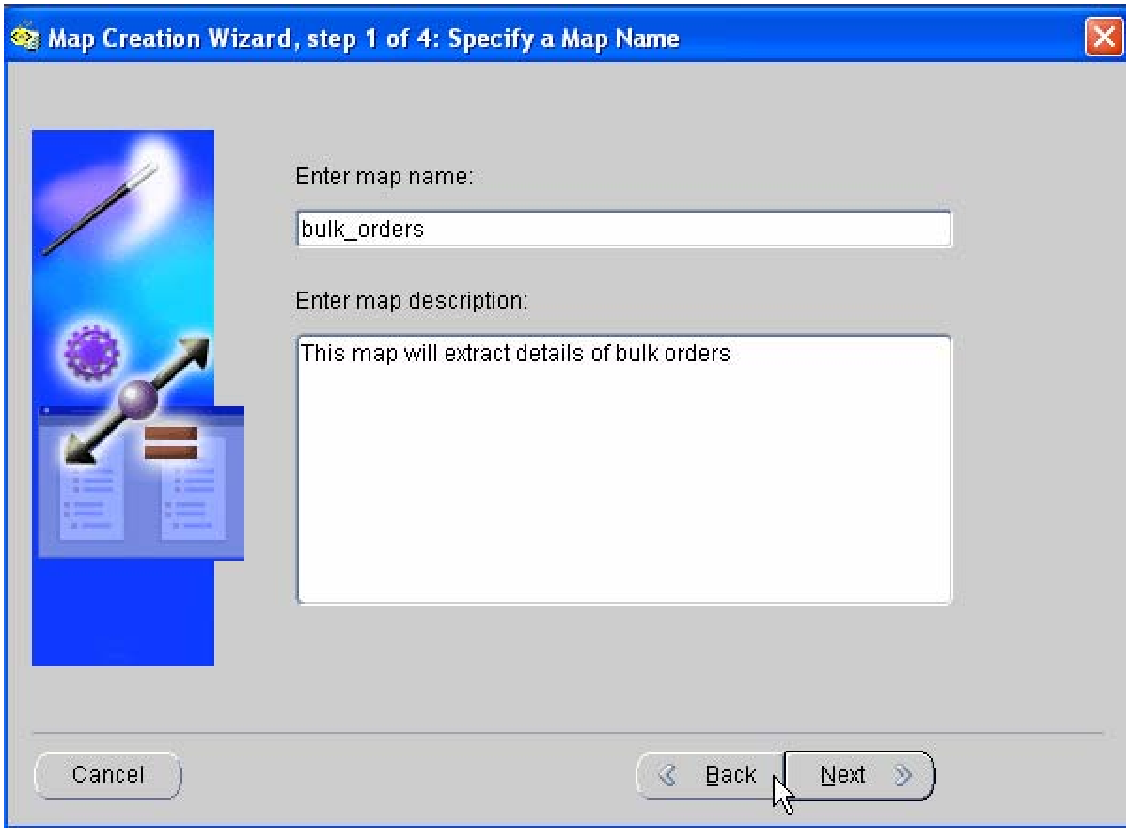
   Open XML Gateway Message Designer


Oracle XML Gateway Message Designer
File View Help
ORACLE Applications
Map Creation Wizard: Welcome
Cancel
Back
Next

Welcome to the Map Creation Wizard. This wizard will guide you through the creation on a new transaction map.

Step 1: Specify a map name
Step 2: Select/create a source data definition
Step 3: Select/create a target data definition

Keep clicking next and follow the self explanatory screen shots



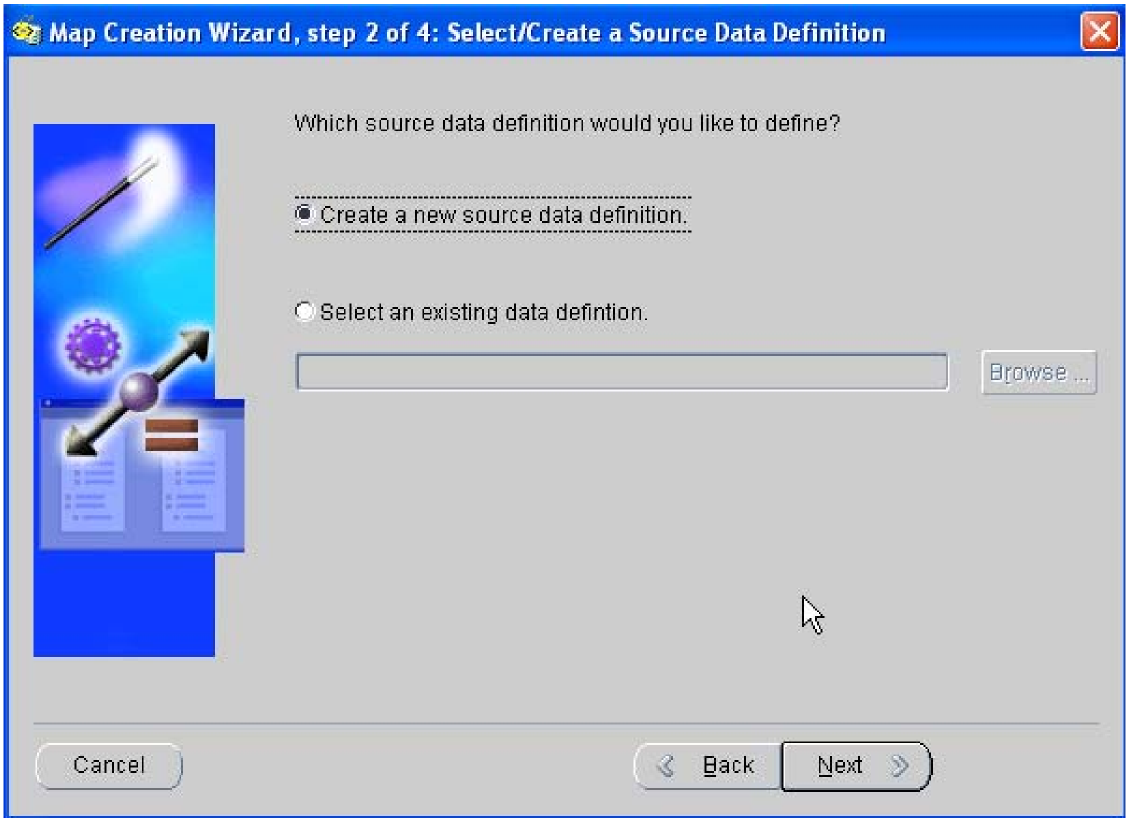
Map Creation Wizard, step 1 of 4: Specify a Map Name

Enter map name:

bulk_orders

Enter map description:

This map will extract details of bulk orders

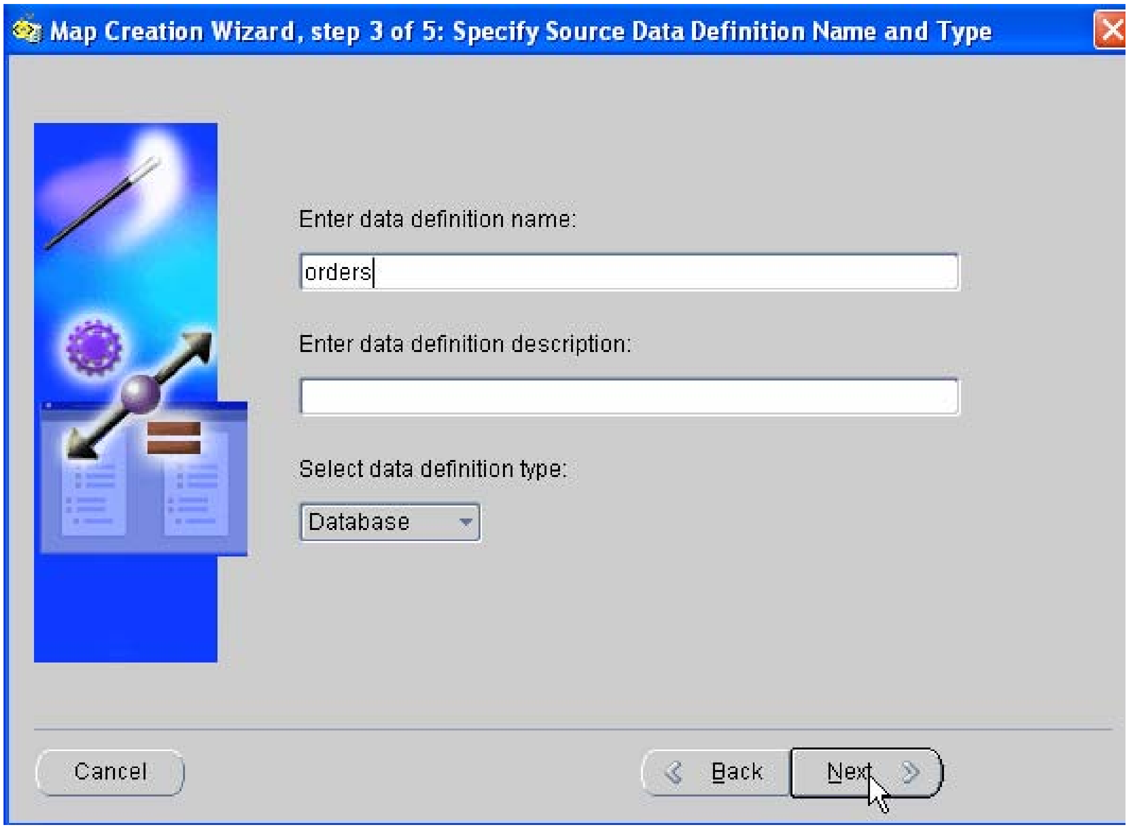


Map Creation Wizard, step 2 of 4: Select/Create a Source Data Definition

Which source data definition would you like to define?

● Create a new source data definition.

○ Select an existing data defintion.

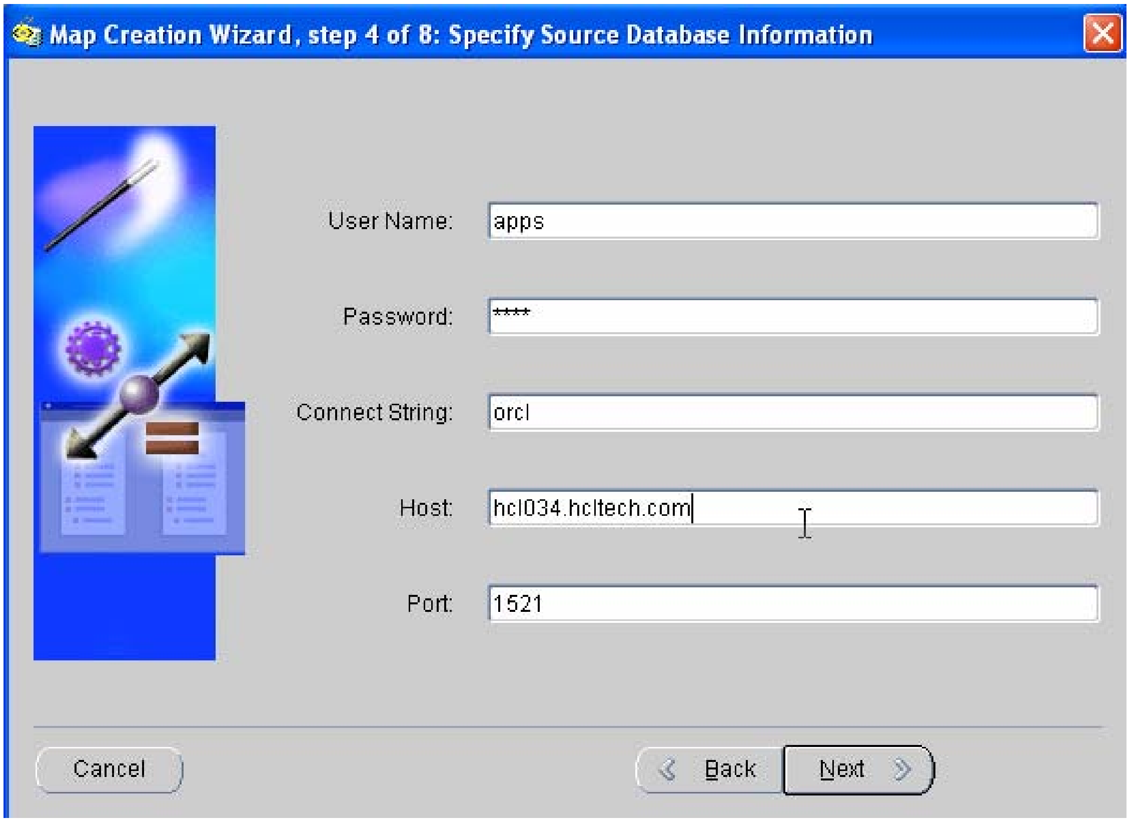


Map Creation Wizard, step 3 of 5: Specify Source Data Definition Name and Type

Enter data definition name: orders

Enter data definition description:

Select data definition type: Database



Map Creation Wizard, step 4 of 8: Specify Source Database Information

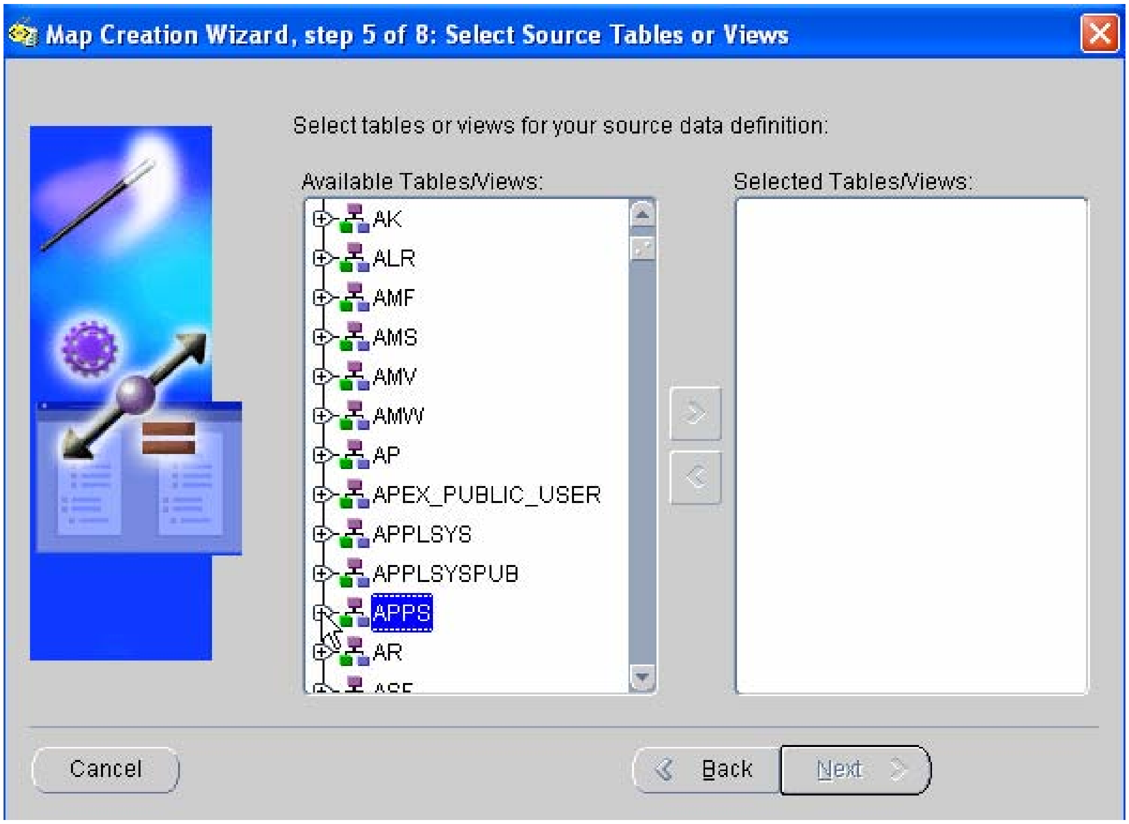
User Name: apps

Password: ****

Connect String: orcl

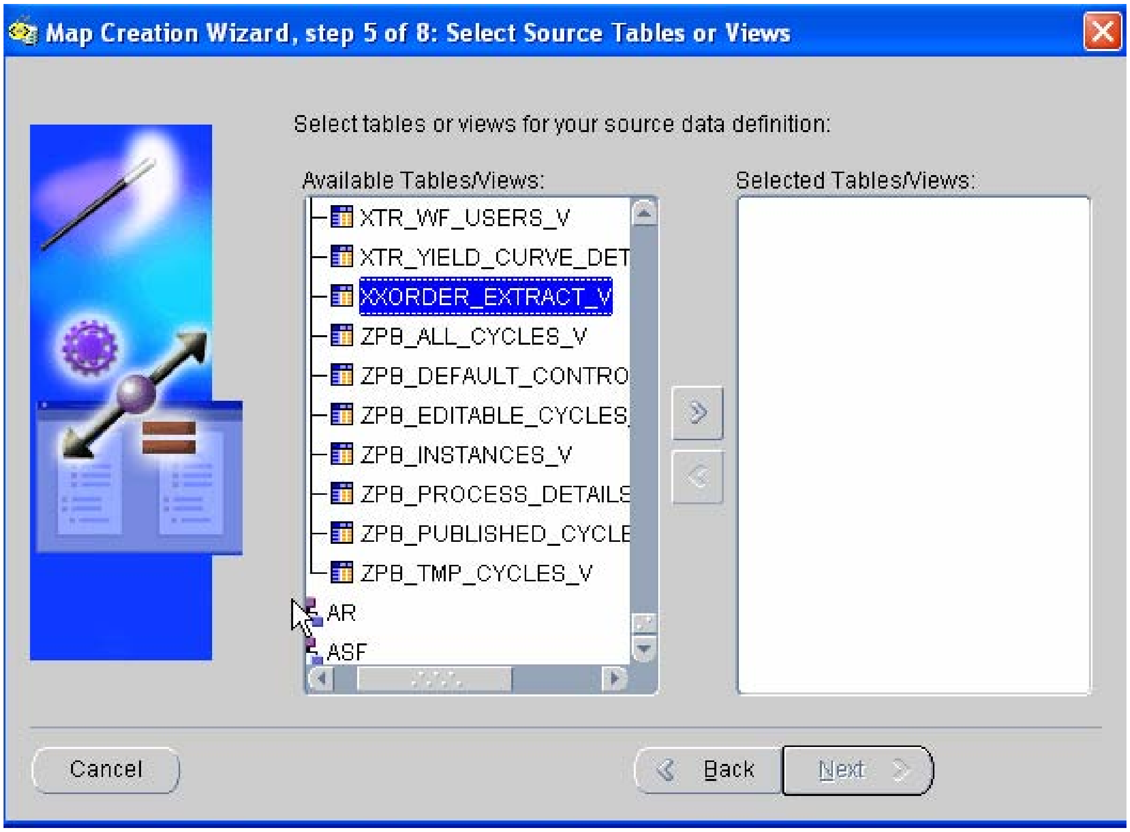
Host: hcl034.hcltech.com

Port: 1521



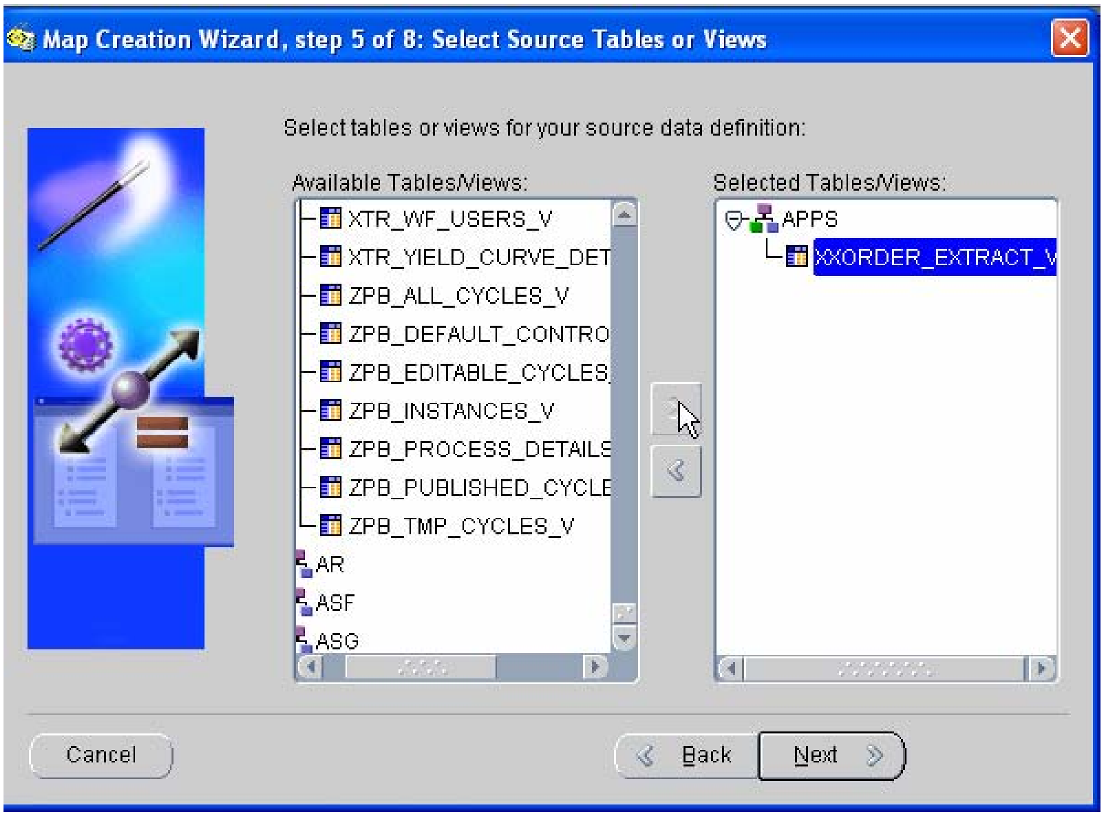
Map Creation Wizard, step 5 of 8: Select Source Tables or Views

Select tables or views for your source data definition:



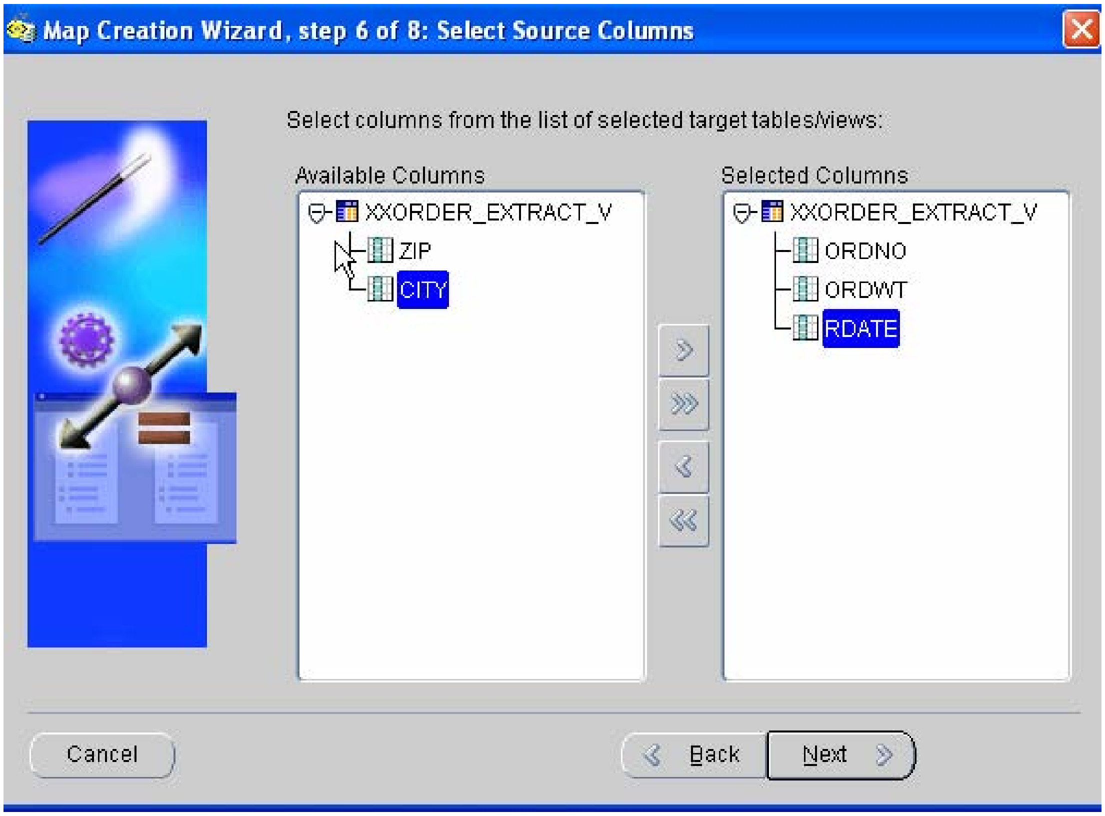
Map Creation Wizard, step 5 of 8: Select Source Tables or Views

Select tables or views for your source data definition:



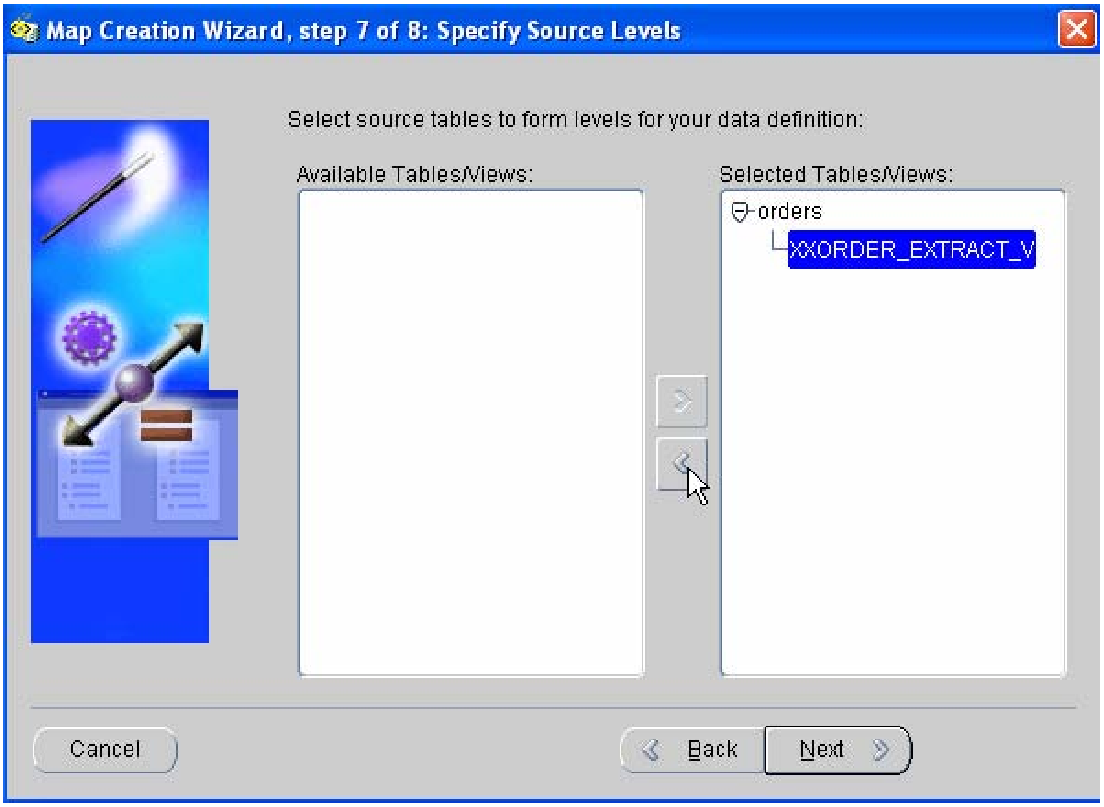
Map Creation Wizard, step 5 of 8: Select Source Tables or Views

Select tables or views for your source data definition:



Map Creation Wizard, step 6 of 8: Select Source Columns

Select columns from the list of selected target tables/views:



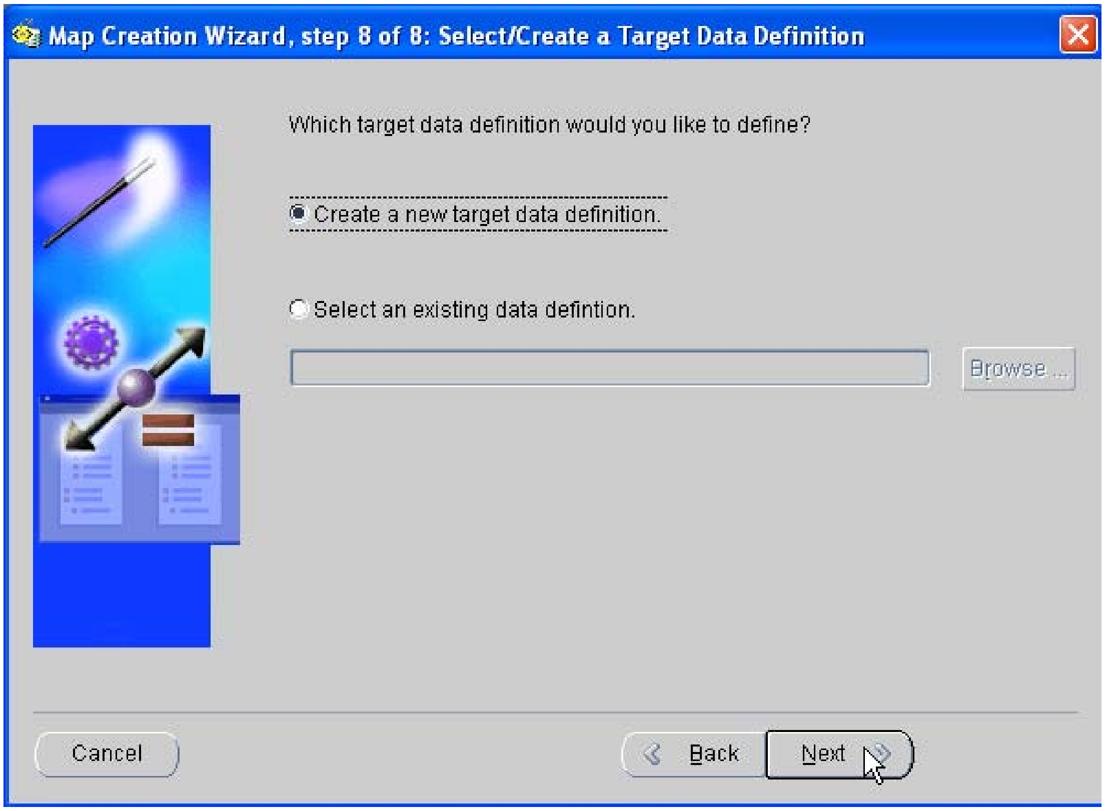
Map Creation Wizard, step 7 of 8: Specify Source Levels

Select source tables to form levels for your data definition:

Available Tables/Views:

Selected Tables/Views:

orders
XXORDER_EXTRACT_V

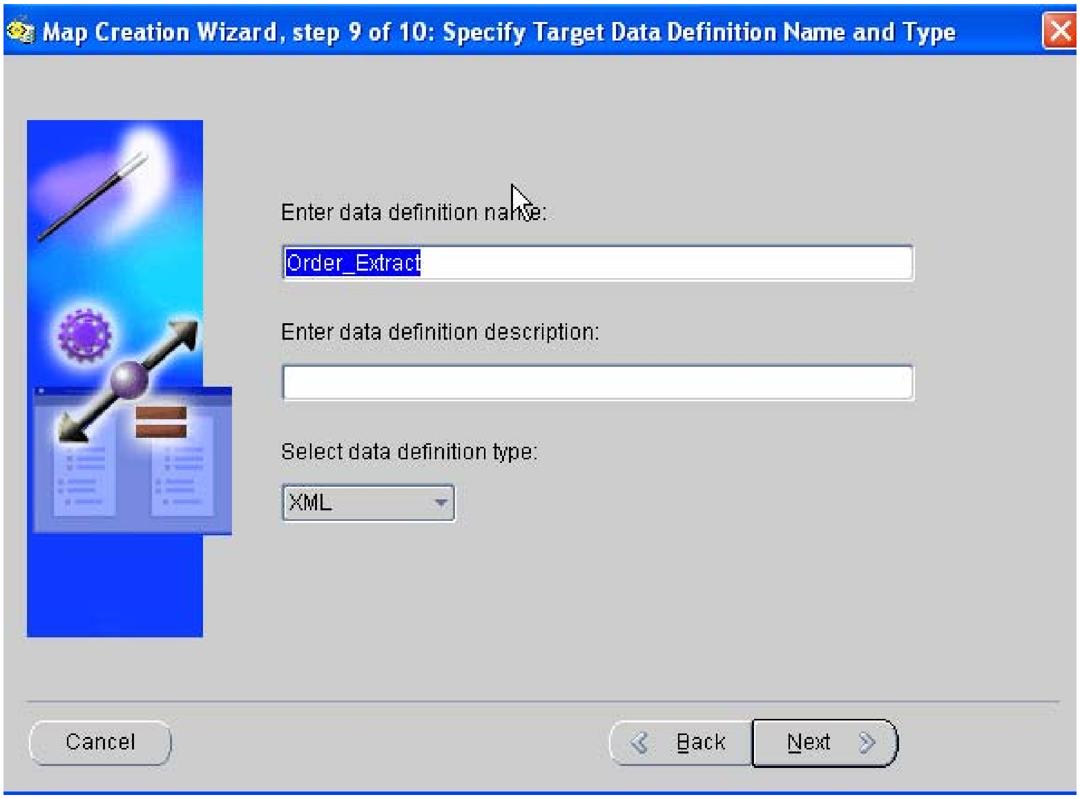


Map Creation Wizard, step 8 of 8: Select/Create a Target Data Definition

Which target data definition would you like to define?

● Create a new target data definition.

○ Select an existing data defintion.

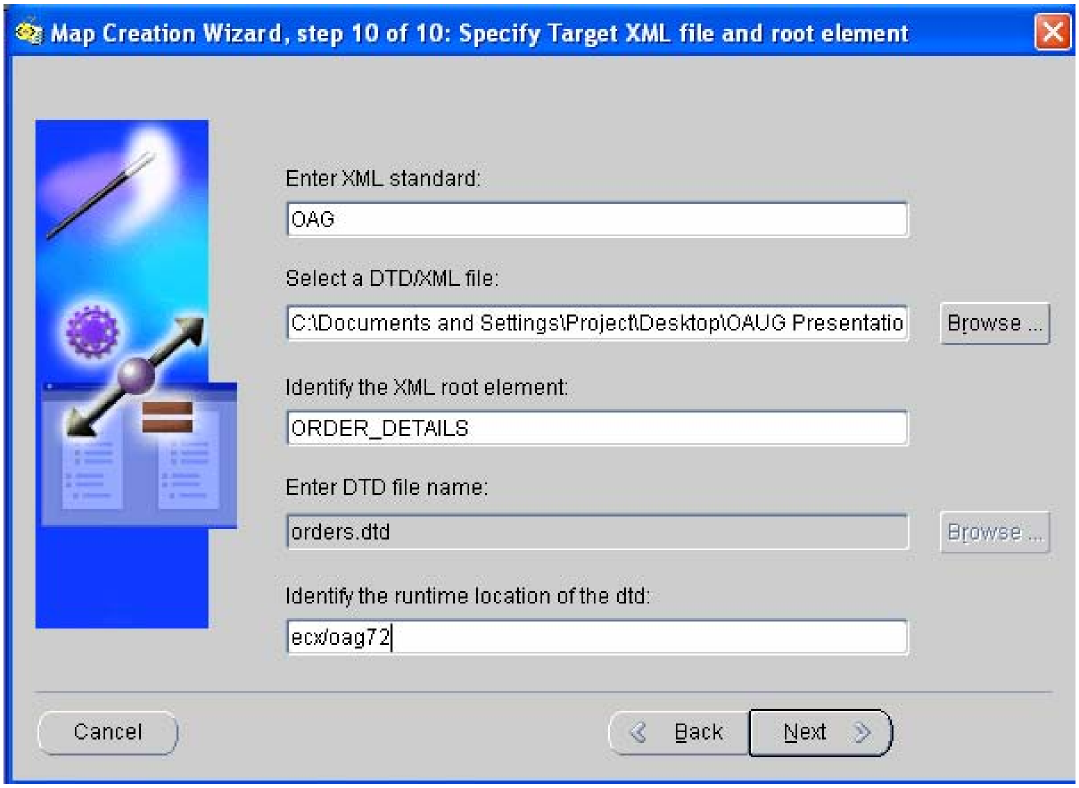


Map Creation Wizard, step 9 of 10: Specify Target Data Definition Name and Type

Enter data definition name: Order_Extract

Enter data definition description:

Select data definition type: XML



Map Creation Wizard, step 10 of 10: Specify Target XML file and root element

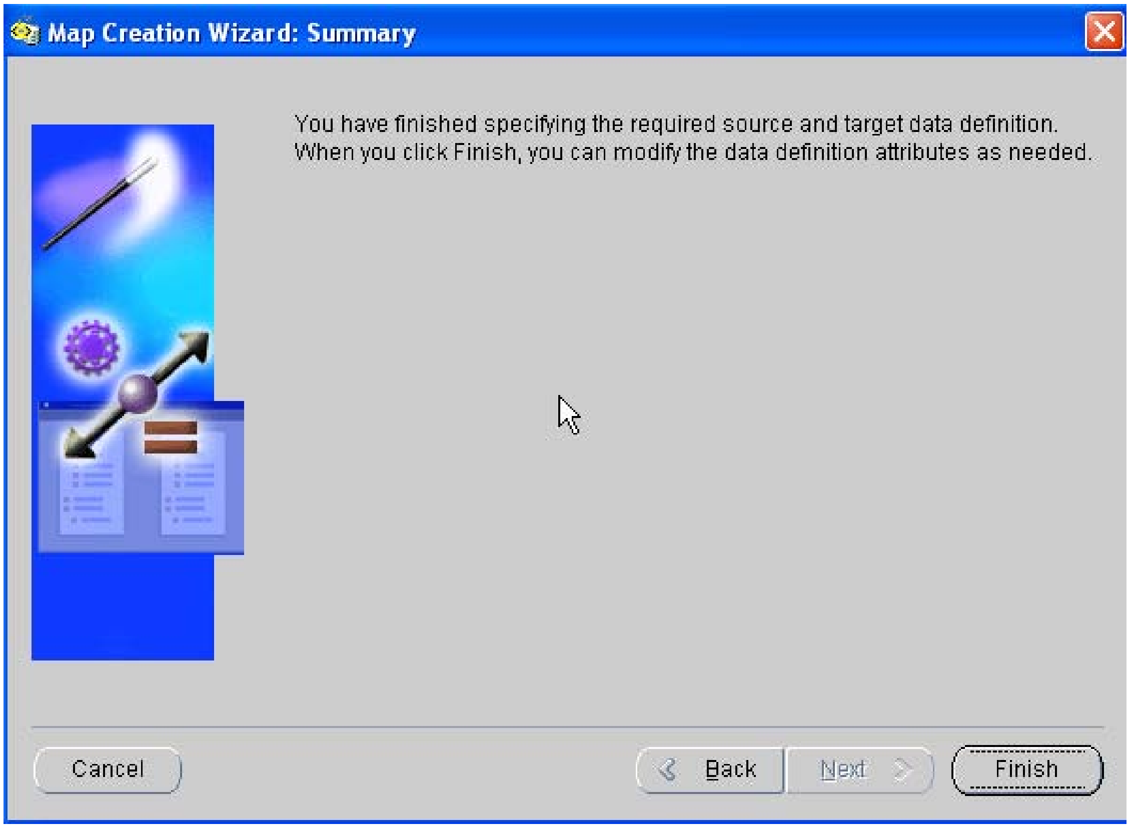
Enter XML standard: OAG

Select a DTD/XML file: C:\Documents and Settings\Project\Desktop\OAUG Presentatio

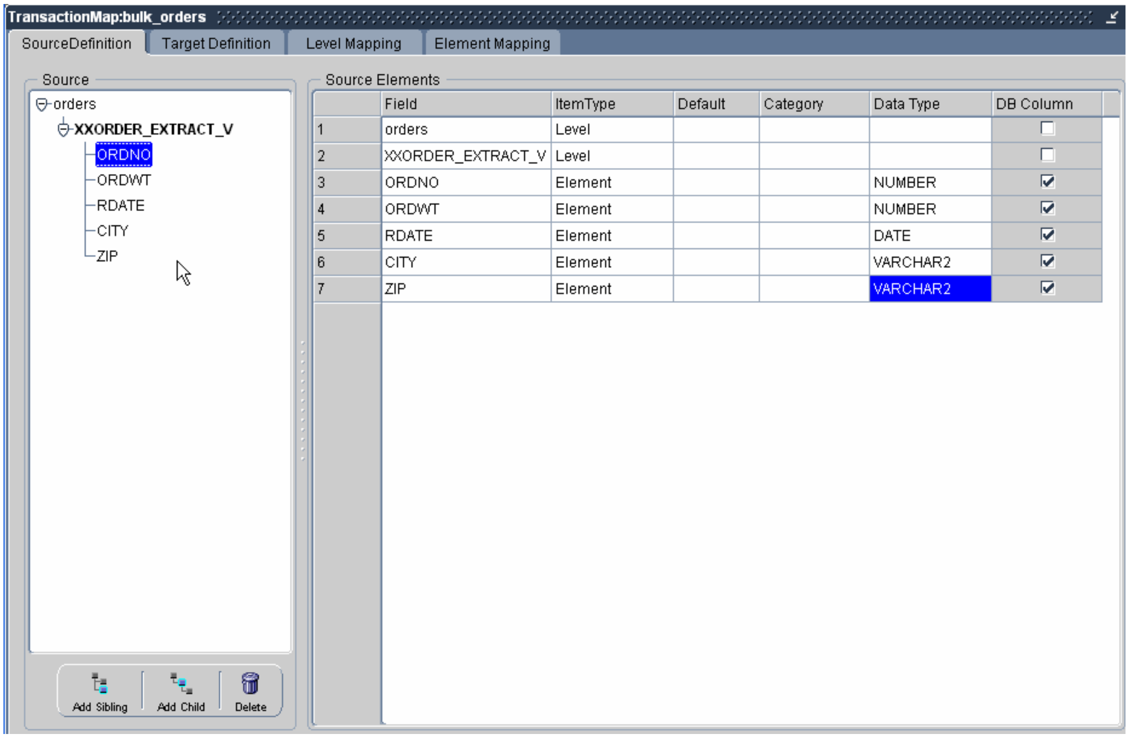
Identify the XML root element: ORDER_DETAILS

Enter DTD file name: orders.dtd

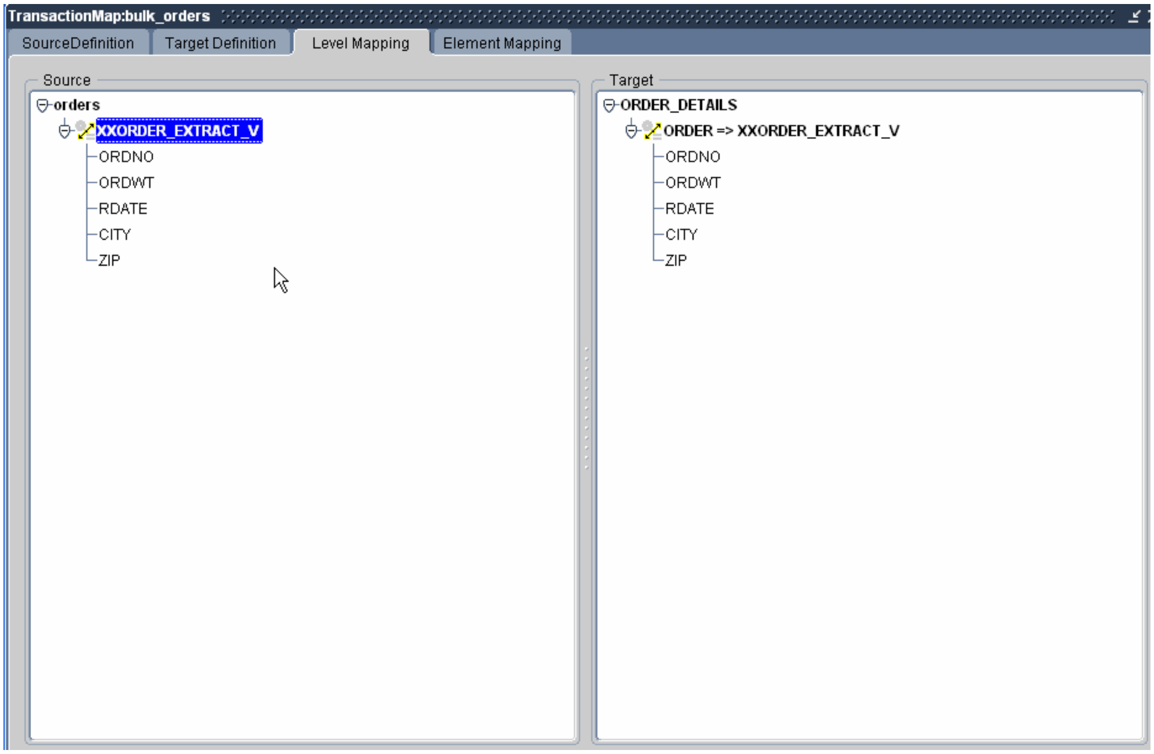
Identify the runtime location of the dtd: ecx/oag72



You have finished specifying the required source and target data definition. When you click Finish, you can modify the data definition attributes as needed.

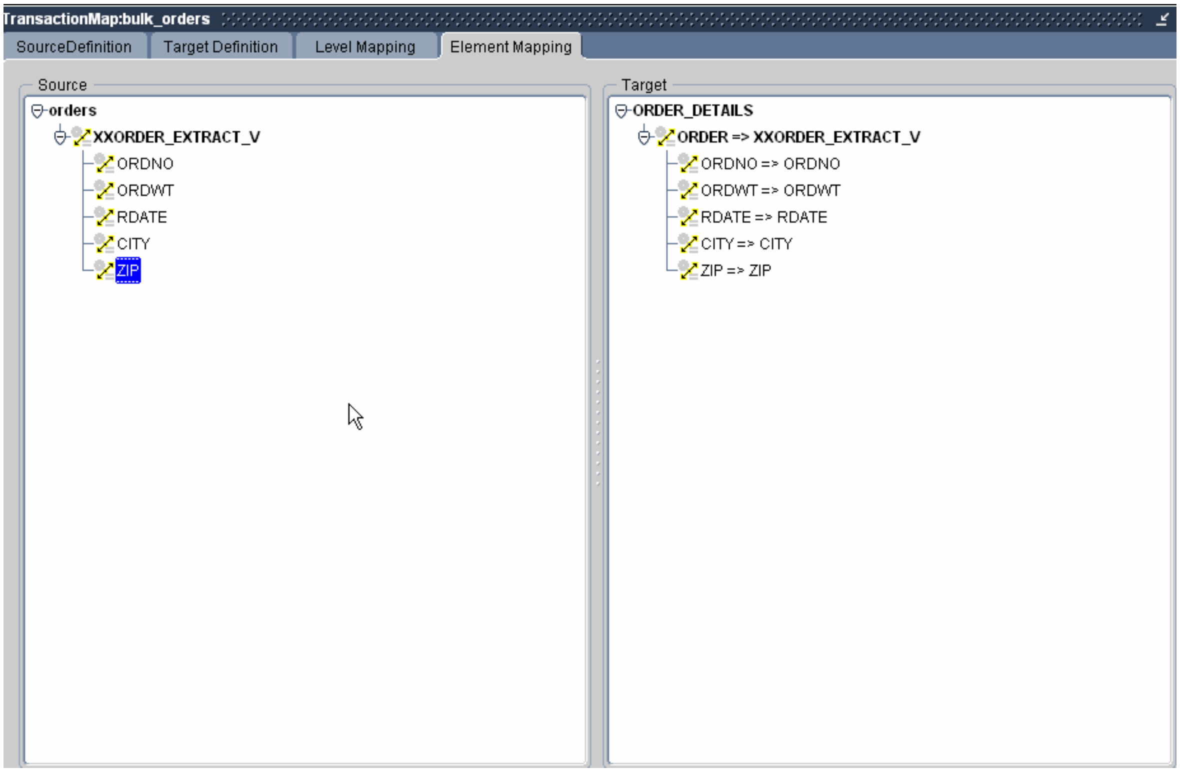


	Field	ItemType	Default	Category	Data Type	DB Column
1	orders	Level				□
2	XXORDER_EXTRACT_V	Level				□
3	ORDNO	Element			NUMBER	☑
4	ORDWT	Element			NUMBER	☑
5	RDATE	Element			DATE	☑
6	CITY	Element			VARCHAR2	☑
7	ZIP	Element			VARCHAR2	☑



```
Source
orders
  XXORDER_EXTRACT_V
    ORDNO
    ORDWT
    RDATE
    CITY
    ZIP
```

```
Target
ORDER_DETAILS
  ORDER => XXORDER_EXTRACT_V
    ORDNO
    ORDWT
    RDATE
    CITY
    ZIP
```



```
Source
orders
  XXORDER_EXTRACT_V
    ORDNO
    ORDWT
    RDATE
    CITY
    ZIP
```

```
Target
ORDER_DETAILS
  ORDER => XXORDER_EXTRACT_V
    ORDNO => ORDNO
    ORDWT => ORDWT
    RDATE => RDATE
    CITY => CITY
    ZIP => ZIP
```

Save the map as bulk_orders.xgm

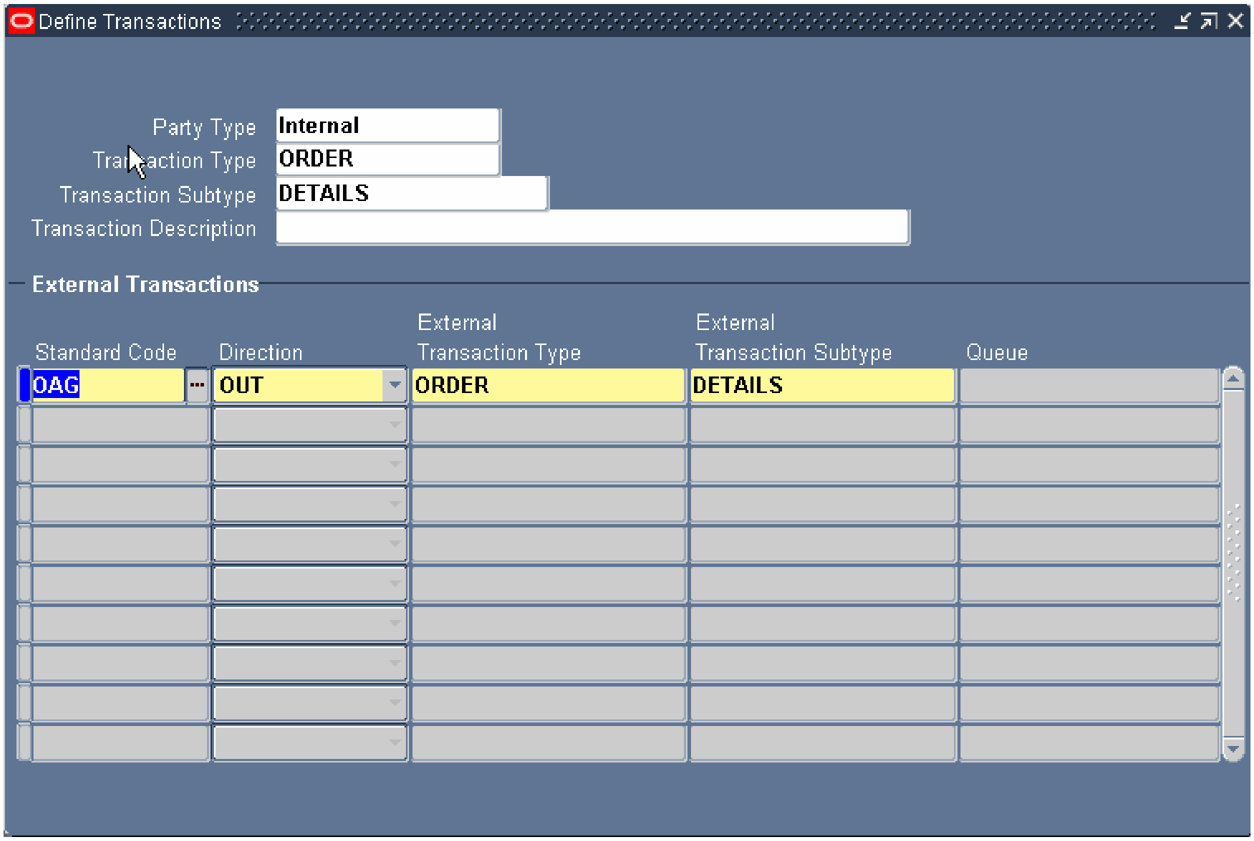
7. Use this command to upload the map into oracle

   java LoadMap<DB username><DB password><Hostname>:<Port>:<SID><mymap.xgm>

   for ex: java oracle.apps.ecx.loader.LoadMap apps apps hcl034.hcltech.com:1521:orcl bulk_orders.xgm

8. XML gateway setups

   Create transactions



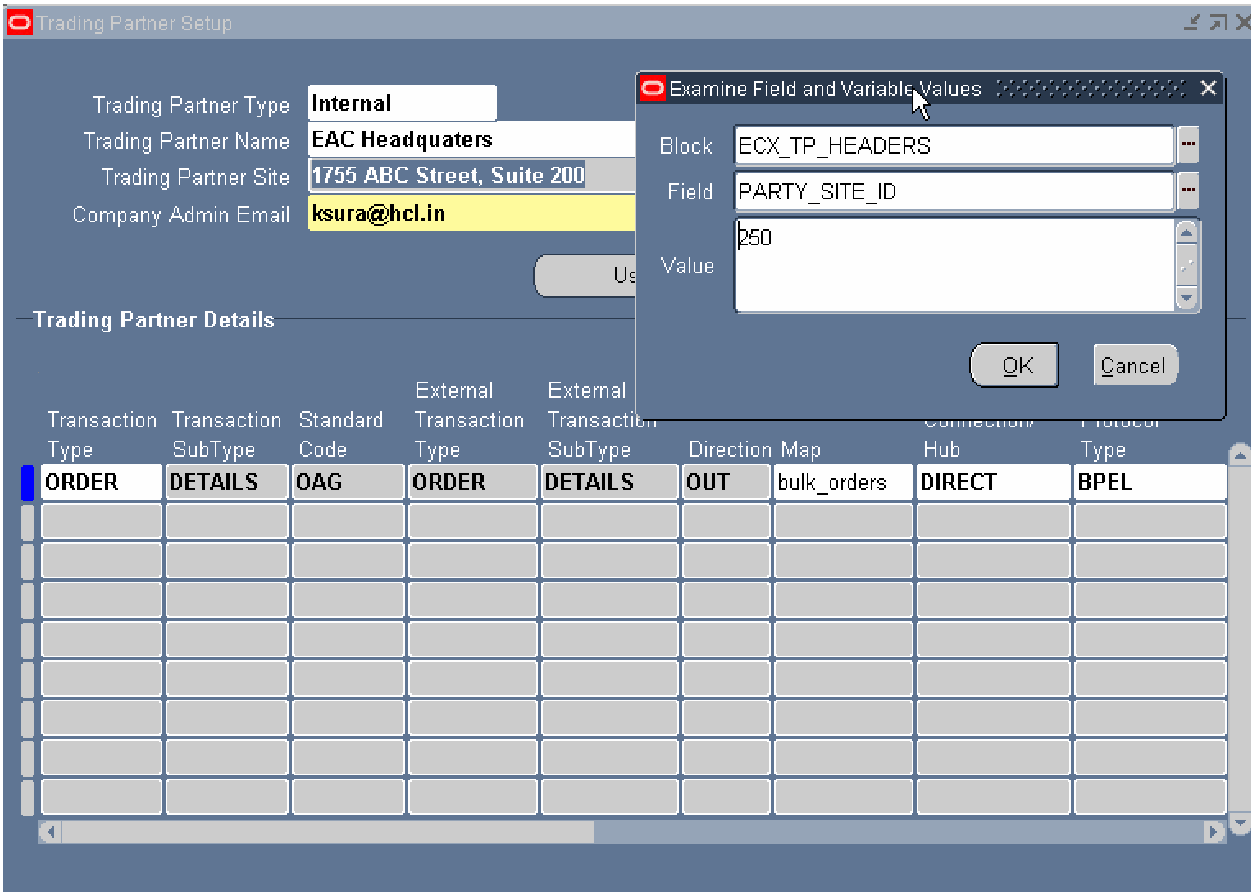
Define Transactions

Party Type: Internal
Transaction Type: ORDER
Transaction Subtype: DETAILS
Transaction Description:

External Transactions

Standard Code	Direction	External Transaction Type	External Transaction Subtype	Queue
OAG	OUT	ORDER	DETAILS	

Create the trading partner and fill in the details



Trading Partner Setup

Trading Partner Type	Internal
Trading Partner Name	EAC Headquaters
Trading Partner Site	1755 ABC Street, Suite 200
Company Admin Email	ksura@hcl.in

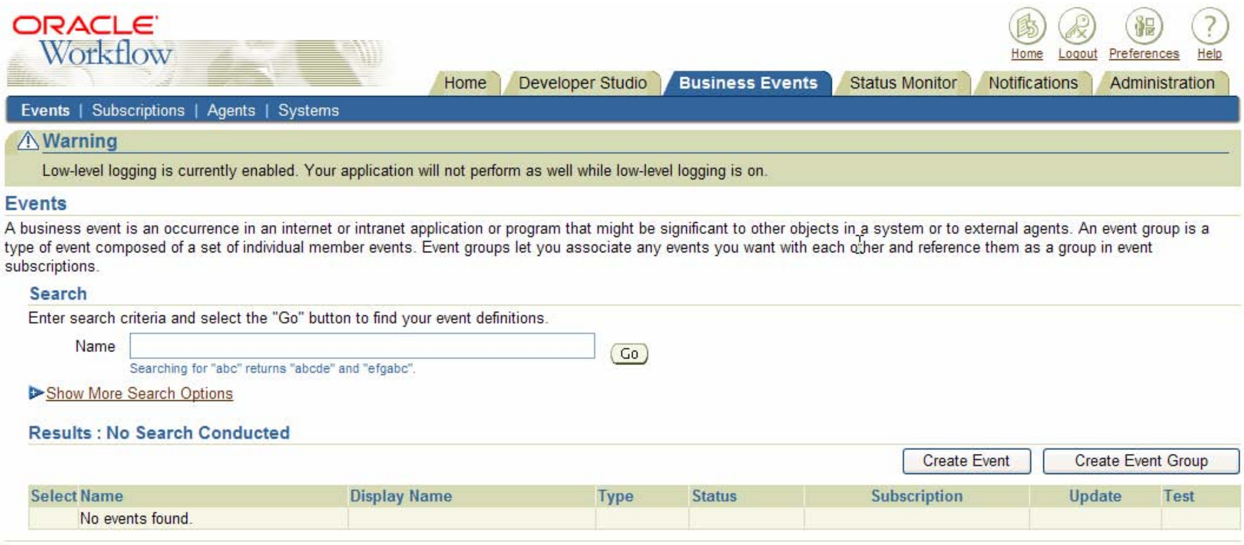
Examine Field and Variable Values

Block	ECX_TP_HEADERS
Field	PARTY_SITE_ID
Value	250

Trading Partner Details

Transaction Type	Transaction SubType	Standard Code	External Transaction Type	External Transaction SubType	Direction	Map	Connection/ Hub	Protocol Type
ORDER	DETAILS	OAG	ORDER	DETAILS	OUT	bulk_orders	DIRECT	BPEL

9. Create a Business Event and Subscription



Warning

Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

Events

A business event is an occurrence in an internet or intranet application or program that might be significant to other objects in a system or to external agents. An event group is a type of event composed of a set of individual member events. Event groups let you associate any events you want with each other and reference them as a group in event subscriptions.

Search

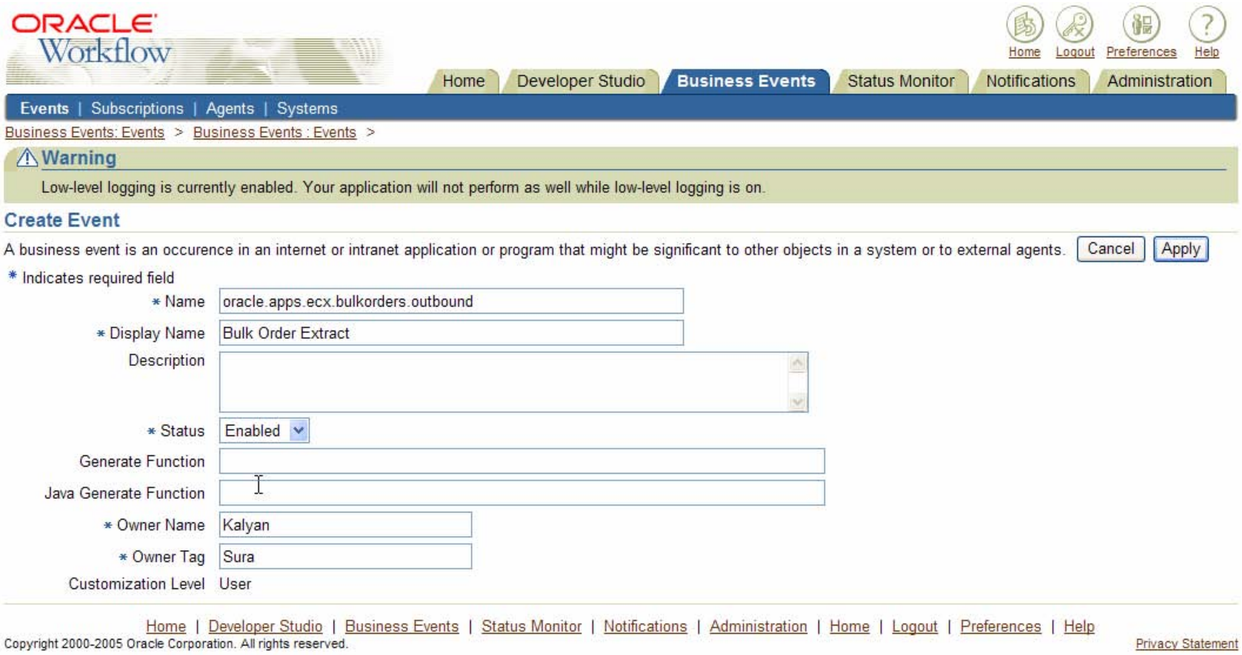
Enter search criteria and select the "Go" button to find your event definitions.

Name

Searching for "abc" returns "abcde" and "efgabc".

Results : No Search Conducted

Select	Name	Display Name	Type	Status	Subscription	Update	Test
	No events found.						


Home
Logout
Preferences
Help
Home
Developer Studio
Business Events
Status Monitor
Notifications
Administration
Events | Subscriptions | Agents | Systems
Business Events: Events > Business Events : Events >
Cancel
Apply
Home | Developer Studio | Business Events | Status Monitor | Notifications | Administration | Home | Logout | Preferences | Help
Privacy Statement

⚠ Warning

Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

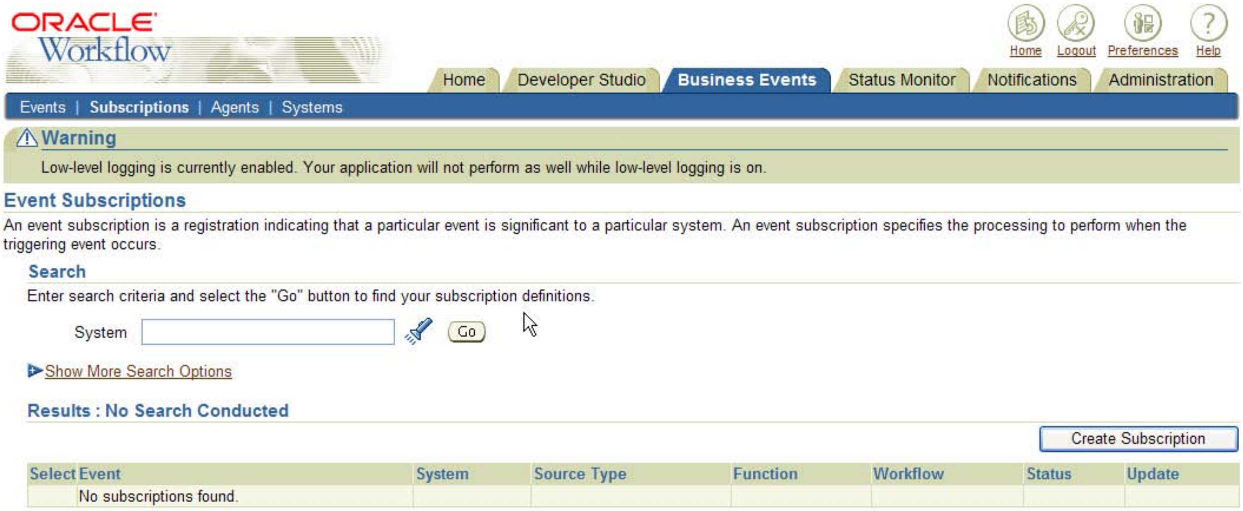
Create Event

A business event is an occurence in an internet or intranet application or program that might be significant to other objects in a system or to external agents.

* Indicates required field

* Name	oracle.apps.ecx.bulkorders.outbound
* Display Name	Bulk Order Extract
Description	
* Status	Enabled
Generate Function	
Java Generate Function	
* Owner Name	Kalyan
* Owner Tag	Sura
Customization Level	User

Copyright 2000-2005 Oracle Corporation. All rights reserved.



⚠ Warning

Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

Event Subscriptions

An event subscription is a registration indicating that a particular event is significant to a particular system. An event subscription specifies the processing to perform when the triggering event occurs.

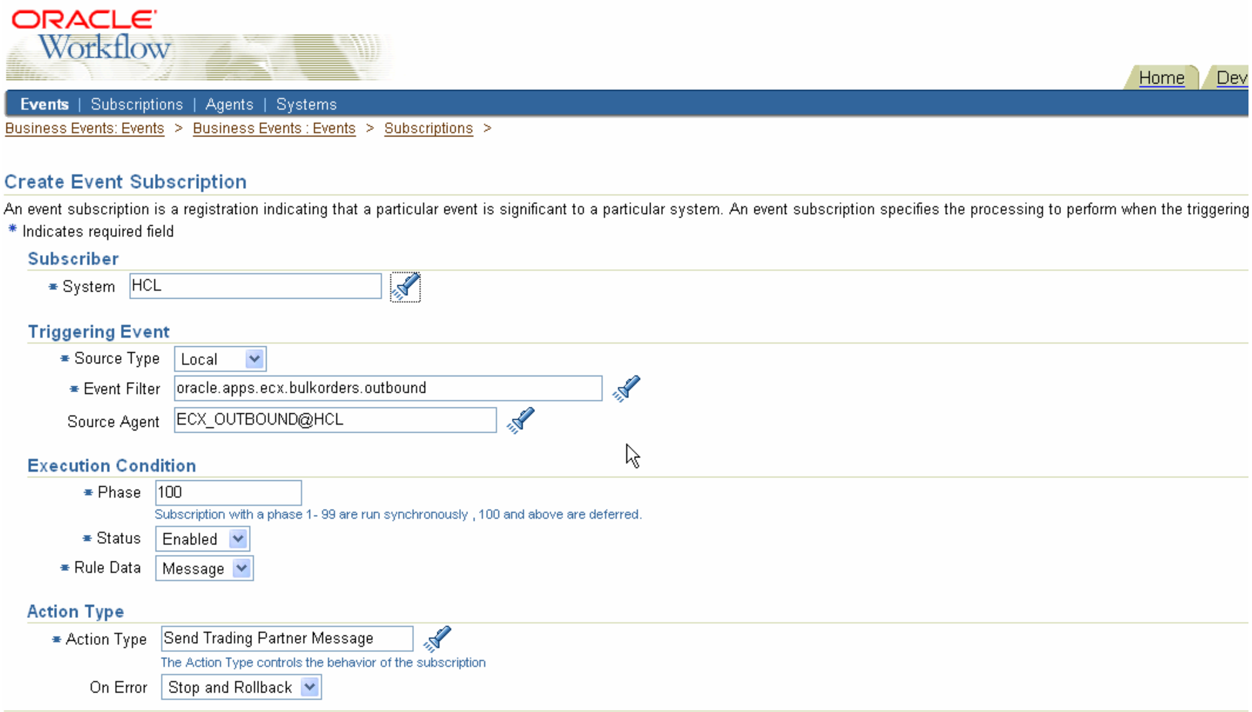
Search

Enter search criteria and select the "Go" button to find your subscription definitions.

System

Results : No Search Conducted

Select	Event	System	Source Type	Function	Workflow	Status	Update
	No subscriptions found.						



Business Events: Events > Business Events : Events > Subscriptions >

Create Event Subscription

An event subscription is a registration indicating that a particular event is significant to a particular system. An event subscription specifies the processing to perform when the triggering

* Indicates required field

Subscriber

* System	HCL

Triggering Event

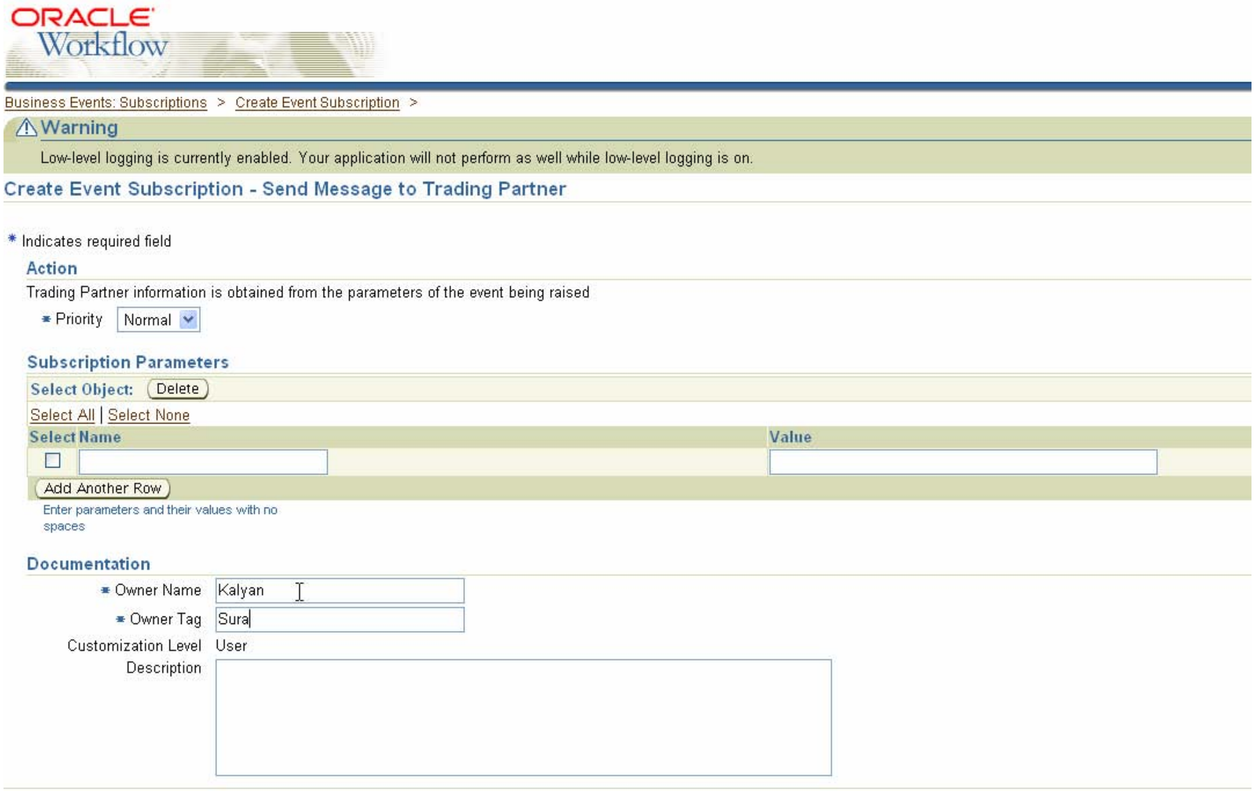
* Source Type	Local
* Event Filter	oracle.apps.ecx.bulkorders.outbound
Source Agent	ECX_OUTBOUND@HCL

Execution Condition

* Phase	100 Subscription with a phase 1- 99 are run synchronously , 100 and above are deferred.
* Status	Enabled
* Rule Data	Message

Action Type

* Action Type	Send Trading Partner Message The Action Type controls the behavior of the subscription
On Error	Stop and Rollback



Business Events: Subscriptions > Create Event Subscription >

⚠ Warning

Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

Create Event Subscription - Send Message to Trading Partner

* Indicates required field

Action

Trading Partner information is obtained from the parameters of the event being raised

* Priority	Normal

Subscription Parameters

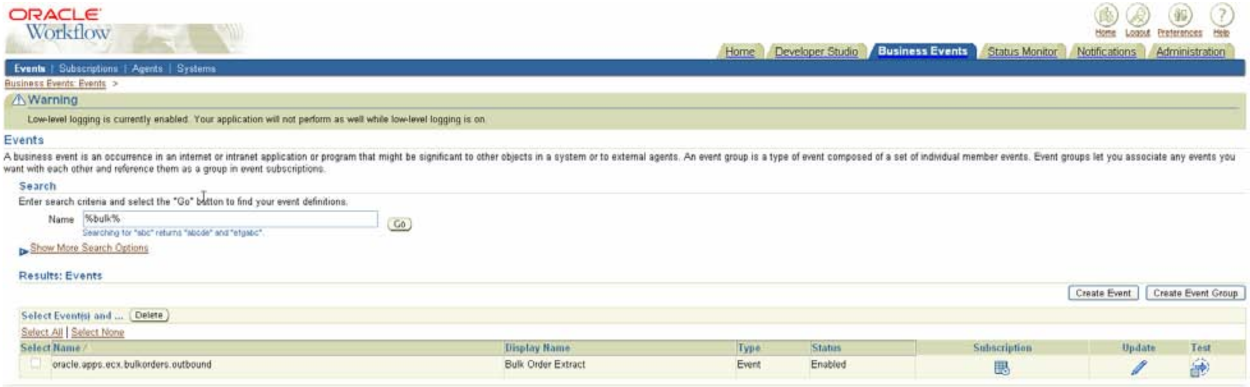
Select	Name	Value
□		

Enter parameters and their values with no spaces

Documentation

* Owner Name	Kalyan
* Owner Tag	Sura
Customization Level	User
Description	

10. Test the business event


ORACLE Workflow
Home Logout Preferences Help
Home | Developer Studio | Business Events | Status Monitor | Notifications | Administration
Events | Subscriptions | Agents | Systems
Business Events: Events >

⚠ Warning

Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

Events

A business event is an occurrence in an internet or intranet application or program that might be significant to other objects in a system or to external agents. An event group is a type of event composed of a set of individual member events. Event groups let you associate any events you want with each other and reference them as a group in event subscriptions.

Search

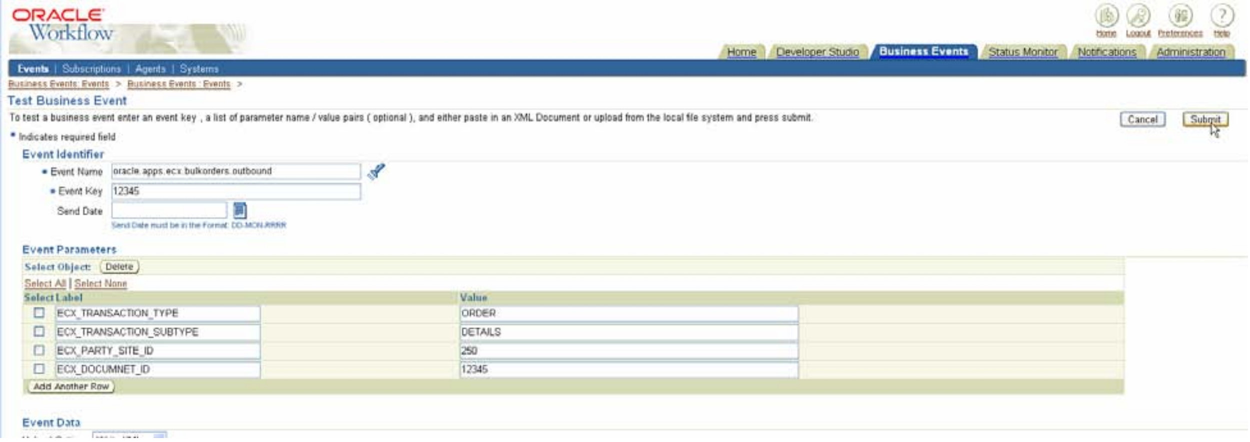
Enter search criteria and select the "Go" button to find your event definitions.

Name %bulk%

Searching for "abc" returns "abcde" and "efgabc".

Results: Events

Select	Name	Display Name	Type	Status	Subscription	Update	Test
□	oracle.apps.ecx.bulkorders.outbound	Bulk Order Extract	Event	Enabled			


ORACLE Workflow
Home Logout Preferences Help
Home | Developer Studio | Business Events | Status Monitor | Notifications | Administration
Events | Subscriptions | Agents | Systems
Business Events: Events > Business Events : Events >
Cancel
Submit

Test Business Event

To test a business event enter an event key , a list of parameter name / value pairs (optional), and either paste in an XML Document or upload from the local file system and press submit.

* Indicates required field

Event Identifier

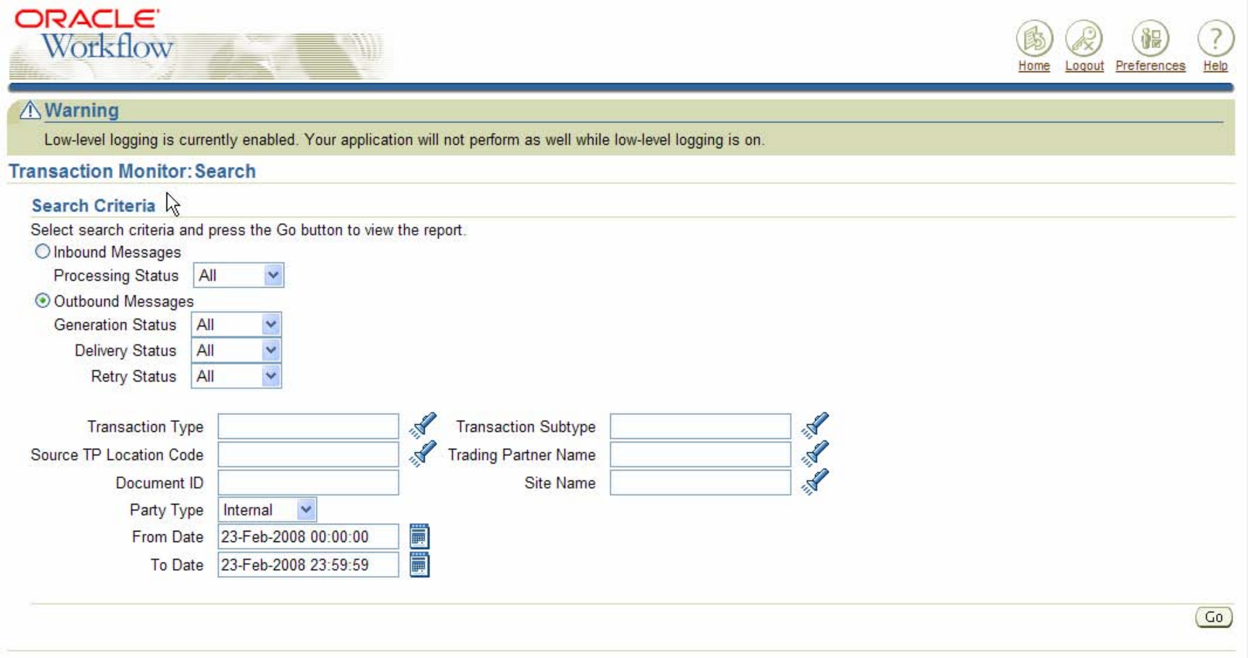
* Event Name	oracle.apps.ecx.bulkorders.outbound
* Event Key	12345
Send Date	

Send Date must be in the Format: DD-MON-RRRR

Event Parameters

Select	Label	Value
□	ECX_TRANSACTION_TYPE	ORDER
□	ECX_TRANSACTION_SUBTYPE	DETAILS
□	ECX_PARTY_SITE_ID	250
□	ECX_DOCUMNET_ID	12345

Event Data



⚠ Warning

Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

Transaction Monitor: Search

Search Criteria

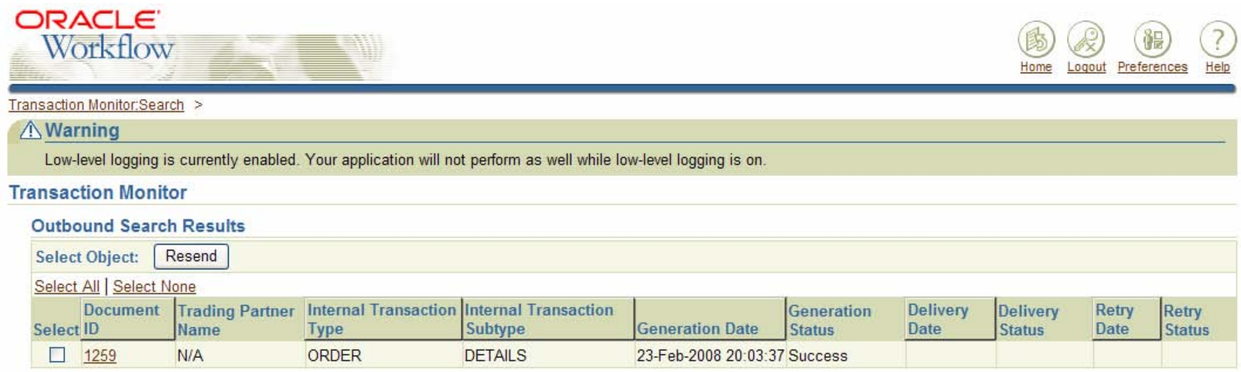
Select search criteria and press the Go button to view the report.

○ Inbound Messages

Processing Status: All

● Outbound Messages

Generation Status	All		
Delivery Status	All		
Retry Status	All		
Transaction Type		Transaction Subtype	
Source TP Location Code		Trading Partner Name	
Document ID		Site Name	
Party Type	Internal		
From Date	23-Feb-2008 00:00:00		
To Date	23-Feb-2008 23:59:59		



Transaction Monitor:Search >

⚠ Warning

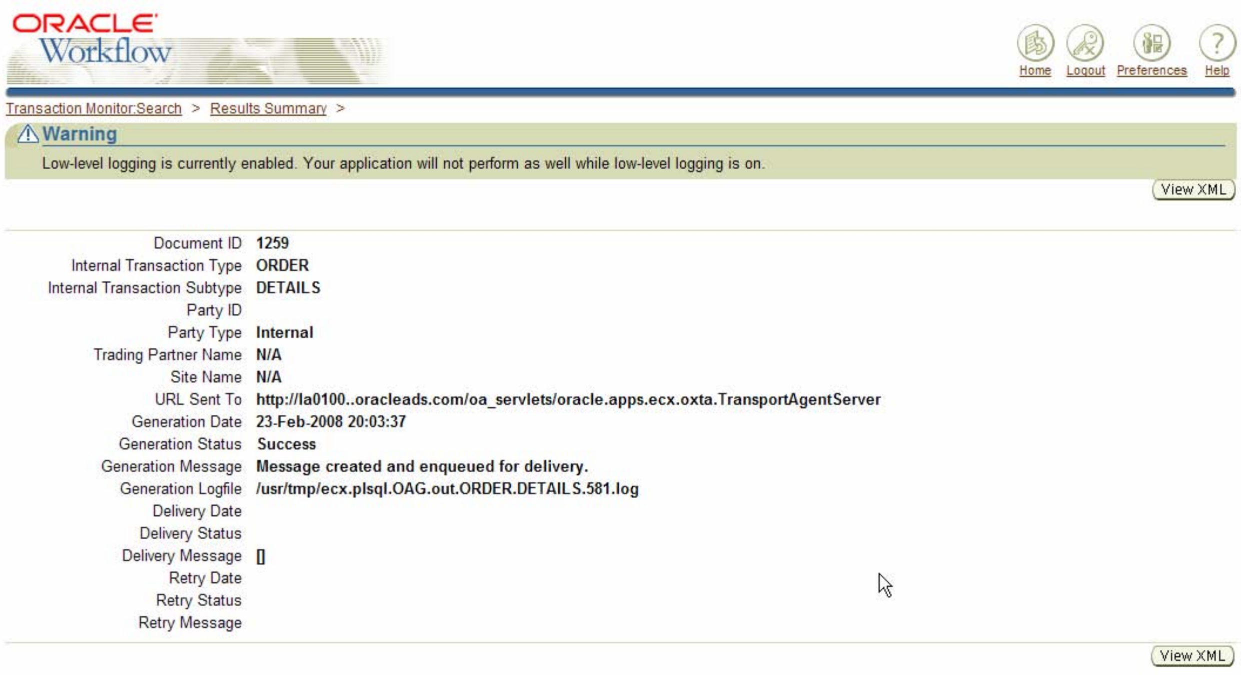
Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

Transaction Monitor

Outbound Search Results

Select Object: Resend

Select	Document ID	Trading Partner Name	Internal Transaction Type	Internal Transaction Subtype	Generation Date	Generation Status	Delivery Date	Delivery Status	Retry Date	Retry Status
□	1259	N/A	ORDER	DETAILS	23-Feb-2008 20:03:37	Success				

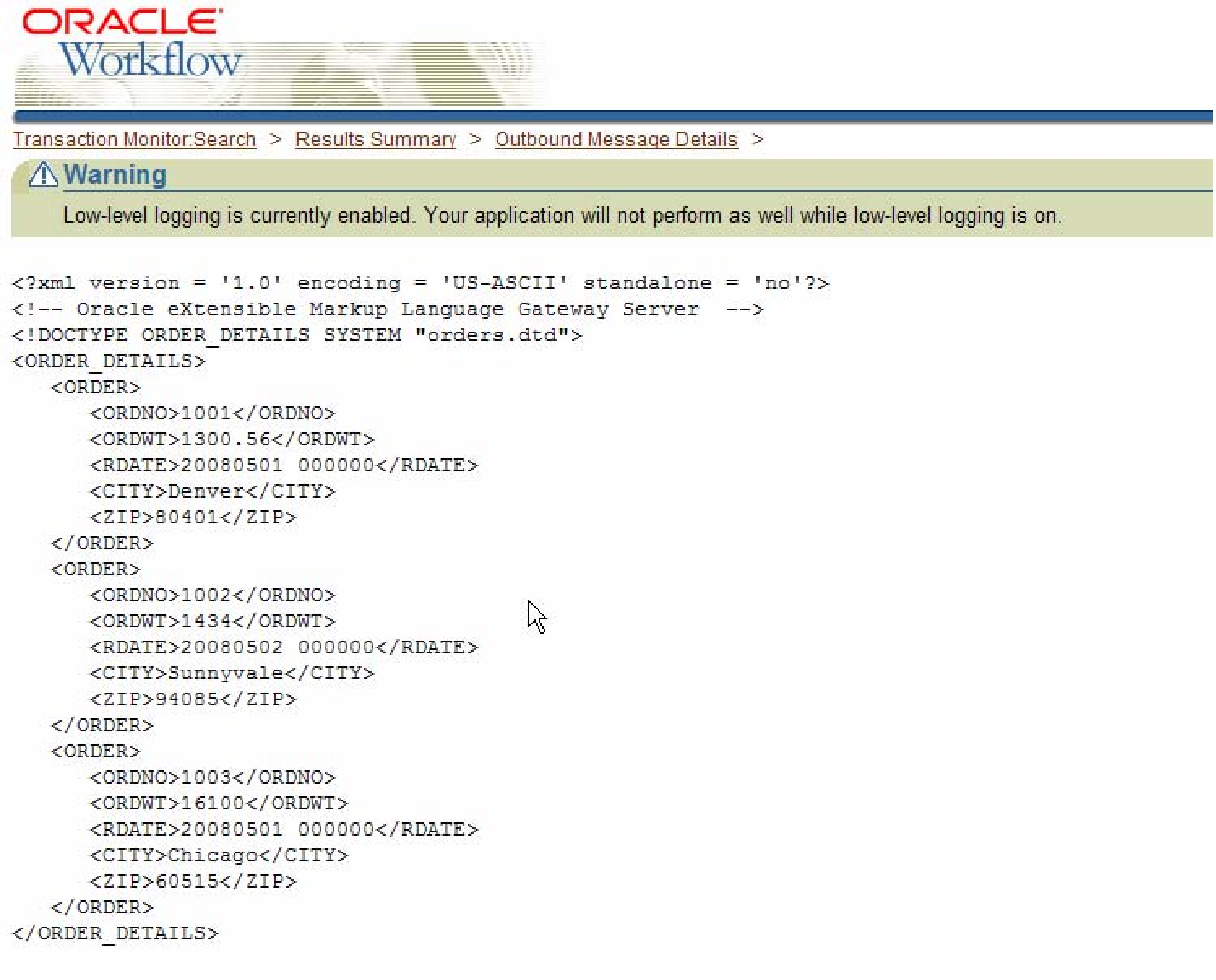


Transaction Monitor:Search > Results Summary >

⚠ Warning

Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

Document ID	1259
Internal Transaction Type	ORDER
Internal Transaction Subtype	DETAILS
Party ID	
Party Type	Internal
Trading Partner Name	N/A
Site Name	N/A
URL Sent To	http://la0100..oracleads.com/oa_servlets/oracle.apps.ecx.oxta.TransportAgentServer
Generation Date	23-Feb-2008 20:03:37
Generation Status	Success
Generation Message	Message created and enqueued for delivery.
Generation Logfile	/usr/tmp/ecx.plsql.OAG.out.ORDER.DETAILS.581.log
Delivery Date	
Delivery Status	
Delivery Message	[]
Retry Date	
Retry Status	
Retry Message	



ORACLE
Workflow
Transaction Monitor:Search > Results Summary > Outbound Message Details >

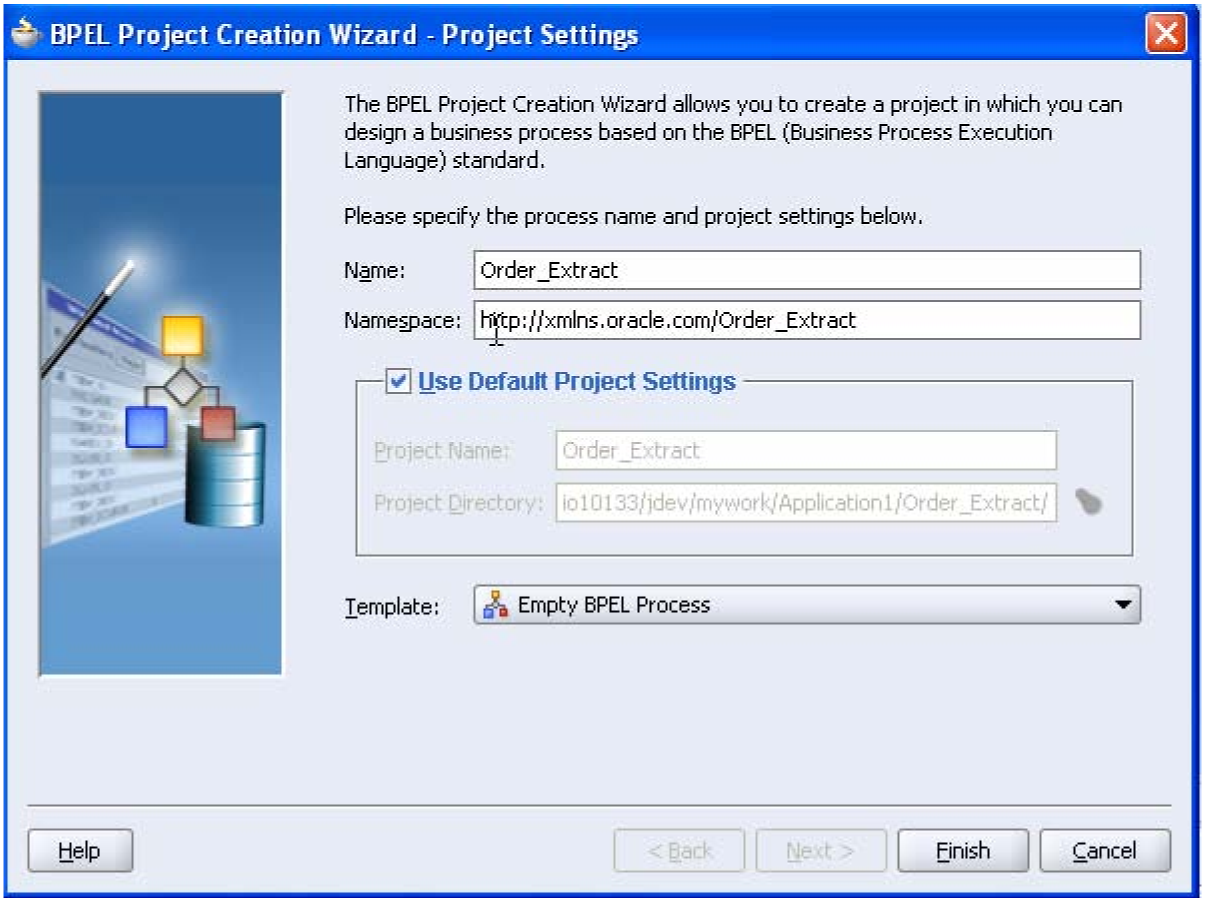
Warning

Low-level logging is currently enabled. Your application will not perform as well while low-level logging is on.

```
<?xml version = '1.0' encoding = 'US-ASCII' standalone = 'no'?>
<!-- Oracle eXtensible Markup Language Gateway Server  -->
<!DOCTYPE ORDER_DETAILS SYSTEM "orders.dtd">
<ORDER_DETAILS>
   <ORDER>
      <ORDNO>1001</ORDNO>
      <ORDWT>1300.56</ORDWT>
      <RDATE>20080501 000000</RDATE>
      <CITY>Denver</CITY>
      <ZIP>80401</ZIP>
   </ORDER>
   <ORDER>
      <ORDNO>1002</ORDNO>
      <ORDWT>1434</ORDWT>
      <RDATE>20080502 000000</RDATE>
      <CITY>Sunnyvale</CITY>
      <ZIP>94085</ZIP>
   </ORDER>
   <ORDER>
      <ORDNO>1003</ORDNO>
      <ORDWT>16100</ORDWT>
      <RDATE>20080501 000000</RDATE>
      <CITY>Chicago</CITY>
      <ZIP>60515</ZIP>
   </ORDER>
</ORDER_DETAILS>
```

11. Create BPEL process to dequeue and route this message

    Open Jdeveloper and follow the self explanatory screen shots



BPEL Project Creation Wizard - Project Settings

The BPEL Project Creation Wizard allows you to create a project in which you can design a business process based on the BPEL (Business Process Execution Language) standard.

Please specify the process name and project settings below.

Name: Order_Extract

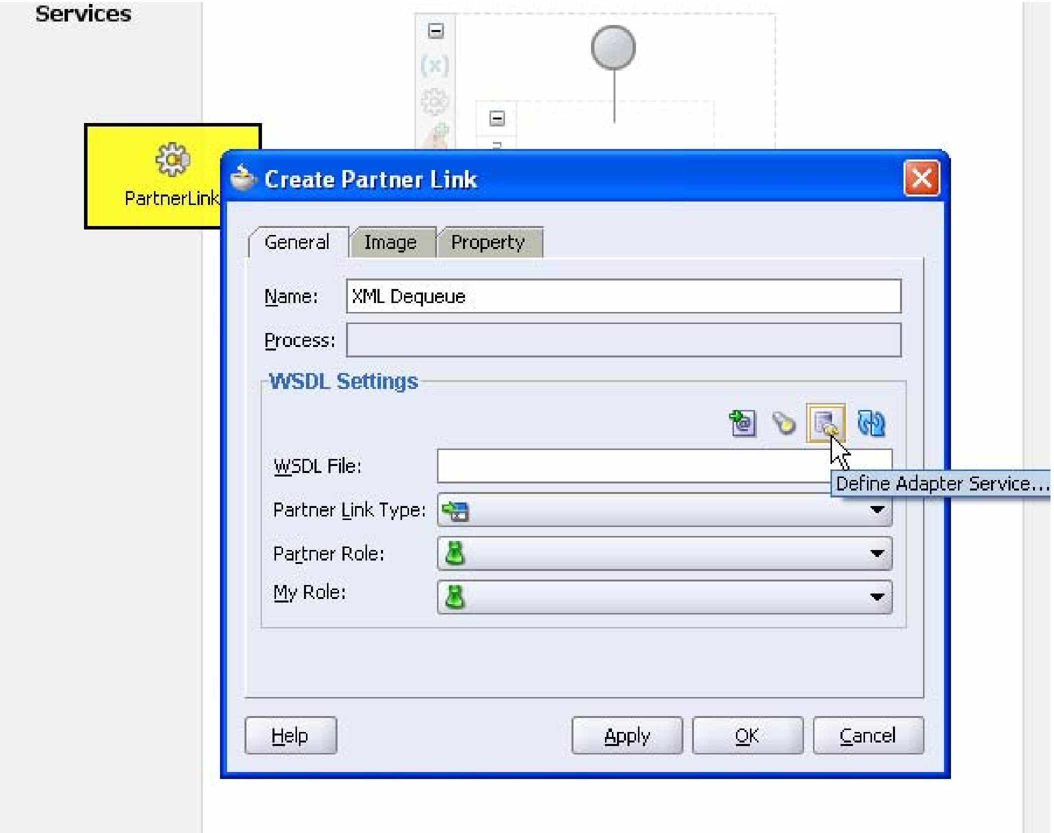
Namespace: http://xmlns.oracle.com/Order_Extract

☑ Use Default Project Settings

Project Name: Order_Extract

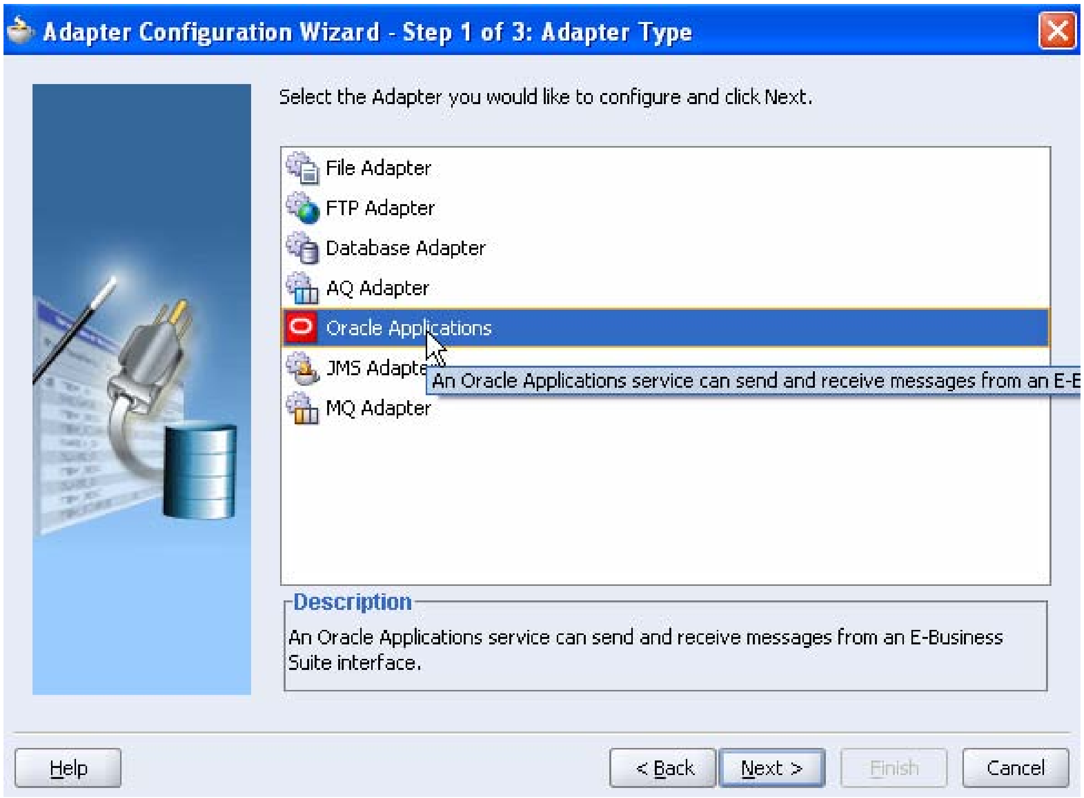
Project Directory: io10133/jdev/mywork/Application1/Order_Extract/

Template: Empty BPEL Process



Name: XML Dequeue

Process:

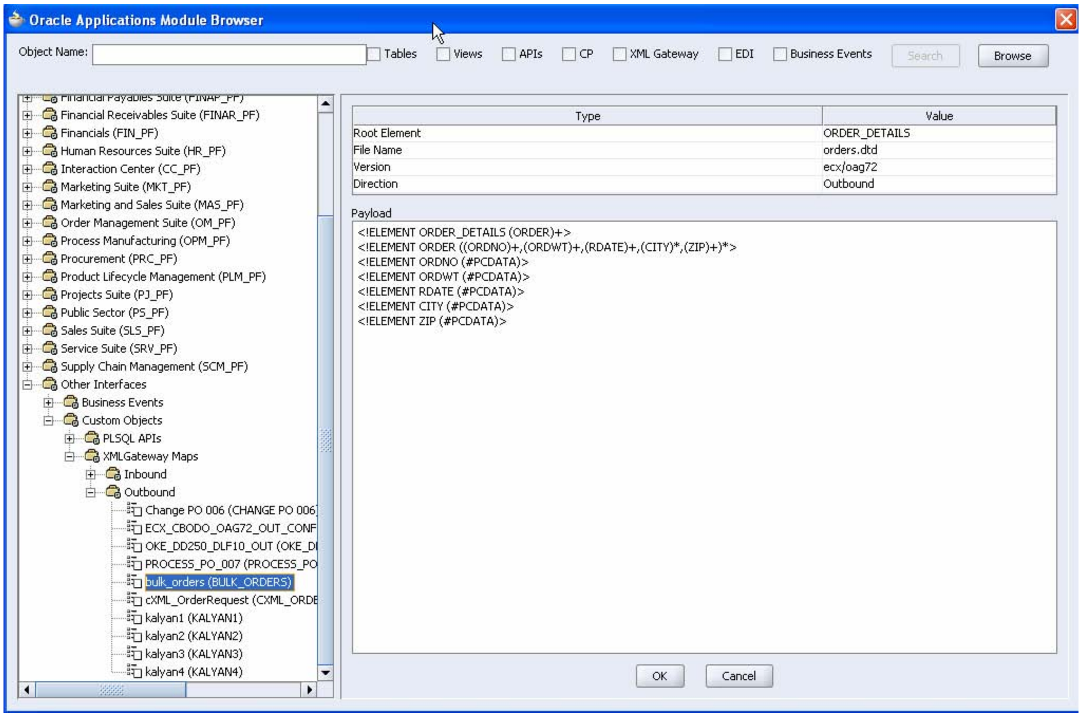

Adapter Configuration Wizard - Step 1 of 3: Adapter Type

Select the Adapter you would like to configure and click Next.

File Adapter
FTP Adapter
Database Adapter
AQ Adapter
Oracle Applications
JMS Adapter
MQ Adapter
An Oracle Applications service can send and receive messages from an E-E
Description

An Oracle Applications service can send and receive messages from an E-Business Suite interface.

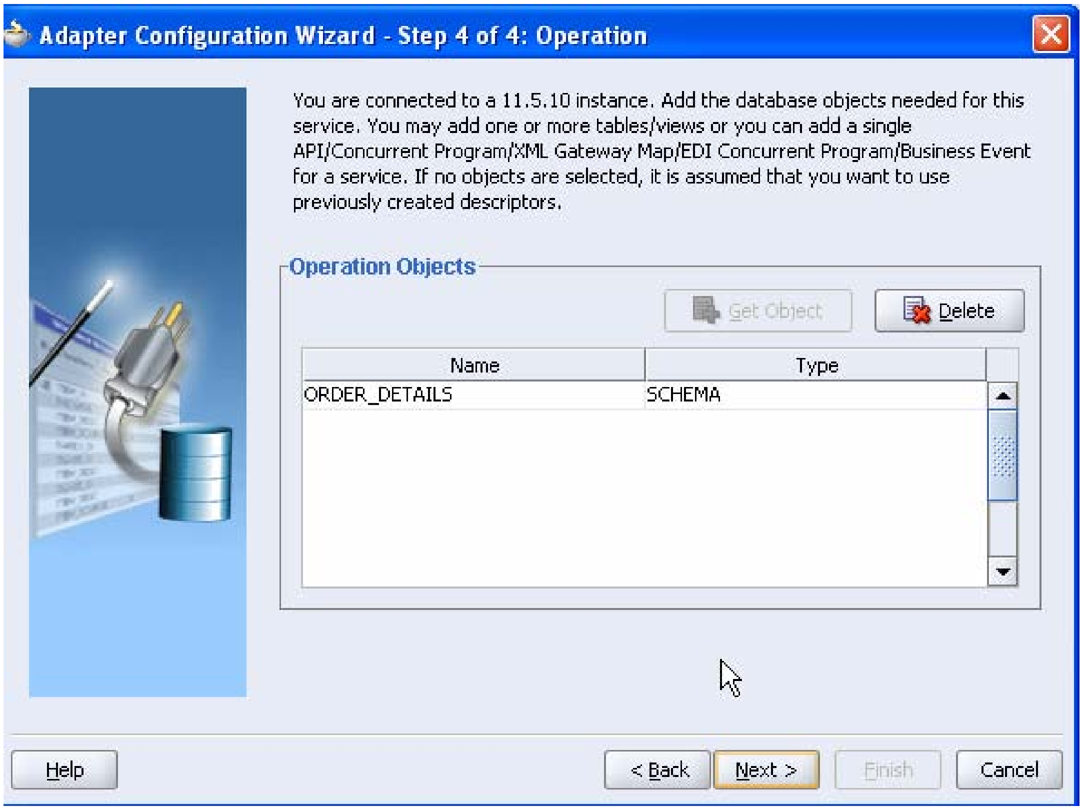
Help
< Back
Next >
Finish
Cancel


Oracle Applications Module Browser
Object Name:
□ Tables
□ Views
□ APIs
□ CP
□ XML Gateway
□ EDI
□ Business Events
Search
Browse
Financial Payables Suite (FINAP_PF)
Financial Receivables Suite (FINAR_PF)
Financials (FIN_PF)
Human Resources Suite (HR_PF)
Interaction Center (CC_PF)
Marketing Suite (MKT_PF)
Marketing and Sales Suite (MAS_PF)
Order Management Suite (OM_PF)
Process Manufacturing (OPM_PF)
Procurement (PRC_PF)
Product Lifecycle Management (PLM_PF)
Projects Suite (PJ_PF)
Public Sector (PS_PF)
Sales Suite (SLS_PF)
Service Suite (SRV_PF)
Supply Chain Management (SCM_PF)
Other Interfaces
Business Events
Custom Objects
PLSQL APIs
XMLGateway Maps
Inbound
Outbound
Change PO 006 (CHANGE PO 006
ECX_CBODO_OAG72_OUT_CONF
OKE_DD250_DLF10_OUT (OKE_DI
PROCESS_PO_007 (PROCESS_PO
bulk_orders (BULK_ORDERS)
cXML_OrderRequest (CXML_ORDE
kalyan1 (KALYAN1)
kalyan2 (KALYAN2)
kalyan3 (KALYAN3)
kalyan4 (KALYAN4)
OK
Cancel

Type	Value
Root Element	ORDER_DETAILS
File Name	orders.dtd
Version	ecx/oag72
Direction	Outbound

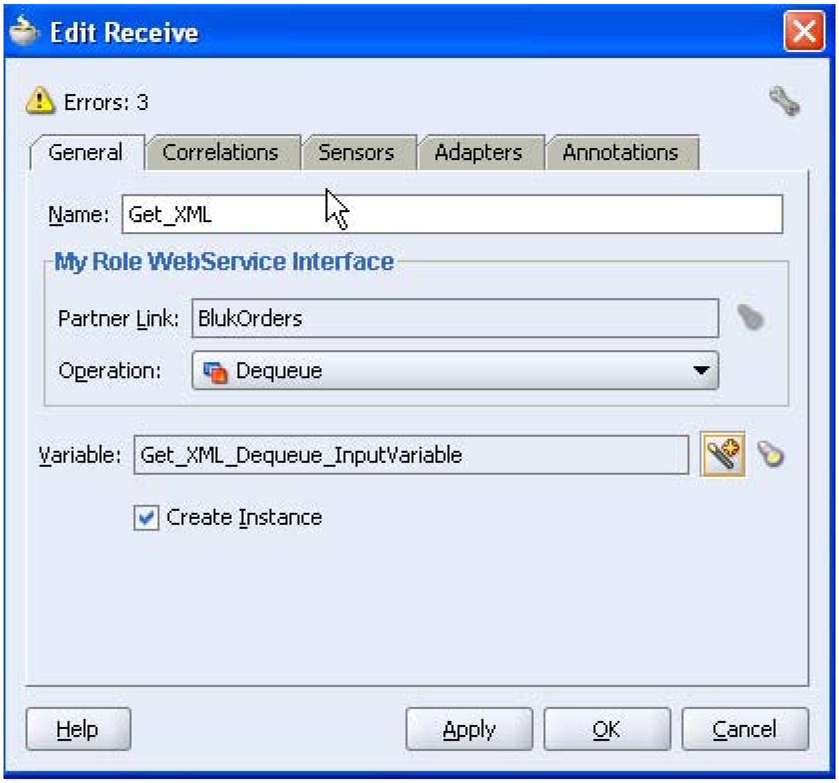
Payload

```
<!ELEMENT ORDER_DETAILS (ORDER)+>
<!ELEMENT ORDER ((ORDNO)+,(ORDWT)+,(RDATE)+,(CITY)*,(ZIP)+)*>
<!ELEMENT ORDNO (#PCDATA)>
<!ELEMENT ORDWT (#PCDATA)>
<!ELEMENT RDATE (#PCDATA)>
<!ELEMENT CITY (#PCDATA)>
<!ELEMENT ZIP (#PCDATA)>
```



You are connected to a 11.5.10 instance. Add the database objects needed for this service. You may add one or more tables/views or you can add a single API/Concurrent Program/XML Gateway Map/EDI Concurrent Program/Business Event for a service. If no objects are selected, it is assumed that you want to use previously created descriptors.

Name	Type
ORDER_DETAILS	SCHEMA



Errors: 3

Name: Get_XML

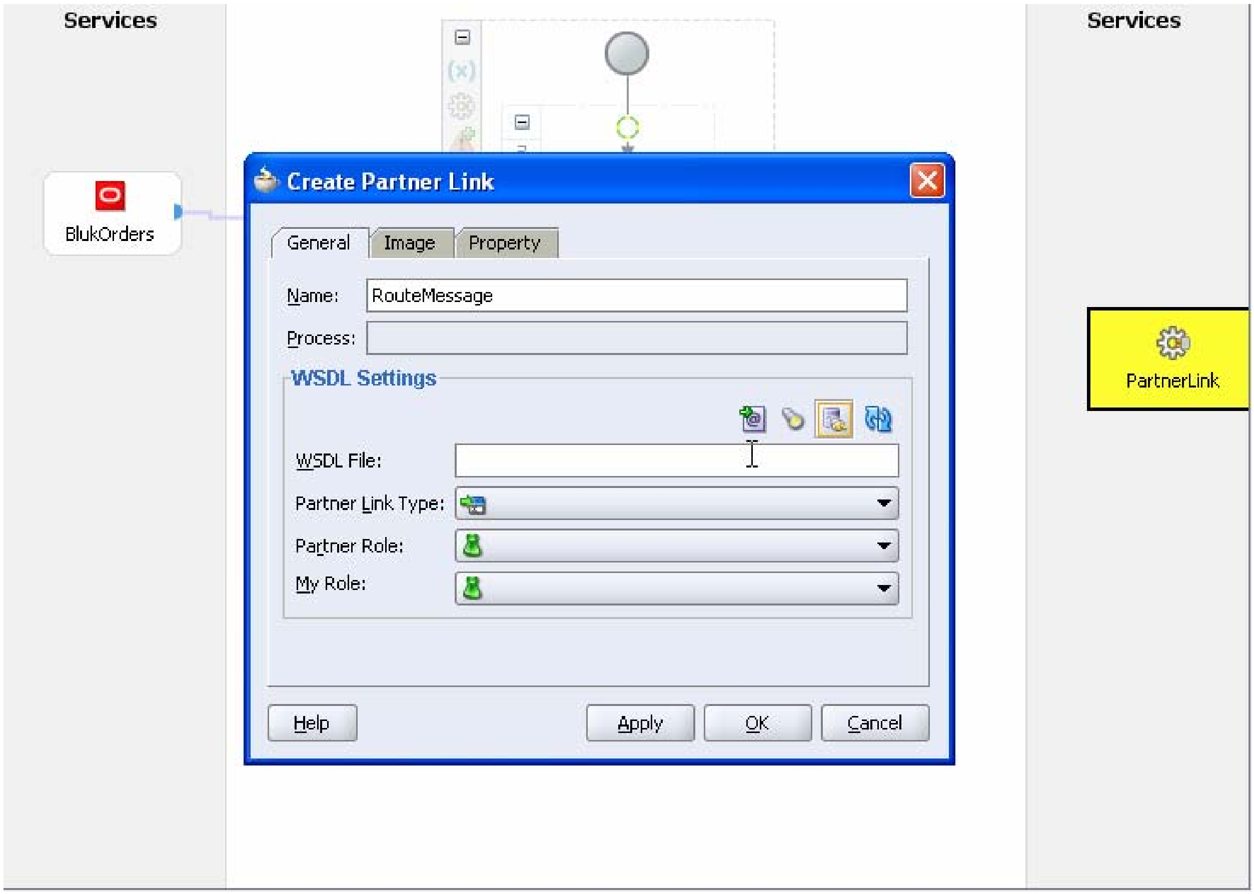
My Role WebService Interface

Partner Link: BlukOrders

Operation: Dequeue

Variable: Get_XML_Dequeue_InputVariable

☑ Create Instance



Name: RouteMessage

Process:

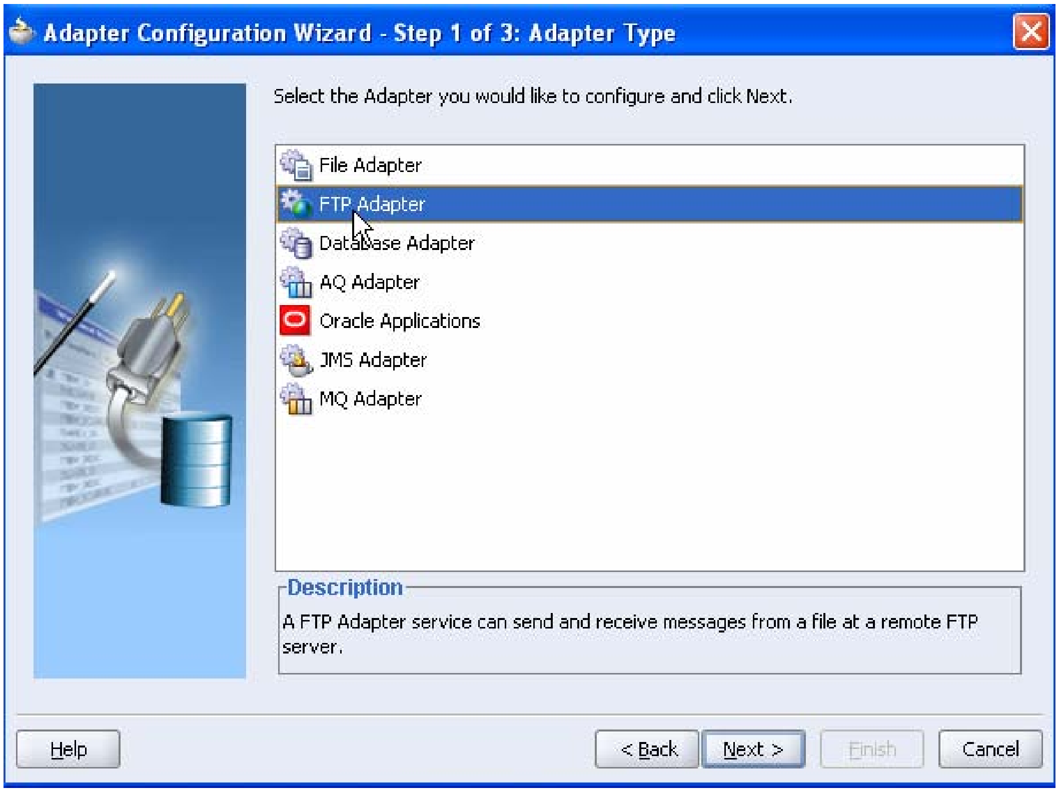
WSDL Settings

WSDL File:

Partner Link Type:

Partner Role:

My Role:



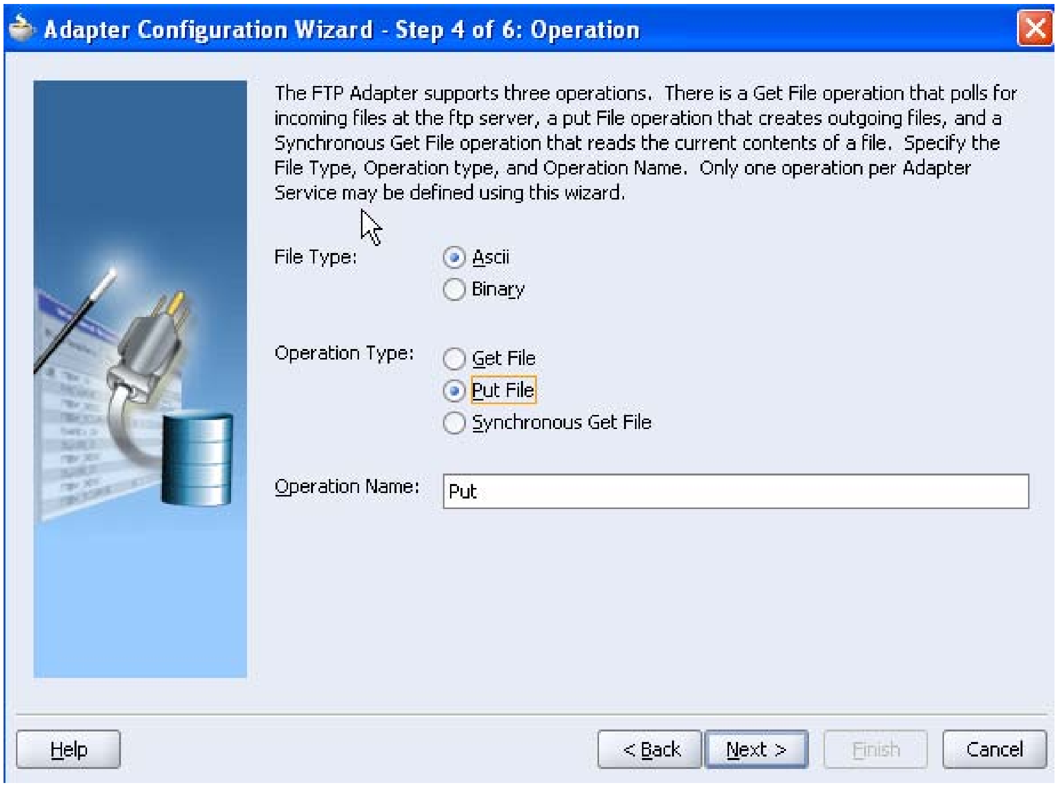
Adapter Configuration Wizard - Step 1 of 3: Adapter Type

Select the Adapter you would like to configure and click Next.

- File Adapter
- FTP Adapter
- Database Adapter
- AQ Adapter
- Oracle Applications
- JMS Adapter
- MQ Adapter

Description

A FTP Adapter service can send and receive messages from a file at a remote FTP server.



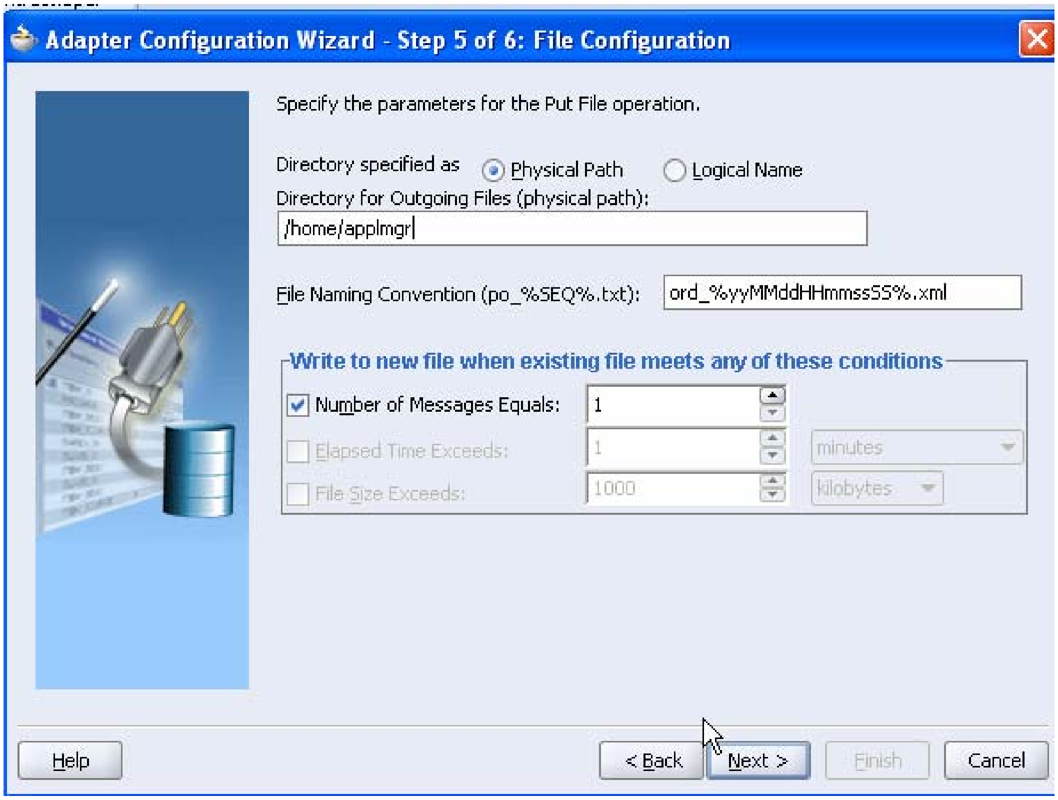
Adapter Configuration Wizard - Step 4 of 6: Operation

The FTP Adapter supports three operations. There is a Get File operation that polls for incoming files at the ftp server, a put File operation that creates outgoing files, and a Synchronous Get File operation that reads the current contents of a file. Specify the File Type, Operation type, and Operation Name. Only one operation per Adapter Service may be defined using this wizard.

File Type: ● Ascii ○ Binary

Operation Type: ○ Get File ● Put File ○ Synchronous Get File

Operation Name: Put



Adapter Configuration Wizard - Step 5 of 6: File Configuration

Specify the parameters for the Put File operation.

Directory specified as ● Physical Path ○ Logical Name

Directory for Outgoing Files (physical path): /home/applmgr

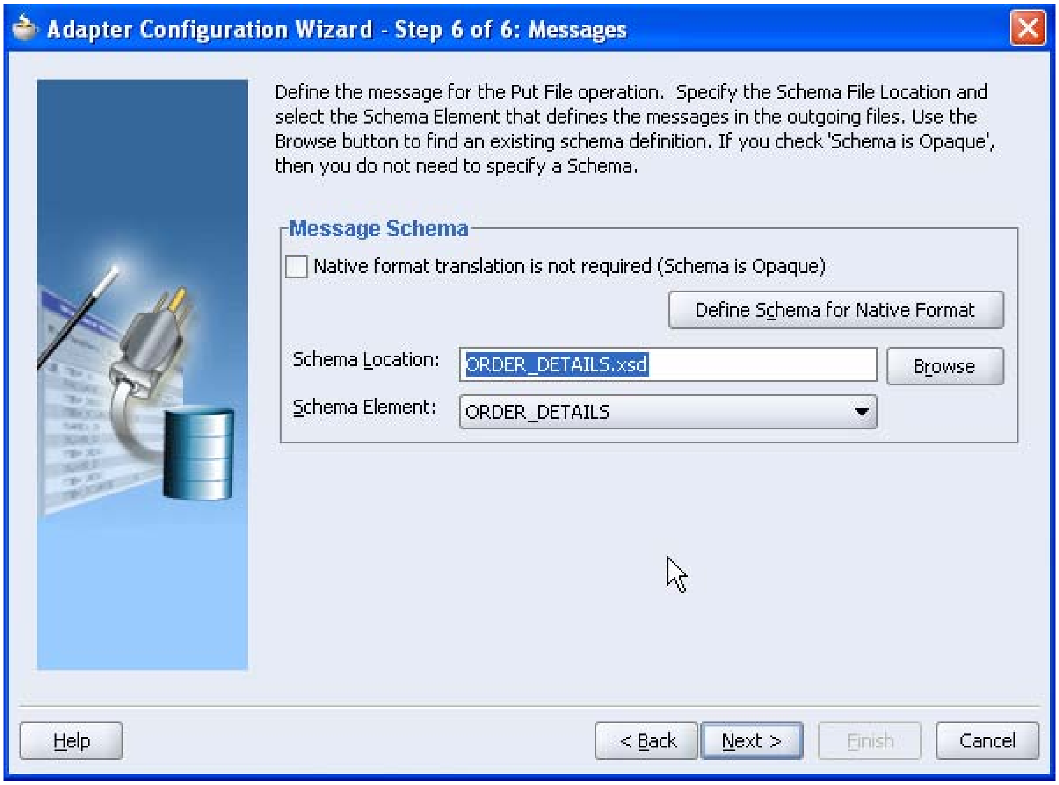
File Naming Convention (po_%SEQ%.txt): ord_%yyMMddHHmmssSS%.xml

Write to new file when existing file meets any of these conditions

☑ Number of Messages Equals: 1

□ Elapsed Time Exceeds: 1 minutes

□ File Size Exceeds: 1000 kilobytes



Adapter Configuration Wizard - Step 6 of 6: Messages

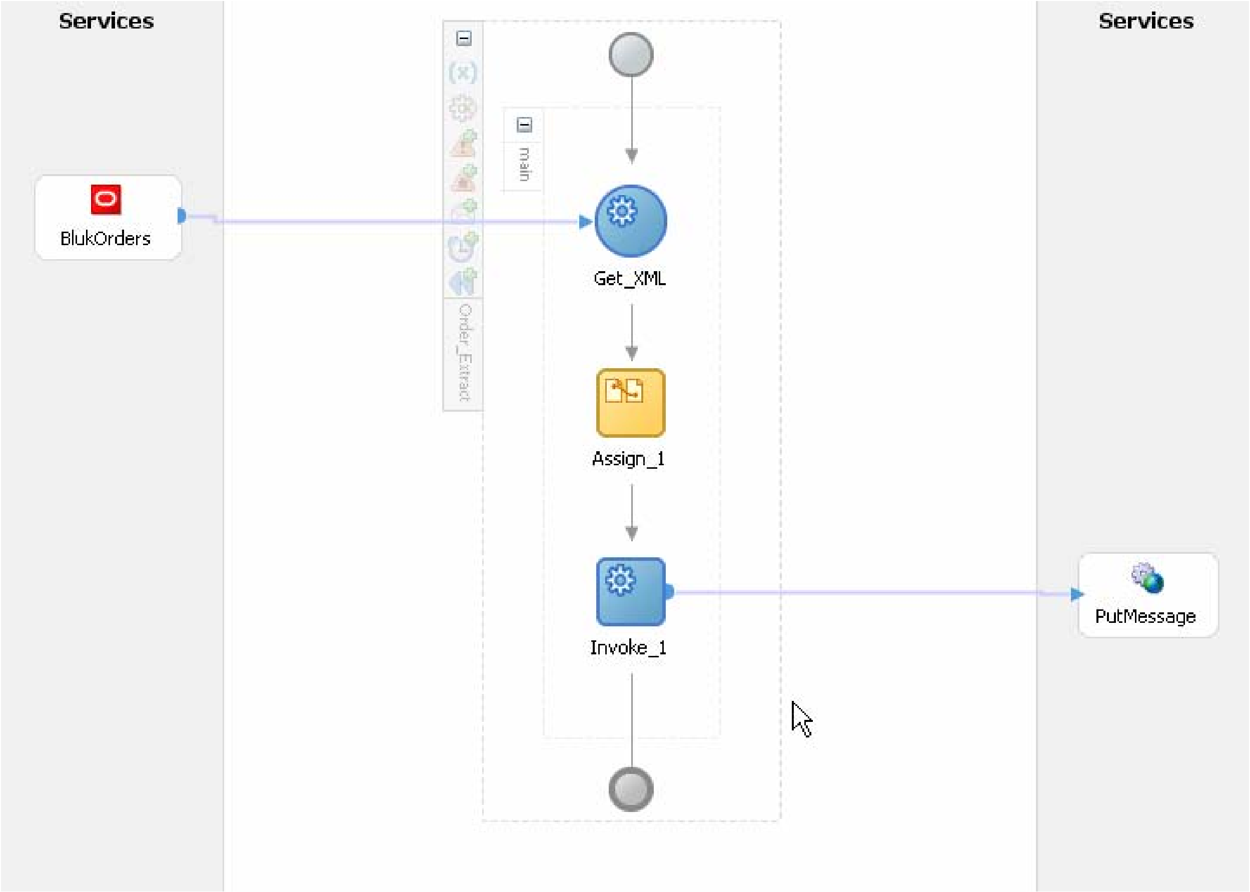
Define the message for the Put File operation. Specify the Schema File Location and select the Schema Element that defines the messages in the outgoing files. Use the Browse button to find an existing schema definition. If you check 'Schema is Opaque', then you do not need to specify a Schema.

Message Schema

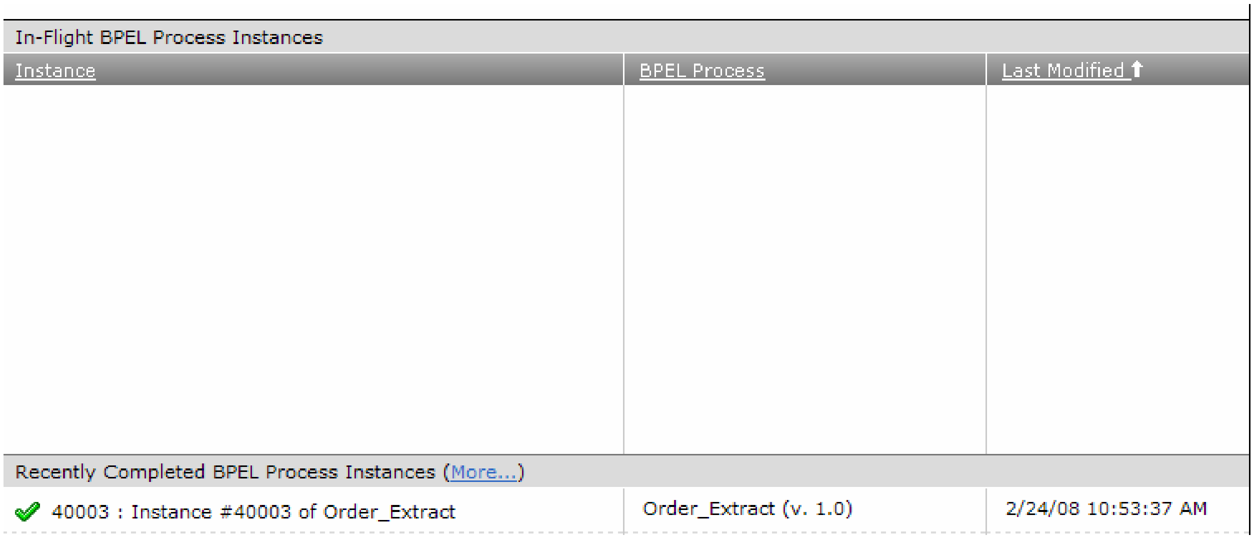
□ Native format translation is not required (Schema is Opaque)

Schema Location: ORDER_DETAILS.xsd

Schema Element: ORDER_DETAILS



Deploy the BPEL process

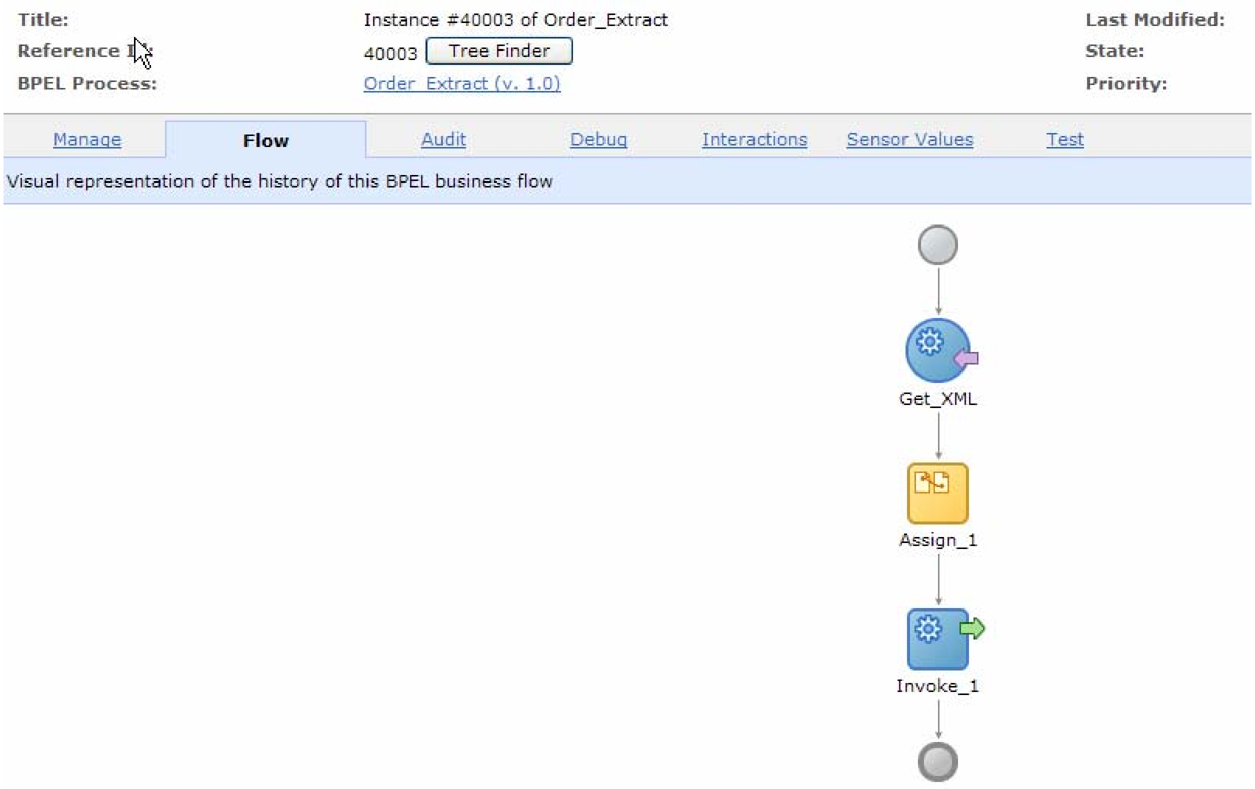


In-Flight BPEL Process Instances

Instance	BPEL Process	Last Modified ⬆

Recently Completed BPEL Process Instances (More...)

✓ 40003 : Instance #40003 of Order_Extract	Order_Extract (v. 1.0)	2/24/08 10:53:37 AM



Title: Instance #40003 of Order_Extract

Reference ID: 40003

BPEL Process: Order_Extract (v. 1.0)

Last Modified:

State:

Priority:

Visual representation of the history of this BPEL business flow