# BEA WebLogic Adapter for Oracle E-Business Suite User's Guide

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For WebLogic Server 9.1

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# Preface

This document describes the BEA WebLogic Adapter for Oracle E-Business Suite and how to use it for developing events and services for integration with other EIS applications.

## How This Manual Is Organized

The following table lists the titles and numbers of the chapters and appendixes for this manual with a brief description of the contents of each chapter or appendix.

| Chapter/Appendix | | Content |
|---|---|---|
| **1** | Introducing the BEA WebLogic Adapter for Oracle E-Business Suite | Introduces the BEA WebLogic Adapter for Oracle E-Business Suite and describes its key features. |
| **2** | Creating XML Schemas or Integration Business Services for Oracle E-Business Suite | Describes how to create schemas and business services for Oracle E-Business Suite interface tables using Servlet Application Explorer. |
| **3** | Listening for Oracle E-Business Suite Events | Describes how set up ports and channels to listen for Oracle E-Business Suite events using Servlet Application Explorer. |
| **4** | Management and Monitoring | Describes how to use the management and monitoring tools provided by iBSE and JCA. |
| **5** | Troubleshooting and Error Messages | Provides information and procedures to correct common issues with the adapter and Application Explorer. |
| **A** | Supported Interface Tables for Oracle Release Apps 11i | Describes the agents that constitute Oracle functional components. |
| **B** | XML Business Functionality in the Adapter | Describes the business functionality of the XML supported by the BEA WebLogic Adapter for Oracle E-Business Suite. |
| **C** | Sample Request and Response Documents | Describes the format of BEA WebLogic Adapter for Oracle E-Business Suite service request and response documents. |

| Chapter/Appendix | | Content |
|---|---|---|
| **D** | Sample WSDL File | Shows an example of a WSDL file generated from a Web service using Application Explorer. |
| **E** | Best Practices and Performance Considerations | Provides best practices and performance considerations for the BEA WebLogic Adapter for Oracle E-Business Suite when deployed to the BEA WebLogic Server. |

## Documentation Conventions

The following table lists and describes the conventions that apply throughout this manual.

| Convention | Description |
|---|---|
| `THIS TYPEFACE` or `this typeface` | Denotes syntax that you must enter exactly as shown. |
| `this typeface` | Represents a placeholder (or variable) in syntax for a value that you or the system must supply. |
| `underscore` | Indicates a default setting. |
| *this typeface* | Represents a placeholder (or variable) in a text paragraph, a cross-reference, or an important term. |
| **this typeface** | Highlights a file name or command in a text paragraph that must be lowercase. |
| *this typeface* | Indicates a button, menu item, or dialog box option you can click or select. |
| Key + Key | Indicates keys that you must press simultaneously. |
| `{ }` | Indicates two or three choices; type one of them, not the braces. |
| `\|` | Separates mutually exclusive choices in syntax. Type one of them, not the symbol. |
| `...` | Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis points (…). |
| `.`<br>`.`<br>`.` | Indicates that there are (or could be) intervening or additional commands. |

## Contact Us!

Your feedback on the BEA WebLogic Adapter for Oracle E-Business Suite documentation is important to us.

Send us e-mail at docsupport@bea.com if you have questions or comments. Your comments will be reviewed directly by the BEA professionals who create and update the BEA WebLogic Adapter for Oracle E-Business Suite documentation.

In your e-mail message, please indicate that you are using the documentation for BEA WebLogic Adapter for Oracle E-Business Suite and the version of the documentation.

If you have any questions about this version of BEA WebLogic Adapter for Oracle E-Business Suite, or if you have problems using the BEA WebLogic Adapter for Oracle E-Business Suite, contact BEA Customer Support through BEA WebSUPPORT at www.bea.com. You can also contact Customer Support by using the contact information provided on the Customer Support Card which is included in the product package.

When contacting Customer Support, be prepared to provide the following information:

- Your name, e-mail address, phone number, and fax number
- Your company name and company address
- Your machine type and authorization codes
- The name and version of the product you are using
- A description of the problem and the content of pertinent error messages

## Help Us to Serve You Better

To help our consultants answer your questions effectively, please be prepared to provide specifications and sample files and to answer questions about errors and problems.

The following tables list the specifications our consultants require.

| | |
|---|---|
| **Platform** | |
| **Operating System** | |
| **OS Version** | |
| **Product List** | |
| **Adapters** | |
| **Adapter Deployment** | For example, JCA, or Integration Business Services Engine |
| **Container Version** | |

The following table lists components. Specify the version in the column provided.

| **Component** | **Version** |
|---|---|
| Adapter | |
| EIS (DBMS/APP) | |
| HOTFIX / Service Pack | |

The following table lists the types of Application Explorer. Specify the version (and platform, if different than listed previously) in the columns provided.

| **Application Explorer Type** | **Version** | **Platform** |
|---|---|---|
| Swing | | |
| Servlet | | |
| ASP | | |

In the following table, specify the JVM version and vendor in the columns provided.

| **Version** | **Vendor** |
|---|---|
| | |

The following table lists additional questions to help us serve you better.

| **Request/Question** | **Error/Problem Details or Information** |
|---|---|
| Provide usage scenarios or summarize the application that produces the problem. | |
| Did this happen previously? | |
| Can you reproduce this problem consistently? | |
| Any **change in the application environment**: software configuration, EIS/ database configuration, application, and so forth? | |

| **Request/Question** | **Error/Problem Details or Information** |
|---|---|
| Under what circumstance does the problem *not* occur? | |
| Describe the **steps** to reproduce the problem. | |
| Describe the **problem**. | |
| Specify the **error** message(s). | |

The following table lists error/problem files that might be applicable.

| |
|---|
| XML schema |
| XML instances |
| Other input documents (transformation) |
| Error screen shots |
| Error output files |
| Trace and log files |
| Log transaction |

# Contents

CHAPTER 1

# Introducing the BEA WebLogic Adapter for Oracle E-Business Suite

**Topics:**

- Features of the BEA WebLogic Adapter for Oracle E-Business Suite
- Integration with Oracle E-Business Suite
- Integration Using OAGIS XML and EDI Documents
- Deployment of the BEA WebLogic Adapter for Oracle E-Business Suite

This section introduces the BEA WebLogic Adapter for Oracle E-Business Suite and describes its key features.

The BEA WebLogic Adapter for Oracle E-Business Suite enables you to reuse your existing Oracle E-Business Suite procedures and applications with other applications, a key to building a successful e-business or integrated enterprise.

# Features of the BEA WebLogic Adapter for Oracle E-Business Suite

The BEA WebLogic Adapter for Oracle E-Business Suite provides simple open standard access to Oracle E-Business Suite through Oracle E-Business Suite open interface tables and custom interface tables, stored procedures and functions under a package, and direct interaction with base tables and views. No recoding or modifications of the Oracle E-Business Suite system are required.

In addition, the BEA WebLogic Adapter for Oracle E-Business Suite enables you to fully integrate an Oracle E-Business Suite system with other enterprise resources, such as a Database Management System (DBMS) that has a JDBC™ 2.0–compliant driver, e-mail system, HTTP protocol–based server, or FTP server.

From the adapter you also can connect to a host of enterprise integration systems (EIS), including popular enterprise resource planning (ERP), supply chain management (SCM), and customer relationship management (CRM) applications.

The BEA WebLogic Adapter for Oracle E-Business Suite comprises several execution agents that enable integration with other systems by functioning in one of two ways:

- **Requests for Oracle inbound processing.** The adapter sends requests to the Oracle E-Business Suite system through Oracle interface tables and custom interface tables, stored procedures and functions under a package, base tables and views, and Oracle published APIs.
- **Listeners for Oracle outbound events.** The adapter listens for application-based table activity.

## Key Features of the BEA WebLogic Adapter for Oracle E-Business Suite

Key features of the BEA WebLogic Adapter for Oracle E-Business Suite include:

- Requests that communicate with Oracle published interface tables and custom interface tables, stored procedures and functions under a package, base tables and views, and Oracle published APIs.
- Asynchronous as well as synchronous processing.
- Bidirectional message/request processing.
- XML-based requests and responses.
- Back-end error propagation through the RDBMS Table Listener.
- Oracle business logic and functionality that ensures accuracy and maintainability.
- Management and monitoring of services and events.
- Component deployment in a clustered BEA WebLogic environment.

- Application Explorer, which enables you to browse Oracle E-Business Suite metadata and generate XML schemas for service requests.

## Integration with Oracle E-Business Suite

Using BEA WebLogic Adapter for Oracle E-Business Suite, you can now interact with Oracle E-Business Suite in three ways: using Oracle interface tables and custom interface tables, stored procedures and functions under a package, or base tables and views. These integration methods are listed and briefly described in the following section.

- Integration Using **Oracle Interface Tables and Custom Interface Tables**

  Interface tables are one mechanism Oracle E-Business Suite uses to expose its business processing. Through this mechanism, data is never modified directly in Oracle E-Business Suite base tables and views. The BEA WebLogic Adapter for Oracle E-Business Suite enables you to import data into Oracle E-Business Suite using specific Oracle-supplied interface tables or custom interface tables. Instead of transforming input documents into standards-based XML structures, the request document is transformed to match the appropriate Oracle-specific interface table.

  Oracle recommends that users do not interact directly with application tables. The open interface APIs serve as bridges between the Oracle application modules and external systems. The BEA WebLogic Adapter for Oracle E-Business Suite utilizes these tables to interact with Oracle. They are categorized according to functional area. This is achieved as a two-step process through the adapter. First, a record is inserted into the interface table and then an Oracle-supplied concurrent program moves the data from interface to base tables and views, ensuring that all business logic and processing is handled through Oracle-authored components. In Oracle E-Business Suite, concurrent processing simultaneously executes programs running in the background with online operations to fully utilize your hardware capacity.

  For more information on integration using Oracle interface tables or custom interface tables, see *Browsing Interface Table Metadata* on page 2-11.

- Integration Using **Oracle Stored Procedures and Functions Under a Package (PL/SQL APIs)**

  Oracle E-Business Suite supports PL/SQL blocks, package. A package is a PL/SQL construct that allows related objects to be stored together. The adapter is able to expose all the packages and interact with its stored procedure element. In the BEA WebLogic Adapter for Oracle E-Business Suite, packages are categorized by the schema that owns the object. Using Application Explorer, you can search for specific packages and specific stored procedures.

**Note:** If you do not see a package under a schema, you may need to create a public synonym. For more information, see *Browsing Stored Procedures and Functions Under a Package* on page 2-13.

BEA WebLogic Adapter for Oracle E-Business Suite supports all stored procedures that do not have complex data type fields. Stored procedures that require complex data types or Oracle-specific complex data types are not supported through the adapter.

For more information on integration using Oracle stored procedures, see *Browsing Stored Procedures and Functions Under a Package* on page 2-13.

- Direct Interaction with **Oracle Base Tables and Views**

  You can now interact directly with Oracle E-Business Suite base tables, bypassing interface tables and concurrent programs. This integration method is most appropriate when you need to query data located in Oracle base tables and views.

  **Important:** The use of INSERT, DELETE, or UPDATE to directly modify data in Oracle base tables is not recommended, as it may jeopardize database referential integrity.

  For more information on interacting with Oracle base tables and views, see *Browsing Oracle Base Tables and Views* on page 2-16.

## Integration Using OAGIS XML and EDI Documents

The BEA WebLogic Adapter for Oracle E-Business Suite enables you to take advantage of Oracle supplied gateways into and out of Oracle applications. You can use the BEA WebLogic Adapter for Oracle E-Business Suite in conjunction with Oracle e-Business adapters to transfer event information using OAGIS-formatted XML (Open Applications Group Specification) and EDI (Electronic Data Interchange) documents. Then, these documents are processed by the Oracle iProcurement Connector or the e-Commerce Gateway, respectively. This type of integration is ideal if your organization currently uses these technologies because it enables quick integration of additional processes through an existing system.

The Oracle Advanced Queuing (AQ) system passes and retrieves OAGIS-formatted XML documents to and from the iProcurement Connector. EDI documents are passed and retrieved by reading files from specified directories.

The external system generates the following types of event documents:

- Documents that do not support the OAGIS/EDI formats.
- Documents that do support the OAGIS/EDI formats.

  These documents may have extensions or require data enrichment or cleansing.

  You perform data enrichment or cleansing before loading the data into Oracle E-Business Suite.

# Deployment of the BEA WebLogic Adapter for Oracle E-Business Suite

The BEA WebLogic Adapter for Oracle E-Business Suite works in conjunction with Application Explorer and one of the following components:

- Integration Business Services Engine (iBSE)
- Enterprise Connector for J2EE™ Connector Architecture (JCA)

Application Explorer is used to configure Oracle E-Business Suite connections, create Web services, and configure event capabilites. It can be configured to work in a Web services environment in conjunction with iBSE or JCA. When working in a JCA environment, the connector uses the Common Client Interface (CCI) to provide fast integration services using adapters instead of using Web services

## Deployment Information Roadmap

The following table lists the location of deployment and user information for components of the BEA WebLogic Adapter for Oracle E-Business Suite.

| **Deployed Component** | **For more information, see** |
|---|---|
| Application Explorer | Chapters 2 and 3 of this guide<br>*BEA WebLogic ERP Adapter Installation and Configuration* |
| Integration Business Services Engine (iBSE) | *BEA WebLogic ERP Adapter Installation and Configuration* |
| Enterprise Connector for J2EE Connector Architecture (JCA) | *Connector for JCA for BEA WebLogic User's Guide*<br>*BEA WebLogic ERP Adapter Installation and Configuration* |

## Application Explorer

Application Explorer uses an explorer metaphor to browse the Oracle E-Business Suite system for metadata. The explorer enables you to create XML schemas and Web services for the associated object. In addition, you can create ports and channels to listen for events in Oracle E-Business Suite. External applications that access Oracle E-Business Suite through the BEA WebLogic Adapter for Oracle E-Business Suite use either XML schemas or Web services to pass data between the external application and the adapter.

Deployed as a Web application on BEA WebLogic Server, the servlet version of Application Explorer is accessible through a Web browser. In addition, this version can be used with Integration Business Services Engine (iBSE) and Enterprise Connector for J2EE Connector Architecture (JCA). For more information, see the following chapters:

- Chapter 2, *Creating XML Schemas or Integration Business Services for Oracle E-Business Suite*
- Chapter 3, *Listening for Oracle E-Business Suite Events*

## Integration Business Services Engine

The Integration Business Services Engine (iBSE) exposes—as Web services—enterprise assets that are accessible from adapters regardless of the programming language or the particular operating system.

iBSE simplifies the creation and execution of Web services when running:

- Custom and legacy applications
- Database queries and stored procedures
- Packaged applications
- Terminal emulation and screen-based systems
- Transactional systems

Web services is a distributed programming architecture that solves Enterprise Application Integration (EAI) hurdles that other programming models cannot. It enables programs to communicate with one another using a text-based, platform- and language-independent message format called XML.

Coupled with a platform and language independent messaging protocol called SOAP (Simple Object Access Protocol), XML enables application development and integration by assembling previously built components from multiple Web services.

## Enterprise Connector for J2EE Connector Architecture (JCA)

The Enterprise Connector for J2EE Connector Architecture (JCA) enables developers of JCA-compliant applications to deploy adapters as JCA resources. The connector is supported on J2EE-compliant application servers such as your BEA WebLogic Server.

The Connector for JCA is distributed as a standard Resource Adapter Archive (RAR) for deployment to the application server. Thus, the connector can be used in systems that are non-compliant, although services such as pooled connections are not available.

CHAPTER 2

# Creating XML Schemas or Integration Business Services for Oracle E-Business Suite

**Topics:**

- Starting Application Explorer
- Connecting to Oracle E-Business Suite
- Browsing Interface Table Metadata
- Browsing Stored Procedures and Functions Under a Package
- Browsing Oracle Base Tables and Views
- Generating a Schema
- Generating an Integration Business Service
- Running a Submit Request (Interface Tables Only)
- Understanding Transaction-Based Processing

This section describes how to use Servlet Application Explorer to perform the following tasks.

- View Oracle interface table metadata or search for stored procedures under a package. You can also interact directly with Oracle base tables and views.
- Generate XML schemas that define request and response documents for your Oracle interface tables and custom interface tables, stored procedures and functions under a package, or base tables and views. You can use these schemas when you create request documents and when you develop logic for processing response documents.
- Create business services (also known as Web services) for your interface tables, stored procedures and functions under a package, or base tables and views.

Although this section shows the Java™ servlet implementation of Application Explorer, other implementations provide the same functionality by means of similar graphical user interfaces.

# Starting Application Explorer

You can use Servlet Application Explorer to:

- Establish a connection to Oracle E-Business Suite.
- View metadata that describes Oracle interface tables or custom interface tables. You can use this metadata when you create request documents and when you develop logic for processing response documents.
- Search for stored procedures and functions under a package.
- Interact directly with Oracle base tables and views. This integration method is most appropriate when you need to query data located in Oracle base tables and views.
- Generate XML schemas that define request and response documents for Oracle interface tables or custom interface tables, stored procedures and functions under a package, or base tables and views. You can use these schemas when you create request documents and when you develop logic for processing response documents.
- Create business services (also known as Web services) for your interface tables, stored procedures and functions under a package, or base tables and views.

## Procedure: How to Start Application Explorer

To start Application Explorer:

1. Start BEA WebLogic Server.

   **On Windows:**

   From the *Start* menu, select *Programs*, *BEA Products*, and then click *WebLogic Server*.

   **On UNIX or from a command line:**

   Type the following at the prompt

   *BEA_HOME*\user_projects\domains*DOMAIN_NAME*\startWebLogic.cmd

   where:

   *BEA_HOME*

   Is the directory in which BEA WebLogic Server is installed.

   *DOMAIN_NAME*

   Is the domain you are using.

2. Enter the following URL in your browser window (BEA WebLogic Server must be running):

   http://*hostname*:*port*/iwae/index.html

where:

*hostname*

Is the name of the host on which your application server is running.

*port*

Is the number of the port on which the application server is operating. The port for the default domain is 7001.

Application Explorer opens and displays three tabs (Service Adapters, Event Adapters, and Integration Business Services), as well as welcome information.

The Available Hosts drop-down list in the top frame determines which JCA Connector and Servlet iBSE instances you can access. For information about adding instances, see the *BEA WebLogic ERP Adapter Installation and Configuration* manual.

3. To display the list of available adapters, expand the *Service Adapters* node in the left pane.

You can now connect to Oracle E-Business Suite.

# Connecting to Oracle E-Business Suite

To browse and work with Oracle E-Business Suite metadata, you must create a target for Oracle E-Business Suite. This target serves as your connection point. You must establish a connection to Oracle every time you start Servlet Application Explorer or after you disconnect from the system.

This section discusses the following topics:

- Creating a New Target
- Connecting to a Target
- Closing or Deleting a Target
- Modifying a Target

The left pane displays the adapters installed and supported by Application Explorer.

## Creating a New Target

A target serves as the connection point to your Enterprise Information System (EIS) and is automatically saved after you create it. To connect to Oracle E-Business Suite for the first time, you must create a new target.

## Procedure: How to Create a New Target

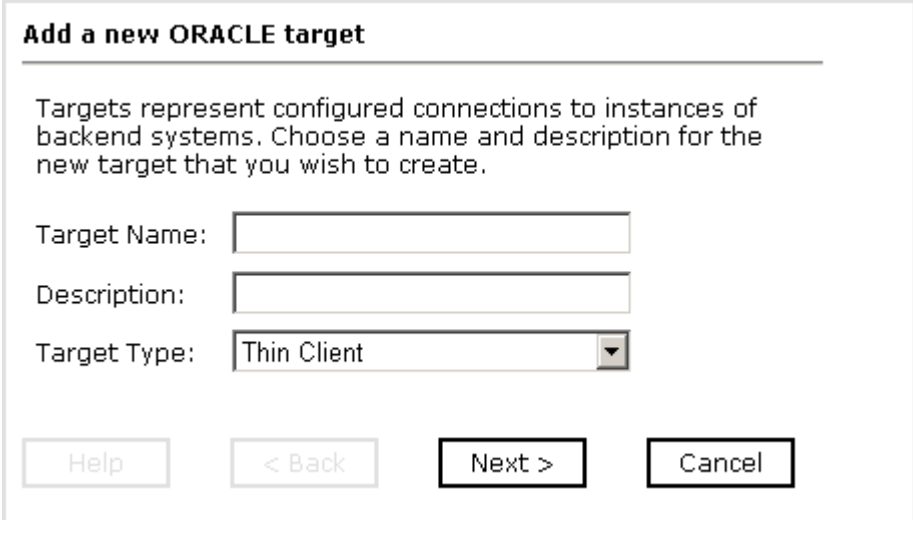
To create a new target:

1. In the left pane, expand the *Service Adapters* node and select the *Oracle* node.

   The following image shows the list of supported adapters in the left pane and information about the selected adapter on the right.


2. In the right pane, move the pointer over *Operations* and select *Define a new target*.

   The Add a new ORACLE target pane opens on the right, as shown in the following image. This pane provides fields to define the new target.




   a. In the Target Name field, type a descriptive name for the target, for example, OracleTarget.

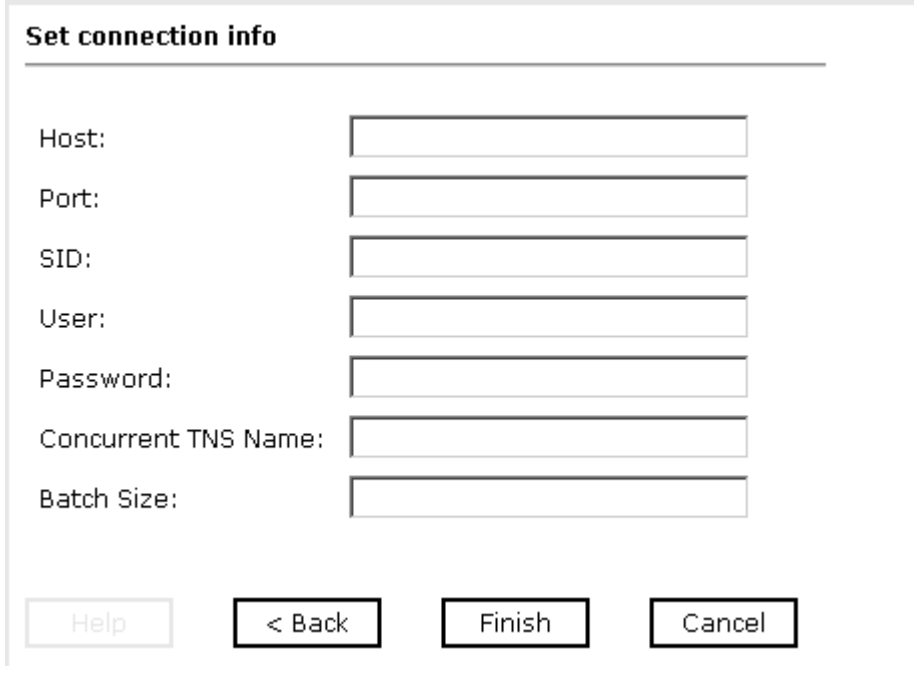
   b. In the Description field, type a brief description of the connection (optional).

   c. From the Target Type drop-down list, select Thin Client.

      This is the only available option.

**3.** Click *Next*.

The Set connection info pane opens on the right. The pane appears as in the following image, which shows the fields for the Thin Client connection parameters and the active buttons.




**Note:** The connection parameters are consistent with those found in your Oracle E-Business Suite system. For more information on parameter values that are specific to your Oracle E-Business Suite configuration, consult your Oracle E-Business Suite system administrator.

The following table lists and describes the connection parameters for a Thin Client target.

| Parameter | Description |
|---|---|
| User | Oracle database user ID to access the Oracle database underlying the Oracle E-Business Suite system. The user ID must have database access to the interface tables being accessed. |
| Password | Password associated with the specified user ID. |

| Parameter | Description |
|---|---|
| Host | Name of the server on which the Oracle E-Business Suite database instance resides. |
| Port | Port number on which the database is listening. |
| SID | Unique name of the database service, chosen by the database administrator or the person who installed Oracle E-Business Suite. |
| Concurrent TNS Name | Logical name of the Oracle E-Business Suite database instance. (Can be obtained from the database administrator.)<br><br>The TNS name that is found in the tnsnames.ora file that contains an entry for that database and that resides on the Oracle E-Business Suite database server. This is *not* the TNS name that is registered on the server on which the BEA WebLogic Adapter for Oracle E-Business Suite is running (unless the adapter and the Oracle database reside on the same server).<br><br>If a TNS name does not exist, you must create it. For more information about creating a TNS name, see your Oracle administrator. |
| Batch size | The number of request document records that the adapter buffers before inserting them into an Oracle E-Business Suite table. When the adapter reaches the end of the request document, it inserts any remaining buffered records.<br><br>The adapter tracks this batch limit separately for each table, not aggregately for all tables. For example, if you set the batch size property to 25, and the adapter accumulates 18 input records for the GL_INTERFACE table and 25 for the BUDGET_INTERFACE table, the adapter continues to hold records for GL_INTERFACE but inserts the records for BUDGET_INTERFACE.<br><br>The batch size property enables you to optimize I/O: inserting too few records at a time increases I/O overhead, and inserting too many at a time ties up database resources. |

4. Enter values for the connection parameters from one of the previous tables according to your target type.
5. Click *Finish*.

The new target appears in the left pane beneath the Oracle Applications node, as shown in the following image.


You can now connect to the application target you defined.

## Connecting to a Target

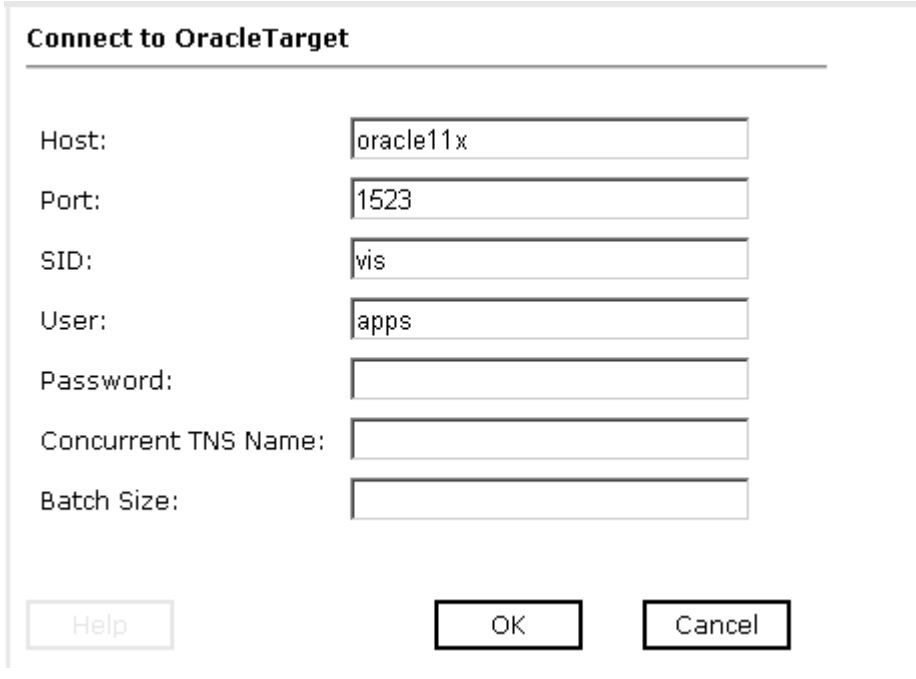
You must use a defined target to connect to an instance of Oracle E-Business Suite.

### Procedure: How to Connect to a Target

To connect to an existing target:

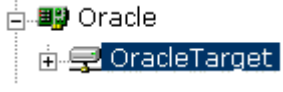
1. In the left pane, expand the *Service Adapters* node, the *Oracle* node, and then select the target to which you want to connect.
2. In the right pane, move the pointer over *Operations* and select *Connect*.

The Connect to Oracle target pane opens on the right. The following image is an example of this pane for a target named OracleTarget. It shows the parameter fields (Host, Port, SID, User, Password, Concurrent TNS Name, and Batch size) with example values.



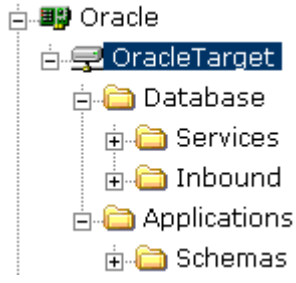

3. In the Password field, type a valid password.
4. Click *OK*.

   The following image shows a target node, OracleTarget, with a plus sign next to it, indicating that it is connected.



5. Expand the target node.

   The following is an image of the left pane showing an expanded target node named OracleTarget.




## Closing or Deleting a Target

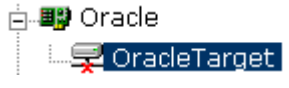
Although you can maintain multiple open connections to different application systems, it is recommended that you close any connections that are not in use.

### Procedure: How to Disconnect From a Target

To disconnect from a target:

1. Click the target that you want to close.
2. In the right pane, move the pointer over *Operations* and select *Disconnect*.

   Disconnecting from Oracle E-Business Suite drops the connection, but the target definition and its node remain accessible from the left pane. The following image shows a red x under the target, OracleTarget, to indicate that it is disconnected.




### Procedure: How to Delete a Target

To delete a target from Application Explorer:

1. In the left pane, select the target you want to delete.
2. In the right pane, move the pointer over *Operations* and select *Delete*.

   A confirmation dialog box opens.
3. To delete the target, click *OK*.

   The target node disappears from the left pane.

## Modifying a Target

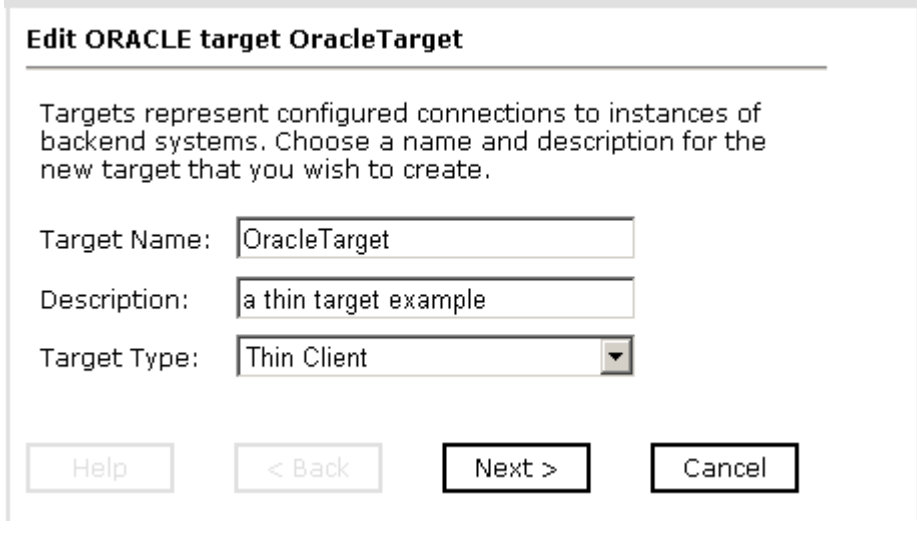
After a target is defined using Servlet Application Explorer, you can edit the target name, description, and connection parameters. You must disconnect from a target before you can edit it.

### Procedure: How to Edit a Target

To edit a target in Application Explorer:

1. Disconnect from the target you want to edit. See *Closing or Deleting a Target* on page 2-9.
2. In the left pane, select the target you want to edit.
3. In the right pane, move the pointer over *Operations* and select *Edit*.

   The Edit ORACLE target pane opens on the right, as shown in the following image. It shows the current connection settings for Target Name, Description, and Target Type.




4. Modify the target information as required.
5. Click *Next*.

   The Set connection info pane opens. This pane is described in *Creating a New Target* on page 2-3.
6. Edit the parameters in the Set connection info pane as required.
7. Click *Finish*.

The target information now reflects the changes you made.

# Browsing Interface Table Metadata

Browsing metadata in Servlet Application Explorer can be useful when creating request documents.

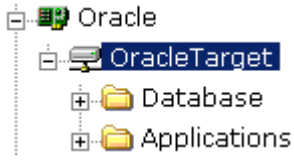
In this release, BEA WebLogic Adapter for Oracle E-Business Suite supports two new categories of interface tables: *Human Resources (HR)* and *Customer Relationship Management (CRM)*. CRM is a new feature in Oracle Applications Release 11.5.10.

## Procedure: How to View Interface Table Metadata

To view Oracle E-Business Suite interface table metadata:

1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.
2. In the left pane, expand the target node.

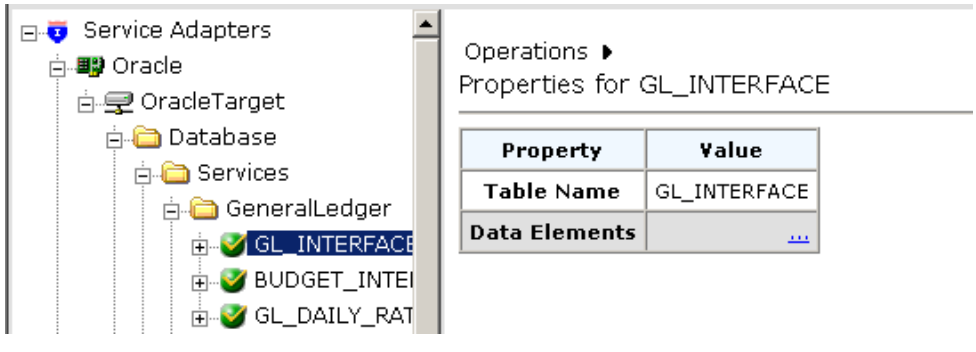
   The Database and Applications nodes are displayed. Interface table metadata is located under the Database node.

3. Expand *Database*, then the *Services* node, and then select a table that contains the metadata you want to view.

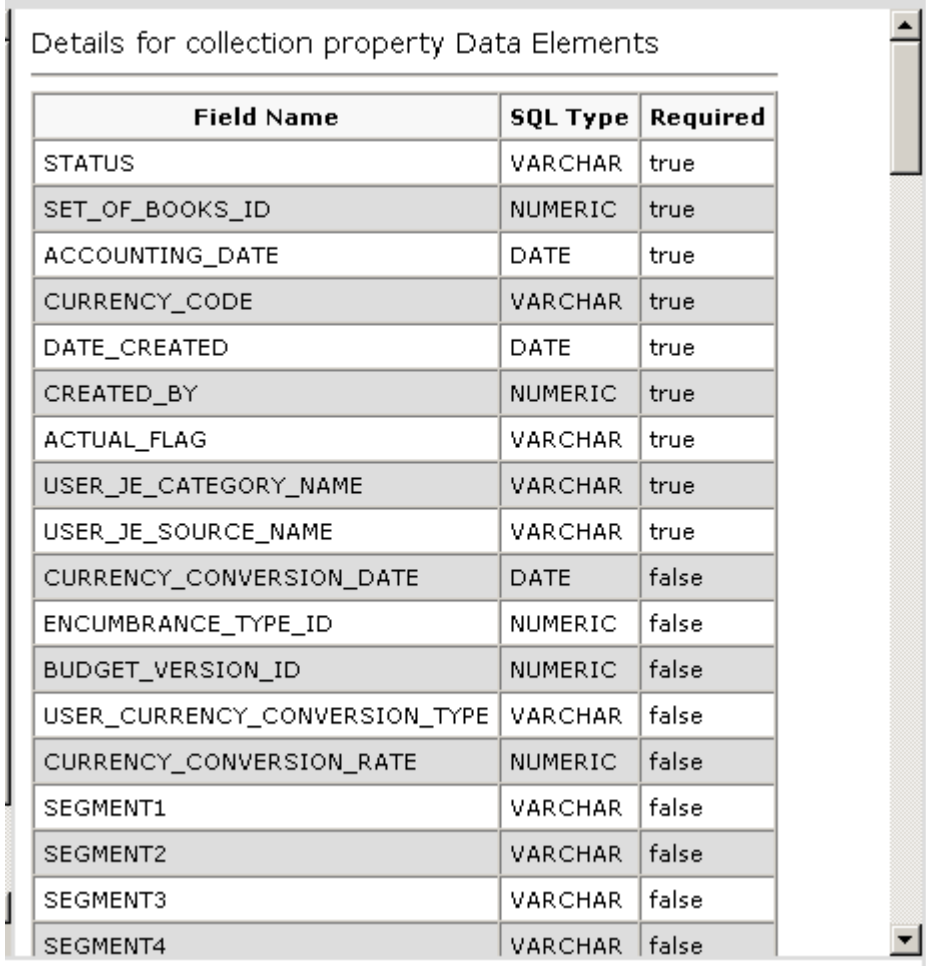
   The user ID for this target connection must have read access to the selected table; otherwise you cannot view its metadata.

   When you select a specific table on the left, the property table appears on the right. The following image shows an example of a table selected on the left and the properties of the table (property and value) listed on the right.

4. In the property table, click the ellipse (...) in the Data Elements row.

   A detailed table appears on the right. The following image shows an example of an interface table that includes columns for the field name, the SQL data type, and for indicating whether the parameter is required.



Details for collection property Data Elements

| Field Name | SQL Type | Required |
|---|---|---|
| STATUS | VARCHAR | true |
| SET_OF_BOOKS_ID | NUMERIC | true |
| ACCOUNTING_DATE | DATE | true |
| CURRENCY_CODE | VARCHAR | true |
| DATE_CREATED | DATE | true |
| CREATED_BY | NUMERIC | true |
| ACTUAL_FLAG | VARCHAR | true |
| USER_JE_CATEGORY_NAME | VARCHAR | true |
| USER_JE_SOURCE_NAME | VARCHAR | true |
| CURRENCY_CONVERSION_DATE | DATE | false |
| ENCUMBRANCE_TYPE_ID | NUMERIC | false |
| BUDGET_VERSION_ID | NUMERIC | false |
| USER_CURRENCY_CONVERSION_TYPE | VARCHAR | false |
| CURRENCY_CONVERSION_RATE | NUMERIC | false |
| SEGMENT1 | VARCHAR | false |
| SEGMENT2 | VARCHAR | false |
| SEGMENT3 | VARCHAR | false |
| SEGMENT4 | VARCHAR | false |

   You can use this information to determine the table(s) and fields to use when creating an XML request document or business service.

5. Scroll to the bottom of the property table and click *Close* to hide the detail rows and return to the Operations menu.

For more information on supported interface tables, see Appendix A, *Supported Interface Tables for Oracle Release Apps 11i*.

## Browsing Stored Procedures and Functions Under a Package

Oracle E-Business Suite supports PL/SQL blocks, package. A package is a PL/SQL construct that allows related objects to be stored together. The adapter is able to expose all the packages and interact with its stored procedure element. In the BEA WebLogic Adapter for Oracle E-Business Suite, packages are categorized by the schema that owns the object. Using Application Explorer, you can search for specific packages and specific stored procedures under a package.

**Note:** If you do not see a package under a schema, you may need to create a public synonym. An Oracle DBA may use the following syntax:

```
create [or replace] [public] synonym schema.synonym_name
for schema.object_name [@ dblink];
```

where:

`or replace`

Allows you to replace a synonym that already exists, without having to issue a DROP synonym command (optional).

`public`

Indicates that the synonym is a public synonym and is accessible to all users. You must have the appropriate privileges to the object to use the synonym (optional).

`schema`

Is the name of the appropriate schema. If this phrase is omitted, Oracle assumes that you are referring to your own schema.

`synonym_name`

Is the name of the public synonym you are creating.

`object_name`

Is the name of the object for which you are creating the synonym.

For example:

```
create public synonym suppliers
for app.suppliers;
```

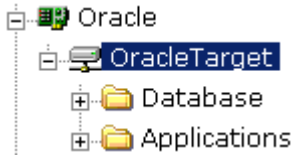
BEA WebLogic Adapter for Oracle E-Business Suite supports all stored procedures and functions that do not have complex data type fields. Stored procedures that require complex data types (such as STRUCT or ARRAY), or Oracle-specific complex data types (such as GROUP_REC_TYPE or PARTY_SITE_REC_TYPE) are not supported through the adapter.

## Procedure: How to Search for Packages

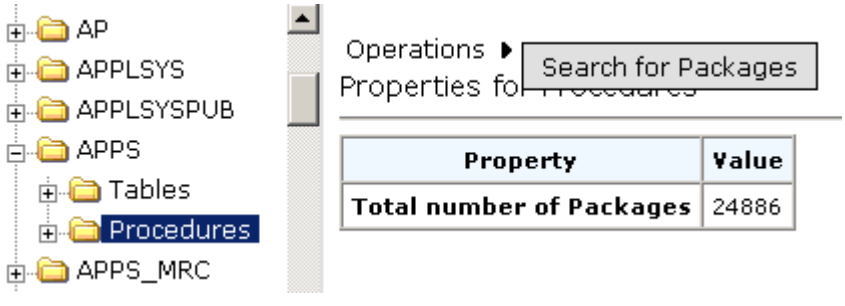
To locate a package and view the Oracle E-Business Suite stored procedures it contains:

1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.
2. In the left pane, expand the target node.

   Two nodes are displayed--Database and Applications.

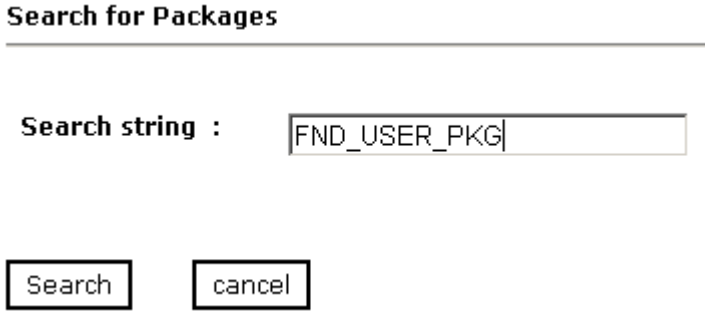



3. Expand *Applications*, *Schemas*, and then *APPS*.
4. Select *Procedures*.




5. In the right pane, move the pointer over *Operations* and select *Search for Packages*.

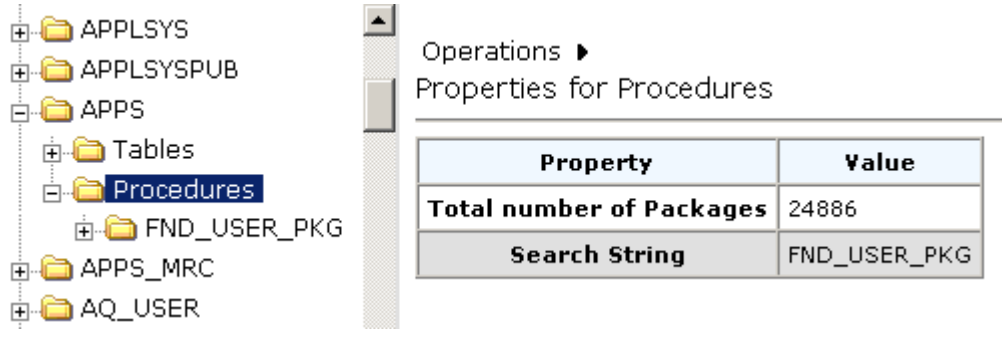
   The Search for Packages pane opens on the right.



**Note:** Packages are collections of stored procedures. Due to the large number of packages and stored procedures available, a search capability is provided. You can search for a particular package by typing the full package name into the Search string field, as shown in the preceding image. Alternatively, you can search for package names beginning with a certain string, for example, typing *FND%* generates a list of all package names starting with the string FND. This search capability is not case sensitive.

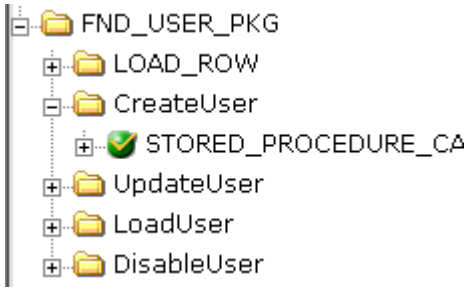
6. Click *Search*.

   The FND_USER_PKG package is listed under Procedures in the left pane. In the right pane, you can see the number of packages available and the value of the string you searched for.




7. Expand the FND_USER_PKG node.

   A list of the stored procedures contained in this package is displayed in the left pane.




**Note:** Some stored procedures have complex data type fields (such as STRUCT or ARRAY), or Oracle-specific complex data type fields (such as GROUP_REC_TYPE or PARTY_SITE_REC_TYPE). Such stored procedures are not supported through BEA WebLogic Adapter for Oracle E-Business Suite. You must select a stored procedure that does not require complex data types. For detailed information on particular packages or stored procedures, see your Oracle E-Business Suite documentation.

You can now generate schemas and create Integration Business Services.

# Browsing Oracle Base Tables and Views

BEA WebLogic Adapter for Oracle E-Business Suite now supports direct interaction with Oracle base tables and views. This integration method is most appropriate when you need to query data located in base tables and views.

**Important:** Oracle recommends that users do not interact directly with application tables. The use of INSERT, DELETE, or UPDATE to modify data in application tables may jeopardize database referential integrity.

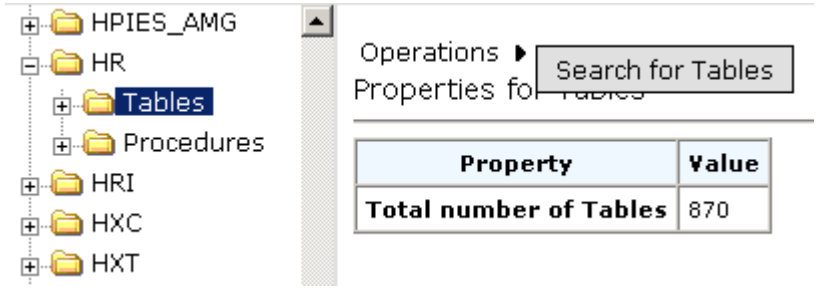
## Procedure: How to Search for Oracle Base Tables and Views

To locate a specific Oracle base table using Application Explorer:

1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.
2. In the left pane, expand the target node.
3. Expand *Applications*, *Schemas* and then *HR*.

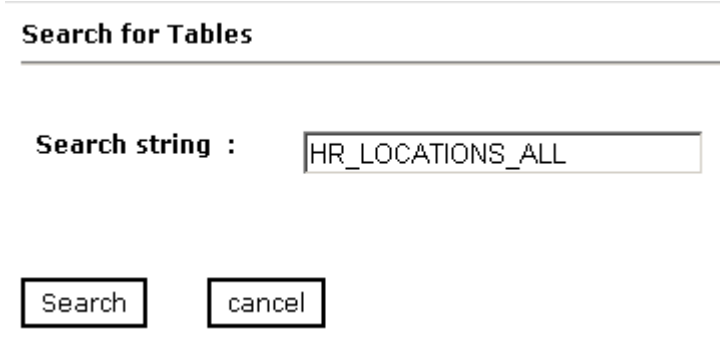
   The schemas under Applications are actual table owners.
4. Select *Tables*.

   The Tables node provides the capability to interact with base tables and views.



5. In the right pane, move the pointer over *Operations* and select *Search for Tables*.

   The Search for Tables pane opens on the right.



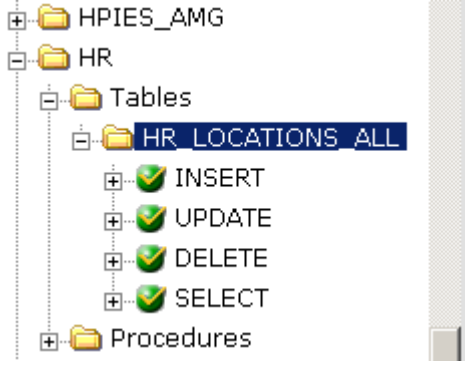

   **Note:** Due to the large number of tables available, a search capability is provided. You can search for a particular table by typing the full table name into the Search string field, as shown in the preceding image. Alternatively, you can search for table names beginning with a certain string, for example, typing *HR_LOC%* generates a list of all tables starting with the string HR_LOC. This search capability is not case sensitive.

6. Click *Search*.

   The HR_LOCATIONS_ALL table is listed under HR Tables in the left pane.

7. Expand the HR_LOCATIONS_ALL table node.

   There are four ways to interact with Oracle base tables: INSERT, UPDATE, DELETE, and SELECT.




   **Important:** Oracle recommends that users do not interact directly with application tables. The use of INSERT, DELETE, or UPDATE to modify data in application tables may jeopardize database referential integrity.

You can now generate schemas and create Integration Business Services.

# Generating a Schema

When you deploy the BEA WebLogic Adapter for Oracle E-Business Suite in the Integration Business Services Engine (iBSE) environment or an Enterprise Connector for J2EE Connector Architecture (JCA) environment, you can generate schemas that define a service request document and the corresponding response document. For more information on request and response documents, see Appendix C, *Sample Request and Response Documents*.

If you plan to deploy the BEA WebLogic Adapter for Oracle E-Business Suite in a business services environment, you are not required to generate a schema. For more information, see *Generating an Integration Business Service* on page 2-26.

## Schema Location

Application Explorer stores the schemas it creates in subdirectories under the iWay home directory of the machine where it is installed. The exact location of the schemas differs depending on whether you deploy Application Explorer with an iBSE or a JCA configuration.

- When using the adapter with an **iBSE** configuration, the schemas are stored under a `\schemas` subdirectory of the iWay home directory, for example,

  *iWayHome*`\bea\ibse\wsdl\schemas\service\Oracle\`*OracleTarget*

  where:

  `OracleTarget`

  Is the name of the connection to the Oracle Applications system that you defined in Application Explorer. Under this directory, Application Explorer creates subdirectories containing schemas.

- When using the adapter with a **JCA** configuration, the schemas are stored under a `\schemas` subdirectory of the iWay home directory, for example,

  *iWayHome*`\config\base\schemas\Oracle\`*OracleTarget*

  where:

  `OracleTarget`

  Is the name of the connection to the Oracle Applications system that you defined in Application Explorer. Application Explorer stores the schemas in this directory.

**Note:** During runtime, it is the responsibility of the BEA WebLogic Server to handle multiple requests with the same session ID.

You can generate schemas for interface tables, stored procedures and functions under a package, and base tables and views. The procedure for generating a schema is identical for all three integration methods. The following procedures show examples of actual schemas generated for each integration method.

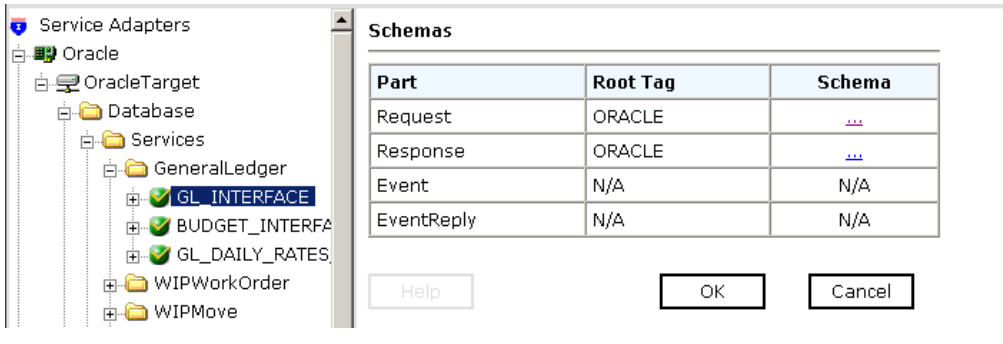
## Procedure: How to Generate a Schema for an Interface Table

To generate a schema for an Oracle E-Business Suite interface table using Application Explorer:

1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.
2. Locate an interface table, as described in *Browsing Interface Table Metadata* on page 2-11.

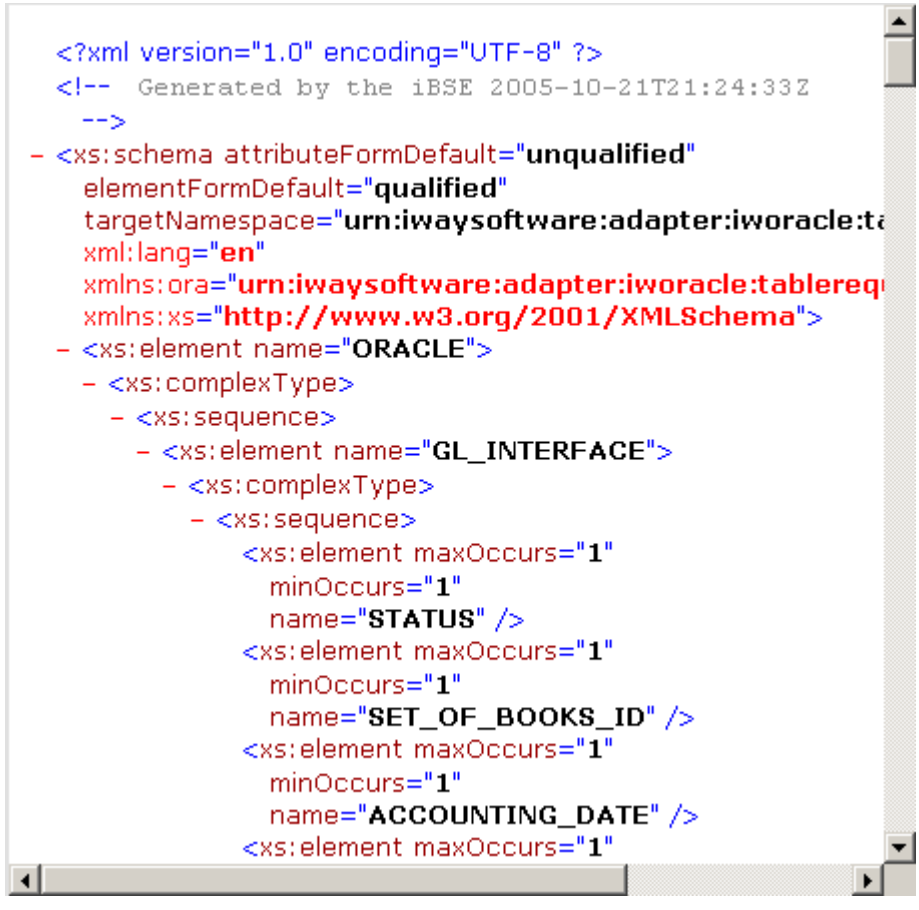
   **Note:** The user ID for this target connection must have read access to the selected table; otherwise you cannot create schemas.
3. In the right pane, move the pointer over *Operations* and select *Generate Schema*.

   The Schemas pane opens on the right, as shown in the following image, with a table listing Part, Root Tag, and Schema. The Schema column provides hyperlinks to the different schemas.




4. In the Schema column, click the browse hyperlink (...) associated with the type of schema (request or response) you want to view.

The schema appears in the right pane, as shown in the following image.




**a.** Right-click the right pane and select *View Source*.

**b.** Save the schema or copy and paste it to another location.

**5.** To return to the Schemas table, click the *Back* button of your Web browser.

**6.** To return to the Operations menu, click *OK*.

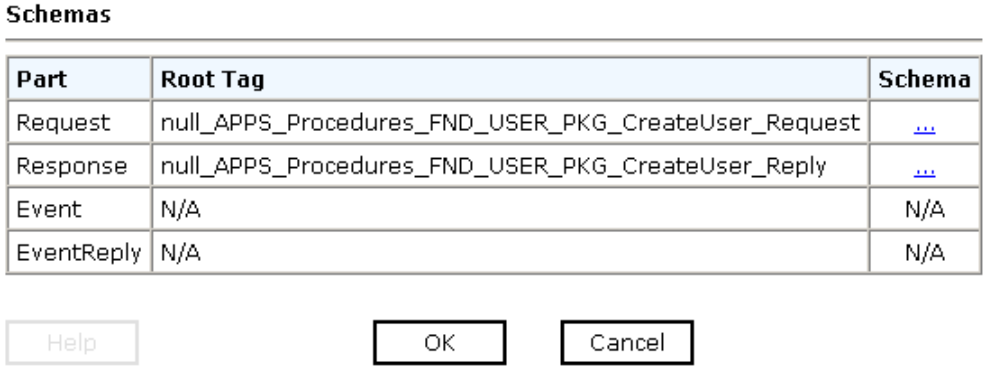
## Procedure: How to Generate a Schema for a Stored Procedure

To generate a schema for an Oracle E-Business Suite stored procedure using Application Explorer:

1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.
2. Locate a stored procedure, as described in *Browsing Stored Procedures and Functions Under a Package* on page 2-13.

   **Note:** Some stored procedures have complex data type fields (such as STRUCT or ARRAY), or Oracle-specific complex data type fields (such as GROUP_REC_TYPE or PARTY_SITE_REC_TYPE). Such stored procedures are not supported through BEA WebLogic Adapter for Oracle E-Business Suite. You must select a stored procedure that does not require complex data types. For detailed information on particular packages or stored procedures, see your Oracle E-Business Suite documentation.
3. Under the CreateUser stored procedure, select the *STORED_PROCEDURE_CALL* node.
4. In the right pane, mouse over *Operations* and select *Generate Schema...* .

   The Schemas pane opens on the right, as shown in the following image, with a table listing Part, Root Tag, and Schema. The Schema column provides hyperlinks to the request and response schemas.



Schemas

| Part | Root Tag | Schema |
|---|---|---|
| Request | null_APPS_Procedures_FND_USER_PKG_CreateUser_Request | ... |
| Response | null_APPS_Procedures_FND_USER_PKG_CreateUser_Reply | ... |
| Event | N/A | N/A |
| EventReply | N/A | N/A |

Help OK Cancel

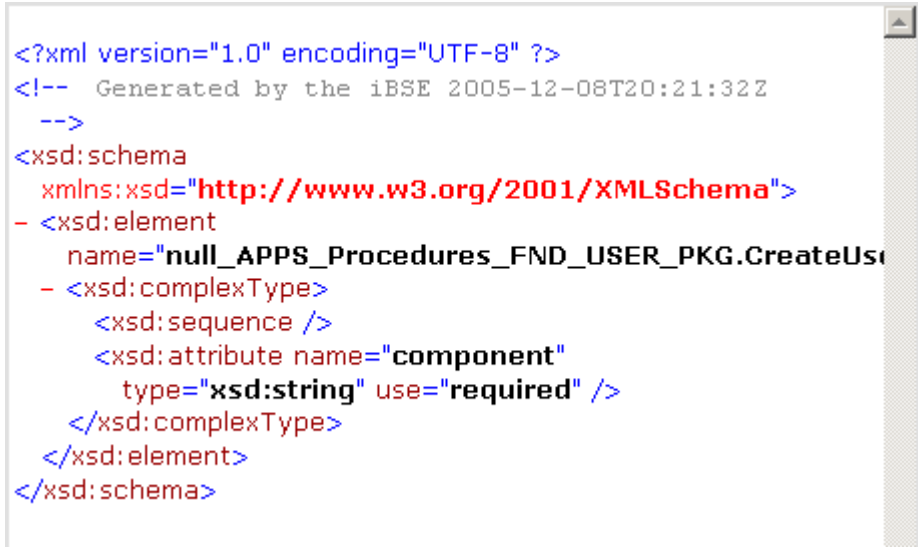
5. In the Schema column, click the browse hyperlink (...) associated with the type of schema (request or response) you want to view.

For example, if you click the request schema hyperlink, the request schema appears in the right pane, as shown in the following image.


**a.** Right-click the right pane and select *View Source*.

**b.** Save the schema or copy and paste it to another location.

The request schema for the CreateUser stored procedure under APPS/FND_USER_PKG looks as follows:



```
<?xml version="1.0" encoding="UTF-8" ?>
<!--  Generated by the iBSE 2005-12-08T20:21:32Z
  -->
<xsd:schema
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
- <xsd:element
    name="null_APPS_Procedures_FND_USER_PKG.CreateUs
  - <xsd:complexType>
      <xsd:sequence />
      <xsd:attribute name="component"
        type="xsd:string" use="required" />
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

**Note:** When creating schemas for stored procedures, in certain cases there may be no output element in the response schema. This happens when in the code of a stored procedure there are inputs but no outputs. In cases where there are no outputs, there will be no output element in the response schema. For detailed information on individual stored procedures, see your Oracle E-Business Suite documentation.

6. To return to the Schemas table, click the *Back* button of your Web browser.
7. To return to the Operations menu, click *OK*.

## Procedure: How to Generate a Schema for a Base Table or View

To create a pair of request and response service schemas for interaction with an Oracle base table using Application Explorer:

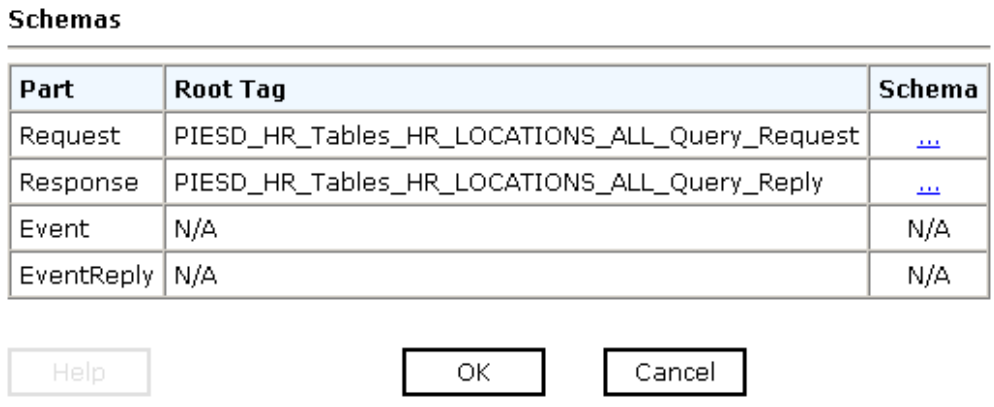
1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.
2. Locate an Oracle base table as described in *Browsing Oracle Base Tables and Views* on page 2-16.
3. Click *SELECT*.

   **Important:** Oracle recommends that users do not interact directly with application tables. The use of INSERT, DELETE, or UPDATE to modify data in application tables may jeopardize database referential integrity.

The Operations menu becomes available in the right pane.

4. In the right pane, mouse over *Operations* and select *Generate Schema...* .

   The Schemas pane opens on the right, as shown in the following image, with a table listing Part, Root Tag, and Schema. The Schema column provides hyperlinks to the request and response schemas.



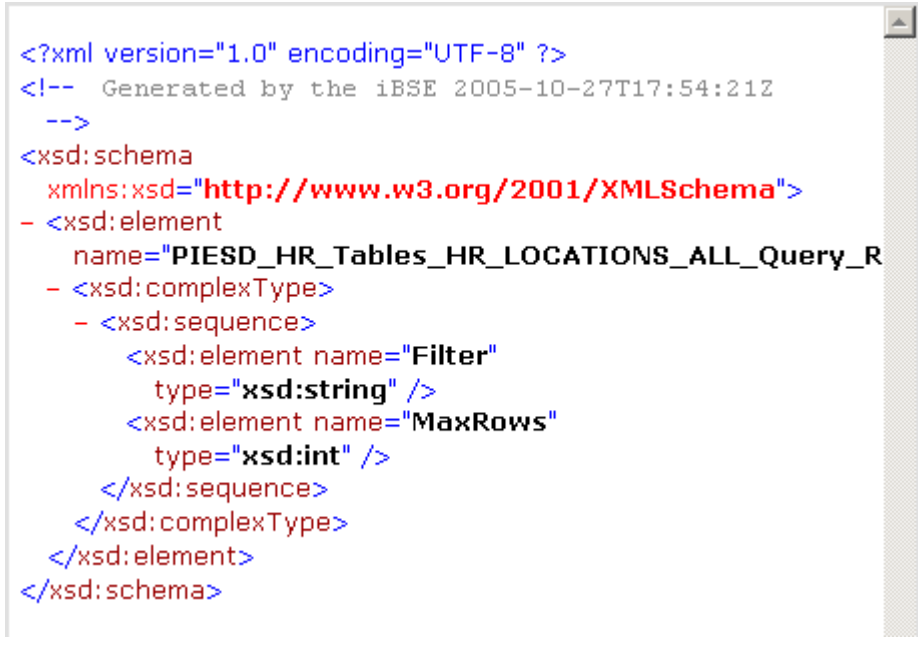
**Schemas**

| Part | Root Tag | Schema |
|---|---|---|
| Request | PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_Request | ... |
| Response | PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_Reply | ... |
| Event | N/A | N/A |
| EventReply | N/A | N/A |

Help OK Cancel

5. In the Schema column, click the browse hyperlink (...) associated with the type of schema (request or response) you want to view.

The schema appears in the right pane, as shown in the following image.



```
<?xml version="1.0" encoding="UTF-8" ?>
<!--  Generated by the iBSE 2005-10-27T17:54:21Z
  -->
<xsd:schema
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">
- <xsd:element
    name="PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_R
  - <xsd:complexType>
    - <xsd:sequence>
        <xsd:element name="Filter"
          type="xsd:string" />
        <xsd:element name="MaxRows"
          type="xsd:int" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

The following is a brief description of the Filter and MaxRows elements.

- Filter: Within this tag include the field element and data on which you are applying the restriction.
- MaxRows: The maxium number of rows returned in the resulting record set.

6. Perform the following steps:
   a. Right-click the right pane and select *View Source*.
   b. Save the schema or copy and paste it to another location.
7. To return to the Schemas table, click the *Back* button of your Web browser.
8. To return to the Operations menu, click *OK*.

# Generating an Integration Business Service

You can generate an Integration Business Service (also known as a Web service) for an Oracle E-Business Suite interface table, stored procedure, or base table. To generate a business service, you must deploy the BEA WebLogic Adapter for Oracle E-Business Suite in a business services environment using the Integration Business Services Engine (iBSE). iBSE exposes functionality as Web services and serves as a gateway to heterogeneous back-end applications and databases.

A Web service is a self-contained, modularized function that can be published and accessed across a network using open standards. It is the implementation of an interface by a component and is an executable entity. For the caller or sender, a Web service can be considered a "black box" that may require input and delivers a result. Web services can be integrated within an enterprise as well as across enterprises on any communication technology stack, whether asynchronous or synchronous, in any format.

You can make a Web service available to other services within a host server by generating WSDL (Web Services Description Language) from the Web service.

Ensure that the servlet iBSE is properly configured. For more information on installing and deployingcomponents, see the *BEA WebLogic ERP Adapter Installation and Configuration* manual.

**Note:** Web services are not available in a J2EE Connector Architecture (JCA) implementation of an adapter. When an adapter is deployed to use the Connector for JCA, the Common Client Interface provides integration services using the adapter. For more information, see the *BEA WebLogic ERP Adapter Installation and Configuration* manual.

You can create Web services for interface tables, stored procedures and functions under a package, and base tables and views. The procedure is identical for all three integration methods. The following procedures show examples of actual Web services created for each integration method.

## Procedure: How to Create and Test a Web Service for an Interface Table

The following example shows how to create a Web service for an Oracle E-Business Suite interface table.

1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.
2. In the left pane, expand the target node.
3. Locate and select an interface table, as described in *Browsing Interface Table Metadata* on page 2-11.

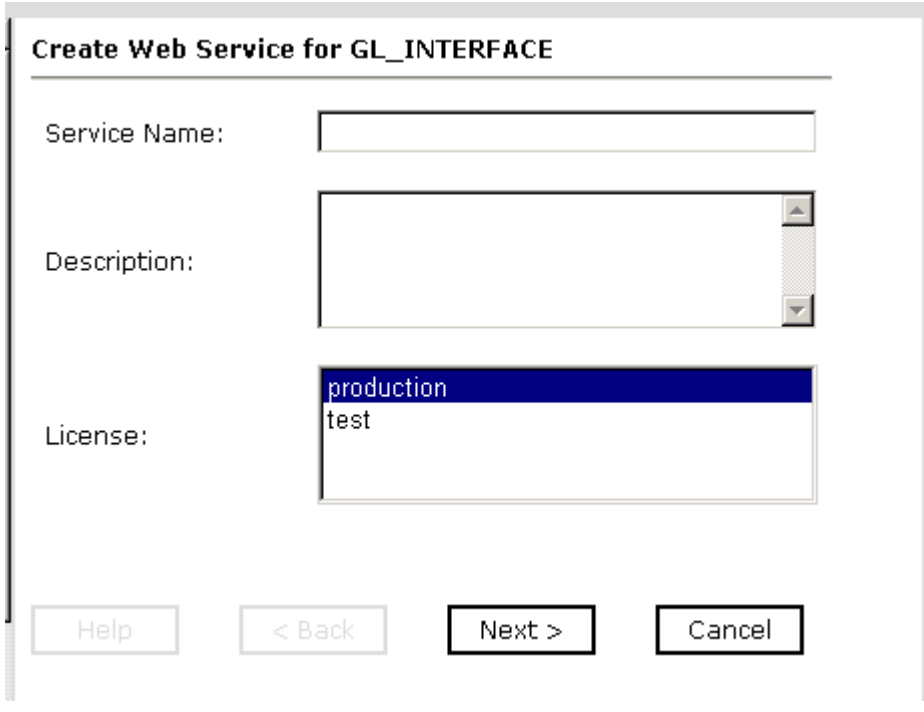
   **Note:** The user ID for this target connection must have read access to the selected table, otherwise you cannot create a business service for it.

4. In the right pane, move the pointer over *Operations* and select *Create Integration Business Services*.

   The Create Web Service pane opens on the right with the options to create a new service or use an existing service, as shown in the following image.


5. Select *Create a new service* and click *Next*.

The Create Web Service pane opens on the right as shown in the following image.



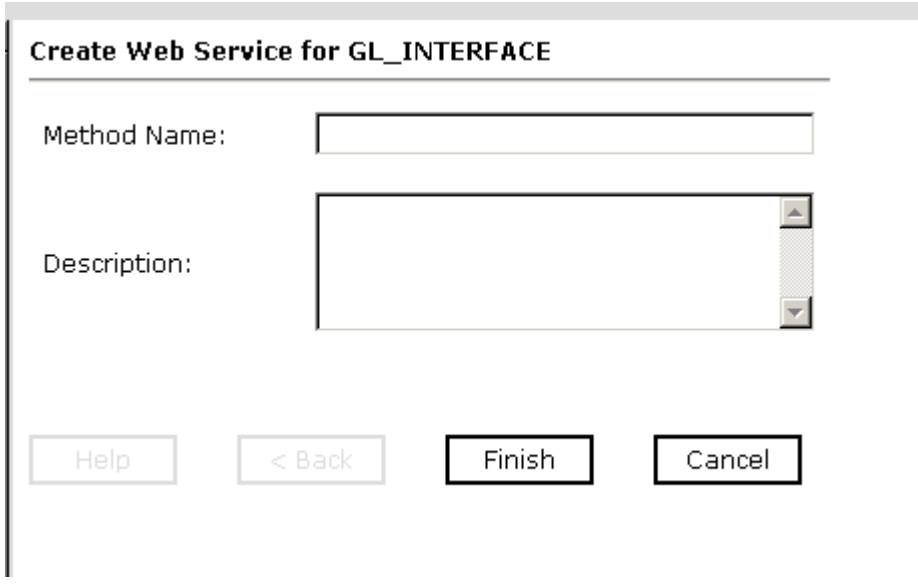

**a.** In the Service Name field, type a descriptive name for the service.

**b.** In the Description field, type a brief description of the service.

**c.** From the License list, select a license definition.

**6.** Click *Next*.

A second Create Web Services pane opens and prompts you for additional information, as shown in the following image.



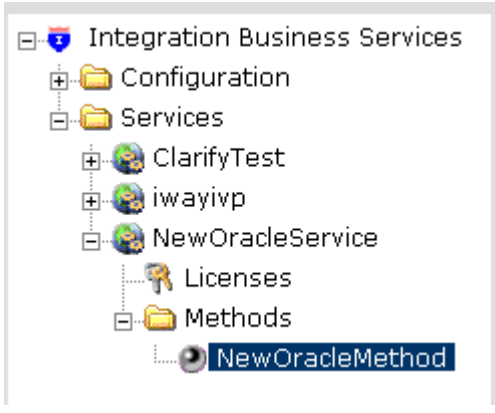

**a.** In the Method Name field, type a descriptive name for the method.

**b.** In the Description field, type a brief description of the method.

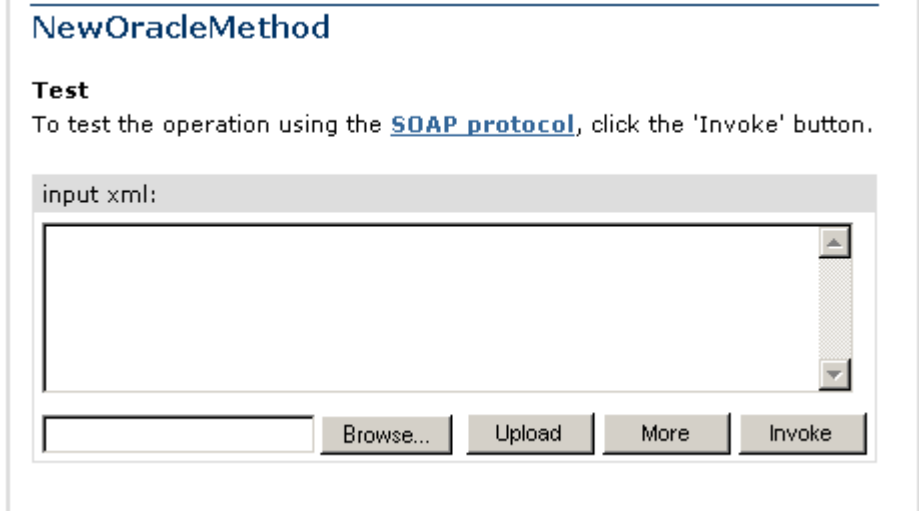
**7.** Click *Finish*.

The Integration Business Services tab opens. In the left pane, the new Web service appears in the Services folder that is located under the Integration Business Services node.

The following image shows a Web service example called NewOracleService and, under that service, a method example called NewOracleMethod.




On the right, the test pane for the new method opens, where you can test the operation using the SOAP protocol, as shown in the following image.




**8.** Enter a sample XML document in the input xml field.

To view the full text of a sample input XML file, see *Interface Table Request Document for WIP_JOB_SCHEDULE_INTERFACE* on page C-2.

**9.** Click *Invoke*.

The Web service test result appears on the right as shown in the following image.

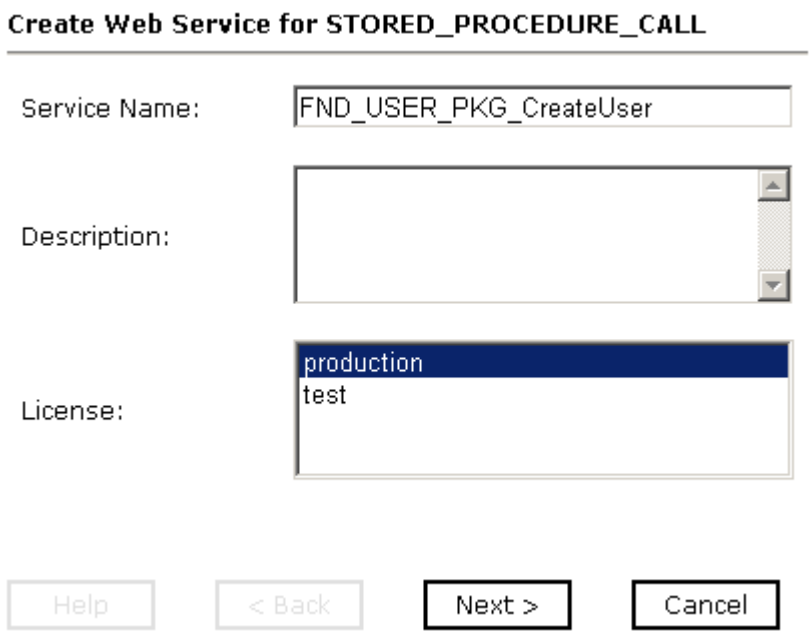

## Procedure: How to Create and Test a Web Service for a Stored Procedure

To create a Web service for an Oracle E-Business Suite stored procedure:

1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.
2. Locate the CreateUser stored procedure under FND_USER_PACKAGE, as described in *How to Search for Packages* on page 2-14.
3. Under the CreateUser stored procedure, select the *STORED_PROCEDURE_CALL* node.


4. In the right pane, mouse over *Operations* and select *Create Integration Business Service...*.

The Create Web Service pane opens on the right, as shown in the following image.



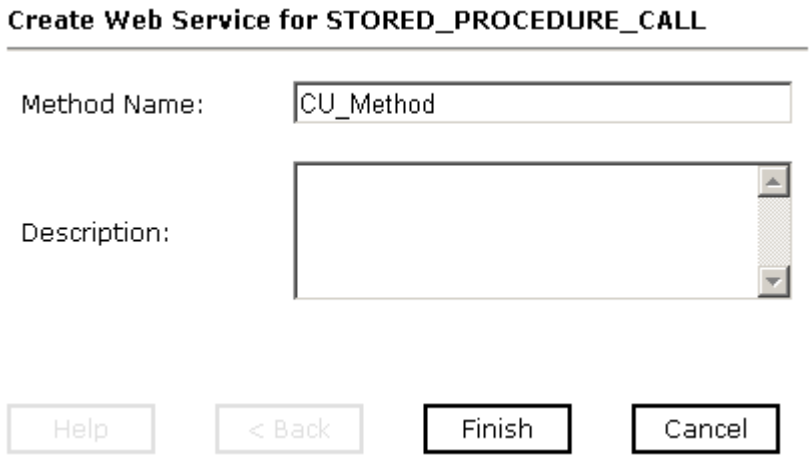

**a.** In the Service Name field, type a descriptive name for the service.

**b.** In the Description field, type a brief description of the service.

**c.** From the License list, select a license definition.

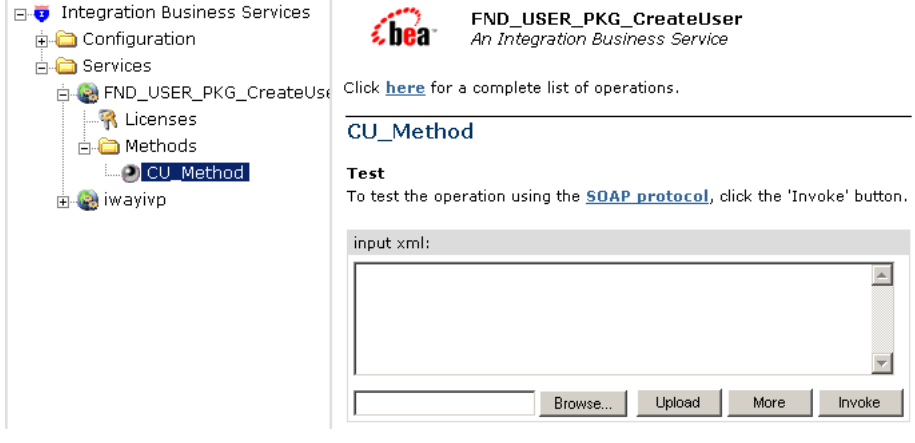
**5.** Click *Next*.

A second Create Web Services pane opens and prompts you for additional information, as shown in the following image.




**6.** Click *Finish*.

The Integration Business Services tab opens. In the left pane, the new Web service appears in the Services folder that is located under the Integration Business Services node. On the right, the test pane for the new method opens, where you can test the operation using the SOAP protocol.



7. Type a request XML document in the input xml field that will query the service, for example:

```
<null_APPS_Procedures_FND_USER_PKG.CreateUser_request session="1">
    <x_user_name>Desmond</x_user_name>
    <x_unencrypted_password>ORACLE</x_unencrypted_password>
    <x_owner>SEED</x_owner>
</null_APPS_Procedures_FND_USER_PKG.CreateUser_request>
```

8. Click *Invoke*.

   The Web service test result appears in the right pane.


## Procedure: How to Create and Test a Web Service for a Base Table

To create a Web service for the Oracle E-Business Suite base table HR_LOCATIONS_ALL:

1. Connect to an Oracle E-Business Suite target, as described in *Connecting to Oracle E-Business Suite* on page 2-3.

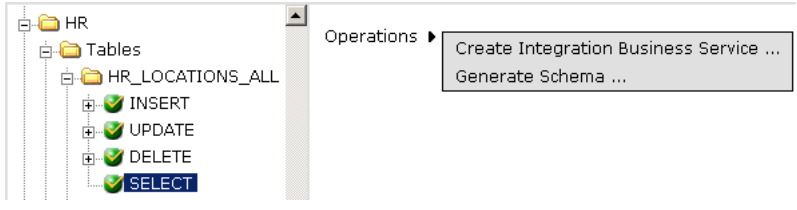
2. Locate and expand the HR_LOCATIONS_ALL table node, as described in *How to Search for Oracle Base Tables and Views* on page 2-16.

   **Important:** Oracle recommends that users do not interact directly with application tables. The use of INSERT, DELETE, or UPDATE to modify data in application tables may jeopardize database referential integrity.

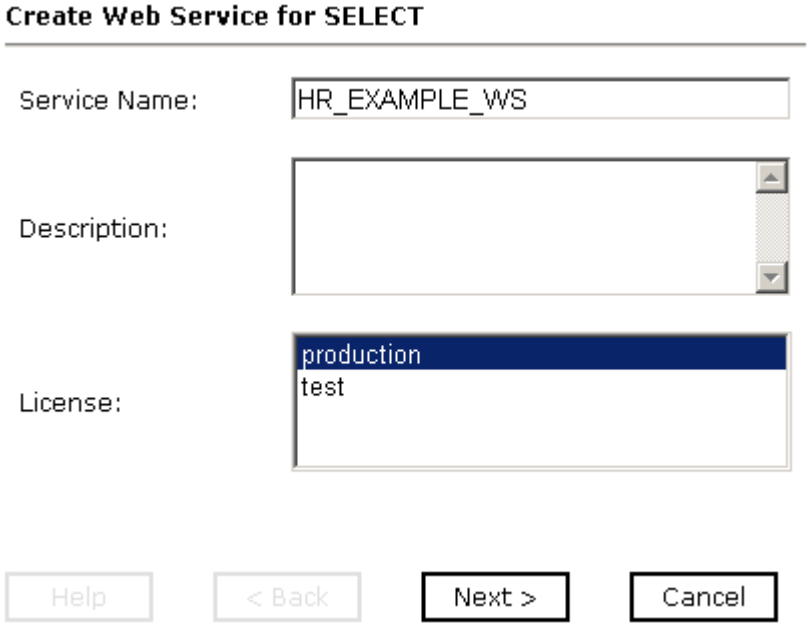
3. Click *SELECT* under the HR_LOCATIONS_TABLE node in the left pane.

   The Operations menu becomes available in the left pane.

4. In the right pane, mouse over *Operations* and select *Create Integration Business Service....*




The Create Web Service pane opens on the right, as shown in the following image.




   a. In the Service Name field, type a descriptive name for the service.

   b. In the Description field, type a brief description of the service.

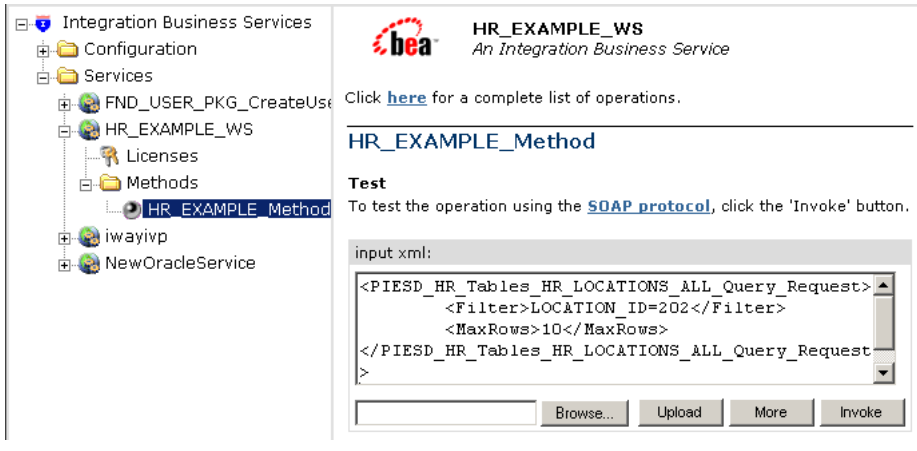
**c.** From the License list, select a license definition.

**5.** Click *Next*.

A second Create Web Service pane opens and prompts you for a method name and brief description.

**6.** Provide the above information and click *Finish*.

The Integration Business Services tab opens. In the left pane, the new Web service appears in the Services folder that is located under the Integration Business Services node. On the right, the test pane for the new method opens, where you can test the operation using the SOAP protocol.




You can now create a request XML document and test the service.

**7.** Using an XML editor, create a service request document.

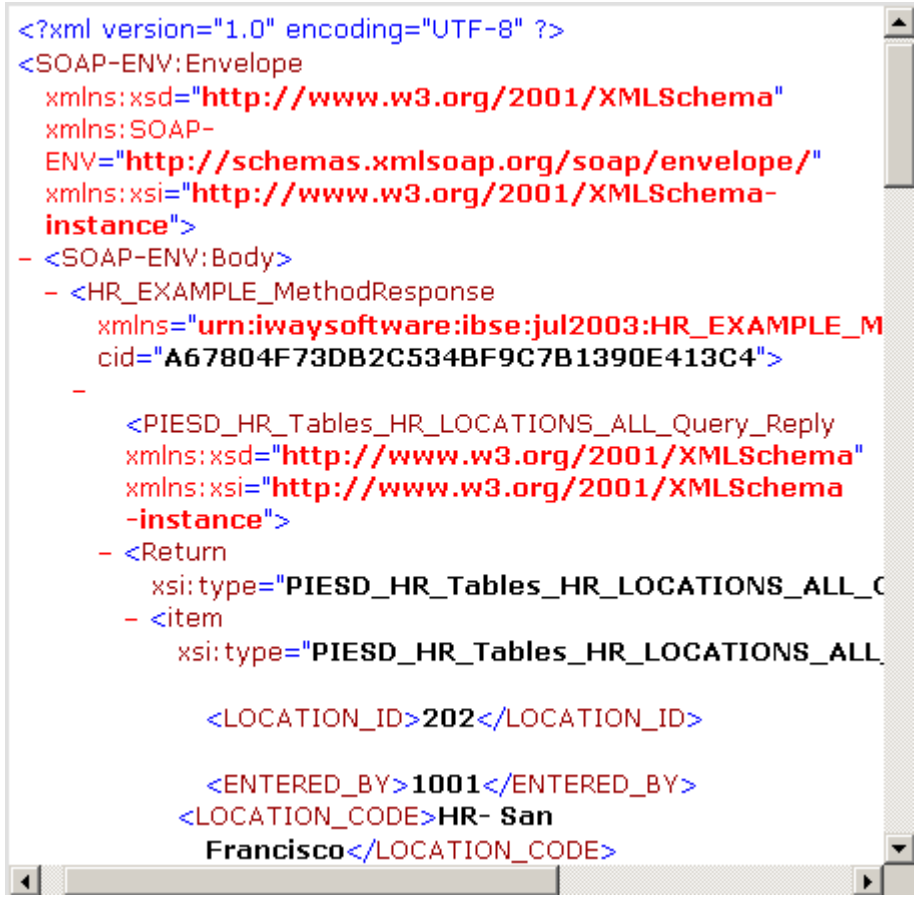
For example:

```
<PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_Request>
    <Filter>LOCATION_ID=202</Filter>
    <MaxRows>10</MaxRows>
</PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_Request>
```

**8.** Paste the request XML document into the input xml field that will query the service.

**9.** Click *Invoke*.

The Web service test result appears in the right pane.



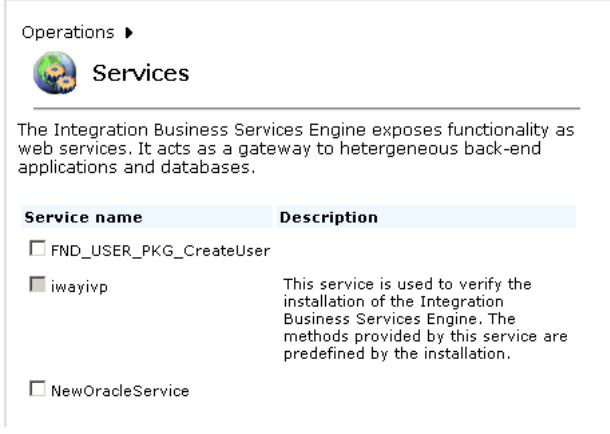

You have completed the configuration and testing of this service.

## Procedure: How to Delete a Business Service

To delete a business service:

1. Select the Integration Business Services tab and, in the left pane, expand the *Services* node under *Integration Business Services*.
2. Click the *Services* node.

The Services pane opens on the right, as shown in the following image. This pane lists and describes all available services.




3. Select the check box next to the service(s) you want to delete.
4. Move the pointer over *Operations* and select *Delete*.

   A confirmation statement appears in the right pane.
5. Click *OK*.

   The service no longer appears under the Services node on the left or in the Services pane on the right.

## Generating WSDL From a Web Service

Generating WSDL (Web Service Definition Language) from a Web service enables you to make the Web service available to other services within a host server, such as BEA WebLogic Server.

### Procedure: How to Generate WSDL From a Web Service

To generate WSDL from a Web service using Application Explorer:

1. Select the *Integration Business Services* tab.
2. In the left pane, expand the *Integration Business Services* node and then, the *Services* node.
3. Select the service for which you want to generate WSDL.

   A hyperlink to a description of the service appears on the right.
4. Right-click *Service Description* and select *Save Target As*.

   The Save As window opens.

**a.** Choose a location for the file.

**b.** Add a .wsdl file extension to the file name.

All WSDL files must have a .wsdl file extension.

**5.** Click *Save*.

Saving a Web service creates a WSDL file, for example, saving a file named WIPMove, creates a WSDL file named WIPMove.wsdl. For the full text of a sample WSDL file, see Appendix D, *Sample WSDL File*.

## Identity Propagation

If you test or execute a Web service using a third party XML editor, for example XMLSPY, the Username and Password values that you specify in the SOAP header must be valid and are used to connect to Oracle. The user name and password values that you provided for Oracle during target creation using Application Explorer are overwritten for this Web service request. The following is a sample SOAP header that is included in the WSDL file for a Web service:

```
<SOAP-ENV:Header>
    <m:ibsinfo xmlns:m="urn:schemas-iwaysoftware-com:iwse">
        <m:service>String</m:service>
        <m:method>String</m:method>
        <m:license>String</m:license>
        <m:disposition>String</m:disposition>
        <m:Username>String</m:Username>
        <m:Password>String</m:Password>
        <m:language>String</m:language>
    </m:ibsinfo>
</SOAP-ENV:Header>
```

**Note:** You can remove the following tags from the SOAP header, since they are not required:

```
<m:disposition>String</m:disposition>
```

```
<m:language>String</m:language>
```

# Running a Submit Request (Interface Tables Only)

BEA WebLogic Adapter for Oracle E-Business Suite supports running what was formerly known as the Oracle Applications concurrent program function using the adapter concurrent programs agent. Currently, this function is called the Submit Request.

The Submit Request submits a request that runs a concurrent program. Concurrent programs perform several functions, including moving data. For example, if you wish to move data to a base table:

1. First, write the data to an interface table.

   Each interface table has a Submit Request associated with it.

2. When the data is ready, run a Submit Request.

   The Submit Request moves the data from the interface table to the base table.

The Submit Request can call a concurrent program synchronously or asynchronously. It submits the concurrent program to a concurrent manager that controls background processing in Oracle E-Business Suite.

## Procedure: How to Run the Submit Request

To run the Submit Request:

1. Use Application Explorer to generate a pair of request and response schemas for the Submit Request, as described in *Generating a Schema for the Submit Request* on page 2-42.

   You do this only once for a Submit Request. This covers all Submit Requests to be run from a given Oracle E-Business Suite connection.

2. Add a service for the Submit Request, as described in *Generating a Web Service for the Submit Request* on page 2-43.

   You do this only once for a Submit Request. This covers all Submit Requests to be run from one Oracle E-Business Suite connection.

3. Create the request document, as described in *Creating a Request Document* on page 2-47.

4. Test the request document, as described in *Creating a Request Document* on page 2-47.

## Installing the Submit Request and Running the Concurrent.ora Script

To install the Submit Request, you must perform the following additional steps when installing the adapter.

**Important:** When BEA WebLogic Adapter for Oracle E-Business Suite is installed on Oracle 9i, the concurrent.ora script cannot be executed using the command prompt. You must use the SQL*Plus GUI to execute the script.

1. Run the Concurrent.ora script against the Oracle database server.
2. Adjust the system path on the Oracle database server.
3. Verify the presence of the CONCSUB executable on the Oracle database server.

As part of the installation process, you must run the Concurrent.ora script. You can run it at any time before creating the service for the Submit Request. The computer on which you run the script must have:

- A TNSnames entry, in the Tnsnames.ora file, that points to the Oracle E-Business Suite database instance (on the Oracle server).
- SQL*Plus installed.

### Procedure: How to Run the Concurrent.ora Script

**Important:** When BEA WebLogic Adapter for Oracle E-Business Suite is installed on Oracle 9i, the concurrent.ora script cannot be executed using the command prompt. You must use the SQL*Plus GUI to execute the script.

To run the Concurrent.ora script:

1. On Windows, use WinZip (or a similar extraction product) to extract *Concurrent.ora*.

   You can also use the iWay package facility to install the Oracle Applications package, which constains the script file.
2. After Concurrent.ora is extracted, move it to the computer where SQL*Plus resides, if it is not already located there.
3. Open a command prompt window or telnet session.
4. In the directory in which Concurrent.ora resides, issue the following command using the APPS user ID:

   ```
   SQLPLUS APPS/password@database @Concurrent.ora
   ```

   where:

   *password*

   Is the password associated with the APPS user ID.

`database`

Is a value of the tnsnames entry (in the tnsnames.ora file) that points to the Oracle E-Business Suite database instance.

### Procedure: How to Adjust the System Path and Verify CONCSUB

To adjust the system path and verify CONCSUB:

1. On the server where the Oracle E-Business Suite database instance resides, add the following to the system path:

   `$FND_TOP\bin`

   You can add it at any time before creating the service for the Submit Request.

2. Verify that the CONCSUB executable is present in $FND_TOP\bin.

   If CONCSUB is missing, contact your Oracle E-Business Suite administrator.

   $FND_TOP is the location of the Oracle E-Business Suite foundation directory. Its value is set in the vis.env (or prod.env) file located under the oraclehome\visappl directory.

## Generating a Schema for the Submit Request

You must create a pair of request and response service schemas for the Submit Request. You need only do this once for each Oracle E-Business Suite connection from which you run these programs. This satisfies the requirement for all Submit Requests that are accessed using that connection.

### Procedure: How to Generate a Schema for the Submit Request

To generate the request and response schemas:

1. If you have not already done so, connect to an Oracle E-Business Suite database instance.
2. In the left pane of Application Explorer under the Oracle Applications target, expand the *Services* node and the *submit_request* node.
3. Select *submit_request*.
4. In the right pane, move the pointer over *Operations* and select *Generate Schema*.

   A table appears on the right.

5. To review a schema, click the ellipsis (...) in the Schemas column for the appropriate row.

You have finished generating the service schemas.

## Generating a Web Service for the Submit Request

Generating a Web service for the Submit Request is identical to configuring other Oracle E-Business Suite services, except that some of the configuration parameters differ.

The following table lists and describes the service parameters for the Submit Request.

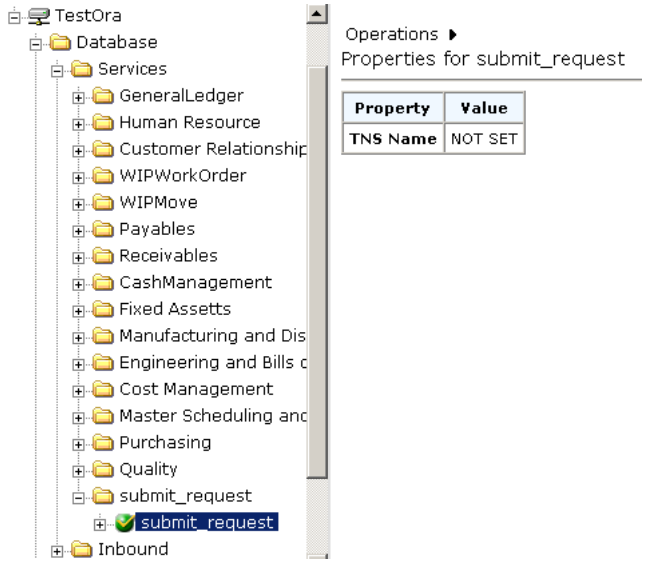
| Parameter | Description |
|---|---|
| Select | Submit Request. |
| Userid | User ID for the Oracle E-Business Suite database. |
| Password | Password associated with the user ID. |
| Host | Name of the server where the Oracle E-Business Suite database instance resides. |
| Port | Port number on which the database is listening. |
| ServiceId | Unique name, comprised of the database name and domain name, that identifies the database. |
| TnsName | Logical name of the Oracle E-Business Suite database instance. |

### Procedure: How to Generate a Web Service for Submit Request

To create a Web service:

1. In the left pane of Application Explorer, expand the *submit_request* node.

The following image shows the expanded submit_request service node on the left and a property table for the submit request service that opens on the right.

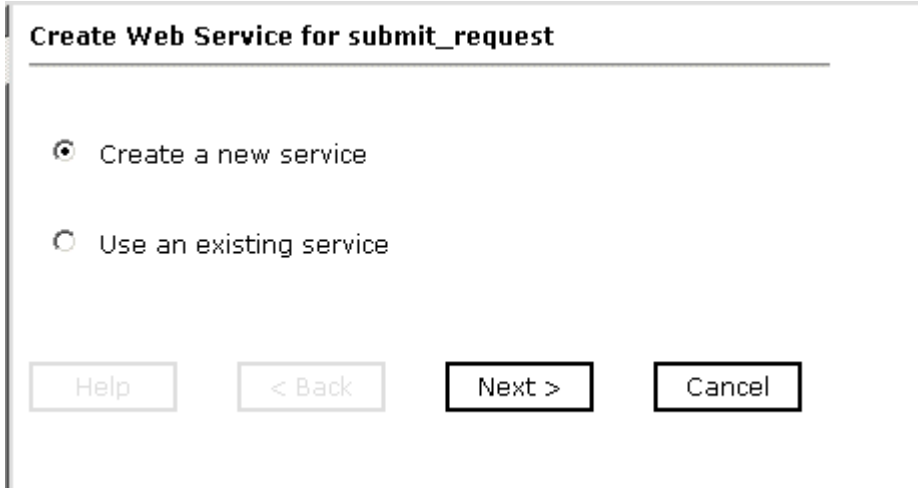



2. Select *submit_request*.

   The Operations menu becomes available on the right.

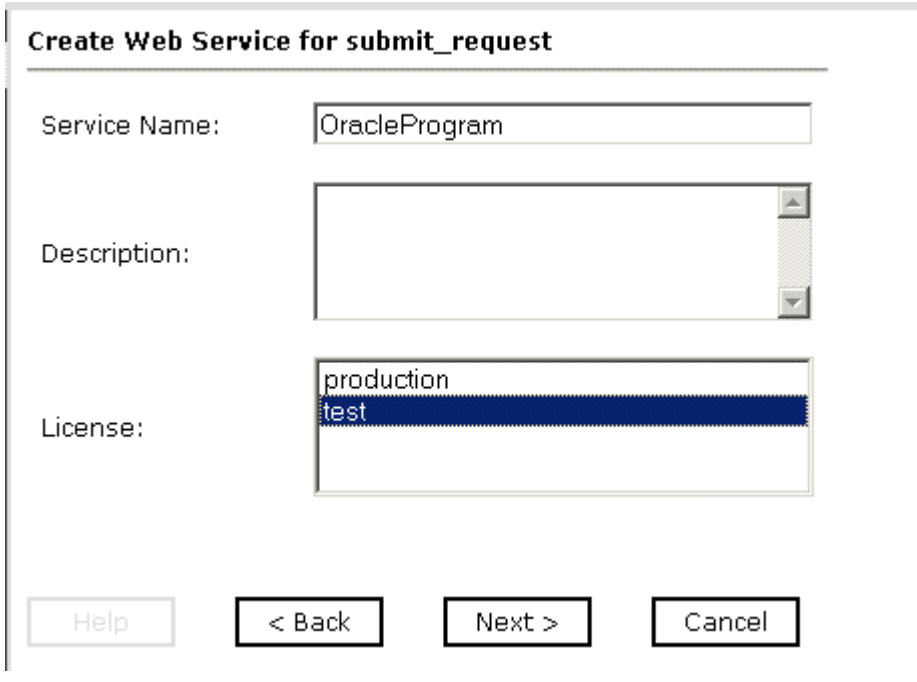
3. Move the pointer over *Operations* and select *Create Integration Business Services*.

The Create Web Service for submit_request pane opens on the right and provides the option to create a new service or use an existing service as shown in the following image.




4. Select the *Create a new service* option button.
5. Click *Next*.

The right pane prompts you for descriptive information about the service, as shown in the following image.



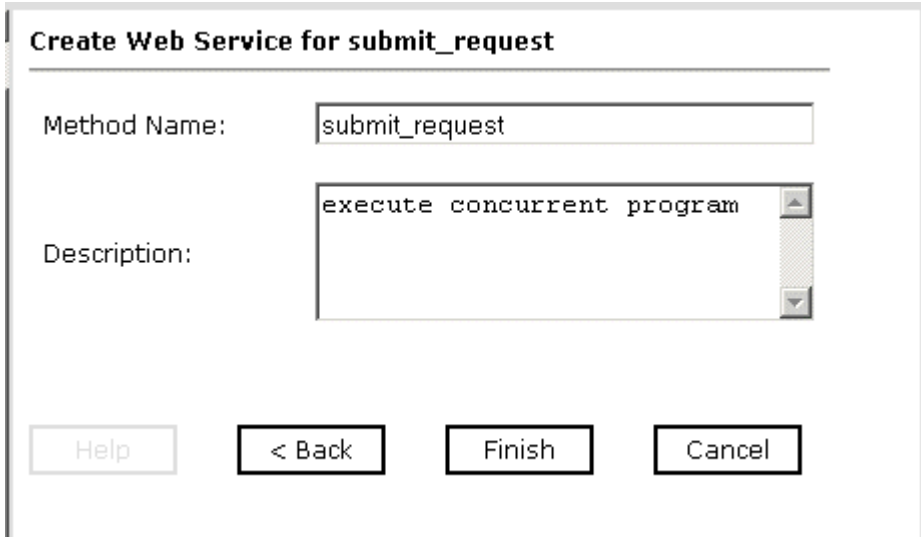

**a.** In the Service Name field, type a name for the Web service.

**b.** In the Description field, type a brief description of the Web service.

**c.** From the License list, select the license, for example, test.

**6.** Click *Next*.

The right pane then prompts you to identify a method for the service, as shown in the following image.




**a.** In the Method Name field, type a name for your method.

**b.** In the Description field, type a brief description of the method.

**7.** Click *Finish*.

## Creating a Request Document

You can use an XML editor to create the service request document. For a sample submit request document, see Appendix C, *Sample Request and Response Documents*.

After you create a Web service and a request document, you can verify that you correctly configured the service for the Submit Request. After you create a service, the test pane appears on the right.

### Procedure: How to Test the Submit Request

To test the Submit Request service:

**1.** Ensure the Test pane appears on the right after you create the service. If it does not appear:

**a.** Click the *Integration Business Services* tab.

**b.** Click the *Browse* button.

**c.** Use the tree in the left pane to browse to your service and method.

2. Copy the XML input from the request document and paste it in the input xml field of the test pane. For a sample XML input document, see Appendix C, *Sample Request and Response Documents*.

3. To test the Submit Request, click *Invoke*.

   The response document appears on the right as shown in the example in the following image.


   The `submit_response_id` returned in the reply is the request id returned from the concsub command. This request id can be used through Oracle E-Business Suite to monitor the status of the concurrent manager program instance that was invoked.

You have completed the testing of the Submit Request service.

# Understanding Transaction-Based Processing

With many of the APIs available through the Oracle e-Business Suite, a succession of stored procedures and table functions must be carried out in order to affect a particular e-Business Suite function. In many instances, Oracle global environment variables must be set before a particular operation can be executed. For this reason the adapter features two types of connections, for use with transaction and non-transaction-based operations, called session-based and sessionless connections, respectively. The terms connection, session, and transaction are used interchangeably depending on the context.

To take advantage of this functionality, you must create schemas and Web services in a particular order and in particular ways. For more information on implementing session-based and sessionless transactions, see *Generating a Schema* on page 2-18

## Using Session-Based Connections

Whether you decide to take advantage of session-based connections depends on the dynamics of the transaction you wish to build. For example, a typical transaction might consist of the following steps:

- Calling the stored procedure `APPS.FND_GLOBAL.APPS_INITIALIZE` and setting the user ID, responsibility application ID, and responsibility ID.
- Inserting a record into an Oracle open interface table.
- Querying an Oracle e-Business Suite open interface table.

In this instance it might be important to have all these operations executed within one connection/transaction within Oracle. Using a session-based connection makes this possible.

All session-based connections/transactions require explicit commit or rollback requests to complete the transaction. The connection is not released back into the pool until a logoff request is received by the adapter.

The following represents a possible transaction flow:

1. A create session request is passed to the adapter. The adapter will return a unique transaction/connection ID that must be passed back in all subsequent requests that are to be executed within this transaction/connection.
2. Execute requests within a transaction by passing in the unique transaction ID with request.
3. Execute session commit request for transaction (ID).
4. Execute requests within transaction (new transaction is started but the connection is still open and used) passing in transaction/connection id obtained in step 1.

5. Execute session rollback request for transaction (ID).
6. Execute session logoff request for session (ID).

## Non-Session-based Connections

If a series of operations such as stored procedure calls, insert, and updates, etc do not require that they be executed within the same session, a sessionless connection can be used. Sessionless connections tie up fewer resources than session-based transactions because the connections are used for an operation that is committed implicitly and immediately and then returned to the pool.

## Connection Pooling

To make the adapter as efficient as possible, two connection pools are maintained for use by the adapter. These correspond to the session-based and sessionless operations described. At start, the pools are initialized but contain no open connections. As connections are needed the pools will open connections if none is available. The number of connections per pool can be limited by setting the appropriate system configuration parameter.

Sessionless connections are usually more available than session-based connections. A session-based connection is kept open and dedicated to a particular transaction, which is demarcated by a session create request and session logoff request.

CHAPTER 3

# Listening for Oracle E-Business Suite Events

**Topics:**

- Understanding Event Functionality
- Creating an Event Port
- Creating a Channel
- Choosing a Listening Technique
- Deploying Components in a Clustered BEA WebLogic Environment

This topic describes how to listen for Oracle E-Business Suite events.Several listening techniques are available, enabling you to choose the technique that best suits your requirements.

Although this section describes the Java servlet implementation of Application Explorer, other implementations provide the same functionality by means of similar graphical user interfaces.

# Understanding Event Functionality

Events are generated as a result of Oracle E-Business Suite activity. You can use events to trigger an action in your application. For example, you can detect WIP discrete job creation and notify another enterprise integration system of the event.

After you create a connection to your application system, you can add events using Servlet Application Explorer. To create an event, you must create a port and a channel.

- **Port**

  A port associates a particular business object exposed by an adapter with a particular disposition. A disposition defines the protocol and location of the event data. The port defines the end point of the event consumption.

  For example, you can use a JMS protocol to route the result of polling an interface table to a JMS queue hosted by a BEA WebLogic Server. For more information, see *Creating an Event Port* on page 3-2.

- **Channel**

  A channel represents configured connections to particular instances of back-end or other types of systems. A channel binds one or more event ports to a particular listener managed by an adapter. For more information, see *Creating a Channel* on page 3-21.

You can employ several techniques when listening for Oracle E-Business Suite events, depending upon your requirements. For information about these techniques, see *Choosing a Listening Technique* on page 3-28.

# Creating an Event Port

The following procedures describe how to create an event port using Servlet Application Explorer.

When you use Application Explorer with an Integration Business Services Engine (iBSE) implementation, the following port dispositions are available:

- File
- iBSE
- MSMQ
- JMSQ
- SOAP
- HTTP
- MQSeries

When you use Application Explorer with a JCA implementation, the following port dispositions are available:

- File
- JMS
- MQSeries
- HTTP

## Procedure: How to Create an Event Port for File

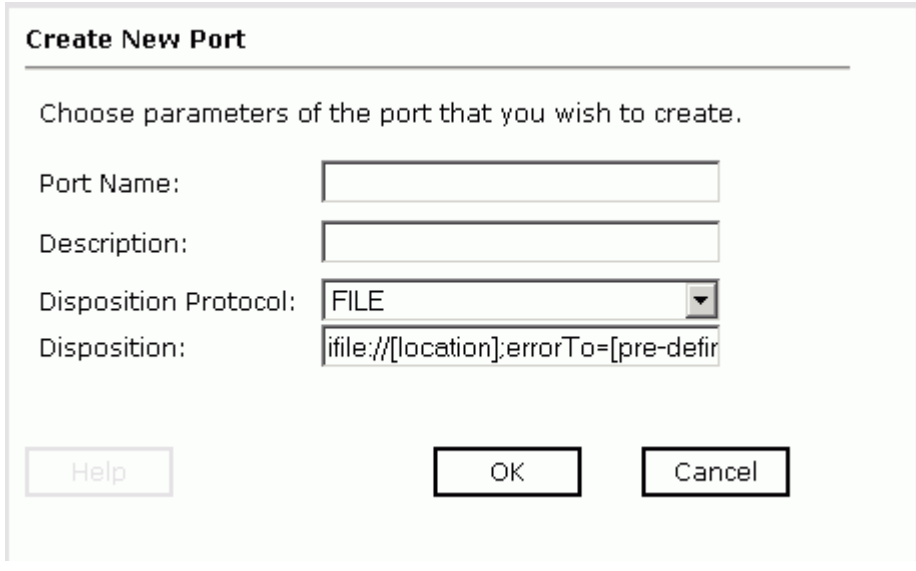
To create an event port for File:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node and then the *Oracle* node.
3. Select the *ports* node.

   The following image shows the ports node selected on the left and the Operations menu open on the right.


4. In the right pane, move the pointer over *Operations* and select *Add a new port*.

The Create New Port pane opens on the right, as shown in the following image.




**a.** In the Port Name field, type a name for the event port.

**b.** In the Description field, type a brief description of the port.

**c.** From the Disposition Protocol drop-down list, select *FILE*.

**d.** In the Disposition field, specify a destination file to which the event data is written.

When pointing Application Explorer to an **iBSE** deployment, specify the destination file using the following format:

```
ifile://location[;errorTo=errorDest]
```

When pointing Application Explorer to a **JCA** deployment, specify the destination file using the following format:

```
location
```

The following table lists and describes the disposition parameters for FILE.

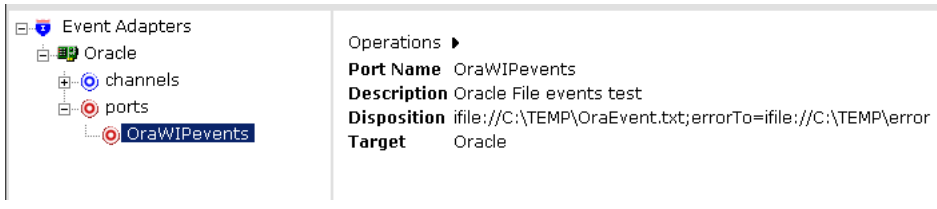
| Parameter | Description |
|---|---|
| location | Full directory path and file name to which the data is written. |
| errorDest | Location to which error logs are sent. Optional.<br>Predefined port name or another disposition URL. The URL must be complete, including the protocol. |

For example:

```
ifile://c:\temp\OraEvent.txt;errorTo=ifile://c:\temp\error
```

5. Click *OK*.

   In the left pane, the event port appears under the ports node. In the right pane, summary information associated with the event port you created appears. An example of a port listing and summary information is shown in the following image.




You are ready to associate the event port with a channel. For more information, see *Creating a Channel* on page 3-21.

## Procedure: How to Create an Event Port for iBSE

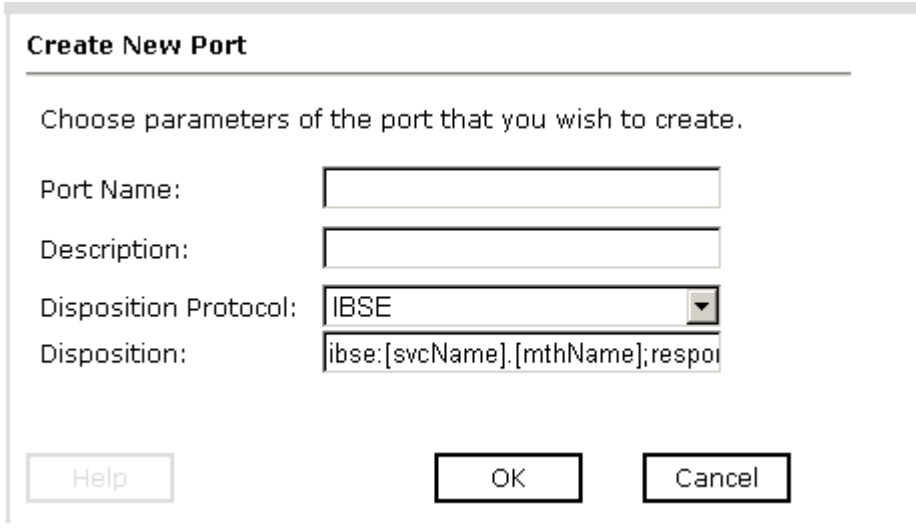
To create an event port for iBSE:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node and then the *Oracle*node.
3. Select the *ports* node.

   The following image shows the ports node selected on the left and the Operations menu open on the right.


4. In the right pane, move the pointer over *Operations* and select *Add a new port*.

The Create New Port pane opens on the right, as shown in the following image.




**a.** In the Port Name field, type a name for the event port.

**b.** In the Description field, type a brief description of the port.

**c.** From the Disposition Protocol drop-down list, select *IBSE*.

**d.** In the Disposition field, enter an iBSE destination using the following format:

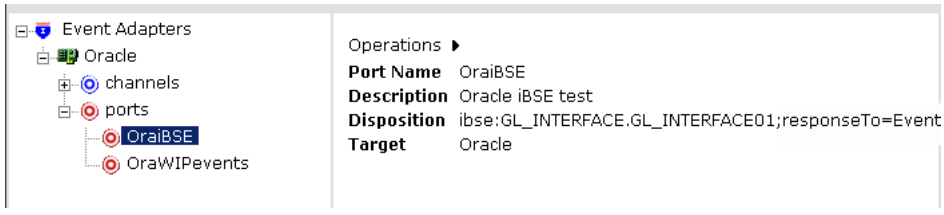
`ibse:/`*`svcName.mthName`*`[;responseTo=`*`respDest`*`][;errorTo=`*`errorDest`*`]`

The following table lists and describes the disposition parameters for iBSE.

| Parameter | Description |
|---|---|
| svcName | Name of the service created with iBSE. |
| mthName | Name of the method created for the Web service. |
| respDest | Location to which responses to the Web service are posted. Optional.<br>This can be a predefined port name or another disposition URL. The URL must be complete, including the protocol. |
| errorDest | Location to which error logs are sent. Optional.<br>This can be a predefined port name or another disposition URL. The URL must be complete, including the protocol. |

5. Click *OK*.

   In the left pane, the event port appears under the ports node. In the right pane, summary information associated with the event port you created appears. An example of a port listing and summary information is shown in the following image.




You can now associate the event port with a channel. For more information, see *Creating a Channel* on page 3-21.

## Procedure: How to Create an Event Port for MSMQ

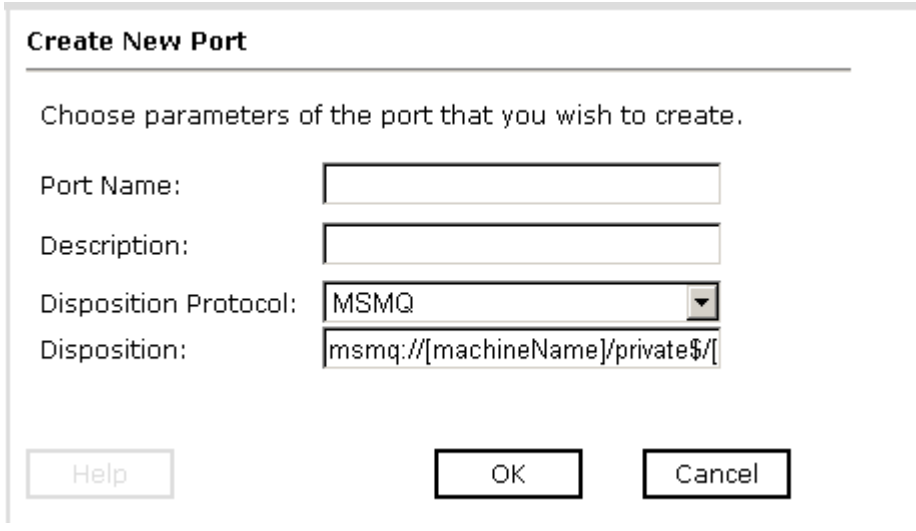
To create an event port for a Microsoft Message Queuing (MSMQ) queue using Application Explorer:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node, and then the *Oracle* node.
3. Select the *ports* node.

   The following image shows the ports node selected on the left and the Operations menu open on the right.


4. In the right pane, move the pointer over *Operations* and select *Add a new port*.

The Create New Port pane opens on the right, as shown in the following image.




**a.** In the Port Name field, type a name for the event port.

**b.** In the Description field, type a description of the port.

**c.** From the Disposition Protocol drop-down list, select *MSMQ*.

**d.** In the Disposition field, enter an MSMQ destination using the following format:

`msmq:/host/queueType/queueName[;errorTo=errorDest]`

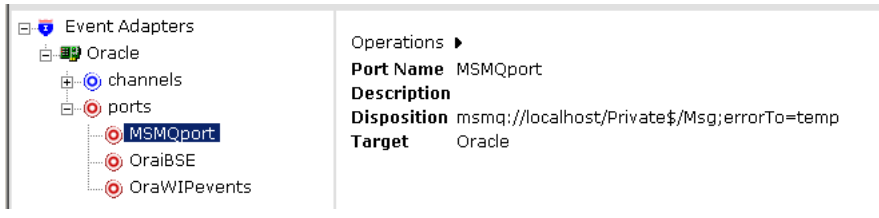
The following table lists and describes the disposition parameters for MSMQ.

| Parameter | Description |
|---|---|
| host | Name of the host on which the Microsoft Message Queuing system runs. |
| queueType | Type of queue. For private queues, enter *Private$*.<br>Private queues are queues that are not published in Active Directory. They appear only on the local computer that contains them. Private queues are accessible only by Message Queuing applications that recognize the full path name or format name of the queue. |
| queueName | Name of the queue in which messages are placed. |

| Parameter | Description |
|---|---|
| errorDest | Location to which error logs are sent. Optional.<br><br>Predefined port name or another disposition URL. The URL must be complete, including the protocol. |

5. Click *OK*.

   In the left pane, the event port appears under the ports node. In the right pane, summary information associated with the event port you created appears. An example of a port listing and summary information is shown in the following image.




You are ready to associate the event port with a channel. For more information, see *Creating a Channel* on page 3-21.

## Procedure: How to Create an Event Port for JMSQ

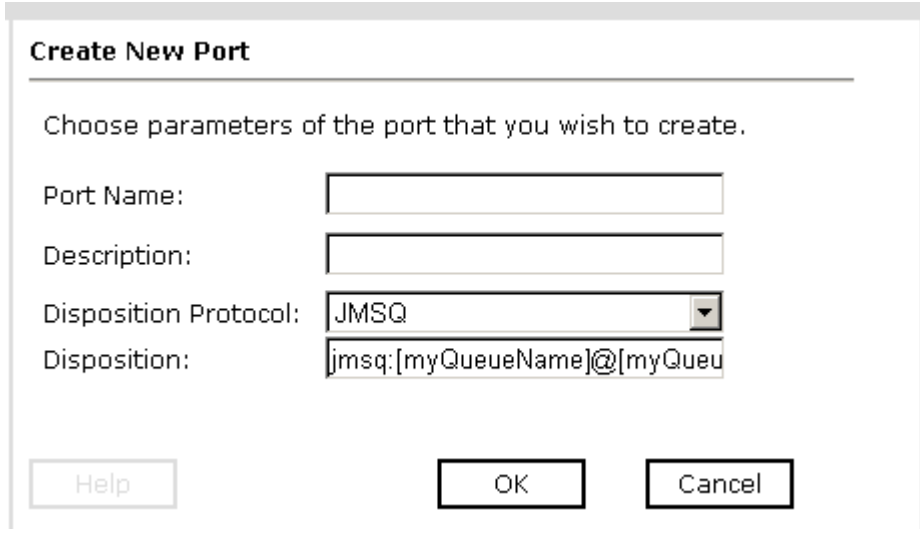
To create an event port for a JMS queue using Application Explorer:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node and then the *Oracle* node.
3. Select the *ports* node.

   The following image shows the ports node selected on the left and the Operations menu open on the right.


4. In the right pane, move the pointer over *Operations* and select *Add a new port*.

The Create New Port pane opens on the right, as shown in the following image.




**a.** In the Port Name field, type a name for the event port.

**b.** In the Description field, type a brief description of the port.

**c.** In the Disposition Protocol drop-down list, select *JMSQ*.

**d.** In the Disposition field, enter a JMS destination.

When pointing Application Explorer to an **iBSE** deployment, specify the destination file using the following format:

```
jmsq:queue@conn_factory;jndiurl=jndi_url;jndifactory=jndi_factory;
   user=userID;password=pass[;errorTo=errorDest]
```

When pointing Application Explorer to a **JCA** deployment, specify the destination file using the following format:

```
jms:queue@conn_factory;jndiurl=jndi_url;jndifactory=jndi_factory
```

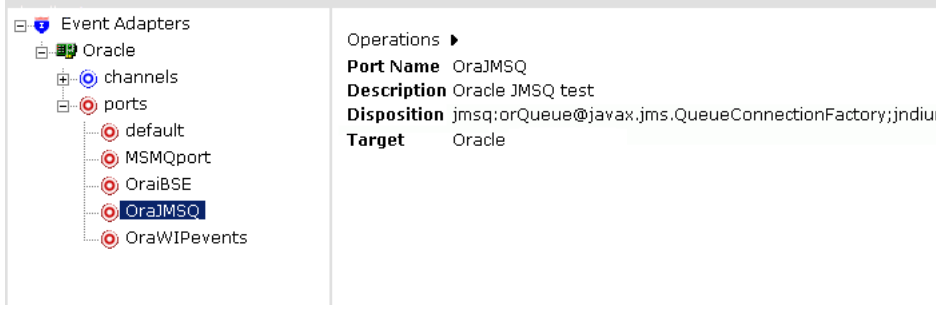
The following table lists and describes the disposition parameters for JMS.

| Parameter | Description |
|---|---|
| queue | Name of a queue to which events are emitted. |

| Parameter | Description |
|---|---|
| conn_factory | Connection factory, a resource that contains information about the JMS Server. The BEA WebLogic connection factory is:<br>`javax.jms.QueueConnectionFactory` |
| jndi_url | The URL to use to contact the JNDI provider. The syntax of this URL depends on which JNDI provider is used. This value corresponds to the standard JNDI property,<br>`java.naming.provider.url`<br>For BEA WebLogic Server, this is<br>`t3://host:port`<br>where:<br>*host*<br>Is the machine name where BEA WebLogic Server is installed.<br>*port*<br>Is the port on which BEA WebLogic Server is listening. The default port if not changed at installation is 7001. |
| jndi_factory | Is JNDI context.INITIAL_CONTEXT_FACTORY and is provided by the JNDI service provider. For BEA WebLogic Server, the WebLogic factory is<br>`weblogic.jndi.WLInitialContextFactory` |
| userID | User ID associated with this queue. |
| pass | Password associated with the user ID. |
| errorDest | Location to which error logs are sent. Optional.<br>Predefined port name or another disposition URL. The URL must be complete, including the protocol. |

**5.** Click *OK*.

In the left pane, the event port appears under the ports node. In the right pane, summary information associated with the event port you created appears. An example of a port listing and summary information is shown in the following image.




You can use the scroll bar at the bottom of the Operations pane to see the entire Disposition data.

You can now associate the event port with a channel. For more information, see *Creating a Channel* on page 3-21.

## Procedure: How to Create an Event Port for SOAP

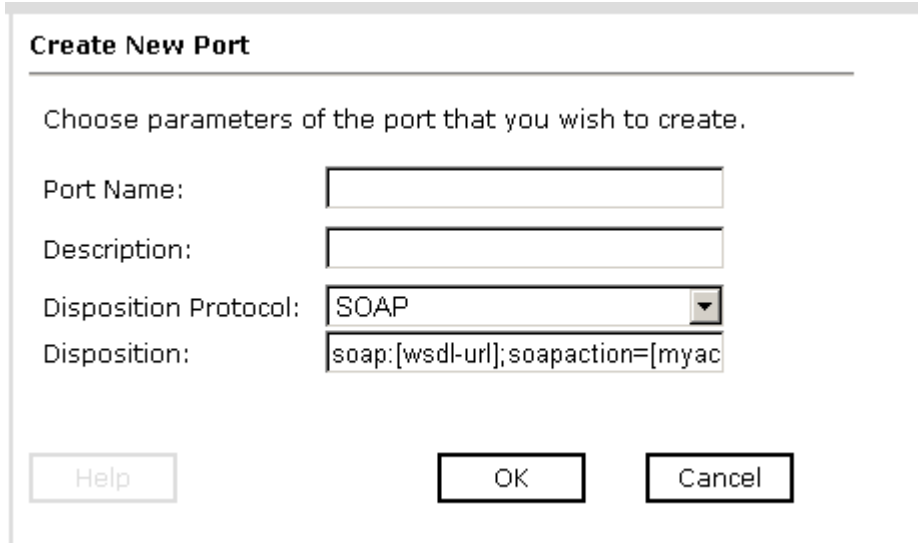
To create a port for a SOAP disposition:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node and the *Oracle* node.
3. Select the *ports* node.

   The following image shows the ports node selected on the left and the Operations menu open on the right.


4. In the right pane, move the pointer over *Operations* and select *Add a new port*.

The Create New Port pane opens on the right, as shown in the following image.




**a.** In the Port Name field, type a name for the event port.

**b.** In the Description field, type a brief description of the port.

**c.** From the Disposition Protocol drop-down list, select *SOAP*.

**d.** In the Disposition field, enter a SOAP destination using the following format:

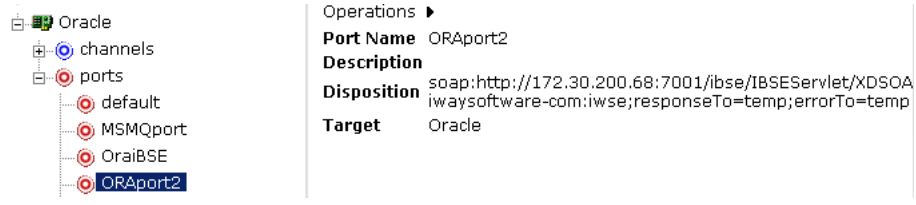
```
soap:[wsdl-url];soapaction=[myaction];method=[web service
method];namespace=[namespace];responseTo=[pre-defined port name or
another disposition URL];errorTo=[pre-defined port name or another
disposition url]
```

The following table lists and defines the disposition parameters for SOAP.

| Parameter | Description |
|---|---|
| wsdl-url | The URL to the WSDL file that is required to create the SOAP message, for example<br>`http://localhost:7001/ibse/IBSEServlet/test/webservice.ibs?wsdl`<br>where:<br>*`webservice`*<br>Is the name of the Web service you created using Application Explorer.<br>To find this value, navigate to the Integration Business Services tab, expand the *Services* node, select the service you created, and click *Service Description* on the right. The WSDL URL appears in the Address field of the window that opens.<br>You can also open the WSDL file in a third party XML editor (for example, XMLSPY) and view the SOAP request settings to find this value. |
| soapaction | Method that is called by the SOAP disposition. This value is found in the WSDL file. |
| method | Web service method you are using. This value is found in the WSDL file. |
| namespace | The XML namespace you are using. This value is found in the WSDL file. |
| responseTo | Location to which responses are posted. Predefined port name or another full URL. Optional. The URL must be complete, including the protocol. |
| errorTo | Location to which error logs are sent. Optional.<br>Predefined port name or another disposition URL. The URL must be complete, including the protocol. |

**5.** Click *OK*.

In the left pane, the event port appears under the ports node. In the right pane, summary information associated with the event port you created appears. An example of a port listing and summary information is shown in the following image.




You can use the scroll bar at the bottom of the Operations pane to see the entire Disposition data.

You are ready to associate the event port with a channel. For more information, see *Creating a Channel* on page 3-21.

## Procedure: How to Create an Event Port for HTTP

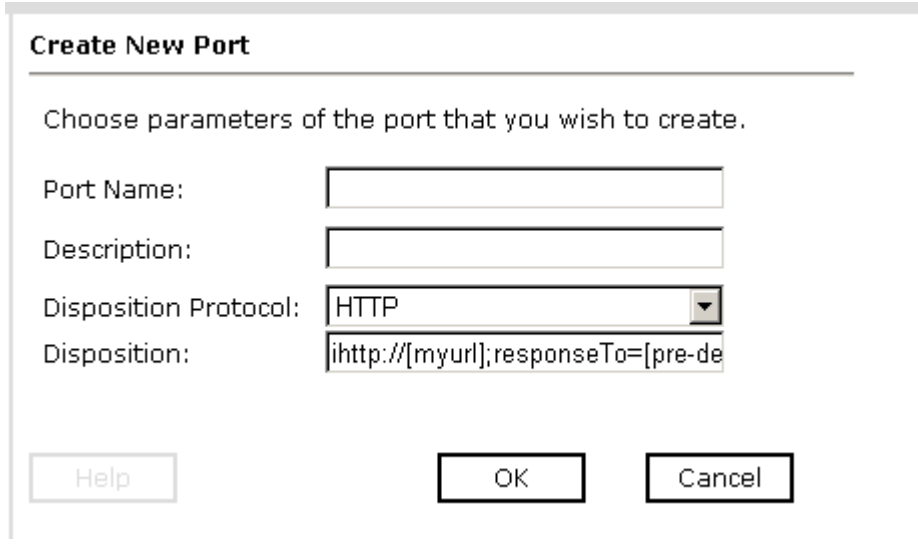
To create an event port for an HTTP disposition using Application Explorer:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node and the *Oracle* node.
3. Select the *ports* node.

   The following image shows the ports node selected on the left and the Operations menu open on the right.


4. In the right pane, move the pointer over *Operations* and select *Add a new port*.

The Create New Port pane opens on the right, as shown in the following image.




**a.** In the Port Name field, type a name for the event port.

**b.** In the Description field, type a brief description of the port.

**c.** From the Disposition Protocol drop-down list, select *HTTP*.

**d.** In the Disposition field, enter an HTTP destination.

When pointing Application Explorer to an **iBSE** deployment, specify the destination file using the following format:

`ihttp://url[;responseTo=respDest]`

When pointing Application Explorer to a **JCA** deployment, specify the destination file using the following format:

`http://host:port/uri`

The following table lists and describes the disposition parameters for HTTP.

| Parameter | Description |
|---|---|
| url | URL target for the post operation. |
| respDest | Location where responses are posted. Predefined port name or another full URL. Optional.<br>Predefined port name or another disposition URL. The URL must be complete, including the protocol. |
| host | Name of the host on which the Web server resides. |
| port | Port number on which the Web server is listening. |
| uri | Universal resource identifier that completes the url specification. |

5. Click *OK*.

   In the left pane, the event port appears under the ports node. In the right pane, summary information associated with the event port you created appears. An example of a port listing and summary information is shown in the following image.


You are ready to associate the event port with a channel. For more information, see *Creating a Channel* on page 3-21.

## Procedure: How to Create an Event Port for MQSeries

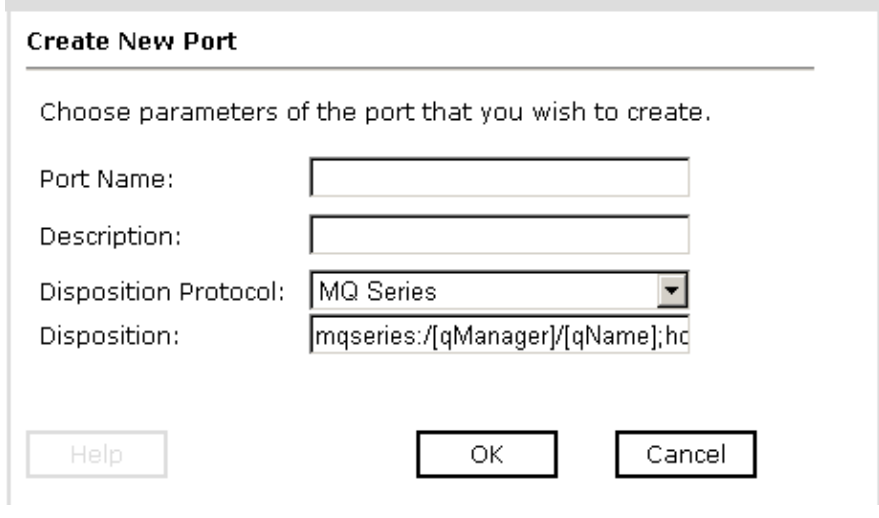
To create an event port for an MQSeries queue using Application Explorer:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node and the *Oracle*node.
3. Select the *ports* node.

The following image shows the ports node selected on the left and the Operations menu open on the right.


**4.** In the right pane, move the pointer over *Operations* and select *Add a new port*.

The Create New Port pane opens on the right, as shown in the following image.




**a.** In the Port Name field, type a name for the event port.

**b.** In the Description field, type a brief description of the port.

**c.** In the Disposition Protocol drop-down list, select *MQSeries*.

**d.** In the Disposition field, enter an MQSeries destination.

When pointing Application Explorer to an **iBSE** deployment, specify the destination file using the following format:

```
mqseries:/qManager/qName;host=hostName;port=portNum
;channel=channel[;errorTo=errorDest]
```

When pointing Application Explorer to a **JCA** deployment, use the following format:

```
mq:qmanager@respqueue;host=;port=;channel=
```

The following table lists and describes the disposition parameters for MQSeries.

| Parameter | Description |
|---|---|
| qManager | Name of the queue manager to which the server must connect. |
| qName or respqueue | Name of the queue where messages are placed. |
| hostName | Name of the host on which MQSeries resides (MQ client only). |
| portNum | Port number for connecting to an MQ Server queue manager (MQ client only). |
| channel | Case-sensitive name of the channel that connects with the remote MQ Server queue manager (MQ client only). The default MQ Series channel name is SYSTEM.DEF.SVRCONN. |
| errorDest | Location where error documents are sent. Predefined port name or another full URL. Optional. |

**5.** Click *OK*.

In the left pane, the event port appears under the ports node. In the right pane, summary information associated with the event port you created appears. An example of a port listing and summary information is shown in the following image.


Use the scroll bar at the bottom of the Operations pane to see the entire Disposition data.

You are now ready to associate the event port with a channel. For more information, see *Creating a Channel* on page 3-21.

## Editing or Deleting an Event Port

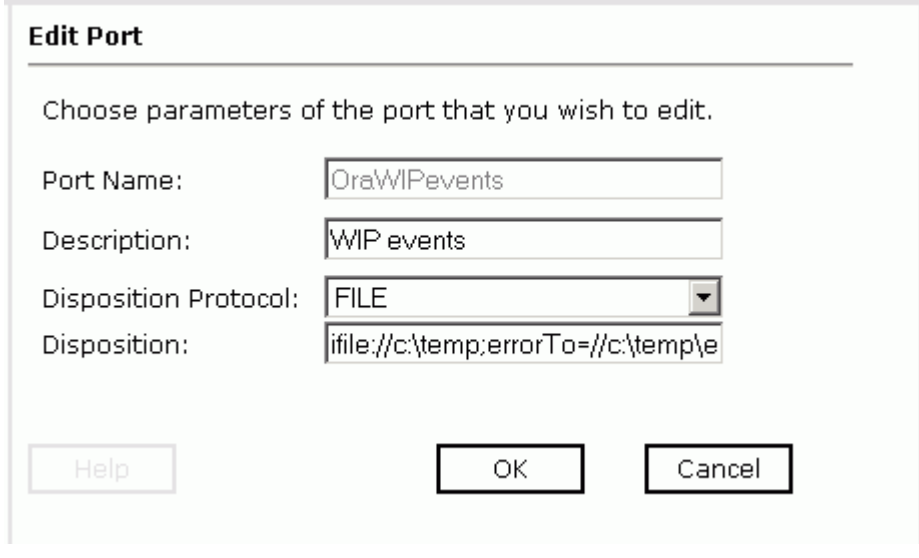
The following procedures describe how to edit or delete an event port using Application Explorer.

### Procedure: How to Edit an Event Port

To edit an existing event port using Application Explorer:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node, the *Oracle* node, and then the *ports* node.
3. Select the event port you want to edit.
4. In the right pane, move the pointer over *Operations* and select *Edit*.

   The Edit Port pane opens on the right with fields to modify the description, disposition protocol, and disposition of the port, as shown in the following image. You cannot modify the Port Name field.




5. Make the required changes and click *OK*.

### Procedure: How to Delete an Event Port

To delete an existing event port using Application Explorer:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node, the *Oracle* node, and the *ports* node.

3. Select the event port you want to delete.
4. In the right pane, move the pointer over *Operations* and select *Delete*.

   A confirmation dialog box opens.
5. To delete the event port, click *OK*.

   The event port disappears from the list in the left pane.

### Using the Default Event Port

When using Application Explorer to connect to Oracle E-Business Suite and listen for events, a default event port is available at all times as shown in the following image.


The default event port can be used for testing purposes or when you do not want to route event data to a specific port you configured. The default port is enabled when you start a channel that does not have a specific event port assigned.

The default event data is actually a file disposition that writes to an out.xml file in the following output directory:

```
ifile://./eventOut/out.xml
```

## Creating a Channel

The following procedure describes how to create a channel for an Oracle E-Business Suite event. All defined event ports must be associated with a channel.

### Procedure: How to Create a Channel

To create a channel using Application Explorer:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node and the *Oracle*node.
3. Select the *channels* node.
4. In the right pane, move the pointer over *Operations* and select *Add a new channel*.

   The Add a new ORACLEchannel pane opens on the right.

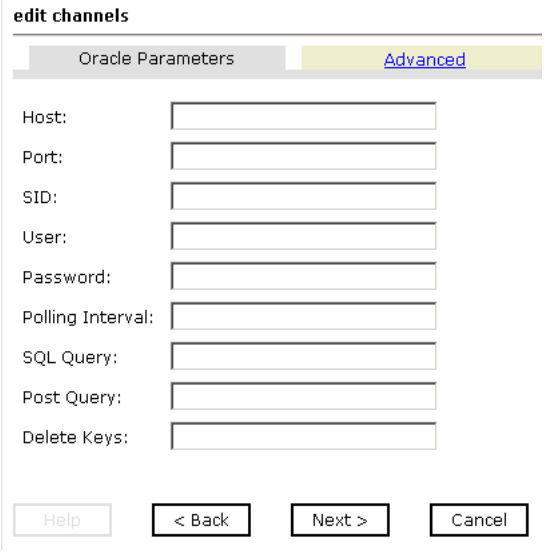
   a. In the Channel Name field, type a name for the channel.

   b. In the Description field, type a brief description of the channel.

**c.** From the Channel Type drop-down list, accept the default channel type, *TABLE Listener.*

**5.** Click *Next*.

The edit channels pane opens on the right and provides two tabs named Oracle Parameters and Advanced, as shown in the following image.




**6.** Enter the values according to the information in the following table.

The following table lists and describes the required parameters for the JDBC Thin Driver.

| Field | Description |
|---|---|
| Host | Name of the server on which the Oracle E-Business Suite database instance resides. |
| Port | Port number on which the database is listening. |
| SID | Unique name of the database service, chosen by the database administrator or the person who installed Oracle E-Business Suite. |
| User | Oracle database user ID to access the Oracle database underlying the Oracle E-Business Suite system. The user ID must have database access to the interface tables being accessed. |
| Password | Password associated with the specified user ID. |

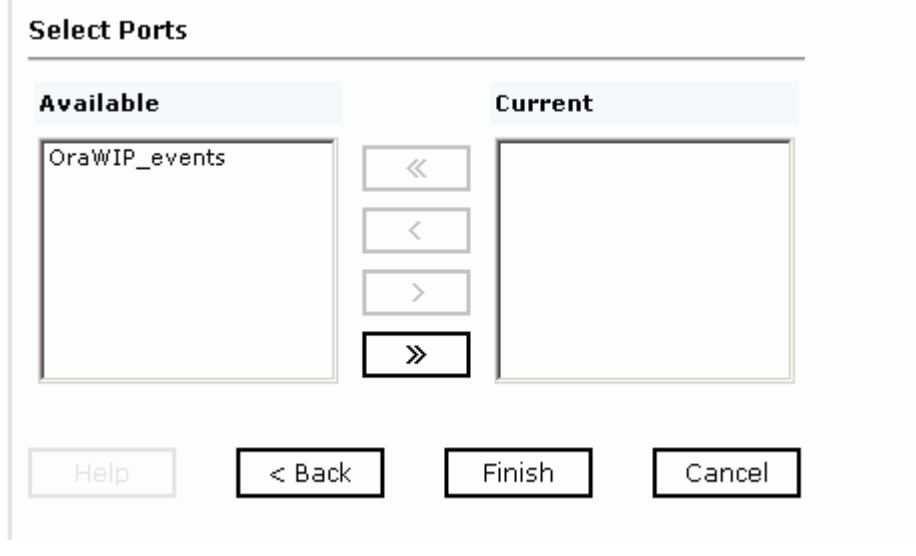
| Field | Description |
|---|---|
| Polling Interval | Interval, in milliseconds, at which to check for new input. |
| SQL Query | SQL SELECT statement that the listener issues to poll the table.<br><br>If the SQL statement includes a date column or long text column, you must provide a value for the SQL Post-query parameter. The value you provide must not contain a date column or a long text column. This applies whether you provide an SQL statement here or rely upon the default.<br><br>For example, the following SELECT statement retrieves all unprocessed records from the DISCRETE_JOBS table:<br><br>`SELECT * FROM WIP_DISCRETE_JOBS D`<br>`WHERE DJ.WIP_ENTITY_ID >`<br>`(SELECT WIP_ENTITY_ID`<br>`FROM WIP.TEMP_NEW_WORK_ORDER_ENTITY_ID)`<br><br>**Important:** When a SQL Query joins two or more tables, a SQL Post Query must be used. Also, do not use a semicolon at the end of a SQL statement for a SQL Query or a SQL Post Query. |

| Field | Description |
|---|---|
| Post Query | A SQL statement that is executed after each new record is read from the table. Case sensitive: the case used to specify the column names must match the case used in the SELECT statement that polled the table. If the SQL Query property was omitted so that a default SELECT statement polled the table, the case used to specify the column names must match the case used to define the columns in the DBMS native schema.<br><br>If you do not specify a value for SQL Post-query, each record read from the table is deleted after it is read. How this happens depends on whether you specify the Delete Keys property. If you:<br><br>**Specify the Delete Keys property**, by default the adapter issues a DELETE statement with a WHERE clause containing every key column specified for the Delete Keys property.<br><br>At run time this is faster than if you had not specified the Delete Keys property if there is an index on the key or if there are fewer key columns than there are columns in the SELECT statement that polled the table.<br><br>**Do not specify the Delete Keys property**, by default the adapter issues a DELETE statement with a WHERE clause that specifies every column from the SELECT statement that polled the table.<br><br>You can choose to retain the table data after it is read by specifying a value for this parameter, as shown in the examples that follow.<br><br>**Note:** The SQL Post-query and Delete Keys parameters are mutually exclusive, because Delete Keys applies to the default DELETE statement, and SQL Post-query overrides the default DELETE statement. You can provide a value for one or the other, but not for both.<br><br>There are two field operators, ? and ^, that you can use in a post-query SQL statement.<br><br>**Important:** When a SQL Query joins two or more tables, a SQL Post Query must be used. Also, do not use a semicolon at the end of a SQL statement for a SQL Query or a SQL Post Query. |

| Field | Description |
|---|---|
| Delete Keys | Comma-separated list of key columns to be used in the default DELETE statement. DELETE operates on keys, so specify the table key columns.<br><br>This is case sensitive: the case used to specify the column names must match the case used in the SELECT statement that polled the table. If the SQL Query property was omitted so that a default SELECT statement polled the table, the case used to specify the column names must match the case used to define the columns in the DBMS native schema.<br><br>**Note:** The Delete Keys and SQL Post Query parameters are mutually exclusive, because Delete Keys applies to the default DELETE statement, and SQL Post Query overrides the default DELETE statement. You can provide a value for one or the other, but not for both. For more information, see the description of the SQL Post-query parameter in this table. |

**7.** Click *Next*.

The Select Ports pane opens on the right, shown in the following image.




**8.** Associate one or more ports with this channel.

To associate one port, select a port from the list of current ports and click the single right arrow button to transfer the port to the list of available ports. You can repeat this to associate additional ports.

To associate all ports, click the double right arrow button.

9. Click *Finish*.

   The channel appears under the channels node in the left pane. In the right pane, a summary window opens that provides the channel description, channel status, and available ports. All the information is associated with the channel you created.

   An X over the icon indicates that the channel is currently disconnected. You must start the channel to activate your event configuration.

## Procedure: How to Start a Channel

To start a channel:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node, the *Oracle* node, and the *channels* node.
3. Select the channel you want to start.
4. In the right pane, move the pointer over *Operations* and select *Start the channel*.

   The channel becomes active. In the left pane, the X that was over the icon disappears.
5. To stop the channel at any time, move the pointer over *Operations* and select *Stop the channel*.

## Procedure: How to Edit a Channel

To edit an existing channel:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node, the *Oracle* node, and the *channels* node.
3. Select the channel you want to edit.
4. In the right pane, move the pointer over *Operations* and select *Edit*.

   The Edit ORACLEchannel pane opens.
5. Edit the Description field, if required, and click *Next*.

   Another Edit channel pane opens.
6. Edit the driver properties as required, and click *Next*.

   The Selected Ports pane opens.
7. When you complete your changes, click *Finish*.

### Procedure: How to Delete a Channel

To delete an existing channel:

1. Click the *Event Adapters* tab.
2. In the left pane, expand the *Event Adapters* node, the *Oracle* node, and the *channels* node.
3. Select the channel you want to delete.
4. In the right pane, move the pointer over *Operations* and select *Delete*.

   A confirmation dialog box opens.
5. To delete the channel you selected, click *OK*.

   The channel disappears from the list in the left pane.

## The Post Query Parameter Operators

You can use two special field operators, ? and ^, with the Post Query parameter. Both of these operators dynamically substitute database values in the SQL post-query statement at run time.

- `?fieldname` is evaluated at run time as `field = value`

  The ? operator is useful in UPDATE statements:

  ```
  UPDATE table WHERE ?field
  ```

  For example, the following statement

  ```
  UPDATE Stock_Prices_Temp WHERE ?RIC
  ```

  might be evaluated at run time as:

  ```
  UPDATE Stock_Prices_Temp WHERE RIC = 'PG'
  ```

- `^fieldname` is evaluated at run time as `value`

  The ^ operator is useful in INSERT statements:

  ```
  INSERT INTO table VALUES (^field1, ^field2, ^field3, ...)
  ```

  For example, the following statement

  ```
  INSERT INTO Stock_Prices_Temp VALUES (^RIC, ^Price, ^Updated)
  ```

  might be evaluated at run time as:

  ```
  INSERT INTO Stock_Prices_Temp VALUES ('PG', 88.62, '2003-03-18
  16:24:00.0')
  ```

# Choosing a Listening Technique

You can detect an Oracle E-Business Suite event by using an RDBMS Table Listener for Oracle E-Business Suite. The Table Listener polling technology enables you to specify SQL SELECT statements to execute periodically. After data is polled, it passes through the event port for additional processing.

You can poll a relational or non-relational database directly and send the results to a file or JMS message queue. You use the following techniques to listen to an Oracle E-Business Suite event:

- Standard event processing with row tracking

  The listener polls a table, sends each newly inserted row to a destination you specify (known as the disposition), and uses a control table to keep track of the row that was most recently read. The control table prevents the most recently read row from being reread during the next listening cycle.

  You can apply this flexible yet simple technique in most situations. For more information, see *Standard Event Processing With Row Tracking* on page 3-29.

- Standard event processing with row removal

  The listener polls a table, sends each newly inserted row to a destination you specify, and then deletes the new row from the table to prevent it from being reread during the next listening cycle.

  You can apply this technique when the source table is being used to pass data to the adapter, and the table rows do not need to persist. Rows are deleted as they are processed. For more information, see *Standard Event Processing With Row Removal* on page 3-32.

- Trigger-based event processing

  At design time you assign triggers to a joined group of tables. At run time the triggers write information about table changes to a common control table. The listener polls the control table and sends information about the table changes to a destination you specify. The listener deletes new rows from the control table to prevent them from being reread during the next listening cycle.

  You can apply this technique when listening to events in a group of large joined tables, or when you need to know if a row has been updated or deleted. For more information, see *Trigger-based Event Processing* on page 3-34.

## Standard Event Processing With Row Tracking

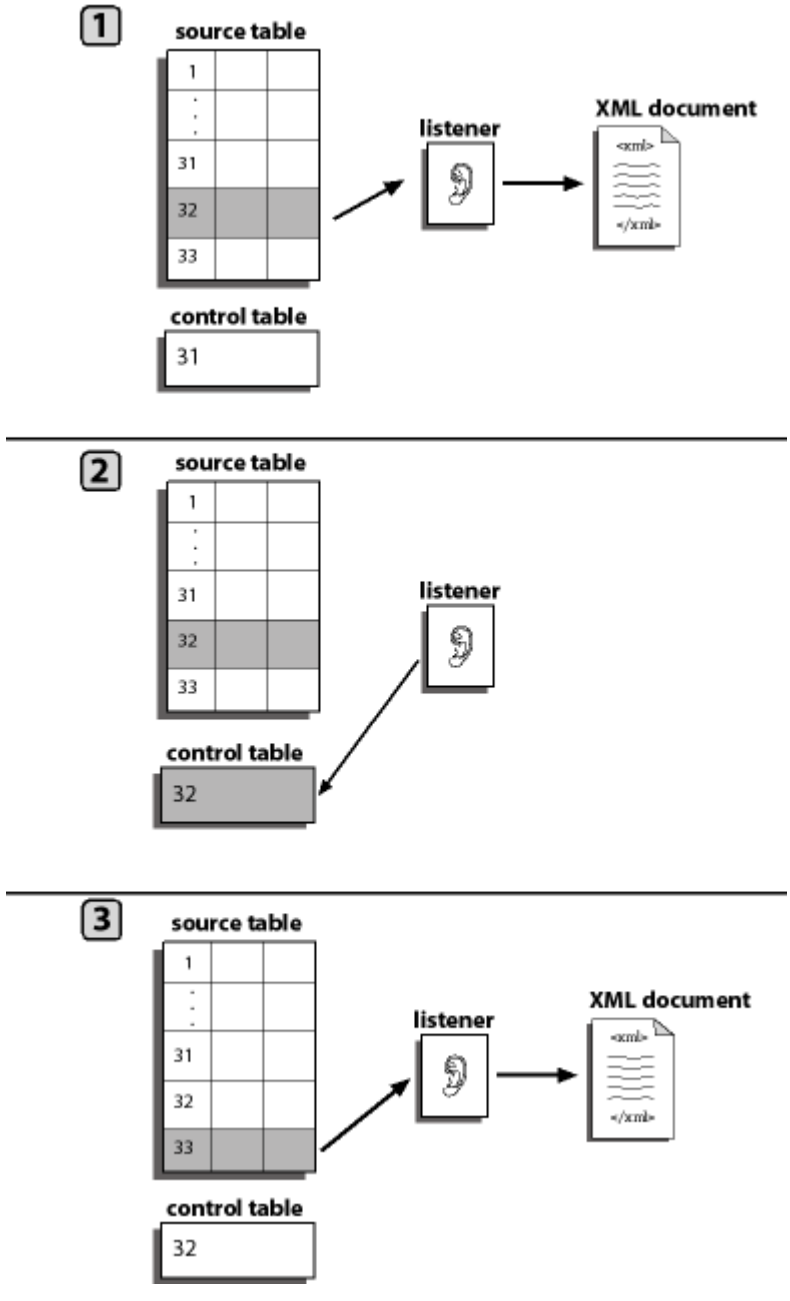
The standard event processing with row tracking technique enables you to listen to the source table without removing its rows. It requires you to create a single-cell control table that keeps track of the last new row the RDBMS Table Listener for Oracle E-Business Suite read from the source table.

The control table's one column corresponds to a column (or to a group of columns) in the source table that is unique, sortable, and indicates how recently the row was added to the source table relative to the other rows. For example, the first row added to the source table has the lowest value, and the last row added has the highest value. This value is the "event key."

When you create the control table, initialize it to the event key of the row most recently added to the source table. When you specify the listener's properties, configure the listener's Post Query property to automatically update the control table's event key.

Each time the listener queries the source table, it looks for rows added since the last query—that is, for rows whose event key is greater than the current value of the field in the control table. It reads each row of this type and returns it to the specified destination using an XML document. To ensure that the row is not read again the next time the listener queries the table, the listener updates the field in the control table to match the value of the row just read from the source table.

The following figure illustrates standard event processing with row tracking. It shows the source and control tables, the listener, and the XML document at various stages.



In the previous figure:

1. The Table Listener queries the source table and copies each source table row whose event key is greater than the control table's event key. The listener copies the row to an XML document and sends it to the destination defined in the port disposition.
2. The listener updates the event key in the control table to match the row it has most recently read.
3. The listener copies the next source table row to an XML document.

The process repeats.

To implement this event processing technique, see *How to Implement Standard Event Processing With Row Tracking* on page 3-31.

## Procedure: How to Implement Standard Event Processing With Row Tracking

To implement standard event processing with row tracking:

1. Create a control table. For an example, see *Creating the Control Table for an Oracle E-Business Suite Event* on page 3-31.
2. Configure an RDBMS Table Listener for Oracle E-Business Suite using Application Explorer.

   In addition to the required listener properties, for standard event processing with row tracking you must also provide values for the following optional properties:

   **SQL Query**, the SQL SELECT statement that identifies the source table to which the adapter listens, and with which it queries the table.

   **Post Query**, the SQL statements that maintain the field in the control table.

For instructions for configuring a listener, see *Creating a Channel* on page 3-21.

## Example: Creating the Control Table for an Oracle E-Business Suite Event

Follow the steps in this example to create a table named TEMP_NEW_YORK_ORDER_ENTITY that has a single field named WIP_ENTITY_ID. You specify this table when you configure the RDBMS Table Listener for Oracle E-Business Suite, as described in *Creating a Channel* on page 3-21.

When discrete jobs are created through the Oracle E-Business Suite graphical interface, an entry is created in the WIP.WIP_DISCRETE_JOBS table. For this example, you configure an event to detect new entries to this table. You use the standard event processing with row tracking technique. (Oracle E-Business Suite processing cannot delete rows from the table.) To accomplish this, first create a simple table to track of the records processed.

1. From within Oracle SQL*PLUS, run the following SQL:

```
CREATE TABLE WIP.TEMP_NEW_WORK_ORDER_ENTITY_ID
(
   WIP_ENTITY_ID   NUMBER
)
```

   This creates a single table with a single field.

   **Note:** Oracle SQL*Plus is part of the Oracle client software. If it is not installed, contact your Oracle Database Administrator.

   You must be logged in under the APPS schema or a similar ID that has access rights to the Oracle E-Business Suite WIP schema.

2. Create a single record in this table and seed it with the highest WIP_ENTITY_ID ID from your system. You can obtain this from the WIP.WIP_DISCRETE_JOBS table.

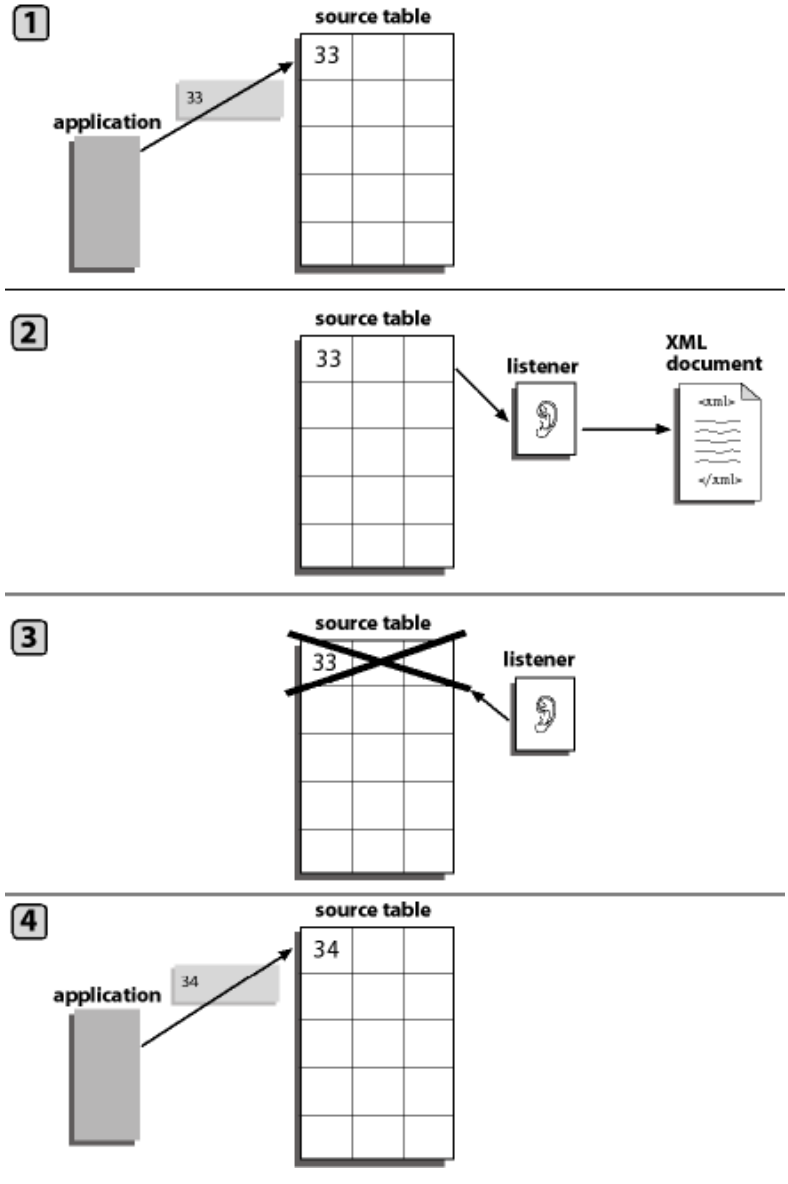
   This sets the value at which to start detecting events as records enter the WIP_DISCRETE_JOBS table.

After you create a simple table in Oracle, you must configure the Table Listener, as described in *Creating a Channel* on page 3-21.

## Standard Event Processing With Row Removal

The standard event processing with row removal technique assumes that the source table is being used as a conduit to pass the data to the adapter, and that the table rows do not need to persist. The RDBMS Table Listener for Oracle E-Business Suite periodically queries the source table. When it finds a row, it reads it and returns it to the Reply_to destination via an XML document. To ensure that the row is not read again when the Table Listener next queries the table, the listener then deletes the row from the table.

The following figure illustrates standard event processing with row removal. It shows the application, source table, listener, and the XML document at various stages in the event processing.



In the previous figure:

1. Your application inserts a new row into the source table.
2. The listener queries the source table and copies the new row to an XML document and sends it to the destination defined in the port disposition using the File protocol.
3. The listener deletes the source table row to ensure that the row is not read again when the listener next queries the table.
4. The application inserts a new row into the source table.

The process repeats itself.

To implement this event processing technique, see *How to Implement Standard Event Processing With Row Removal* on page 3-34.

### Procedure: How to Implement Standard Event Processing With Row Removal

To implement the standard event processing with row removal technique:

1. Configure an RDBMS Table Listener.
2. In addition to the required listener properties, provide values for the following optional properties:

   **SQL Query**, the SQL SELECT statement that identifies the source table to which the adapter listens, and with which it queries the table.

   **Issue Post Query Delete**, which automatically deletes each record after it was read.

For detailed instructions for configuring a listener, see *Creating a Channel* on page 3-21. For information on SQL post query parameters, see *The Post Query Parameter Operators* on page 3-27.

## Trigger-based Event Processing

Trigger-based event processing is a technique for listening to multiple joined Oracle E-Business Suite tables. It is also helpful for detecting when a row was deleted or updated.

The trigger-based technique provides the following benefits:

- Improved performance when listening to events in a group of large joined tables

  When processing joined tables, Oracle creates a Cartesian product working table. When the joined tables are large, the interim working table is very large. The standard technique of processing Oracle E-Business Suite events, in which the adapter periodically listens to the entire structure of joined tables, can consume a significant amount of computing resources.

The trigger-based technique avoids this overhead by requiring the RDBMS Table Listener for Oracle E-Business Suite to query a single small control table and by writing to the control table only when an event actually occurs.

- Increased number of event types that the adapter recognizes

  Using the trigger-based technique, you can tell when a row was updated, deleted, or inserted. Using the standard technique, you can tell only when a row was inserted.

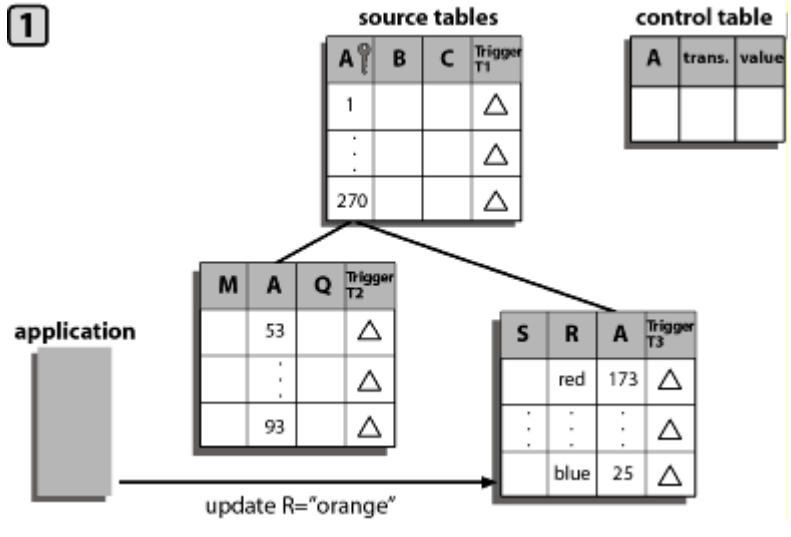
To use the trigger-based technique, you assign a trigger to each table that you want to monitor. When a value changes, it fires the corresponding trigger, which writes data to a control table. The BEA WebLogic Adapter for Oracle E-Business Suite listens to this control table by running a query against it. When it finds a row in the control table, it reads it and returns it to the port disposition created when the port is configured via an XML document. To ensure that the row is not read again when the listener next queries the table, the listener then deletes the row from the table.

The trigger-based technique enables you to recognize changes to an entity. For the purposes of this discussion, an entity is a real-world object that is represented in the database by a hierarchical set of tables.

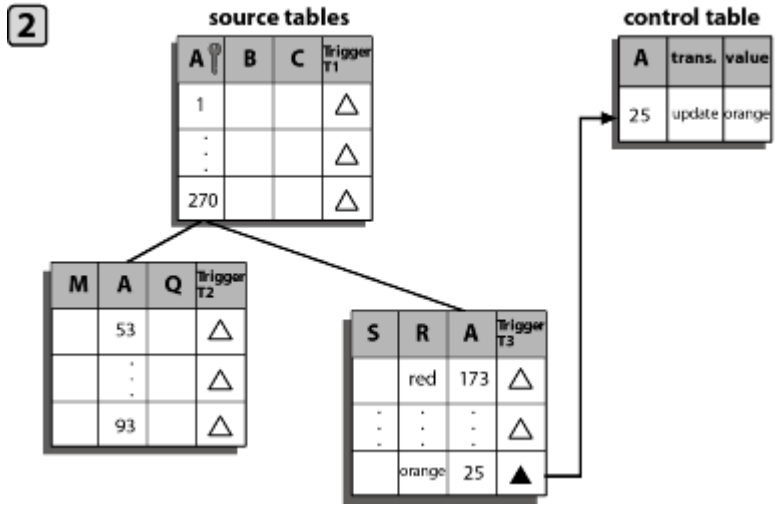
You manage the triggers using SQL*Plus or a similar tool and configure the event using Application Explorer.

The following five figures illustrate the steps involved in trigger-based event processing. They show the source and control tables, the listener, the application, and the XML document at various stages in the event processing.

**1.** Your application updates a row in a group of related source tables.

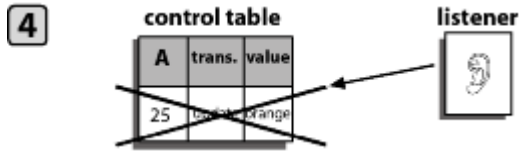


2. The update causes a row trigger to fire in the changed table. The trigger inserts a row into the control table. The new control table row includes the key value (25), the type of transaction (update), and the new cell value (orange).

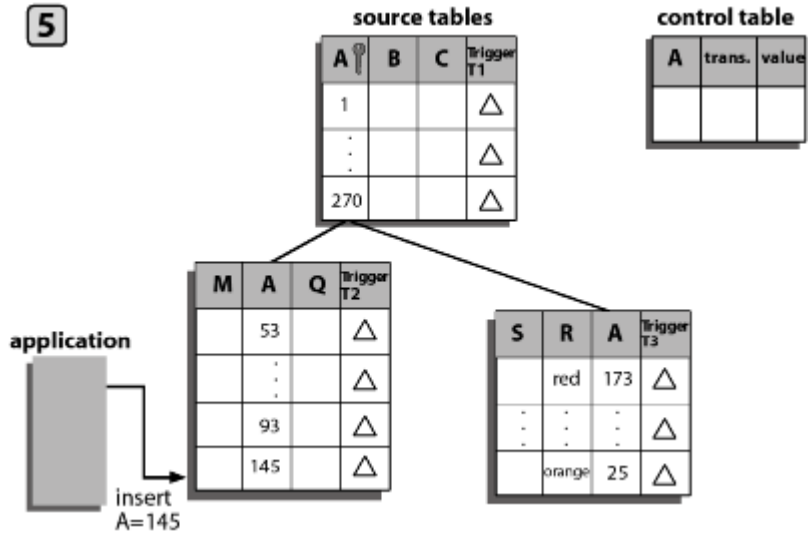



3. The listener queries the control table and copies the new row to an XML document. It sends the document to the destination defined in the port disposition.


4. The listener deletes the control table row to ensure that the row is not read again when the listener next queries the table.



**5.** The application inserts a new row into one of the source tables.




The process repeats itself.

For a summary of how to implement this technique, see *How to Implement Trigger-based Event Processing* on page 3-37.

## Procedure: How to Implement Trigger-based Event Processing

To implement the trigger-based event processing technique:

**1.** Create the control table.

The purpose of the control table is to capture the key of each entity that changed, regardless of which of the entity tables changed.

You can store a variety of information in the control table, including the key of the entity that was inserted, updated, or deleted, and the name of the table and field that was updated.

The design of the control table is a function of the business logic of your application. For example, you can choose between creating one control table for a group of joined source tables or one control table per source table. Among the issues to consider are the kinds of events to monitor (insertions, deletions, and/or updates), and whether you want to monitor only the highest-level table in a group of joined tables or all of the tables in the group.

2. Assign triggers to the source tables.

   The triggers you assign, and to which tables you assign them, is determined by what kind of change you want to monitor. The triggers implement much of the event-processing logic. For a sample trigger, see *Trigger on WIP_ENTITY_NAME Column* on page 3-39.

   For example, consider a bill of material scenario. (A bill of materials is a list of all the parts required to manufacture an item, the subparts required for the parts, and so on. The complete item/parts/subparts relationship can extend to several levels, creating a data structure like a tree with the finished item as the root.) In a bill of materials, where each level in the parts hierarchy is represented by a separate table, you might assign a trigger to only the highest-level table (the finished product), or you might assign triggers to all tables (the finished product and its parts and subparts).

   As another example, if multiple changes are made to the same row during one listener cycle, you could configure the event adapter to record all the changes. If a row was inserted and then updated, both changes would be logged.

3. Configure the RDBMS Table Listener for Oracle E-Business Suite when creating a channel using Application Explorer.

   In addition to the required listener properties, for trigger-based event processing you also must provide values for the following optional properties:

   **SQL Query**, the SQL SELECT statement that identifies the control table to which the adapter listens, and with which it queries the table to determine changes in the source tables.

   **Post Query**, to identify the rows that the adapter automatically deletes from the control table.

For detailed instructions for configuring a listener, see *Creating a Channel* on page 3-21.

### Example: Trigger on WIP_ENTITY_NAME Column

The following trigger fires when a change is made to the WIP_ENTITY_NAME column of the WIP.WIP_ENTITIES table. When it fires, it writes the relevant values to the control table IWAY.IWAY_PO_CDC.

```
CREATE OR REPLACE TRIGGER IWAY.IWAY_PO_CDC_WE_TRG

AFTER INSERT OR DELETE OR UPDATE OF WIP_ENTITY_NAME
ON WIP.WIP_ENTITIES
FOR EACH ROW
BEGIN
IF INSERTING THEN
   INSERT INTO IWAY.IWAY_PO_CDC
      VALUES (
         :NEW.WIP_ENTITY_ID,
         :NEW.ORGANIZATION_ID,
             'UPDATE');

ELSE
   INSERT INTO IWAY.IWAY_PO_CDC
      VALUES (
         :OLD.WIP_ENTITY_ID,
         :OLD.ORGANIZATION_ID,
             'UPDATE');

END IF;

EXCEPTION
   WHEN DUP_VAL_ON_INDEX THEN
      NULL;          -- Record already exists

END;
```

## Deploying Components in a Clustered BEA WebLogic Environment

Events can be configured in a clustered BEA WebLogic environment. You can deploy iBSE or JCA to this environment. This topic uses iBSE as an example, but you can follow the same procedures when deploying JCA. The only difference is that you need to deploy the JCA connector .RAR file to the clustered environment.

A cluster consists of multiple server instances running simultaneously, yet appears to clients to be a single server instance. The server instances that contain a cluster can be run on one machine, but are usually run on multiple machines.

Clustering provides the following benefits:

- Load balancing. For more information, see the BEA clustering documentation.

- High availability

Service requests are processed through the HTTP router and routed to an available managed server.

Events are server-specific and are not processed through the HTTP router. You must configure each server separately.

## Procedure: How to Deploy Components in a Clustered Environment

To deploy components in a clustered environment:

1. Using the BEA Configuration Wizard, configure an administrative server to manage the managed servers.
2. Add and configure as many managed servers as required.
3. Add and configure an HTTP router. This does not have to be a part of WebLogic and can be an outside component.
4. If you configure the HTTP router within WebLogic, start it by entering the following command:

   `StartManagedWebLogic` *`HTTPROUTER`* `http://`*`localhost`*`:7001`

   where:

   *`HTTPROUTER`*

   Is the name of the server on which the HTTP router is running.

   `http://`*`localhost`*`:7001`

   Is the location of the admin console.
5. Add the managed servers to your cluster/clusters.

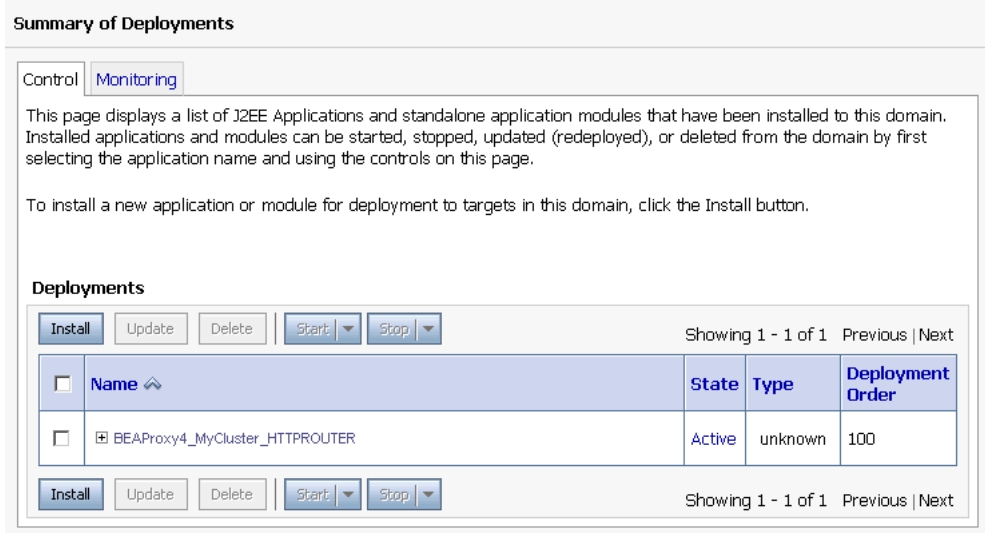
   For more information on configuring the BEA WebLogic Server in a clustered environment, see *Deploying WebLogic Integration Solutions*.

## Procedure: How to Deploy iBSE in a Clustered Environment

To deploy iBSE in a clustered environment:

1. Start the BEA WebLogic Server and open the WebLogic Server Console.
2. In the left pane, click *Lock & Edit* and click *Deployments*.

The Summary of Deployments page opens. Notice that the cluster you configured using the BEA Configuration Wizard is added to the list of deployments in the WebLogic Server Console.




3. Click *Install*.

   A page appears where you can specify the location of the file or directory you wish to deploy.

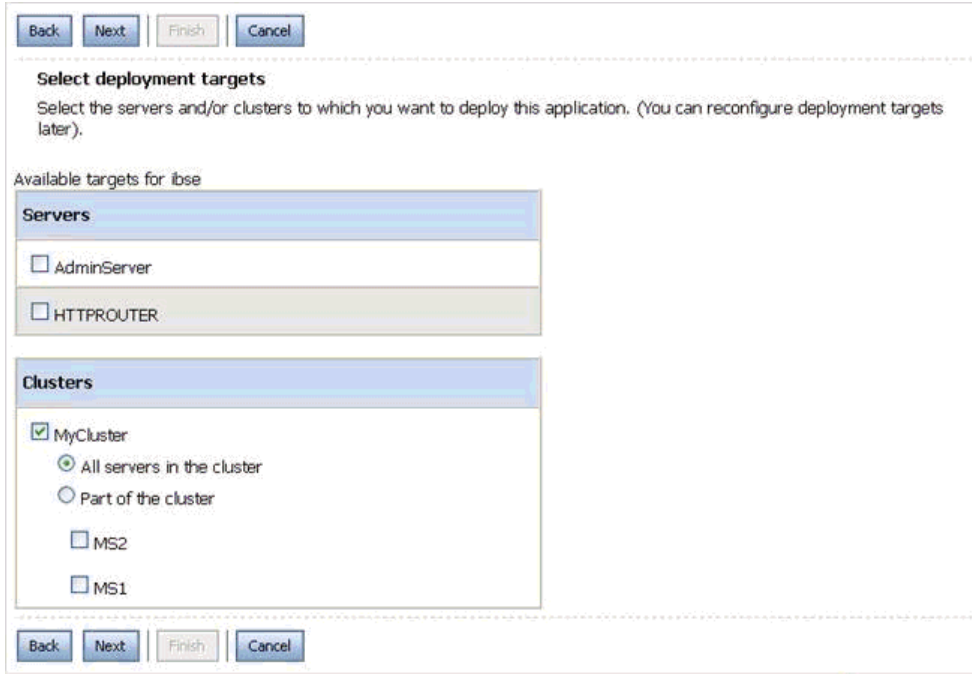
4. Deploy iBSE to the cluster by clicking the links below *Location* and then selecting the radio button next to the ibse directory, for example:

   ```
   C:\Program Files\iWay55\bea\ibse
   ```

5. Click the radio button next to the ibse directory and click *Next*.

6. Click *Next* again, leaving the default *Install this deployment as an application* option selected.

The Select deployment targets page opens.




7. In the Clusters section, click the checkbox next to the name of the cluster you configured, for example *MyCluster*.
8. Click the *All servers in the cluster* radio button and click *Next*.
9. Click *Next* again, leaving the default values.
10. Click *Finish* to complete the deployment.
11. On the left, click *Activate Changes*.
12. On the right, click *Control*.
13. Click the *ibse* checkbox.
14. Click *Start* and select *Servicing All Requests* from the drop-down menu.
15. Click *Yes*.

    The State of the iBSE application is now *Active*.

**Note:** iBSE must use a database repository (SQL Server, Oracle, DB2, or Sybase). Do not use a file repository. You can select this in the Repository Type drop-down list in the iBSE monitoring page. For more information, see the *BEA WebLogic ERP Adapter Installation and Configuration* documentation. After configuring a database repository, you must restart all of the managed servers.

`http://hostname:port/ibse/IBSEConfig/`

where:

*hostname*

Is where your application server is running. Use the IP address or machine name in the URL; do not use localhost.

*port*

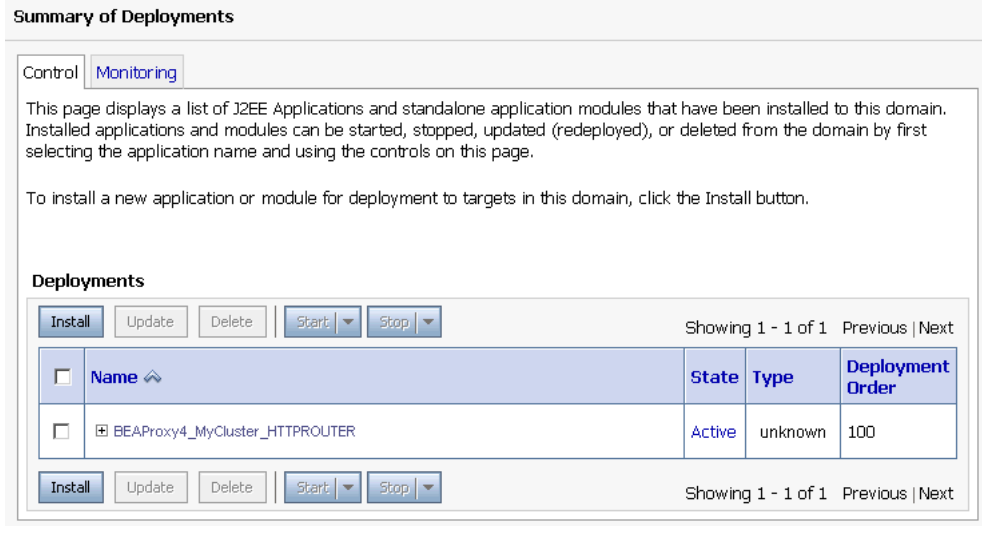
Is the port specific to each server, since you deploy iBSE to an entire cluster. For example, 8001, 8002, or any other port that is specified for each managed node.

## Procedure: How to Deploy Servlet Application Explorer to an Admin Server

To deploy Servlet Application Explorer to an Admin server:

1. Start the BEA WebLogic Server and open the WebLogic Server Console.
2. In the left pane, click *Lock & Edit* and click *Deployments*.

   The Summary of Deployments page opens. Notice that the cluster you configured using the BEA Configuration Wizard is added to the list of deployments in the WebLogic Server Console.



3. Click *Install*.

   A page appears where you can specify the location of the file or directory you wish to deploy.

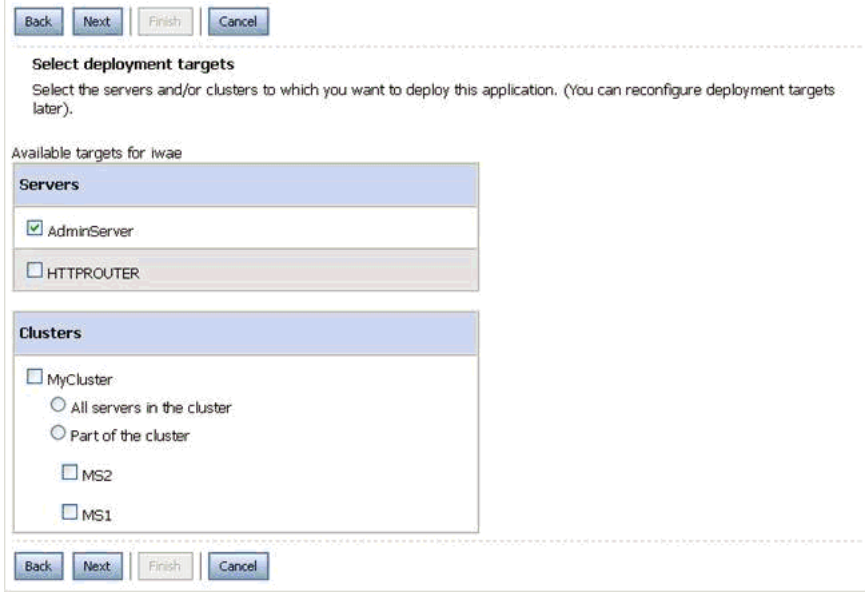
4. Deploy Servlet Application Explorer to the cluster by clicking the links below *Location* and then selecting the radio button next to the ibse directory, for example:

   `C:\Program Files\iWay55\bea\iwae`

5. Click *Next* after selecting the radio button next to the iwae directory.

6. Click *Next* again, leaving the default *Install this deployment as an application* option selected.

   The Select deployment targets page opens.




7. In the Servers section, click the AdminServer checkbox and click *Next*.

8. Click *Next* again, leaving the default values.

9. Click *Finish* to complete the deployment.

10. On the left, click *Activate Changes*.

11. On the right, click *Control*.

12. Click the *iwae* checkbox.

13. Click *Start* and select *Servicing All Requests* from the drop-down menu.

**14.** Click *Yes*.

The State of the iwae application is now *Active*.

## Procedure: How to Configure Ports and Channels in a Clustered Environment

You can use Servlet Application Explorer to configure ports and channels in a clustered environment.

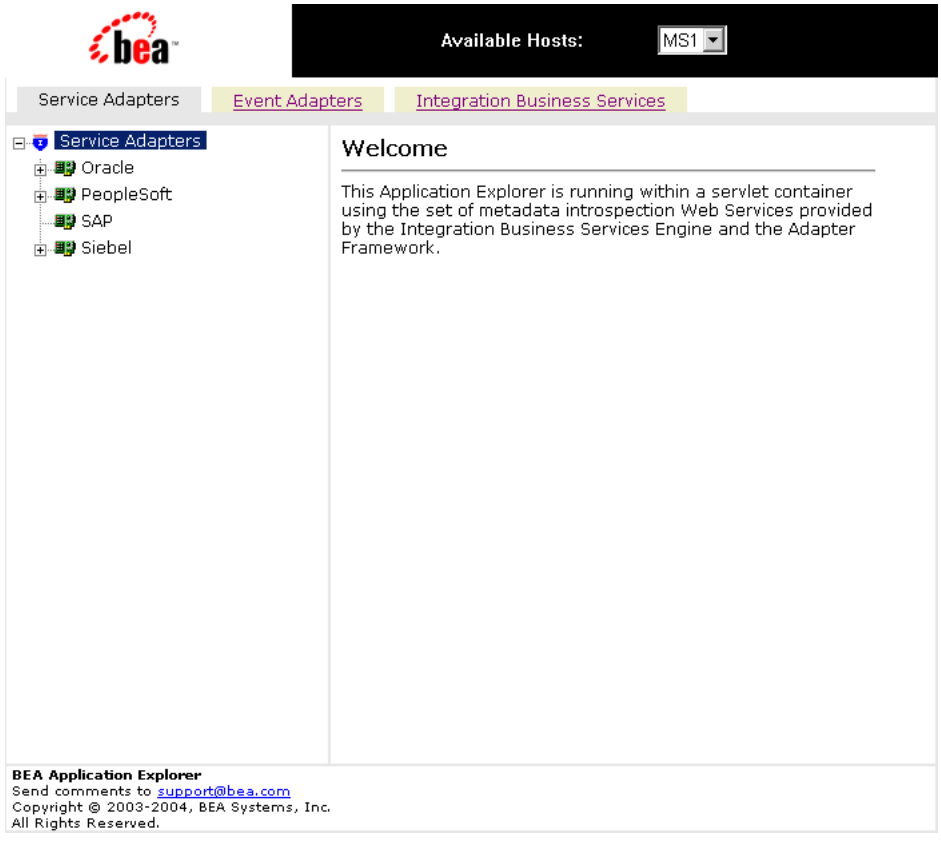
**Note:** Before using Servlet Application Explorer in a clustered environment, you must edit the web.xml file and specify the correct URL to your iBSE deployment. The default location on Windows is:

```
C:\Program Files\iWay55\bea\iwae\WEB-INF\web.xml
```

For more information on configuring the web.xml file for the Servlet Application Explorer, see the *BEA WebLogic ERP Adapter Installation and Configuration* documentation.

To configure ports and channels in a clustered environment:

**1.** Start Servlet Application Explorer.



The Available Hosts drop-down menu in the upper right lists the JCA or iBSE instances in your cluster, for example, MS1 and MS2.

2. Click the *Event Adapters* tab.
3. Select an adapter from the adapter list (in this example, Oracle) and add a new port. For more information, see *Creating an Event Port* on page 3-2.
4. Create a channel and add the port you created. For more information, see *Creating a Channel* on page 3-21.
5. Enter the application server parameters for your channel.
6. Start the channel.
7. Select the second iBSE instance, for example MS2, from the Available Hosts drop-down menu.

   The connection to iBSE must be configured to each instance of the managed server.

   The following operations performed on one managed server will be replicated on all other managed servers:

   - Create port and channel. Creates the channel and port under all available servers.
   - Delete port and channel. Deletes the port and channel under all available servers.

   The following operations must be performed on each server:

   - Start channel. Starts the channel for the specific server.
   - Stop channel. Stops the channel for the specific server.

CHAPTER 4

# Management and Monitoring

**Topics:**

- Managing and Monitoring Services and Events Using iBSE
- Managing and Monitoring Services and Events Using the JCA Test Tool
- Setting Engine Log Levels
- Configuring Connection Pool Sizes
- Migrating Repositories
- Exporting or Importing Targets
- Retrieving or Updating Web Service Method Connection Information
- Starting or Stopping a Channel Programmatically

After you create services and events using Application Explorer, you can use management and monitoring tools to measure the performance in your run-time environment. This section describes how to configure and use these features.

# Managing and Monitoring Services and Events Using iBSE

Integration Business Services Engine (iBSE) provides a console that enables you to manage and monitor services and events currently in use. The console also displays resource usage and invocation statistics. These indicators can help you adjust your environment for optimum efficiency.

The following monitoring levels are available for services:

- System
- Service
- Method

The following monitoring levels are available for events:

- System
- Channel
- Port

## Procedure: How to Configure Monitoring Settings

To configure monitoring settings:

1. Ensure that your BEA WebLogic Server is started.
2. To access the monitoring console, enter the following URL in your Web browser:

   `http://hostname:port/ibse/IBSEConfig`

   where:

   *hostname*

   Is the machine where the application server is running.

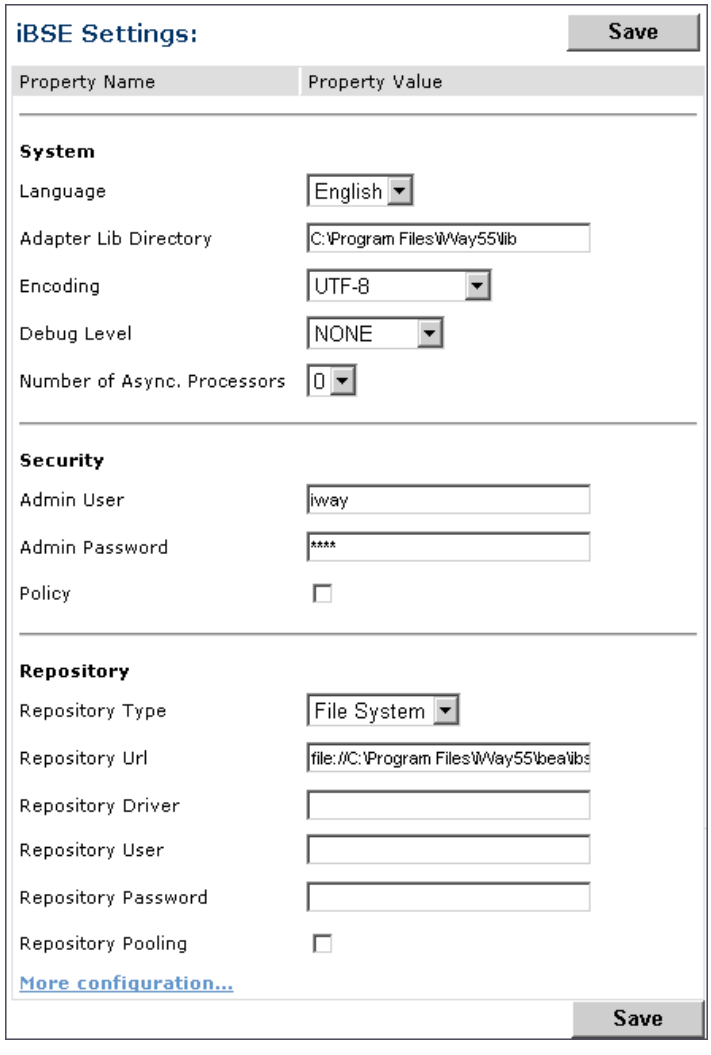
   *port*

   Is the HTTP port for the application server.

   The iBSE Settings window opens as shown in the following image. It consists of three panes. To configure system settings, the System pane includes drop-down lists for selecting language, encoding, the debug level, and the number of asynchronous processors. It also contains a field where you can enter a path to the adapter lib directory.

   To configure security settings, the Security pane contains fields for typing the Admin User name and the associated password and a check box for specifying policy.

To configure repository settings, the Repository pane contains a drop-down list for selecting the repository type; fields to type information for the repository URL, driver, user, and password; and a check box where you can enable repository pooling. In the upper and lower right of the window is a Save button. In the lower left of the window is an option to access more configuration settings.



**3.** Click *More configuration*.

**Tip:** To access the monitoring console directly, enter the following URL in your Web browser:

`http://hostname:port/ibse/IBSEStatus`

where:

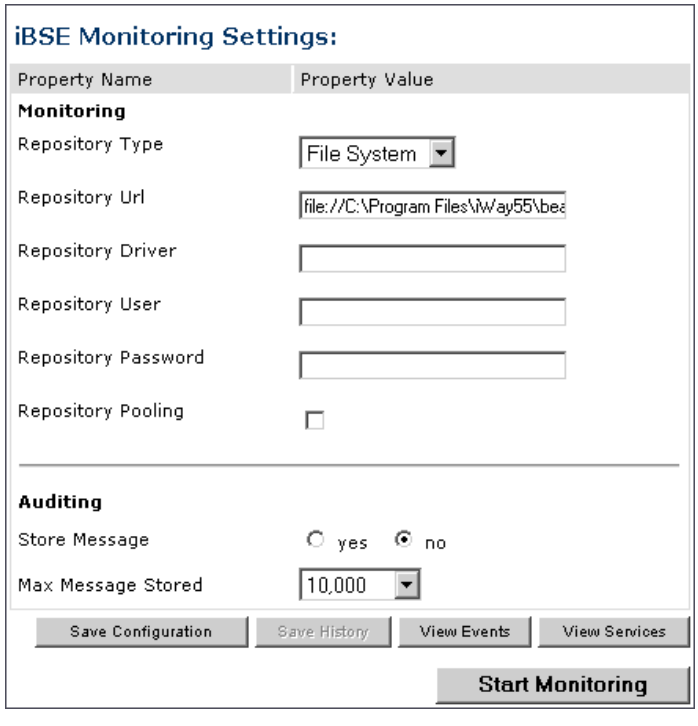
*hostname*

Is the machine where the application server is running.

*port*

Is the HTTP port for the application server.

The iBSE Monitoring Settings window which is divided into two panes opens as shown in the following image. At the bottom of the window is a row of command buttons that enable you to save your configuration, view events, or view services. The Save History button is inactive.




**a.** In the Monitoring pane, from the Repository Type drop-down list, select the type of repository you are using.

**b.** To connect to the database in the Repository Url field, type a JDBC URL.

**c.** To connect to the database in the Repository Driver field, type a JDBC Class.

**d.** To access the monitoring repository database, type a user ID and password.

**e.** To enable pooling, select the *Repository Pooling* check box.

**f.** In the Auditing pane, click *yes* if you want to store messages.

This option is disabled by default.

**Note:** You must start and then stop monitoring to enable this option.

**g.** From the drop-down list, select the maximum number of messages to store.

By default, 10,000 is selected.

**Note:** Depending on your environment and the number of messages that are exchanged, storing a large number of messages may affect system performance. If you require more information about your system resources, consult your system administrator.

**h.** Click *Save Configuration*.

**4.** Click *Start Monitoring*.

iBSE begins to monitor all services and events currently in use. If you selected the option to store messages, iBSE stores messages.

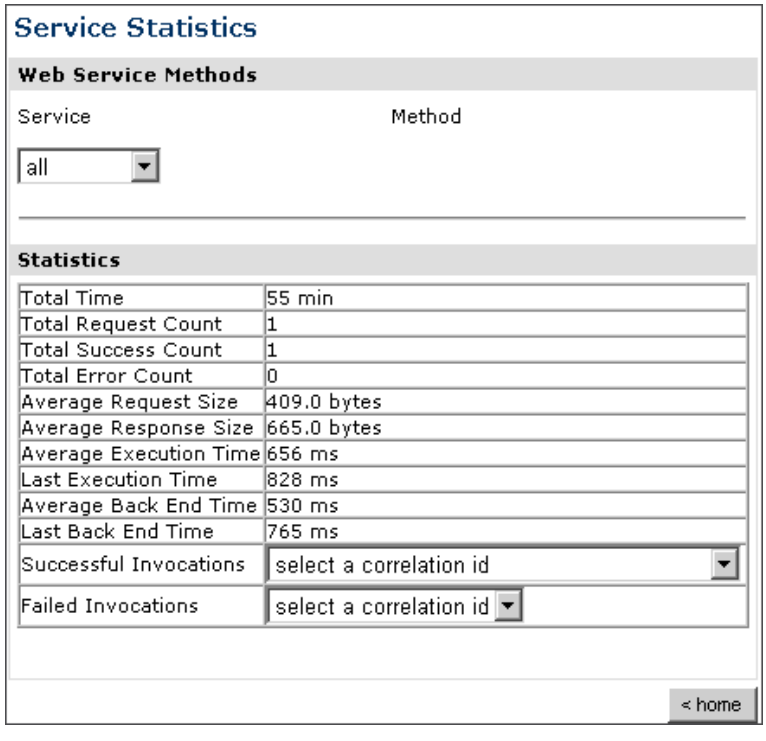
**5.** To stop monitoring, click *Stop Monitoring*.

## Procedure: How to Monitor Services

To monitor services:

1. Ensure that your BEA WebLogic Server is started.
2. From the iBSE Monitoring Settings window, click *Start Monitoring*.
3. Click *View Services*.

   The System Level Summary (Service Statistics) window opens, as shown in the following image. The Web Service Methods pane contains a drop-down list where you select a service. On the right, space is reserved for a drop-down list of methods that will appear. The Statistics pane contains a table with a summary of service statistics and two drop-down lists where you can select a successful or failed invocation to view more information about that service. At the bottom of the window is a home button to click to return to the iBSE Monitoring Settings window.



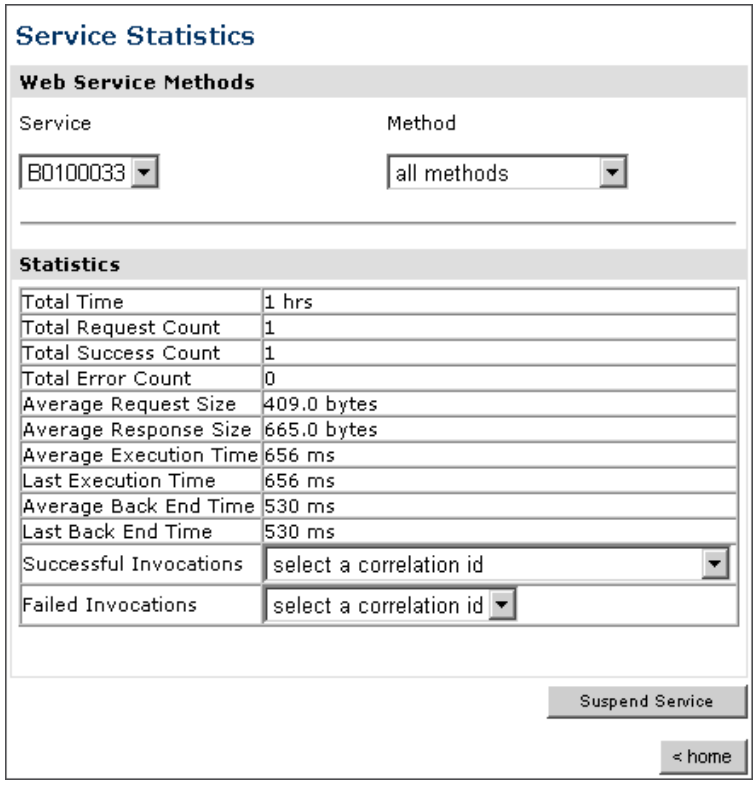

   The system level summary provides services statistics at a system level.

The following table lists and describes each service statistic.

| **Statistic** | **Description** |
|---|---|
| Total Time | Total amount of time iBSE monitors services. The time starts after you click Start Monitoring in the iBSE Monitoring Settings window. |
| Total Request Count | Total number of services requests made during the monitoring session. |
| Total Success Count | Total number of successful service executions. |
| Total Error Count | Total number of errors encountered. |
| Average Request Size | Average size of an available service request. |
| Average Response Size | Average size of an available service response. |
| Average Execution Time | Average execution time for a service. |
| Last Execution Time | Last execution time for a service. |
| Average Back End Time | Average back-end time for a service. |
| Last Back End Time | Last back-end time for a service. |
| Successful Invocations | Successful services arranged by correlation ID. To retrieve more information for a service, select the service from the drop-down list. |
| Failed Invocations | Failed services arranged by correlation ID. To retrieve more information for a service, select the service from the drop-down list. |

4. Select a service from the drop-down list.

   The System Level Summary (Service Statistics) window opens as shown in the following image. The Web Service Methods pane contains a drop-down list on the left where you select a service and a drop-down list on the right where you select a service method. The Statistics pane contains a table with a summary of service statistics and two drop-down lists. To view more information about that service, you can select it from the Successful Invocations or Failed Invocations drop-down list. To suspend or resume a service, you can click a button in the lower right. To return to the iBSE Monitoring Settings window, you click the home button.

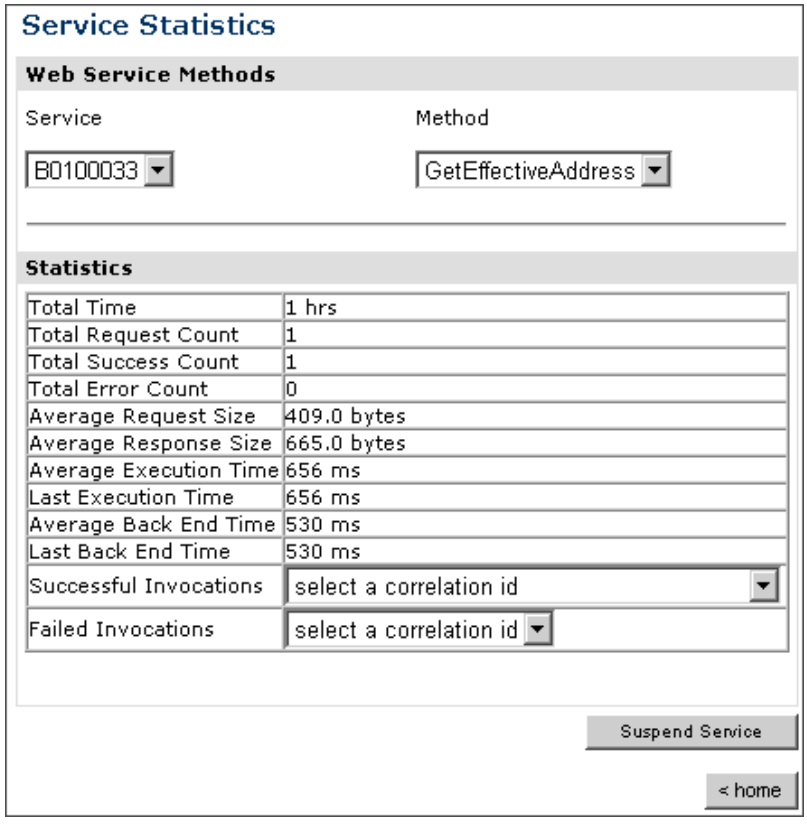



   **a.** To stop a service at any time, click *Suspend Service*.

   **b.** To restart the service, click *Resume Service*.

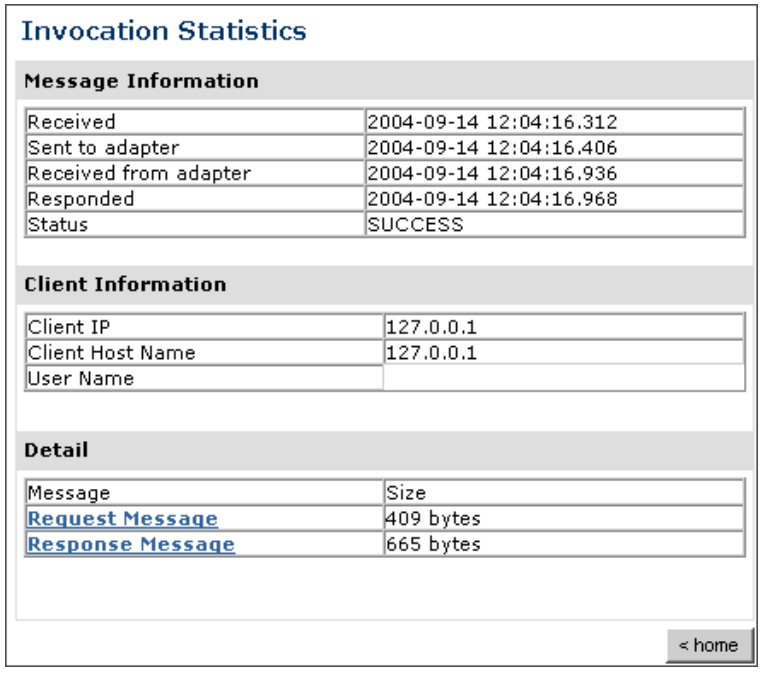
**5.** Select a method for the service from the Method drop-down list.

The Method Level Summary (Service Statistics) window opens as shown in the following image. The Web Service Methods pane contains a drop-down list on the left where you select a service and a drop-down list on the right where you select a service method. The Statistics pane contains a table with a summary of service statistics and two drop-down lists. To view more information about that service, you can select it from the Successful Invocations or Failed Invocations drop-down list. To suspend or resume a service, you can click a button in the lower right. To return to the iBSE Monitoring Settings window, you click the home button.



6. For additional information about a successful service and its method, select a service based on its correlation ID from the Successful Invocation drop-down list.

   The Invocation Level Statistics window opens as shown in the following image. The Message Information pane contains a table of information about the message. The Client Information pane contains a table of information about the client. The Detail pane contains a table that shows the size of the request and response messages.




7. To view the XML request document in your Web browser, click *Request Message*.

   You can also view the XML response document for the service.

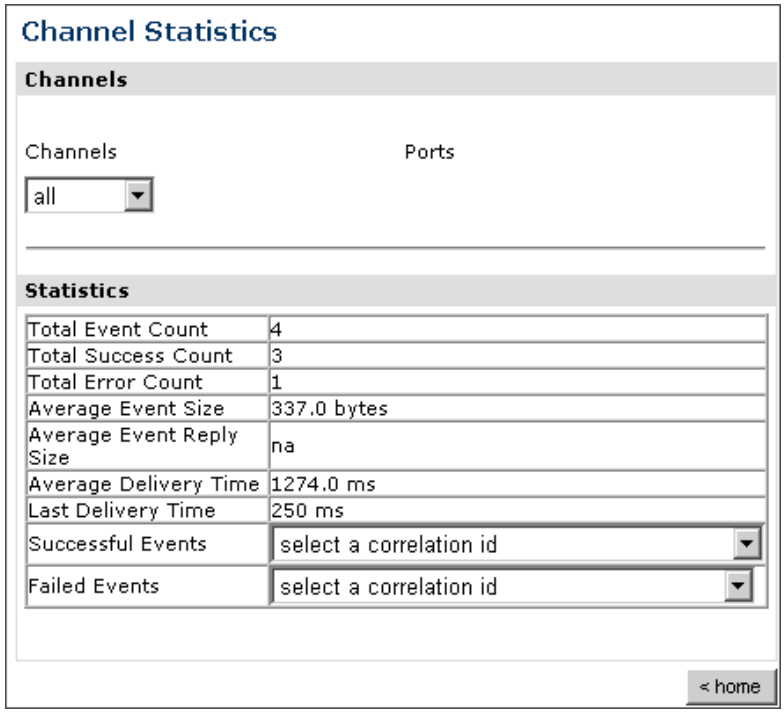
8. To return to the iBSE Monitoring Settings window, click *home*.

## Procedure: How to Monitor Events

To monitor events:

1. Ensure that your BEA WebLogic Server is started.
2. In the iBSE Monitoring Settings window, click *Start Monitoring*.
3. Click *View Events*.

   The System Level Summary (Channel Statistics) window opens as shown in the following image. The Channels pane contains a drop-down list on the left where you select a channel. On the right, space is reserved for a drop-down list of ports that will appear. The Statistics pane contains a table with a summary of event statistics and two drop-down lists where you can select a successful or failed event to view more information about that event. In the lower right of the window is a home button.



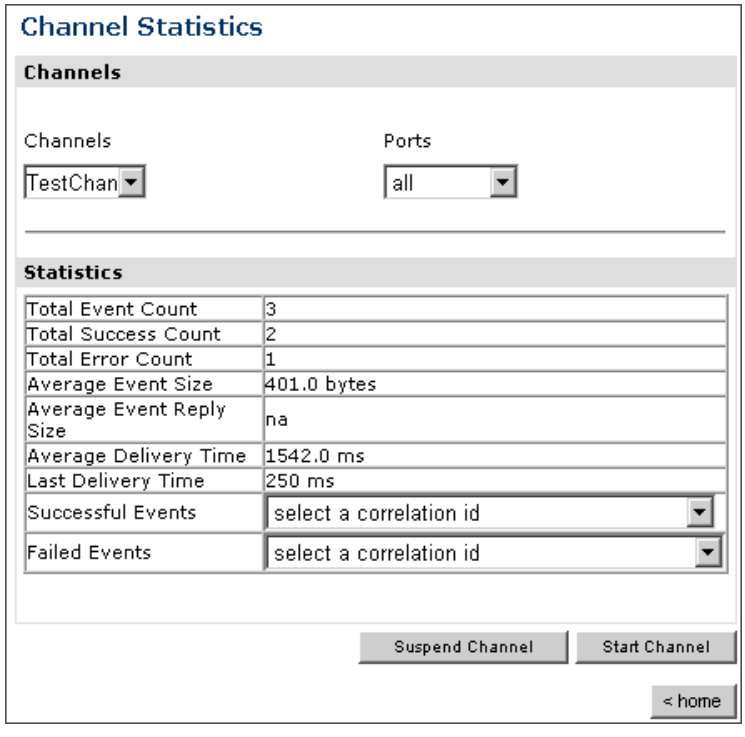

   The system level summary provides event statistics at a system level.

The following table lists and describes each event statistic.

| **Statistic** | **Description** |
|---|---|
| Total Event Count | Total number of events. |
| Total Success Count | Total number of successful event executions. |
| Total Error Count | Total number of errors encountered. |
| Average Event Size | Average size of an available event request. |
| Average Event Reply Size | Average size of an available event response. |
| Average Delivery Time | Average delivery time for an event. |
| Last Delivery Time | Last delivery time for an event. |
| Successful Events | Successful events arranged by correlation ID. To retrieve more information for an event, select the event from the drop-down list. |
| Failed Events | Failed events arranged by correlation ID. To retrieve more information for an event, select the event from the drop-down list. |

4. Select a channel from the drop-down list.

   The Channel Level Event Summary (Channel Statistics) window opens as shown in the following image. The Channels pane contains a drop-down list on the left where you select a channel and a drop-down list on the right where you select a port. The Statistics pane contains a table with a summary of event statistics and two drop-down lists where you can select a successful or failed event to view more information about that event. In the lower right of the window is a button to click to suspend or resume a channel and a home button to click to return to the iBSE Monitoring Settings window.

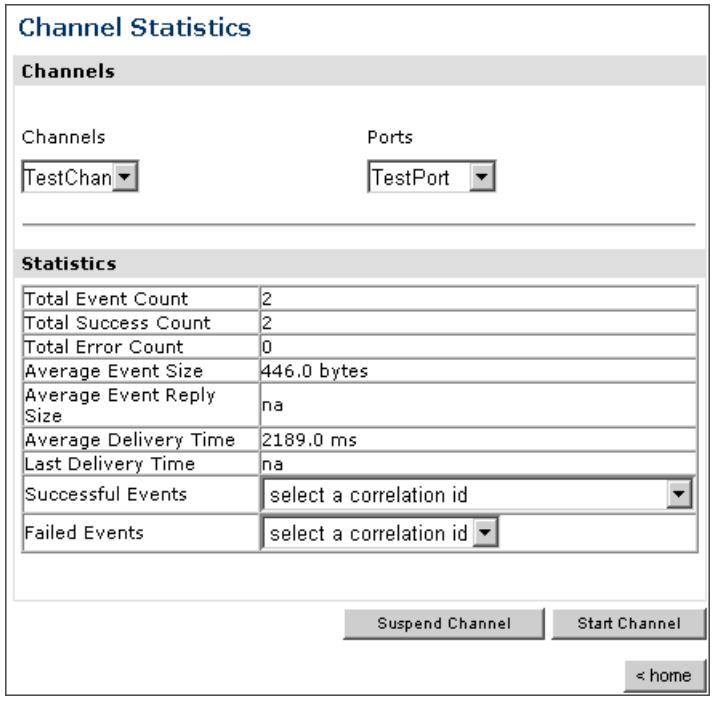



   **a.** To stop a channel at any time, click *Suspend Channel*.

   **b.** To start the channel, click *Start Channel*.

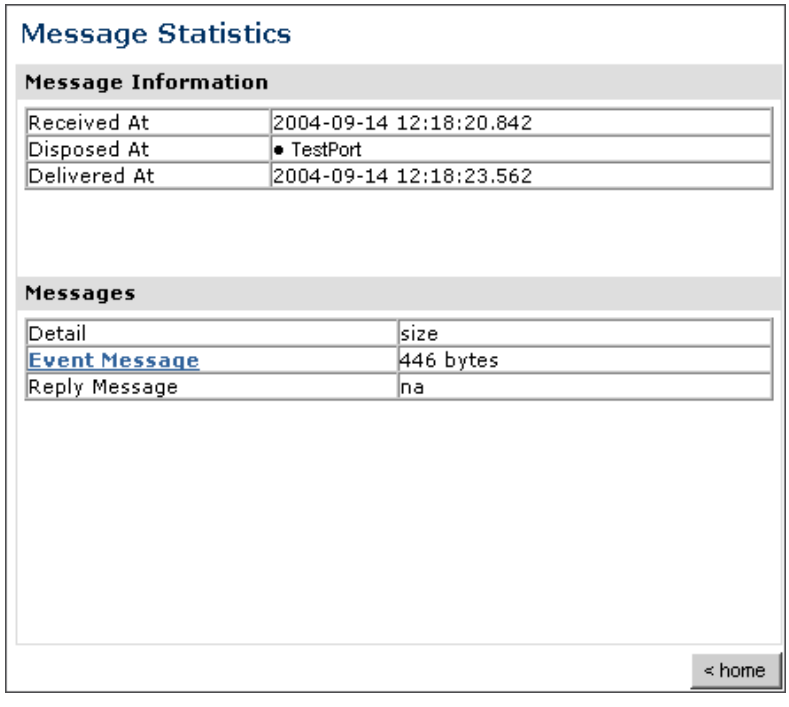
**5.** From the Ports drop-down list, select a port for the channel.

The Port Level Event Summary (Channel Statistics) window opens as shown in the following image. The Channels pane contains a drop-down list on the left where you select a channel and a drop-down list on the right where you select a port. The Statistics pane contains a table with a summary of event statistics and two drop-down lists where you can select a successful or failed event to view more information about that event. In the lower right of the window is a button to click to suspend or resume a channel and a home button to click to return to the iBSE Monitoring Settings window.



6. For more information about a successful event and its port, select an event based on its correlation ID from the Successful Events drop-down list.

   The Event Level Statistics (Message Statistics) window opens as shown in the following image. The Message Information pane contains a table of information pertaining to the event message. The Messages pane contains a table that shows the size of the event and reply messages.




   a. To view the XML event document in your Web browser, click *Event Message*.

   b. To return to the iBSE Monitoring Settings window, click *home*.

# Managing and Monitoring Services and Events Using the JCA Test Tool

The JCA Test Tool, which is also known as the JCA Installation Verification Program (IVP), provides a console to manage and monitor services and events currently in use. The console also displays resource usage and invocation statistics. These indicators can help you adjust your environment for optimum efficiency.

## Procedure: How to Manage and Monitor Services Using the JCA Test Tool

To manage and monitor services using the JCA Test Tool:

1. Open a Web browser to:

   `http://hostname:port/iwjcaivp`

   where:

   *hostname*

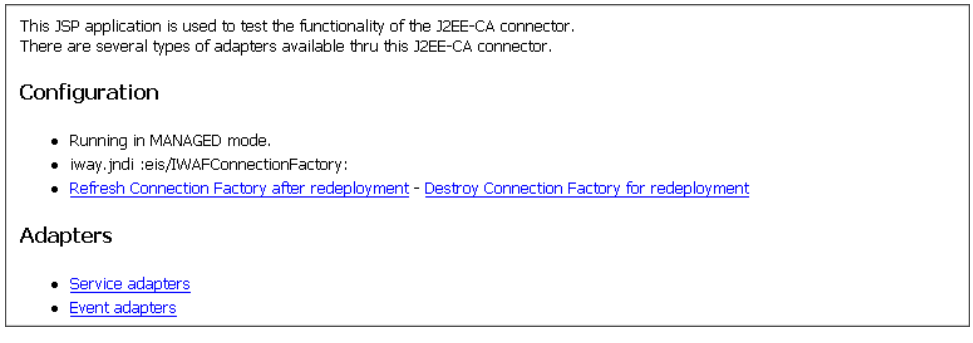
   Is the name of the machine where your application server is running.

   *port*

   Is the port for the domain you are using. The port for the default domain is 7001, for example:

   `http://localhost:7001/iwjcaivp`

   The following image shows the JCA Test Tool pane that opens. The pane contains a description of the function of the tool and configuration information, including options to change your connection settings. It also provides options for viewing service or event adapters.




   The JCA Test Tool runs in managed mode by default.

2. Perform the following steps to monitor the latest service adapter configuration.

   **Note:** You must perform these steps for every new adapter target that is created using a JCA implementation of Application Explorer. In addition, you also must perform these steps for every new JCA configuration that is created using Application Explorer.

   a. Click *Destroy Connection Factory for redeployment*.

   b. Redeploy the JCA connector.

   c. In the JCA Test Tool, click *Refresh Connection Factory after redeployment*.

3. Click *Service adapters*.

4. Select a service adapter to monitor.

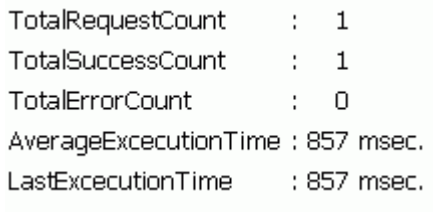
   a. Click the desired target for your service adapter.

   b. In the Request area, enter a user name and password.

   c. In the Input Doc area, enter a request document created from the request schema for your service.

5. Click *Send*.

   The following image shows the updated statistics that appear for your service if the request is successful. The statistics include the total number of requests, successes, and errors and the average and last execution time in milliseconds.



## Procedure: How to Manage and Monitor Events Using the JCA Test Tool

To manage and monitor events using the JCA Test Tool:

1. Open a Web browser to:

   `http://hostname:port/iwjcaivp`

   where:

   *hostname*

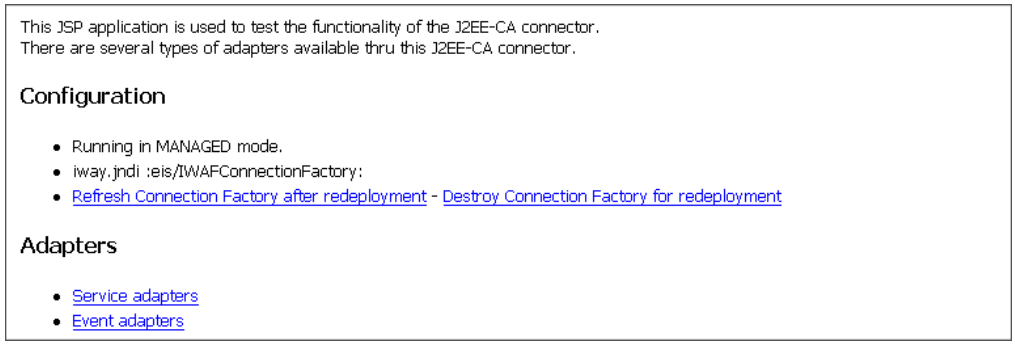
   Is the name of the machine where your application server is running.

   *port*

   Is the port for the domain you are using. The port for the default domain is 7001, for example:

   `http://localhost:7001/iwjcaivp`

   The JCA Test Tool pane opens as shown in the following image. The pane contains a description of the function of the tool and configuration information, including options to change your connection settings. It also provides options for viewing service or event adapters.




   The JCA Test Tool runs in managed mode by default.

2. To monitor the latest event adapter configuration, perform the following steps.

   **Note:** You must perform these steps for every new adapter target that is created using a JCA implementation of Application Explorer. In addition, you must also perform these steps for every new JCA configuration that is created using Application Explorer.

   **a.** Click *Destroy Connection Factory for redeployment*.

   **b.** Redeploy the JCA connector.

   **c.** In the JCA Test Tool, click *Refresh Connection Factory after redeployment*.

3. Click *Event adapters*.

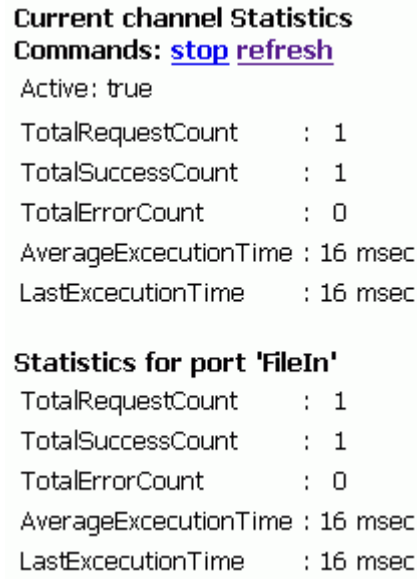
   The Event Adapters pane opens.

4. Select the event adapter to monitor.

5. Click the desired channel for your event adapter.

6. Click *start*.

   The following image shows the updated statistics for your channel and the port. The statistics include the total number of requests, successes, and errors and the average and last execution time in milliseconds. The upper right of the pane contains options to start or refresh the channel.



# Setting Engine Log Levels

The following procedures describe how to set engine log levels. For more information, see the *BEA WebLogic ERP Adapter Installation and Configuration* manual.

## Procedure: How to Enable Tracing for Servlet iBSE

To enable tracing for Servlet iBSE:

1. Open the Servlet iBSE configuration window at:

   `http://hostname:port/ibse/IBSEConfig`

   where:

   *hostname*

   Is the name of the machine where your application server is running.

   *port*

   Is the port for the domain you are using. The port for the default domain is 7001, for example:

   `http://localhost:7001/ibse/IBSEConfig`

2. In the System pane, from the Debug drop-down list, select the level of tracing.
3. Click *Save*.

The default location for the trace information on Windows is:

`C:\Program FIles\bea\ibse\ibselogs`

## Procedure: How to Enable Tracing for JCA

To enable tracing for JCA:

1. Extract the ra.xml file from the iwafjca.rar file.
2. Open the extracted ra.xml file in a text editor.
3. Locate and change the following setting:

   **LogLevel.** This setting can be set to DEBUG, INFO, or ERROR.

   ```
   <context-param>
   <config-property>
       <config-property-name>LogLevel</config-property-name>
       <config-property-type>java.lang.String</config-property-type>
       <config-property-value></config-property-value>
   </config-property>
   ```

   For example:

   ```
   <config-property-value>DEBUG</config-property-value>
   ```

   Leave the remainder of the file unchanged.
4. Save the file and exit the editor.
5. Add the file back to the iwafjca.rar file.
6. Redeploy the connector.

A directory in the configuration directory contains the logs. For example, on Windows the default location is the following:

```
C:\Program Files\iway55\config\base\log
```

The log files are named jca_*.log.

You should also review the logs generated by your application server.

# Configuring Connection Pool Sizes

The following topic describes how to configure connection pool sizes for the Connector for JCA.

## Procedure: How to Configure Connection Pool Sizes

To configure connection pool sizes:

1. Extract the ra.xml file from the iwafjca.rar file.
2. Open the extracted ra.xml file in a text editor.
3. Locate and change the following setting:

   **pool-params.** The JCA Resource Connector has an initial capacity value of 0 by default and cannot be changed. The maximum capacity value is 10 by default and can be changed to a higher value.

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE weblogic-connection-factory-dd (View Source for full
doctype...)>
- <weblogic-connection-factory-dd>
  <connection-factory-name>IWAFJCA</connection-factory-name>
  <jndi-name>eis/IWAFConnectionFactory</jndi-name>
  - <pool-params>
    <initial-capacity>0</initial-capacity>
    <max-capacity>10</max-capacity>
    <capacity-increment>1</capacity-increment>
    <shrinking-enabled>false</shrinking-enabled>
    <shrink-period-minutes>200</shrink-period-minutes>
  </pool-params>
  <security-principal-map />
</weblogic-connection-factory-dd>
```

4. Save the file and exit the editor.
5. Return the ra.xml file to the iwafjca.rar file.
6. Redeploy the connector.

# Migrating Repositories

During design time, a repository is used to store metadata that is created when using Application Explorer to:

- Configure adapter connections.
- Browse EIS objects.
- Configure services.
- Configure listeners to listen for EIS events.

For more information on configuring repositories, see the *BEA WebLogic ERP Adapter Installation and Configuration* manual.

The information in the repository also is referenced at run time. For management purposes, you can migrate iBSE and JCA repositories to new destinations without affecting your existing configuration. For example, you can migrate a repository from a development environment to a production environment. The BEA WebLogic Server must be restarted to detect new repository changes.

For more information on migrating repositories, see the *iWay 5.5.011 for BEA WebLogic 9.1 Migration Guide*.

# Exporting or Importing Targets

After you migrate your repository, you can export or import targets with their connection information and persistent data between repositories.

## Procedure: How to Export a Target

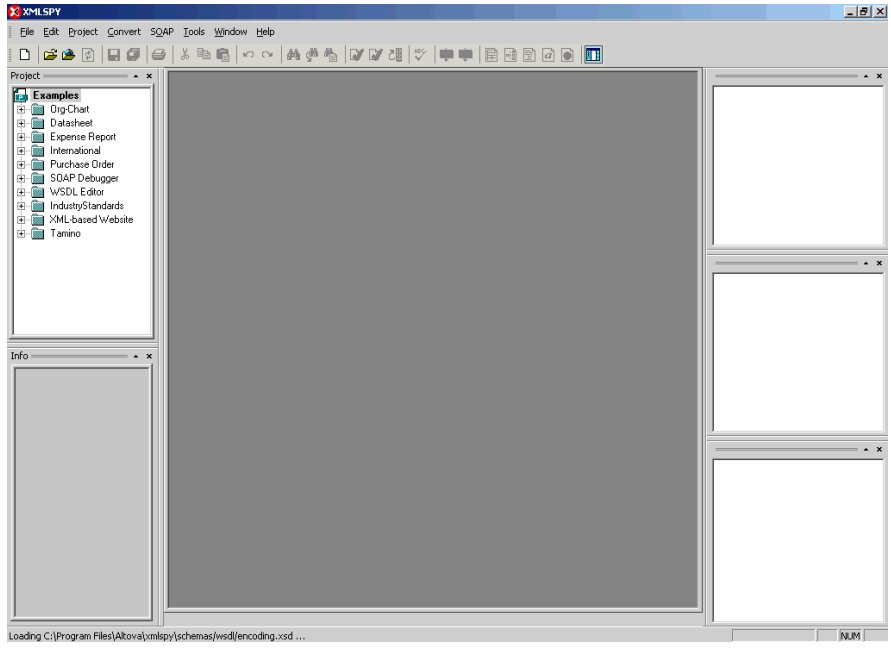
To export a target:

1. Copy the iBSE administrative services for Application Explorer URL, for example:

   `http://localhost:7777/ibse/IBSEServlet/admin/iwae.ibs?wsdl`

2. Open a third party XML editor, for example, XMLSPY.

The following image shows the XMLSPY window. The upper left has a Project pane that contains a tree of sample files, and the lower left has a blank Info pane. The middle pane is blank. The right side is divided into three blank panes.




3. From the SOAP menu, select *Create new SOAP request*.

   The WSDL file location dialog box opens.

4. In the Choose a file field, paste the iBSE administrative services for Application Explorer URL.

5. Click *OK*.

   The soap operation name dialog box opens and lists the available control methods.

6. Select the *EXPORTTARGET(EXPORTTARGET parameters)* control method and click *OK*.

   A window opens that shows the structure of the SOAP envelope.

7. Locate the *Text view* icon in the tool bar.

8. To display the structure of the SOAP envelope as text, click the *Text view* icon.

   The <SOAP-ENV:Header> tag is not required and can be deleted from the SOAP envelope.

**9.** Locate the following section:

```
<m:EXPORTTARGET
xmlns:m="urn:schemas-iwaysoftware-com:dec2002:iwse:af">
<m:target>String</m:target>
<m:name>String</m:name>
</m:EXPORTTARGET>
```

**a.** For the <m:target> tag, replace the String placeholder with the EIS target system name as it appears in Application Explorer and verify whether this value is case sensitive.

**b.** For the <m:name> tag, replace the String placeholder with the name of the target you want to export.

**10.** From the SOAP menu, select *Send request to server*.

A response is returned that contains the <m: exporttime> and <m: contents> elements. You must use these elements when importing your target.

## Procedure: How to Import a Target

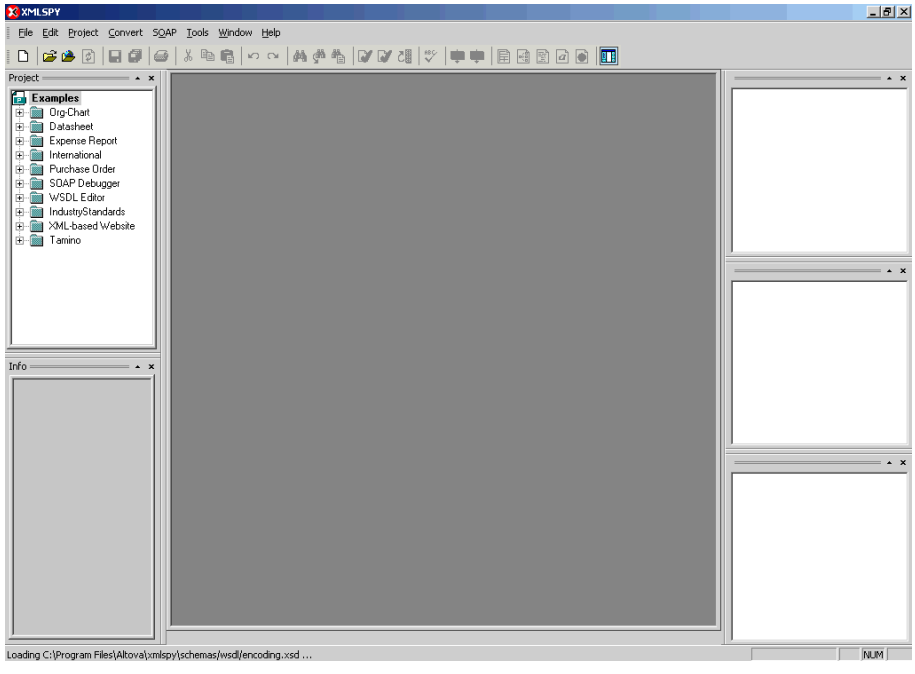
To import a target:

1. Copy the iBSE administrative services for Application Explorer URL, for example:

   `http://localhost:7777/ibse/IBSEServlet/admin/iwae.ibs?wsdl`

2. Open a third party XML editor, for example, XMLSPY.

   The following image shows the XMLSPY window. The upper left has a Project pane that contains a tree of sample files, and the lower left has a blank Info pane. The middle pane is blank. The right side is divided into three blank panes.




3. From the SOAP menu, select *Create new SOAP request*.

   The WSDL file location dialog box opens.

4. In the Choose a file field, paste the iBSE administrative services for Application Explorer URL and click *OK*.

   The soap operation name dialog box opens and lists the available control methods.

5. Select the *IMPORTTARGET(IMPORTTARGET parameters)* control method and click *OK*.

   A window opens, which shows the structure of the SOAP envelope.

6. Locate the *Text view* icon in the tool bar.
7. To display the structure of the SOAP envelope as text, click the *Text view* icon.

   The <SOAP-ENV:Header> tag is not required and can be deleted from the SOAP envelope.
8. Locate the following section:

```
<m:IMPORTTARGET
xmlns:m="urn:schemas-iwaysoftware-com:dec2002:iwse:af">
<m:targetinstance>
<m:target>String</m:target>
<m:name>String</m:name>
<m:description>String</m:description>
<m:repositoryid>String</m:repositoryid>
<m:exporttime>2001-12-17T09:30:47-05:00</m:exporttime>
<m:contents>R0lGODlhcgGSALMAAAQCAEMmCZtuMFQxDS8b</m:contents>
</m:targetinstance>
</m:IMPORTTARGET>
```

   a. For the <m:target> tag, replace the String placeholder with the EIS target system name.

   b. For the <m:name> tag, replace the String placeholder with the new name of the target you want to import.

   c. For the <m:description> tag, replace the String placeholder with a description of the target.

   d. For the <m:repositoryid> tag, copy and paste the contents of the <m:repositoryid> tag that was returned when you exported your target.

   e. For the <m: exporttime> tag, copy and paste the contents of the <m: exporttime> tag that was returned when you exported your target.

   f. For the <m: contents> tag, copy and paste the contents of the <m: contents> tag that was returned when you exported your target.
9. From the SOAP menu, select *Send request to server.*

# Retrieving or Updating Web Service Method Connection Information

After you migrate your repository, you can retrieve or update connection information for your Web service methods.

## Procedure: How to Retrieve Web Service Method Connection Information

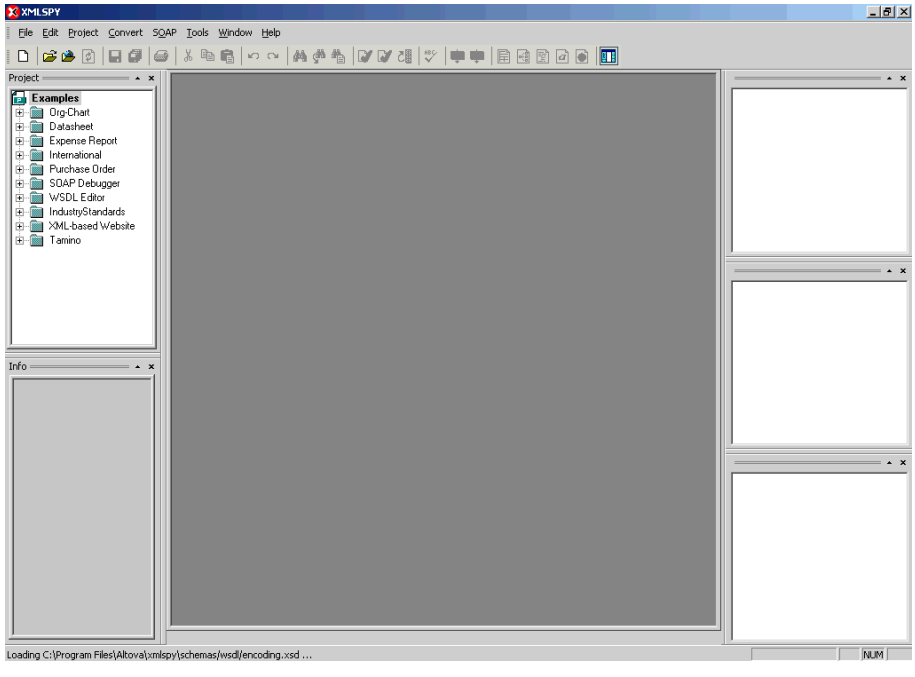
To retrieve Web service method connection information:

1. Copy the iBSE configuration service URL, for example:

   `http://localhost:7777/ibse/IBSEServlet/admin/iwconfig.ibs?wsdl`

2. Open a third party XML editor, for example, XMLSPY.

   The following image shows the XMLSPY window. The upper left has a Project pane that contains a tree of sample files, and the lower left has a blank Info pane. The middle pane is blank. The right side is divided into three blank panes.




3. From the SOAP menu, select *Create new SOAP request*.

   The WSDL file location dialog box opens.

4. In the Choose a file field, paste the iBSE configuration service URL, and click *OK*.

   The soap operation name dialog box opens and lists the available control methods.

5. Select the *GETMTHCONNECTION(GETMTHCONNECTION parameters)* control method and click *OK*.

   A window opens, which shows the structure of the SOAP envelope.

6. Locate the *Text view* icon in the tool bar.

7. To display the structure of the SOAP envelope as text, click the *Text view* icon.

   The <SOAP-ENV:Header> tag is not required and can be deleted from the SOAP envelope.

8. Locate the following section:

```
<m:GETMTHCONNECTION
xmlns:m="urn:schemas-iwaysoftware-com:jul2003:ibse:config">
<m:servicename>String</m:servicename>
<m:methodname>String</m:methodname>
</m:GETMTHCONNECTION>
```

   a. For the <m:servicename> tag, replace the String placeholder with the name of the Web service.

   b. For the <m:methodname> tag, replace the String placeholder with name of the Web service method.

9. From the SOAP menu, select *Send request to server*.

   A response is returned that contains the <m: descriptor> element. You must use this element when updating your Web service method.

## Procedure: How to Update Web Service Method Connection Information

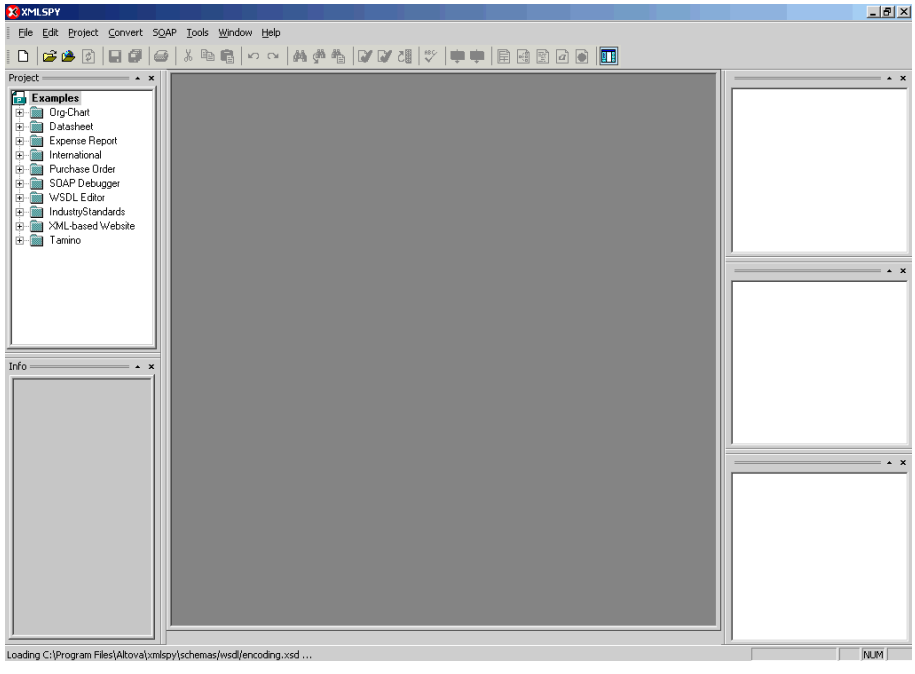
To update Web service method connection information:

1. Copy the iBSE configuration service URL, for example:

   `http://localhost:7777/ibse/IBSEServlet/admin/iwconfig.ibs?wsdl`

2. Open a third party XML editor, for example, XMLSPY.

   The following image shows the XMLSPY window. The upper left has a Project pane that contains a tree of sample files, and the lower left has a blank Info pane. The middle pane is blank. The right side is divided into three blank panes.




3. From the SOAP menu, select *Create new SOAP request*.

   The WSDL file location dialog box opens.

4. In the Choose a file field, paste the iBSE configuration service URL, and click *OK*.

   The soap operation name dialog box opens and lists the available control methods.

5. Select the *SETMTHCONNECTION(SETMTHCONNECTION parameters)* control method and click *OK*.

   A window opens that shows the structure of the SOAP envelope.

6. Locate the *Text view* icon in the tool bar.
7. To display the structure of the SOAP envelope as text, click the *Text view* icon.

   The <SOAP-ENV:Header> tag is not required and can be deleted from the SOAP envelope.
8. Locate the following section:

```
<m:SETMTHCONNECTION
xmlns:m="urn:schemas-iwaysoftware-com:jul2003:ibse:config">
<m:servicename>String</m:servicename>
<m:methodname>String</m:methodname>
<m:descriptor format="" channel="">
     <m:option title="">
       <m:group title="">
          <m:param/>
       </m:group>
     </m:option>
</m:descriptor>
</m:SETMTHCONNECTION>
```

   a. For the <m:servicename> tag, replace the String placeholder with the name of the Web service.

   b. For the <m:methodname> tag, replace the String placeholder with the name of the Web service method.

   c. For the <m: descriptor> tag, copy and paste the contents of the <m: descriptor> tag that was returned when you retrieved Web Service method connection information.
9. Modify the contents of the <m: descriptor> tag to change the existing Web Service method connection information.
10. From the SOAP menu, select *Send request to server.*

# Starting or Stopping a Channel Programmatically

The following topic describes how to start or stop a channel programmatically.

## Procedure: How to Start a Channel Programmatically

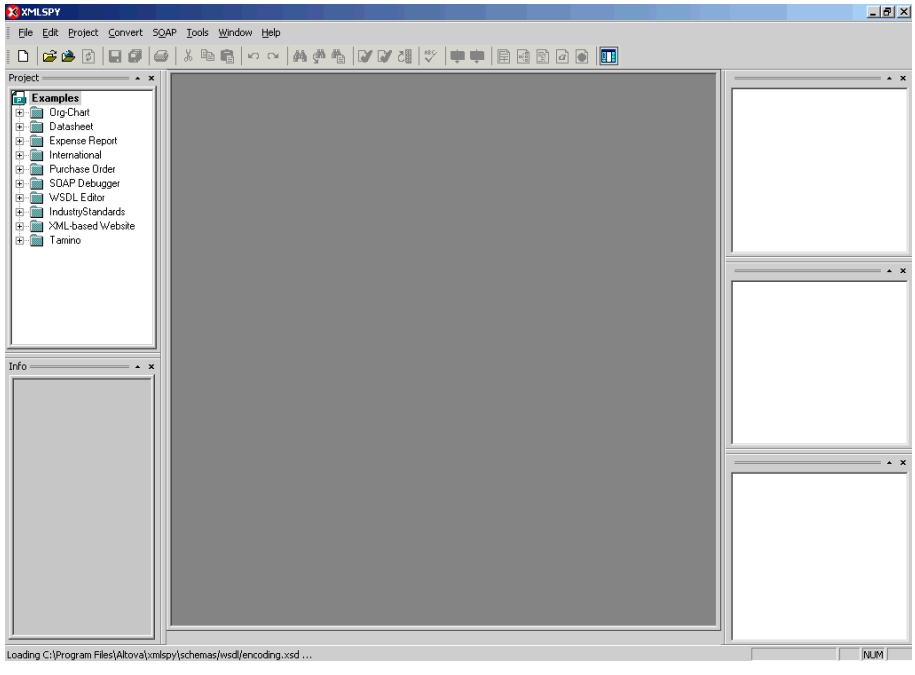
To start a channel programmatically:

1. Copy the iBSE control event URL, for example:

   `http://localhost:7777/ibse/IBSEServlet/admin/iwevent.ibs?wsdl`

2. Open a third party XML editor, for example, XMLSPY.

   The following image shows the XMLSPY window. The upper left has a Project pane that contains a tree of sample files, and the lower left has a blank Info pane. The middle pane is blank. The right side is divided into three blank panes.

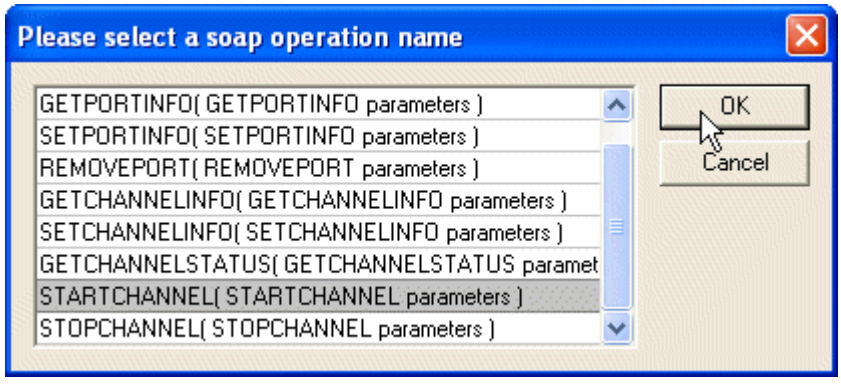



3. From the SOAP menu, select *Create new SOAP request*.

   The WSDL file location dialog box opens.

4. In the Choose a file field, paste the iBSE control event URL, and click *OK*.

   The following image shows the soap operation name dialog box that opens with a list of available control methods.




5. Select the *STARTCHANNEL(STARTCHANNEL parameters)* control method and click *OK*.

   A window opens, which shows the structure of the SOAP envelope.

6. Locate the *Text view* icon in the tool bar.

7. To display the structure of the SOAP envelope as text, click the *Text view* icon.

   The <SOAP-ENV:Header> tag is not required and can be deleted from the SOAP envelope.

8. Locate the following section:

```
<SOAP-ENV:Body>
  <m:STARTCHANNEL
     xmlns:m="urn:schemas-iwaysoftware-com:dec2002:iwse:event">
           <m:channel>String</m:channel>
  </m:STARTCHANNEL>
</SOAP-ENV:Body>
```

9. For the <m:channel> tag, replace the String placeholder with the name of the channel you want to start.

10. From the SOAP menu, select *Send request to server.*

## Procedure: How to Stop a Channel Programmatically

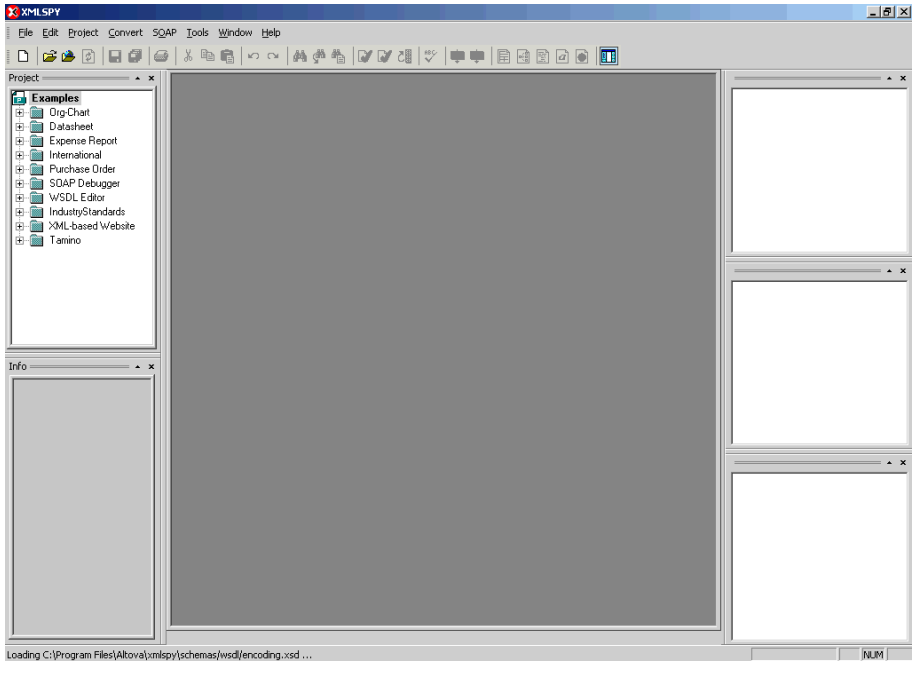
To stop a channel programmatically:

1. Copy the iBSE control event URL, for example:

   `http://localhost:7777/ibse/IBSEServlet/admin/iwevent.ibs?wsdl`

2. Open a third party XML editor, for example, XMLSPY.

   The following image shows the XMLSPY window. The upper left has a Project pane that contains a tree of sample files, and the lower left has a blank Info pane. The middle pane is blank. The right side is divided into three blank panes.

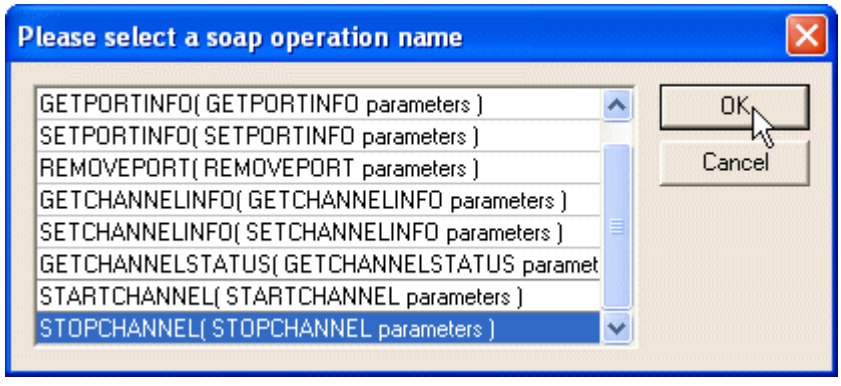



3. From the SOAP menu, select *Create new SOAP request*.

   The WSDL file location dialog box opens.

4. In the Choose a file field, paste the iBSE control event URL, and click *OK*.

   The following image shows the soap operation name dialog box that opens with a list of available control methods.




5. Select the *STOPCHANNEL(STOPCHANNEL parameters)* control method and click *OK*.

   A window opens, which shows the structure of the SOAP envelope.

6. Locate the *Text view* icon in the tool bar.

7. To display the structure of the SOAP envelope as text, click the *Text view* icon.

   The <SOAP-ENV:Header> tag is not required and can be deleted from the SOAP envelope.

8. Locate the following section:

```
<SOAP-ENV:Body>
  <m:STOPCHANNEL
     xmlns:m="urn:schemas-iwaysoftware-com:dec2002:iwse:event">
           <m:channel>String</m:channel>
  </m:STOPCHANNEL>
</SOAP-ENV:Body>
```

9. For the <m:channel> tag, replace the String placeholder with the name of the channel you want to stop.

10. From the SOAP menu, select *Send request to Server.*

CHAPTER 5

# Troubleshooting and Error Messages

**Topics:**

- Troubleshooting
- Integration Business Services Engine Error Messages

The following topics explain the limitations and workarounds when connecting to Oracle E-Business Suite.

The adapter-specific errors listed in this section can arise whether you are using the adapter with a JCA or with an iBSE configuration.

# Troubleshooting

This topic provides troubleshooting information for BEA WebLogic Adapter for Oracle E-Business Suite for the following categories:

- Application Explorer
- JCA
- iBSE

**Important:** BEA WebLogic Adapter for Oracle E-Business Suite does not support the NVARCHAR data type. Stored procedures that require complex data types or Oracle-specific complex data types are not supported through the adapter.

## Reference: Error Messages in Application Explorer

The following table lists and describes errors and corresponding solutions for Application Explorer.

| Error | Solution |
|---|---|
| Cannot connect to the BEA WebLogic Adapter for Oracle E-Business Suite from Application Explorer. | Ensure that:<br>• Oracle E-Business Suite is running.<br>• The Oracle E-Business Suite user ID and password are correct.<br>• The port number is correct. |
| Cannot connect to the Oracle E-Business Suite target through Application Explorer and a login error appears. | You have provided invalid connection information for Oracle E-Business Suite or the wrong JAR file is in the lib directory. See the *BEA WebLogic ERP Adapter Installation and Configuration* manual for information on JAR files. |
| Oracle does not appear in the Application Explorer Adapter node list. | Ensure that the Oracle JAR files are added to the lib directory. See the *BEA WebLogic ERP Adapter Installation and Configuration* manual for information on JAR files. |

| Error | Solution |
|---|---|
| If you attempt to work with a stored procedure that has complex data types, you may get an error similar to the following:<br>`java.lang.UnsupportedOperationException: Unsuppored datatype: PL/SQL RECORD` | BEA WebLogic Adapter for Oracle E-Business Suite supports all stored procedures that do not have complex data type fields. Stored procedures that require complex data types (such as STRUCT or ARRAY), or Oracle-specific complex data types (such as GROUP_REC_TYPE or PARTY_SITE_REC_TYPE) are not supported through the adapter. |

### Reference: Error Messages in JCA

The following table lists and describes an error and its corresponding solution for JCA.

| Error | Solution |
|---|---|
| In Application Explorer, the following error message appears when you attempt to connect to a JCA configuration.<br>`Could not initialize JCA` | In the Details tab in the right pane, ensure that the directory specified in the Home field points to the correct directory, for example,<br>`C:\Program Files\iWay55` |

## Integration Business Services Engine Error Messages

This topic discusses the different types of errors that can occur when processing Integration Business Services through Integration Business Services Engine.

### General Error Handling in Integration Business Services Engine

Integration Business Services Engine serves as both a SOAP gateway into the adapter framework and as the engine for some of the adapters. In both design time and execution time, various conditions can cause errors in iBSE when Web services that use adapters are running. Some of these conditions and resulting errors are exposed the same way, regardless of the specific adapter; others are exposed differently, based on the adapter being used. This topic explains what you can expect when you encounter some of the more common error conditions on an adapter-specific basis.

Usually, the SOAP gateway (*agent*) inside iBSE passes a SOAP request message to the adapter required for the Web service. If an error occurs, the way it is exposed depends on the adapter and the API or interfaces that the adapter uses. A few scenarios cause the SOAP gateway to generate a SOAP fault. In general, when the SOAP agent inside iBSE receives an invalid SOAP request, a SOAP fault element is generated in the SOAP response. The SOAP fault element contains fault string and fault code elements. The fault code contains a description of the SOAP agent error.

The following SOAP response document results when iBSE receives an invalid SOAP request.

```
<SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">

 <SOAP-ENV:Body>
      <SOAP-ENV:Fault>
         <faultcode>SOAP-ENV:Client</faultcode>
         <faultstring>Parameter node is missing</faultstring>
      </SOAP-ENV:Fault>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

In the previous example, iBSE did not receive an element in the SOAP request message that is mandatory for the WSDL for this Web service.

## Adapter-Specific Error Handling

When an adapter raises an exception during execution, the SOAP agent in iBSE produces a SOAP fault element in the generated SOAP response. The SOAP fault element contains fault code and fault string elements. The fault string contains the native error description from the adapter target system. Because adapters use the target system interfaces and APIs, whether an exception is raised depends on how the target systems interface or API treats the error condition. If a SOAP request message is passed to an adapter by the SOAP agent in iBSE, and that request is invalid based on the WSDL for that service, the adapter may raise an exception yielding a SOAP fault.

Although it is almost impossible to anticipate every error condition that an adapter may encounter, the following examples describe how adapters handle common error conditions and how they are then exposed to the Web services consumer application.

### Example: BEA WebLogic Adapter for Oracle E-Business Suite Invalid SOAP Request

When the adapter receives a SOAP request message that does not conform to the WSDL for the Web service being executed, the following SOAP response is generated:

```
<SOAP-ENV:Envelope xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance"
```

```
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/1999/XMLSchema">
  <SOAP-ENV:Body>
   <m:CARRIERResponse xmlns:m="urn:schemas-iwaysoftware-com:iwse"
   xmlns="urn:schemas-iwaysoftware-com:iwse"
   cid="2A3CB42703EB20203F91951B89F3C5AF">
   <PS8>
      <error>Cannot find Component Interface {VARRIER}

(91,2)Initialization
    failed (90,7)Not Authorized (90,6)Failed to execute PSSession request
Cannot find Component Interface {VARRIER} (91,2)</error>
       </PS8>
      </m:CARRIERResponse>
   </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## Example: Failure to Connect to Oracle E-Business Suite

When the BEA WebLogic Adapter for Oracle E-Business Suite cannot connect to Oracle when executing a Web service, the following SOAP response is generated.

```
<?xml version="1.0" enco
ding="ISO-8859-1" ?>
<SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
<SOAP-ENV:Body>
  <SOAP-ENV:Fault>
   <faultcode>SOAP-ENV:Server</faultcode>
  <faultstring>java.lang.Exception: Error Logon to Oracle Applications
   System<faultstring>
 </SOAP-ENV:Fault>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## Invalid SOAP Request

When the adapter receives a SOAP request message that does not conform to the WSDL for the Web service being executed, the following SOAP response is generated.

```
<?xml version="1.0" encoding="ISO-8859-1"
 ?>
<SOAP-ENV:Envelope
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
<SOAP-ENV:Body>
 <SOAP-ENV:Fault>
  <faultcode>SOAP-ENV:Server</faultcode>
  <faultstring>RPC server connection failed: Connection refused:
connect</faultstring>
 </SOAP-ENV:Fault>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

## Empty Result From a Request

**Note**: The condition for this adapter does not yield a SOAP fault.

When the adapter executes a SOAP request using input parameters passed that do not match records in the target system, the following SOAP response is generated.

```
<SOAP-ENV:Envelope xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance"
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/1999/XMLSchema">
   <SOAP-ENV:Body>
      <m:RunDBQueryResponse xmlns:m="urn:schemas-iwaysoftware-com:iwse"
        xmlns="urn:schemas-iwaysoftware-com:iwse"
        cid="2A3CB42703EB20203F91951B89F3C5AF">
        <RunDBQueryResult run="1" />
     </m:RunDBQueryResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

APPENDIX A

# Supported Interface Tables for Oracle Release Apps 11i

**Topics:**

- Supported Interface Tables

The Oracle Application environment consists of different functional components. This section describes the agents that constitute Oracle functional components.

# Supported Interface Tables

This section lists Oracle published interface tables available in release 11.5.5 of Oracle E-Business Suite that are supported by BEA WebLogic Adapter for Oracle E-Business Suite.

Using Aplication Explorer, you can browse interface table metadata, which is located under the Database node. Additional interface tables and custom interface tables are available under Applications > Tables.

## General Ledger

GL_INTERFACE

BUDGET_INTERFACE

GL_DAILY_RATES_INTERFACE

## WIP Work Order

WIP_JOB_SCHEDULE_INTERFACE

WIP_JOB_DTLS_INTERFACE

## WIP Move

WIP_MOVE_TXN_INTERFACE

CST_COMP_SNAP_INTERFACE

## Payables

AP_INVOICES_INTERFACE

AP_INVOICE_LINE_INTERFACE

AP_EXPENSE_FEED_LINES

## Receivables

RA_CUSTOMER_INTERFACE

RA_CUSTOMER_PROFILES_INTERFACE

RA_CONTACT_PHONES_INTERFACE

RA_CUSTOMER_BANKS_INTERFACE

RA_CUST_PAY_METHOD_INTERFACE

RA_INTERFACE_LINES

RA_INTERFACE_SALESCREDITS

RA_INTERFACE_DISTRIBUTIONS

AR_PAYMENTS_INTERFACE_ALL

## Cash Management

CE_STATEMENT_HEADERS_INT_ALL

CE_STATEMENT_LINE_INTERFACE

## Fixed Assets

FA_MASS_ADDITIONS

## Manufacturing and Distribution

MTL_TRANSACTIONS_INTERFACE

MTL_SERIAL_NUMBERS_INTERFACE

MTL_TRANSACTION_LOTS_INTERFACE

MTL_DEMAND_INTERFACE

MTL_ITEM_QUANTITIES_VIEW

MTL_USER_SUPPLY

MTL_USER_DEMAND

MTL_REPLENISH_HEADERS_INT

MTL_SYSTEM_ITEMS_INTERFACE

MTL_ITEM_REVISIONS_INTERFACE

MTL_REPLENISH_LINES_INT

MTL_CI_INTERFACE

MTL_CI_XREFS_INTERFACE

## Engineering and Bills of Material

BOM_BILL_OF_MTLS_INTERFACE

BOM_INVENTORY_COMPS_INTERFACE

BOM_REF_DESGS_INTERFACE

BOM_SUB_COMPS_INTERFACE

MTL_ITEM_REVISIONS_INTERFACE

BOM_OP_ROUTINGS_INTERFACE

BOM_OP_SEQUENCES_INTERFACE

BOM_OP_RESOURCES_INTERFACE

MTL_RTG_ITEM_REVS_INTERFACE

ENG_ENG_CHANGES_INTERFACE

ENG_ECO_REVISIONS_INTERFACE

ENG_REVISED_ITEMS_INTERFACE

BOM_INVENTORY_COMPS_INTERFACE

BOM_REF_DESGS_INTERFACE

BOM_SUB_COMPS_INTERFACE

## Cost Management

CST_PC_ITEM_COST_INTERFACE

CST_PC_COST_DET_INTERFACE

## Master Scheduling and Oracle Supply Chain

MRP_FORECAST_INTERFACE

MRP_SCHEDULE_INTERFACE

MRP_RELIEF_INTERFACE

WIP_JOB_SCHEDULE_INTERFACE

PO_REQUISITIONS_INTERFACE

PO_RESCHEDULE_INTERFACE

SO_HEADERS_INTERFACE_ALL

SO_HEADER_ATTRIBUTES_INTERFACE

SO_LINES_INTERFACE_ALL

SO_LINE_ATTRIBUTES_INTERFACE

SO_LINE_DETAILS_INTERFACE

SO_SALES_CREDITS_INTERFACE

SO_PRICE_ADJUSTMENTS_INTERFACE

WSH_DELIVERIES_INTERFACE

WSH_PACKED_CONTAINER_INTERFACE

WSH_PICKING_DETAILS_INTERFACE

WSH_FREIGHT_CHARGES_INTERFACE

## Purchasing

PO_REQUISITIONS_INTERFACE

PO_REQ_DIST_INTERFACE

PO_RESCHEDULE_INTERFACE

PO_HEADERS_INTERFACE

PO_LINES_INTERFACE

## Quality

RCV_HEADERS_INTERFACE

RCV_TRANSACTIONS_INTERFACE

QA_RESULTS_INTERFACE

## Human Resources

GHR_INTERFACE

PAY_GB_TAX_CODE_INTERFACE

PAY_GL_INTERFACE

PAY_IE_TAX_BODY_INTERFACE

PAY_IE_TAX_HEADER_INTERFACE

PAY_IE_TAX_TRAILER_INTERFACE

PSP_DISTRIBUTION_INTERFACE

## Customer Relationship Management

JTF_TTY_GEO_WEBADI_INTERFACE

CN_SCA_HEADERS_INTERFACE_ALL

CN_SCA_LINES_INTERFACE_ALL

APPENDIX B

# XML Business Functionality in the Adapter

**Topics:**

- BEA WebLogic Adapter for Oracle E-Business Suite and Oracle Functionality
- XML Business Functionality Descriptions

This section describes the business functionality of the XML supported by BEA WebLogic Adapter for Oracle E-Business Suite.

# BEA WebLogic Adapter for Oracle E-Business Suite and Oracle Functionality

The BEA WebLogic Adapter for Oracle E-Business Suite provides direct bidirectional access to the Oracle XML Gateway, which supports all DTD-based XML standards.

Oracle XML Gateway is a set of services that allows for easy integration with Oracle E-Business Suite to support non-standard XML messaging. Oracle E-Business Suite utilizes the Oracle Workflow Business Event System to publish and subscribe to application business events to automatically trigger the creation and consumption of XML messages.

Oracle XML Gateway consumes events raised by Oracle E-Business Suite, and subscribes to inbound events for processing. Oracle XML Gateway integrates with the Transport Agent to deliver or receive messages to and from business partners.

# XML Business Functionality Descriptions

This topic describes the business functionality of the XML supported by the BEA WebLogic Adapter for Oracle E-Business Suite.

## Post Journal

Journal is an XML business document that transmits data necessary to create a journal entry from any sub ledger business application to a general ledger application. This scenario assumes that the details of the financial transactions are kept in the sub ledgers and that the drill back mechanism from the general ledger component to the sub ledger components is addressed by this XML. Many applications in the enterprise environment create data that causes changes in the account balances of a general ledger application (such as Benefits, Costing, Human Resources and Payroll, Inventory, Manufacturing, Production, and Treasury). By no means is this a complete list of all the activities which may generate a journal entry. Many other tasks that occur within the enterprise applications cause the creation of a General Ledger journal entry. For example, the adjustment of inventory value is a task that occurs within Inventory.

Journal supports the summarization of accounting activities from sub ledgers to the general ledger. This summary is used to express account balances, which are used to report on the financial condition of the enterprise. A Journal XML consists of the Journal Entry Header information which includes the type of journal being entered, a Journal Entry Detail Line (typically, there are at least two occurrences given the common accounting rule of every debit requiring an equally balancing credit), and an account code, which consists of a number of separate elements. Some of these elements can be linked to specified XML fields; for example, the nominal account key (GLNOMACCT) or the cost center (COSTCENTER).

## Confirm

The purpose of the Confirm XML is to add a layer of software application to the software application exception capability to the integration solution. The Confirm XML does this by providing a mechanism for the business software layers to communicate to each other in addition to the confirmation mechanisms that may be provided with any middleware tools involved in the solution.

In instances when the receiving application must communicate its native informational messages to an integrated partner application, it is important to ensure that the applications have a mechanism for speaking their own language to each other.

The use of the Confirm XML is monitored using a confirmation indicator set by the sending business software application. This is accomplished by setting the Confirmation Indicator (CONFIRMATION) in the Control Area of the originating XML. The Confirmation Indicators are defined as follows:

- 0 = Do not send back a confirmation XML.
- 1 = Send back a confirmation XML only if an error has occurred.
- 2 = Send a confirmation XML regardless of whether an error has occurred.

Confirm XML:

1. Ensures that the message was received and understood within the application or component
2. Communicates error conditions at the application level (such as when a field is missing, a customer does not exist, and so on).
3. Communicates that a critical update was successful (or unsuccessful), such as an update to inventory, credit balance, or ledger balance.

## Process PO

A Purchase Order is an XML business document that an organization issues to request delivery of goods or services for specific dates and locations.

The Process PO XML is used to transmit a purchase order to a supplier's order management application. The Process PO is the task of sending the electronic form of a purchase order document to a supplier. This is designed as an external purchase order.

Data such as name, currency, payment method, bill-to and ship-to addresses, and payment terms, along with information relevant to the supplier, is transmitted to the supplier to engage an order for goods and services.

## Acknowledge PO

The Acknowledge PO XML is a document used to acknowledge receipt of the Purchase Order and to reflect any changes. This is designed as an external purchase order.

Commonly, the acknowledgment is generated by an order management application and transmitted to a purchasing or procurement application. Acknowledgement (when the entire document is accepted, rejected, or modified) represents feedback from the supplier concerning the original purchase order received.

## Load Receivable

Receivable is an XML business document that transmits data to create a receivable open item in Oracle receivables from the billing information generated in an order management application. Receivable may also update the general ledger, depending on the specific architecture of the accounting application.

The scope of receivables is to create an XML to recognize customer obligations. Specific transactions include:

- Sales Invoice
- Credit Memo
- Debit Memo
- Charge Back

Receivable XML may also be used for transactions that do not originate from an order management application.

The receivable application may be a direct sub-ledger of the general ledger. Updates to G/L balances occur using the receivable module; therefore, the receivable XML contains both receivable and general ledger transaction information.

The other environment may also exist when general ledger updates occur directly from the Order Management application. The reconciliation between the receivable and general ledger is a function within the financial applications rather than of the integration space. This model allows the G/L balances to be updated in either detail or summarized form.

The role of the receivable application includes functions such as:

- Allowing Cash Application
- Dunning
- Dispute management

Relevant data that identifies the receivable includes header information (totals, identifier), partner location and contacts, invoice payment terms, and tax information.

## Load Payable

Payables is an XML business document that transmits data from the purchasing information generated in a purchasing application to create a payable open item in a payables application. This may also update the general ledger, depending on the specific architecture of financial applications.

Payables indicates that the supplier's invoice is ready to be paid and has been approved before the information moves to the accounts payable application. An approved invoice is also known as a voucher. The application later defines invoices that are matched within the accounts payable application in a separate business service request.

Some financial applications have the general ledger and accounts payable databases tightly integrated where updates to the accounts payable application are automatically reflected in general ledger balances. Payables transmits all information needed for both the accounts payable and the general ledger. Other applications allow the general ledger balances to be updated separately from the accounts payable. In this case, the payables and journals XML accomplishes this scenario.

## Sync Customer

The purpose of the Sync Customer XML is to keep customer information that exists on separate databases synchronized. The Sync Customer XML allows the adding of new customers and the modification of previously established customers. These customer records are used to reference invoices in a billing system.

## Sync Supplier

The Sync Supplier XML facilitates keeping supplier information that exists on separate data bases synchronized. The Sync Supplier allows the adding of new suppliers and the modification of previously established suppliers.

This record consists of relevant data to a partner (supplier name and address, contact information associated with the partner, and references of supporting documents).

## Load LdgrBudget

The LDGRBUDGET is an XML business document that transmits budget amounts from all possible source applications throughout an enterprise to a general ledger or budget application. Usually, budget data is created using a spreadsheet by each organization in an enterprise. Once budget data is ready, LDGRBUDGET XML facilitates the transfer of budget amounts against a revenue or expense account codes to a general ledger application for controlling expenditures and creating variance and analysis reports.

## Get PO and Show PO

The Get PO is an XML business service request that enables a business application module to request information concerning a specific purchase order from Oracle Purchasing. The reply to this request is the Show PO XML business request. There are a variety of business applications in several environments that may use this capability. For example, an MRP application may use this capability to ask for information from Oracle Purchasing, or a Plant Data Collection application may also use it to request information from Oracle Purchasing. This XML does not usually cause updates to occur.

As a Get PO request is made, the Show PO XML supplies purchase order information to another business application module. This request is also used as push notification of an event. There are many possible business applications in several environments that use this capability.

For example:

1. Oracle Purchasing could use this request to send information to a Plant Data Collection application.
2. Other modules such as MRP, Inventory, or Manufacturing could use this to obtain order information.
3. The PO application can notify the MRP/Inventory application when a vendor gives or changes a promise to deliver.

## Receive PO

The Receive PO is an XML business service request that supplies the information that the Oracle Purchasing module requires to assign a receipt posting tag to a purchase order. Oracle Purchasing uses the receiving and inspection information supplied by the Receive PO XML to ensure that the organization only accepts and pays for the items ordered, received, or inspected, depending on the identified matching rule. A variety of business applications in several scenarios may use this capability. For example:

- Receipt of information from other non-Oracle systems.
- Receipt of barcoded and other receiving information from scanners.
- Advance Shipment Notices (ASNs) sent from suppliers.

As the Receive PO XML supplies the information, Oracle's Receiving Open Interface maintains the integrity of the new data as well as the receipt data already in Oracle Purchasing.

## Get Prodorder

Prodorder is an XML business document that details the work order information. This document may be related to three business service requests: Get Prodorder XML, Show Prodorder XML and Receive Prodorder XML. This enables the organization to import discrete job and repetitive schedule information, discrete job operations, and material, resource and scheduling information from any source.

### Show Prodorder and Receive Prodorder

The Get ProdOrder XML enables a business application module to request specific work order information from another business application module. Sources may include handheld devices, other manufacturing execution systems, planning systems, and order entry systems. The reply to this is the SHOW PRODORDER XML. Information on the following items may be used to request a work order: the pre-determined bill of material structure, lot, or serial information about the item; the operation in the routing at which to change the work order; and the accounting information that can optionally accompany a change in the order.

The Show ProdOrder is an XML business document that supplies work order information to another business application module. The environment for this request can be within the enterprise or outside the enterprise. On the other hand, the Receive Prodorder XML is a business service request that supplies information which the ERP system requires to do receipt posting against a work order.

## Transfer Item

The Transfer Item XML is a business service request that enables organizations to do sub-inventory or direct inter-organization transfers in Oracle inventory. As a company defines multiple inventories, warehouses, and manufacturing facilities as distinct organizations, the Transfer Item XML allows for the efficient performance of transfer of one or more items in a single transaction. This also allows the transfer of partial quantities of the same item to different sub-inventories and locations.

## Get Issueinfo and Show_IssueInfo

IssueInfo is an XML business service request for information against an order, from the ERP system into a plant data collection system to confirm the item issue transaction. The environment for this integration is from plant data collection systems to the Oracle manufacturing modules. Information concerning the work order to which the material item is being issued, the lot or serial number for the work order item, and the operation in the routing of the production item is transmitted to request an item issue.

The purpose of the Show IssueInfo XML business service request is to supply to another system item issue information against an order to confirm the issue transaction against that order. Examples of order types would be a work order, a sales order, a service order, or a maintenance order. This XML may be used individually, or as part of a larger interface scenario. Oracle Manufacturing (including Inventory and MRP) - to interface with Oracle or non-oracle Order entry systems, work in process systems, and the plant maintenance systems using this IssueInfo XML - allows for the issuance against an order.

## Confirm Issue

Issue is an XML business service request used to notify Oracle Manufacturing of the issue of required material to a work order for making a product. This XML is also used to notify Oracle Manufacturing of the return of material from a work order or job order back into inventory. The business environments most likely to require this capability are any type of manufacturing scenario.

The Issue XML communicates what item is being issued, where it is being issued from, which processing operation it is being issued to, what quantity was issued, and at what time this event occurred. In the case of a return, this communicates what item is being returned, which processing operation it is being returned from, which sub-inventory location it is being returned to, the quantity being returned, and the time at which this event occurred. This XML commonly causes updates to occur.

## Issue MiscItem and Receive MiscItem

The MiscItem XML is another business service request that reflects an unplanned issue or receipt of an item to or from a miscellaneous location. Possible reasons for issuance include somebody broke the material, or the material is defective and needs replacing, or the material is used up and needs replenishment. Miscellaneous transactions may be issued from a plant data collection system or an inventory system to Order Management or Manufacturing modules. The MiscItem XML may be used to issue materials to groups that are not inventory, receiving or work in process such as research and development group. This can also assist in the issuance of items to individuals or projects or to issue damaged items to expense accounts such as scrap. The MiscItem XML may also be used to notify a corresponding business application to reflect an unplanned receipt of an item to a miscellaneous location. This is primarily designed for supplies items or MRO items.

## Get Countinfo and Show Countinfo

Countinfo is an XML business service request to enable a business application to request and show inventory on-hand quantities from or to an Oracle Inventory system. The Countinfo XML enables a business application to request on-hand quantity information from an ERP system. This may also be used to show inventory count information to enable Oracle Inventory to send inventory count information to a PDC or other application system. This request may be used as a response to a get countinfo request or as a push notification of an event. There are many possible business applications in several environments that may use this capability.

## Update Invencount

Invencount is an XML business service request that transmits an inventory count to Oracle Inventory from the actual physical inventory location. This count may be a cycle count or a physical count. This XML may also apply to planned or unplanned inventory counts. The Invencount XML allows the user to transmit physical inventory count information that can e used to reconcile system-maintained item on-hand balances with the actual counts of inventory. Accurate system on-hand quantities are essential for managing supply and demand, maintaining high service levels, and planning production.

## Get Credit, Show Credit, and Update_credit

Credit is an XML business service request used to either Request, Show, or Update credit. This also includes Change Status request used to keep order, shipment and open items amounts current. This contains all of the information necessary to make a decision to give credit to a customer. The Request is made for the Order Management to request credit data for a customer from Oracle Receivables. This does not imply any update, it is only an inquiry function. The Show Credit XML is used as a response back to the order management application. The Update Credit XML may be used in both directions between the order management and the accounts receivable application. Its purpose is to keep order, shipment and open item amounts current. The Update Credit XML also transmits changes in the accounts receivable open item balances to the credit management function of the customer order management application.

## Change Status

The Change Status XML request is used to update the order management application with any changes in business status for a particular customer. The purpose of this request is to notify the customer order management application that the overall credit status of a customer has changed or status on specific order(s) are to be changed.

## Load Projacctg

Projacctg is an XML business service request that enables all relevant sub-systems (such as Accounts Payable for payment of materials used, Accounts Receivable for invoicing of billing projects, Budget for validation, Purchasing to report committed costs, Assets to record capitalized projects and Human Resources system to update employee information) that submit single sided transactions to send information to Oracle Project Accounting. Applications which produce double-sided transactions would use other XML business service requests to update the project accounting application. For example, order management or purchasing applications would use the Load Receivable or Load Payable XML. The Projacctg XML assists in providing project-oriented companies with a flexible approach to define and structure projects, tasks and budgets by which to monitor project status. Integration with other applications allows effective accounting for costs or to process revenue and invoices.

## Sync Projinfo

The purpose of the Sync Projinfo XML business service request is to enable all relevant sub-systems that submit transactions to Oracle Project Accounting to maintain valid values for the key project fields. The target applications for this update would include, but not necessarily be limited to: Accounts Payable, Accounts Receivable, Budget, Order Management, Purchasing, Time and Labor, Travel and Expense.

## Get Wipconfirm and Show Wipconfirm

Get WIP Confirm is an XML business service request that enables the requesting of data necessary to perform a confirmation of the movement of WIP (Work in Process). This does not commonly cause updates to occur. This template may be used individually, or as part of a larger interface scenario with a plant data collection system or a shop floor control system. Relevant data to get confirmation of the movement of WIP include: information concerning the specific work order or job order and the WIP operation or step in a routing from which the product is being completed into inventory or at which to return back into manufacturing, accounting information collected in the WIP Completion and Return transaction, information concerning the production order in the transaction as reference to an existing job order, and information concerning the resources associated with a particular WIP operation or sub-operation within a routing.

As a response to the Get WIP Confirm XML, the XML template Show WIP Confirm is used.

## Update Wipconfirm

Update WIP Confirm is an XML business service request that notifies Oracle Manufacturing of the completion of an end product in the production process and movement of that product to a finished goods inventory. This XML also notifies a Oracle Manufacturing of the return of end product from a finished goods inventory back into the production process. The business environments most likely to require this capability are any type of manufacturing scenario. This communicates which processing step the product is coming from, the quantity moving, the inventory organization or sub-inventory location it is moving to, and the time at which this event occurred. In the case of a return, the request communicates which inventory location the product is coming from, the quantity moving, the processing step it is moving to, and the time at which this event occurred.

## Get PickList

The Get PickList is an XML business service request that enables a request for the retrieval of a single Pick Slip from an ERP system. A pick slip or pick list is an internal shipping document pickers use to locate items to ship for an order. The reply to this request is the Show PickList. Individual lines from a Pick Slip are not selectable with this request. Only the complete document is selected and returned. Information relevant to the request include: a picking document that is generated in an ERP shipping module or Oracle Order Management.

## List PickList

List Picklist is another XML business service request that provides a list of Pick Slips from an ERP system to another application. This may be initiated in response to a GETLIST PICKLIST request or upon some busine?ss event. When a receiving application receives this XML, the information can be used as is or it may be used to initiate a selection of a specific Pick slip through the GET PICKLIST request. The processing is designed to provide multiple occurrences of summary data. This does not usually cause updates to occur.

The LIST XML is used for the receiver of the GETLIST XML to respond with the results of the search that was initiated by the GETLIST. Each of the records being returned is contained within an instance of the LIST_PICKLIST element underneath the DATAAREA Element.

The attributes associated with the LIST XML are as follows:

- rsstart attribute is a number that indicates the starting record for the section of the resulting set returned in the list message. This value should always match the rsstart value in the originating GetList XML.
- rscount attribute is a number that indicates the number of records returned in the message. The subsequent request for additional records should have a rsstart value of rscount + 1.
- rstotal attribute is a number that indicates the total number of records in the result set.

- rscomplete attribute is a Boolean that indicates that the list provided exhaust the possible values.
- rsref attribute is a string that represents the implementation-specific result set identifier for subsequent requests.

## Show PickList

The purpose of the SHOW PICKLIST XML is to show the details of an individual Pick Slip from an ERP system. This may be sent in response to a GET PICKLIST or it may be initiated upon some business event. This does not usually cause updates to occur. The picking document, the lines on a specific picking document, and details about a line item on a Pick Slip (such as date and time of loading and shipping) that are generated in an ERP shipping or order management system are some of the data that appears on the request.

## Update PickList

Update Picklist is an XML business service request that updates the details of an individual Picking List from a plant level to an ERP system. A pick slip or pick list is an internal shipping document pickers use to locate items to ship for an order. This usually causes updates to occur.

## Get Personnel and Show Personnel

Personnel is an XML business service request that may be used to either Get Personnel to request personnel data for a resource or Show Personnel to provide personnel data for a resource to a requesting business application. This facilitates integration between a human resource system to manufacturing systems such as shop floor and plant data collection. Personnel information such as employee name, cost center, division, employee category, status, job code, shift and wage group are required to manufacture, cost and schedule products.

## Update Persontime

The UPDATE PERSONTIME is an XML business service request that updates work time information for an employee from a data collection application to an ERP Human Resource application. This causes updates to occur. This may pass on data to update personnel information, employee category, employee status, overtime, and the quantity of employees' reporting hours, days, and so on.

## Sync Field

**Sync Field** is another XML business service request that enables the validation of data that exists on separate application's databases. This request can cause on-line validation to occur or may be a single tool for synchronizing data. In Oracle Financial, for example, this is very useful when a company engages in consolidation or inter-company transactions of which each balancing company resides in separate databases.

## Sync Personnel

The XML called Sync Personnel is a business service request that enables the synchronization of employee data that exists on separate databases between manufacturing and human resource applications. The Sync Personnel allows the adding of new employees and their relevant data as well as the modification of previously established employees. The Sync Personnel is used to facilitate the maintenance of human resource data in a manufacturing work force planning module, in Oracle this may be under Master Scheduling module. This enables the workforce planning module to use current personnel information when creating finite production schedules. This can also be used by Oracle Project Accounting or a work order management application to assign qualified personnel or to perform resource planning. Employee data such as employee name, category, job code, position, shift and competency are ut a few data that need to be synchronized between a manufacturing and a human resource application.

## Sync Wrkschdule

Sync Wrkschdule is an XML business service request that enables the synchronization of Work Schedule data that exists on separate databases. The Sync Wrkschdule allows the adding of new Work Schedules as well as the modification of previously established Work Schedules. This causes updates to occur and may be used as part of a large integration scenario or as a single tool for synchronizing data. This is designed primarily to enable synchronization of data in a Human Resource to Manufacturing Application integration scenario. Personnel work schedules detailed in a human resources system may be imported or exported to or from a manufacturing application such as Oracle Manufacturing.

## Sync Mfgtlcode

The **Sync Mfgtlcode** is an XML template that provides manufacturing codes that need to be captured with the labor hours in a time and labor reporting application. The Sync Mfgtlcode can also be used to provide other operational codes (such as medical codes) to a time and labor reporting application. The reason for associating these codes with labor hours is due to informational requirements of the manufacturing and/or financial systems.

The Sync Mfgtlcode may not be useful or necessary in integration scenarios in which one of the following is true:

1. The manufacturing codes observe complex hierarchical relationships or valid combinations. In this scenario, a plant data collection application or shop floor control application would probably be the labor reporting system,
2. Large volume repetitive manufacturing environments or process manufacturing in which none of the fields contained in the Sync Mfgtlcode need to be associated with labor hours by the manufacturing or financial applications.

## Sync COA

**COA** is an XML business service request that distributes general ledger chart of accounts (COA) code identifiers to other applications to store for validation purposes. This scenario assumes that the general ledger "owns" the chart of accounts definition and the instances of data within it. The sub ledger applications have several choices for validation of account numbers and other fields in the complete chart of accounts structure. One of these choices is to synchronize the chart of accounts structure and data from the general ledger application to all of the sub ledgers. The Sync COA allows for validation of account codes and account code combinations used in the subledger to record transactions and eventually post to the account balances in general ledger. The synchronization process can ensure that all of the components in the integration scenario have the same data necessary to communicate.

## Sync Exchngrate

The purpose of the **Sync Exchngrate** XML business service request is to enable the passing of updates of currency exchange rates to other applications that have exchange rate tables. In Oracle Financial for example, daily rates and period-end rates tables are maintained in Oracle GL. The sync Exchngrate XML facilitates the updating of exchange rates for other subsystems that require rates to convert or revalue foreign currency denominated transactions.

## Add Requisitn

**Add Requisitn** is an XML business service request that sends demand for goods or services to another business application for consideration of buying or in some way obtaining the requested items. In Oracle, this facilitates the sending of a purchase requisition to trigger the issuance of a purchase order for items requested. This XML usually causes updates to occur and may be used as part of a larger integration scenario or as a single tool for communicating demand. This request may originate from employees or requestor (using a self-service application), or may be triggered by Manufacturing modules such as MRP or Inventory when the reorder point reaches a level that signals the planner to issue a request for materials for production. Data such as supplier name, payment method and information that describes the requested item and its attributes including sub-components or sub-assemblies are sent to another business application (may be Oracle Purchasing) for validation and approval to purchase. The inclusion of a REQUISTNID (requisition ID) ties back a document to its origin, thus providing an identifier that enables drill back audit trail functionality.

## Change Requisitn

The **Change Requisitn** XML business service request communicates changes to an existing purchase requisition for goods or services. This change must refer to the original document and/or item requested. The change processing assumes replacement of fields sent, with the exception of REQUISTNID and REQLINENUM fields. If any of the Field Identifiers above require changing, that constitutes a cancellation of the request and/or the addition of another requisition. This may usually cause updates to occur and may be used as part of a larger integration scenario (between an Inventory or MRP system to a purchasing system) or as a single tool for communicating demand.

## Cancel Requisitn

The **Cancel Requisitn** XML business service request communicates from one business application to one or more other business applications that a previous requisition or requisition line item is no longer needed. This cancel must refer to the original document and/or item ordered. The user may either cancel the entire requisition or only specific lines on the requisition. To cancel the entire requisition, include only the REQUISITN Header information for the instance of the requisition you wish to cancel. To cancel a line or several lines, each line to be cancelled must be included. This XML commonly causes updates to occur and may be used as part of a larger integration scenario or as a single tool for communicating demand.

## Get Requisitn and Show Requisitn

An XML business service request called **Get Requisitn** enables a business application to request information concerning a specific requisition from another business application which is usually a purchasing system. The reply to this XML is the Show Requisitn XML. This Get Requisitn XML does not usually cause updates to occur. It may be used as part of a larger integration scenario or as a single tool for requesting information on existing demands for goods or services. Other users may need requisition information to validate statistics on growing demand for a specific item for planning purposes.

To send information relative to demand for goods or services to another business application or may be a notification vehicle initiated upon an event in a business application, the Show Requisitn XML business service request is used. The Show Requisitn XML usually does not cause updates to occur and may be used as part of a larger integration scenario or as a single tool for communicating demand. All data relevant to a specified purchase requisition (such as Supplier information, information describing the requested items and its attributes, sub-components and sub-assemblies) is sent via the Show Requisitn XML.

## Getlist Requisitn

**Getlist Requisitn** is an XML business service request enabling a business application to request summary information for one or more requisitions from another business application. The Getlist Requisitn also enables the retrieval of information across several documents by using selection fields. An example of this could be requesting all Requisition Lines for a specific ITEM. This type of functionality is limited to the capabilities of the responding application and needs to be determined during the implementation project. This XML does not usually cause updates to occur. It may be used as part of a larger integration scenario (between a manufacturing application and a purchasing application) or as a single tool for requesting information on existing demands for goods or services.

Many of the Data Types and the Field Identifiers contained within this XML may be used to select required information. This is done by requesting specific Field Identifiers or by requesting an entire Data Type. If the Data Type is not using Field Identifiers to select information, but the data within a Data Type is requested to be returned, the Data Type is coded without any Field Identifiers. This signifies to the responding application that all of the data that corresponds to that Data Type is to be included in the response. It is also possible to request that a range of values be returned the first occurrence of the XML is treated as the from and the second optional occurrence is treated as the to value. The maxitems attribute defined below indicates the maximum number of entries to return in the List XML that is used in response to this GETLIST.

## List Requisitn

To send information relative to demand for goods and services to another business application the **List Requisitn** XML business service request may be used. This may be in response to a Getlist Requisitn request, or it may be a notification vehicle, initiated upon an event in a business application. The LIST verb describes the behavior of supplying one or several documents in a summary format to the requesting business application. These listings of information may be supplied for requisition documents, or requisition lines and/or requisition sub lines. This XML usually does not cause updates to occur and may be used as part of a larger integration scenario or as a single tool for communicating demand.

The List XML is used for the receiver of the Getlist XML to respond with the results of the search that was initiated by the Getlist. Each of the records being returned is contained within an instance of the LIST_REQUISITN element underneath the DATAAREA Element.

## Getlist PO

**Getlist PO** is an XML business service request that enables a business application to request information containing summary information for one or more Purchase Orders from another business application. The Getlist PO also enables the retrieval of information across several documents by using selection fields. An example of this could be requesting all purchase order lines for a specific item. This type of functionality is limited to the capabilities of the responding application and needs to be determined during the implementation project. This does not usually cause updates to occur. It may be used as part of a large integration scenario or as a single tool for requesting information on existing demands for goods or services. A Plant Data Collection application could use this XML to request information from Oracle Purchasing or a MRP, Inventory or Manufacturing business application could use this to obtain order information.

Many of the Data Types and the Field Identifiers contained within this XML may be used to select required information. This is done by requesting specific Field Identifiers or by requesting an entire Data Type. If the Data Type is not using Field Identifiers to select information, but the data within a Data Type is requested to be returned, the Data Type is coded without any Field Identifiers. This signifies to the responding application that all of the data that corresponds to that Data Type is to be included in the response. It is also possible to request that a range of values be returned the first occurrence of the XML Element is treated as the from and the second optional occurrence is treated as the to value. The maxitems attribute defined below indicates the maximum number of entries to return in the List XML that is used in response to this GETLIST.

## List PO

A **List PO** XML business service request is used to send information relative to demand for goods or services to another business application. This may be in response to a Getlist PO request, or it may be a notification vehicle, initiated upon an event in a business application. The LIST verb describes the behavior of supplying one or several documents in a summary format to the requesting business application. These listings of information may be supplied for Purchase Orders, PO Lines, or PO Sub-Lines. This usually does not cause updates to occur and may be used as part of a larger integration scenario or as a single tool for communicating demand. There are many possible business applications in several environments that may use this capability. For example, a purchasing application could use this XML to send information to a Plant Data Collection application or a MRP, Inventory or Manufacturing business application could use this to obtain order information. The environment for this XML can be within the enterprise or outside the enterprise.

## Add PO

The purpose of the XML called **Add PO** is to communicate from one business application to one or more other business applications that a Purchase Order has been added or needs to be added, depending on the business case. The environment for this XML can be within the enterprise or outside the enterprise. There are many possible business applications in several environments that may use this capability. One example of a business integration scenario where this XML could be useful is to communicate back to an Inventory system that a purchase order has been processed and added in the purchasing system. The planner or buyer may use the purchase order information (such as payment terms, miscellaneous charges, the description and price of items ordered, and the dates and quantities for delivery or shipment of ordered products) to analyze and schedule production.

## Change PO

The purpose of the **Change PO** XML is to request another business application module such as Oracle Purchasing to make changes to an existing Purchase Order. This change must refer to the original document and/or item ordered. The change processing assumes replacement of fields sent, with the exception of the POID and the POLINENUM fields. If any of the Field Identifiers require changing, that constitutes a cancellation of the request and/or the addition of another Purchase Order.

## Cancel PO

The **Cancel PO** is an XML business service request that allows a requestor or planner to communicate from one business application to one or more other business applications that a previous Purchase Order or Purchase Order line is no longer needed. This cancel must refer to the original document and/or item ordered. A planner or requestor may invoke this XML to change the entire purchase order or to change specific purchase order lines. To cancel the entire order, include only the Purchase Order Header information for the instance of the Purchase Order you wish to cancel. To cancel a line or several lines, each line to be cancelled must be included. This XML commonly causes updates to occur and may be used as part of a larger integration scenario or as a single tool for communicating demand. In Oracle Purchasing, a cancellation of a purchase order eventually cancels accounting entries related to the order.

## Update Delivery

Delivery of goods from a supplier business partner via the services of a transportation provider (carrier) is an important event in a manufacturing or a purchasing application. As goods are delivered, Purchasing controls the items ordered through receiving, inspection, transfer, and internal delivery. These features control the quantity, quality, and internal delivery of the items delivered. The **Update Delivery** is an XML business service request that enables the update of delivery information for goods or services to another business application module. This XML can be initiated by a business application based on some event and sent to one or more relevant business applications. Possible business applications in several environments that may use this capability include: a Purchasing application to notify an Accounts Payable application of a specific delivery enabling the Accounts Payable application to accurately calculate the amount it needs to pay a business partner, a PO application could use this XML to send information to a Plant Data Collection application, a Purchasing application could use this to notify a MRP, Inventory, or Manufacturing business application that a delivery has occurred and the goods are available for use or inspection, and so on.

## Update Inspection

An **Update Inspection** XML business service request supplies inspection information for goods or services to another business application module. This may is initiated by the sending system upon some event occurring. There are many possible business applications in several environments that may use this capability. Examples include: a PO application could use this to send information to a Plant Data Collection application, or vice versa; a MRP, Inventory, Purchasing or Manufacturing business application could use this to communicate inspection information; a Laboratory Information System could send quality information to an Inventory application; or a Quality Control application could send information to a MRP, Inventory, or Purchasing application. Matching of supplier invoices against a purchase order may be defined in Oracle Purchasing or Oracle Payables at a four-way level, that is price and quantity billed must match quantity received (or delivered), ordered and inspected. The information supplied by the Update Inspection XML supports the four-way matching in Oracle. The XML also describes reasons for quantities rejected in the INSPECTION Data Type.

## Sync Item

**Sync Item** is an XML document that supplies information for goods or services to another business application module. This XML may also be initiated by the sending system upon some event occurring. This XML is not for synchronizing ITEM quantities at each inventory location. The Sync Inventory XML is used for this purpose. There are many possible business applications in several environments that may use this capability. For example, a MRP, Inventory, or Manufacturing business application could use this to communicate item information. This XML can be used to synchronize items used in finished goods, raw materials, work-in-process or components in a bill of materials. Data such as attributes of additional units-of-measure for the item, attributes of cost or value of an item and the location the item may be kept are synchronized for a more efficient handling of the items.

## Sync Sitelevel

**Sync Sitelevel** is an XML business service request that enables a mechanism to ensure that the physical location identifiers (physical locations of organizations or the location codes and their meanings) are synchronized between the business applications that require this to communicate clearly. This is particularly critical when only the codes that identify locations are used. Without the meaning of the codes clearly communicated, the integration is not effective. This XML enables the SITELEVEL codes to be synchronized among business applications. This may also be initiated by the sending system upon some event occurring. There are many possible business applications in several environments that may use this capability. For example, a MRP, Inventory, or Manufacturing business application could use this to communicate SITELEVEL information. The environment for this XML can be within the enterprise or outside the enterprise.

## Get Prodavil

**Get Prodavil** is an XML business service request that enables requests of product availability data by an Order Management business application (such as Oracle Management) to an Available to Promise (ATP) or Production business application. The business process scenario is the Order Management application interacting with the Available to Promise or Production application in order to determine availability of a product for the customer. This scenario is commonly referred to as Make to Order or Build to Order. The response to this request is the Show Prodavil. In the case where Finished Goods Inventory resides with the Order Management business application, Order Management may look at its' own Finished Goods Inventory before asking the ATP for product availability. Otherwise, The Order Management application always looks at the Available to Promise. The customer implementation rules or the business applications' capabilities usually determine this processing. In the case where there is a Finished Goods Inventory application on both sides of the integration, it is assumed that the Inventory applications are synchronized. In the case where Order Management is using the Production or Manufacturing Inventory, it is possible that Order Management would look at that Inventory availability before asking the Available to Promise application for product availability. This case is not covered at this time.

This XML usually does not cause updates to occur and may be used as part of a larger integration scenario or as a single tool for requesting product available to promise information. The picture below visualizes one possible use of this XML.

## Show Prodavil

The purpose of the **Show Prodavil** XML business service request is to respond to a Get Prodavil request or to initiate the passing of product availability data from a Production or Available to Promise (ATP) business application to an Order Management business application. The business process scenario is the Order Management application interacting with the Available to Promise or Production application in order to determine availability of a product for the customer. This scenario is commonly referred to as Make to Order or Build to Order. This may or may not cause updates to occur and may be used as part of a larger integration scenario or as a single tool for requesting product available to promise information. Data necessary to communicate ATP such as the item, item description, available quantity, date and time of availability is passed from a production application to an order management application.

## Update ProductReq

**Update Productreq** is an XML business service request that enables a business application such as Order Management to reserve a particular quantity of goods or services for a specific date and time. The business process scenario is the Order Management application interacting with the Available to Promise or Production application in order to determine availability of a product for the customer. This scenario is commonly referred to as Make to Order or Build to Order. In Oracle E-Business Suite, the Available to Promise is set up in the Order Management system, triggered by data from the manufacturing systems. The Update Productreq XML accomplishes this task in a two step process within this one request:

1. The receiving business application checks to see if an item is available in sufficient quantity by a specific date and time.
2. The receiving business application then reserves that quantity of inventory for that specific date and time combination if the product is available.

If the product requested is not available, the responding application may send one of two responses: either to use a Confirm XML to confirm the denial of the request or use a Show Prodavil to communicate an alternative product availability. This may be ITEM, DATE, or QUANTITY, or a combination of these. This may also be accompanied with a message in the NOTES field Identifier stating that this is an alternative. If the product requested is available, the responding application sends a Confirm XML business service request to confirm the execution of the request.

## Create Prodorder

A **Create Prodorder** XML notifies a Manufacturing Application of the need to make a product or parts in a specific quantity, for a specific need by date. The business environments most likely to require this capability are an Engineer to Order or a Configure to Order manufacturing scenario. This XML business request communicates what the product configuration is and what choices have been made from the configuration. This commonly causes updates to occur. As an order for a specific product is received in Order Management, a production order is created and an available to promise is set. The environment for this XML can be within the enterprise or outside the enterprise.

## Cancel Prodreq

**Cancel Prodreq** is an XML business service request that communicates from one business application to one or more other business applications that a previously requested item is no longer required. This cancel must refer to the original item requested. To cancel the item(s), each item to be cancelled must be included. This XML commonly causes updates to occur. Information required to identify the previously ordered item and to reset the order information gets communicated using this XML.

## Sync Inventory

The purpose of the **Sync Inventory** XML is to enable the synchronization of Inventory data that exists on separate Item Master databases. This data is not the master data that describes the attributes of the item such as dimensions, weight, or unit of measure. This is data that describes the ITEM as it exists at a specific location. The primary focus of this XML is to synchronize the quantity of an item by stocking location. This may create new Inventory records. Its purpose is to either create or update existing Inventory records.

## Get BOM and Show BOM

**Get BOM** (Bills of Materials) is an XML business service request that enables an application to request specific Item Bill of Material information from another business application module. The response to the Get BOM is the Show BOM. There are many possible business applications in several environments that may use this capability. For example, an MRP, Inventory, or Manufacturing business application could use this to communicate Item Bill of Material information. The environment for this XML can be within the enterprise or outside the enterprise.

The **Show BOM** XML is used to supply Item Bill of Material information to another business application module. This XML may also be initiated by the sending system upon some event occurring. There are many possible business applications in several environments that may use this capability. For example, an MRP, Inventory, or Manufacturing business application could use this to communicate Item Bill of Material information. Data relevant to the business such as information describing the BOM structure and its contents, information describing the attributes of a specific item or option within a classification are supplied by using the Show BOM XML. An example of an option would be CD-ROM for a laptop computer. Then each of the types of CD-ROM's for the option would be a separate ITEM. An example of an option class would be memory for a laptop. The options could then be 12, 24, or 40 megabytes of RAM. Each of these options would then have separate ITEM identifiers for memory modules that makes up the appropriate amount of memory. For 40 megabytes of RAM, this could be two 16 megabyte memory modules and an 8 megabyte module, or one 16 megabyte and three 8 megabyte memory modules.

## Sync BOM

**Sync BOM** (Bill of Materials) is an XML business service request that communicates to a business application module or system the need to initiate the creation of a Bill of Material structure. This XML may be necessary to address the Make to Order, Assemble to Order, or Mixed Mode business ordering scenarios in a Order Management to Manufacturing application integration scenario. In Oracle for example, Oracle Manufacturing and Oracle Order Management use bills of material to store lists of items that are associated with a parent item and information about how each item is related to its parent. Oracle Manufacturing supports standard, model, option class, and planning bills of material. There are many possible business applications in several environments that may use this capability. For example, an MRP, Inventory, or Manufacturing business application could use this to communicate the requirement to synchronize a Bill of Material. The synchronization process can ensure that all of the components in the integration scenario have the same data necessary to communicate. The environment for this XML can be within the enterprise or outside the enterprise.

## Allocate Activity

**Allocate Activity** is an XML business service request that enables the update of ACTIVITY information from a production or manufacturing application to a costing application. This is necessary for applications that are based on a Dual Cycle Accounting model. This Dual Cycle Accounting model does not capture the details of the activities that caused entries to be made in the general ledger application, but instead captures them in a separate overall costing application. For Single Cycle accounting systems, the Journals XML is used to ensure that the costing information flows from the Manufacturing Application to the Financial Application. This XML commonly causes updates to occur and may be used as part of a large integration scenario or as a single tool for updating data.

## Load Matchdoc

When using Oracle E-Business Suite, the purchase order and invoice matching functionality exists in Oracle Accounts Payable. But for other application suites, the matching functionality is made in the purchasing application. The invoice matching process may include several document types, including the following: for a Two way match - Purchase Order and the Invoice; for a Three way match - Purchase Order, Invoice, and the Receipt; and for a Four way match – Purchase Order, Invoice, Receipt, and Inspection results. For the four way match, it is assumed that inspection results have been updated on the Purchase Order for visibility in matching. The **Load Matchdoc** is an XML that is used to keep invoice, purchase order, goods receipt note and inspection ticket information current.

The Load Matchdoc XML is for use both by the accounts payable application and the purchasing application in exchanging the transactions that are required to be matched. When matching takes place in the accounts payable application, the purchasing application must inform the accounts payable application of the purchasing transactions (purchase orders, goods receiving notes and inspection tickets) to which the invoice (in accounts payable) is to be matched. These integration scenarios have been developed for document matching to occur at the line level within the PO document and the Invoice document. This may be a one to one relationship, or it may be a many to one relationship from Invoice to PO or from the PO to the Invoice. Charges not associated with a specific Invoice line must be matched individually. When matching takes place in the purchasing application, the accounts payable application may have to inform the purchasing application of the supplier invoice to which purchasing transactions (purchase orders, goods receiving notes and inspection tickets) are to be matched if the invoice is initially entered into the accounts payable application. Note that in some situations, invoices are entered directly into the purchase order application or are created by the purchase order application when using evaluated receipt settlement (ERS) and in this instance, it is not necessary to perform the separate integration described under this XML.

## Update Matchok and Update Matchfail

After loading matching documents and matching functionality is executed in an accounts payable application, an **Update Matchok** XML or an **Update Matchfail** XML is used to send successful matching notification or failure notification to a purchasing application. The purpose of the Update Matchfail XML is to notify the purchasing application of a matching failure such as a tolerance failure. For example in Oracle Payables, a user can match payables invoices to purchase orders to ensure that only goods ordered, received and inspected are paid. Controls and tolerances are set to specify the range of variance allowable if the amounts or quantities on the invoice are greater than the amounts or quantities on the purchase order or receipt. Oracle Payables then creates distributions and checks that the match is within the defined tolerance. Oracle Payables may use the Update Matchok XML or the Update Matchfail XML to notify the purchasing application. A purchasing application may then use this data to close or adjust the purchase order records or inform the supplier of discrepancies accordingly.

## Load_PLInvoice and Load Payable

**Load PLInvoice** XML is a business document that transmits data to create an unapproved open item in either a payables application or a purchasing application. The scope of the Load PLInvoice (load purchase ledger invoice) indicates that the supplier's invoice has not yet been approved and the invoice is to be used as part of the invoice matching process. For invoices that are approved for payment, this is handled by a separate XML business service request called **Load Payable XML**. If the matching functionality exists in a purchasing application, the Load PLInvoice XML is used to transmit data into the purchasing application, and only after matching does the PO application use the Load Payable XML to post approved invoices into the payables application. On the other hand, if the invoice matching functionality exists in the accounts payable application, the invoice is entered into accounts payable using the Load PLInvoice XML, and purchasing publishes matching document information to which accounts payable subscribes.

## Get Matchdoc and Show Matchdoc

A **Get Matchdoc** XML business service request is used to enable both the accounts payable application and the purchasing application to request the transactions that are required to be matched or request information concerning matching. In both cases, the receiving application uses the **Show Matchdoc** XML to return the requested information. This XML does not usually cause updates to occur. In certain application suites, purchase order and invoice matching functionality exists in the purchasing application, while in other suites this functionality exists in the accounts payable application. If the invoice matching functionality exists in the purchasing application, the invoice is entered into accounts payable, purchasing requests invoice information using Get Matchdoc XML and accounts payable provides invoice information using a Show Matchdoc XML. If the invoice matching functionality exists in the accounts payable application, the invoice is entered into accounts payable, purchasing requests matching document information using Get Matchdoc XML and accounts payable provides matching document information using Show Matchdoc XML.

## Getlist Picklist

The purpose of the Getlist Picklist XML business service request is to enable a business application to request summary information for one or more Picking Slips from an ERP system. If a list of documents is requested, that list is used in order for a selection and GET request of a specific picking list to be made, if necessary. This XML does not usually cause updates to occur. For example, this XML may be used by a Plant Data Collection system to request for summary information for a Pick slip from an Order Management system. Requestor may give specific field identifiers or request an entire data type, depending on the need for information.

## Update Inventory

**Update Inventory** is an XML business service request that enables the update of Inventory data that exists on separate Item Master databases. This data is not the master data that describes the attributes of the item such as dimensions, weight, or unit of measure. This is data that describes the ITEM as it exists at a specific location. The Update Inventory XML assumes that one Inventory Application is the "owner" of the data. Either the owner of the data or the non-owner of the data may initiate this XML. The Inventory Application which is the primary owner of the data is determined by which one updates the financial records to be posted to the general ledger. The non-owner inventory does not update the financial records. To do so may result in duplicate postings or other errors in the financial record keeping. All Inventory events which may affect the financial records need to be sent to the owner inventory either through the Update Inventory XML or the Sync Inventory XML. This does not create new Inventory records. Its purpose is to update existing Inventory records.

## Getlist Countinfo and List Countinfo

A **Getlist Countinfo** XML enables a business application to request several occurrences of summary Inventory Count information from an ERP system. This may be used for cycle counting or for physical inventory counts. The response to this request is the **List Countinfo** XML. This may be used individually, or as part of a larger interface scenario such as a Plant Data Collection and an Inventory system. The effective date and time, document ID or document type and the item may be used to get count information. This XML enables range selections. This is accomplished by including two separate occurrences of a Field Identifier. The first occurrence is the "FROM" selection and the second, or duplicate occurrence of the Field Identifier is the "TO" in the range to be selected. If a second Field Identifier is not included, the selection continues until the data no longer applies to the selection or the MAXITEMS is reached. All of the inventory documents may be requested by sending a value of "ALL" in the DOCUMENTID field.

A **List Countinfo** XML enables an Inventory application system to send multiple occurrences of summary or detail inventory count information to a Plant Data Collection or other application system. Data such as item description, quantity and serial number are examples of data that may be returned in the List Countinfo XML response.

## Cancel Prodorder

Cancel Prodorder is an XML business service request that notifies a Manufacturing Application of the need to cancel a previous order to make a product in a specific quantity, for a specific need by date. This XML may be used to cancel an entire Production Order, or a specific line on the production order. A cancel must refer to the original document and/or item ordered. To cancel the entire order, include only the header information for the instance of the Production Order that needs to be to cancelled. To cancel a line or several lines, each line (as indicated on the predetermined Bill of Material structure) to be cancelled must be included in the request. An Order Management system may send this request to a manufacturing system (in Oracle this is done under the Master Scheduling module) to cancel previously recorded Work or Job Order. Optionally, a user may also include information concerning the operation in the routing at which to change the production order in the Work in Process module.

## Sync Salesorder

The Sync Salesorder is an XML that facilitates the synchronization of sales or customer order information kept on separate databases throughout an enterprise. The Sync Salesorder allows the adding of new sales orders and the modification of previously established sales orders.

## Add Salesorder

For organizations with automated sales force systems, customer orders may be communicated to an Order Management system using the Add Salesorder XML business document. The Add Salesorder XML communicates from one business application to one or more other business applications that a Sales Order has been added or needs to be added, depending on the business case. interface scenario. Data pertinent to an order such as customer information and address (including the Bill To and Ship To addresses), sales person information, payment terms, any miscellaneous charges, an accounting distribution, the item or product ordered along with the quantity, price and other descriptive information and the schedule of delivery may be communicated effectively using the Add Salesorder XML.

## Cancel Salesorder

In order to communicate from one business application to one or more other business applications that a previous Sales Order, line, or schedule is no longer needed, the **Cancel Salesorder** XML may be used. This cancel must refer to the original document, item, and schedule. To cancel the entire order, include only the Salesorder Header information for the instance of the Salesorder to be cancelled. To cancel sales order lines and/or salesorder schedules, each line or schedule to be cancelled must be included in the occurrence of the XML with the SOLINENUM and SOSLINENUM identifiers specified respectively. If a schedule is to be cancelled, the line that the schedule refers to must be included or the schedule can not be found. This XML may be used by a salesperson who needs to cancel a pre-recorded order in an Order Management system.

## Change Salesorder

A Change Salesorder XML is a business service request that is used to request that another business application component make changes to an existing Sales Order. This change must refer to the original document and/or item ordered. The change processing assumes replacement of fields sent, with the exception of the fields for the sales order ID, the sales order line number, and the sales order schedule line number. If any of these Field Identifiers require changing, that constitutes a cancellation of the request and/or the addition of another Sales Order. This commonly causes updates to occur. A salesperson may decide to make changes to the orders already recorded in an Order Management system. This allows for flexibility in a system.

## Get Salesorder and Show Salesorder

**Get Salesorder** is another XML business service request that enables a business application module to request information concerning a specific sales order from another business application. The reply to this XML is the Show Salesorder. There are several possible business applications in several environments that may use this capability. For example, a Sales Automation application may use this XML to ask for information from a Order Management application. Request may be made by specifying the sales order ID and may optionally request for shipment and line details.

The **Show Salesorder** XML supplies Sales Order Information to another business application module such as a sales automation system. This request may be used as a response to a Get Salesorder request or as a push notification of an event. This XML does not usually cause updates to occur. Examples of what may be returned or shown include customer information, address, sales person information, and if necessary information on each order line and schedule. A sales person may also use the data returned by a Show Salesorder XML to know the commission amount to be appropriately credited for the order, assuming that the commissions have already been calculated.

## Getlist Salesorder and List Salesorder

To enable a business application module to request information containing summary information for one or more sales orders from another business application, such as Oracle Order Management, the **Getlist Salesorder** XML request may be used. The response to this request is the List Salesorder. The Getlist Salesorder also enables the retrieval of information across several documents by using selection fields. An example of this could be requesting all sales order lines for a specific item. This type of functionality is limited to the capabilities of the responding application and needs to be determined during the implementation project. This does not usually cause updates to occur. It may be used as part of a large integration scenario or as a single tool for requesting information on existing demands for goods or services. For example, a Sales Automation application may use this XML to ask for information from an order management application.

A **List Salesorder** XML is used to proactively send a listing of summary information about sales orders to one or more other applications. This does not usually cause updates to occur. It may be used as part of a large integration scenario or as a single tool for sending information concerning existing demands for goods or services. For example, an order management application may use this to respond to a request for information from a Sales Automation application.

## Sync PO

**Sync PO** is an XML business document that facilitates keeping purchase order information synchronized on separate databases throughout an enterprise. The Sync PO XML allows the adding of new purchase orders and the modification of previously established purchase orders. There are many possible business applications in several environments that may use this capability. One example of a business integration scenario where this XML could be useful is between a purchasing system and a Material Resource Planning (MRP) system under a manufacturing scenario. The environment for this XML can be within the enterprise or outside the enterprise.

## Sync Routing

Routing is the process an order must take in order to produce the finished goods. The **Sync Routing** XML is used to communicate to a business application component or system the need to create a new Routing or to update an existing Routing structure. This XML may be necessary to address the Make to Order, Assemble to Order, and Finished Goods business ordering scenarios in a Logistics to Manufacturing application integration scenario. There are many possible business applications in several environments that may use this capability. For example, an MRP, Inventory, or Manufacturing business application could use this to communicate the requirement to synchronize the Routing necessary to build finished goods. This XML may be used individually, or as part of a larger interface scenario. Routings between a Configuration Management system and a manufacturing system or with a Finite Scheduling system are examples where the Sync Routing XML can be used. The environment for this XML can be within the enterprise or outside the enterprise.

## Get Routing and Show Routing

The purpose of the **Get Routing** XML is to communicate to a business application module or system a request for an existing routing structure to be returned in a Show Routing XML. This may be used individually, or as part of a larger interface scenario.

**Show Routing** is an XML business service request that communicates to a business application module or system the relevant information about a specific routing. This XML may be used individually, or as part of a larger interface scenario. A Show Routing may be used to request a routing to be sent between a Routing and Configuration Management (or Oracle Bill of Materials module) system and a Manufacturing Execution System (Oracle Work in Process). This same scenario could exist between a Routing and Configuration Management system and a Finite Scheduling system. Relevant data such as the series of operations that create the routing, description of a particular item within a routing structure, a grouping of operations for the routing as well as a sequencing of operations, relationships between operations, the people needed within an operation and the description of the step within an operation for a specific routing are examples of information that may be communicated.

## Getlist Routing and List Routing

A **Getlist Routing** XML is used to communicate to a business application component or module a request for a summary list of a routing structure or structures to be returned in a List Routing XML. This XML may be used individually, or as part of a larger interface scenario. Example could be a Getlist Routing to request a list of possible routings to be sent via a List Routing between a Configuration Management system and a Manufacturing Execution System. This same scenario could exist between a Configuration Management system and a Finite Scheduling system.

The purpose of the **List Routing** XML is to communicate one or more summary listings of routing information to another business application component. This may be the result of a Getlist request between a Bill of Material system and a Work in Process system or it may be initiated by some other business event.

## Getlist BOM and List BOM

**Getlist BOM** (Bill of Material) is an XML that enables an application or component to request a summary list of Bill of Material information from another business application or component. The response to the Getlist BOM is the List BOM. The Getlist BOM also enables the retrieval of information across several documents by using selection fields. An example of this could be requesting all Bills of Material for a specific ITEM. This type of functionality is limited to the capabilities of the responding application and needs to be determined during the implementation project. There are many possible business applications in several environments that may use this capability. For example, an MRP, Inventory, or Manufacturing business application could use this to communicate Item Bill of Material information.

The **List BOM** XML is used to communicate one or more summary listings of BOM information to another business application component. This may be the result of a Getlist BOM XML or it may be initiated by some other business event. This XML may return information that generally describes the Bill of Material Structure and its contents, the attributes of a specific item, the attributes of a specific OPTION for an ITEM and information that describes the class of OPTION for a particular Product or Item.

## Get Item and Show Item

A **Get Item** XML enables a business application module to request information concerning a specific ITEM from another business application. The reply to this XML is the Show Item XML. There are many possible business applications in several environments that may use this capability. For example, an MRP, Inventory, or Manufacturing business application could use this to request item information. With Oracle E-Business Suite, the Master Scheduling/MRP system uses item information to do forecasting of resources, Purchasing uses item information as basis for material replenishment and Inventory maintains these item information in its Master Item table.

To supply ITEM information to another business application module the Show Item XML can be used. This request may be used as a response to a GET ITEM request or as the result of some other business event. This XML does not usually cause updates to occur. There are many possible business applications in several environments that may use this capability. For example, item information may be communicated to a Purchasing Application from the Master Files kept in a MRP or Inventory system. The environment for this XML can be within the enterprise or outside the enterprise. Item information may include: general description of an item and its attributes, attributes of additional units-of-measure for the Item, attributes of cost or value for the Item and the location the item may be kept and the attributes of that location in relation to the item.

## Getlist Item and List Item

Item is anything made, purchased, or sold including components, sub-assemblies, finished goods or supplies. A **Getlist Item** XML business document enables a business application module to request summary information concerning an item or items from another business application. For example, an MRP, Inventory, or Work in Process application could use this to request item information from a purchasing application. This type of functionality is limited to the capabilities of the responding application and needs to be determined during an implementation project. Items are defined under Oracle Inventory and item information is used by other modules such as MRP, Inventory and Work in Process. The response to this request is the List Item XML. This does not usually cause updates to occur. The environment for this XML can be within the enterprise or outside the enterprise.

The List Item XML enables a business application module to respond to a Getlist Item request or to proactively send a listing of summary information about items to one or more other applications. Attributes of an item such as the description of the packing material to be used to package the item at its stocking unit of measure, the physical characteristics of the item, the shipping material to be used to ship the item and other attributes that generally describe the item defined in Oracle Inventory, may be listed for use by another application.

## Getlist Prodorder and List Prodorder

Prodorder is an XML business document that details the manufacture of a specific quantity of assembly, using specific materials and resources, in a limited time. For other applications, this may be termed as Work Order, Discrete Job or Assembly Order. With the **Getlist Prodorder** XML, a business software component such as a Receiving or Plant Data Collection system is able to request summary production order information from a Production system or Work in Process application. This XML also enables the retrieval of information across several documents by using selection fields. An example of this could be requesting all production order lines for a specific item.

The purpose of the **List Prodorder** XML request is to enable a business software component to respond to a request or to proactively send a listing of summary information about production orders to another business software component. This XML does not usually cause updates to occur. It may be used as part of a large integration scenario or as a single tool for requesting information on existing demands for goods or services. Information on individual items on the pre-determined Bill of Material structure, lot or serial number information about the final assembly defined in the production order, and the accounting information that can optionally accompany the production order may be listed.

## Sync Prodorder

The purpose of the **Sync Prodorder** XML request is to notify a manufacturing application of a change in the need to make a product. Such changes can in quantity or in need by date. The business environments most likely to require this capability are an engineer to order or a configure to order manufacturing scenario. This XML can communicate a new revision or change in configuration of the product being made.

## Sync Engchgordr

Engineering Change Orders (ECOs) enable control of new item revisions and bill of material changes. With one ECO, several bill of material changes can be grouped that affect one or more bills. Using Oracle Engineering, ECOs can be defined for all types of items and bills, including manufacturing and engineering items, bills and their components, planning, model, option class, and standard items, primary and alternate bills of material.

**Sync Engchordr** is an XML business service request that communicates to a business application module or system the need to initiate the creation of an Engineering Change Order. This XML may be necessary to address the make to order, assemble to order, or mixed mode business ordering scenarios in an order management to manufacturing application integration scenario. There are many possible business applications in several environments that may use this capability. For example, a PDM, MRP, inventory, or manufacturing business application could use this to communicate the requirement to synchronize an Engineering Change Order.

## Get Engchgordr and Show Engchordr

Engineering Change Orders (ECOs) enable control of new item revisions and bill of material changes. With one ECO, several bill of material changes can be grouped that affect one or more bills. Using Oracle Engineering, ECOs can be defined for all types of items and bills, including manufacturing and engineering items, bills and their components, planning, model, option class, and standard items, primary and alternate bills of material.

**Get Engchordr** is an XML business service request that communicates to a business application module or system the need to produce a **Show Engchordr** XML business document for the Engineering Change Order specified in the message. This XML may be necessary to address the make to order, assemble to order, or mixed mode business ordering scenarios in an order management to manufacturing application integration scenario.

To communicate to a business application module or system the sending systems representation of a specified Engineering Change Order, the Show Engchordr XML is used. The engineering change order is an instruction from design engineering or integrated product team that the approved design has been agreed by all stakeholder departments and is the valid method of manufacture on a given date and model unit.

## Confirm Engchordr

Engineering Change Orders (ECOs) enable control of new item revisions and bill of material changes. With one ECO, several bill of material changes can be grouped that affect one or more bills. Using Oracle Engineering, ECOs can be defined for all types of items and bills, including: manufacturing and engineering items, bills and their components, planning, model, option class, and standard items, primary and alternate bills of material.

The purpose of the **Confirm Engchordr** XML is to communicate to a business application module or system that the synchronization of a specified engineering change order has been completed successfully. This XML may be necessary to address the make to order, assemble to order, or mixed mode business ordering scenarios in a order management to manufacturing application integration scenario.

## Sync Dspchlist

A dispatch list is a list of tasks to be done by a manufacturing execution system in order to fulfill production orders. After production orders are sent out, master scheduling creates the dispatch list. Several applications (such as finite scheduling and ERP) provide a dispatch list to a manufacturing system.

**Sync Dspchlist** is an XML business service request used to synchronize dispatch list (finite schedule) information. This synchronizes information about the entire WIP transaction, information concerning the specific WIP operation, or step in a routing and information concerning the resources associated with a particular WIP operation. The synchronization process can ensure that all of the components in the integration scenario have the same data necessary to communicate.

## Get Dspchlist and Show Dspchlist

A dispatch list is a list of tasks to be completed by a manufacturing execution system in order to fulfill production orders. After production orders are sent out, master scheduling creates the dispatch list. Several applications (such as finite scheduling and ERP) provide a dispatch list to a manufacturing system.

The purpose of the Get Dspchplist XML business service request is to enable a business application module to request this information from another business application. The reply to this XML is SHOW. This XML does not usually cause updates to occur. This XML may be used individually, or as part of a larger integration scenario. For example, a manufacturing execution system or work in process module may get dispatch list information from a production planning module.

Show Dspchlist is an XML business document that communicates to a business application module, such as production planning, the sending systems representation of dispatch list (finite schedule) information. This XML may be used as a response to a Get Dspchlist request or as a push notification of an event. Information about the entire WIP transaction, specific WIP operation, or step in a routing and information concerning the resources associated with a particular WIP operation may be sent through the XML.

## Update Dspchlist

Update Dspchlist is an XML business service request that allows a user to update or make changes to an existing dispatch list (finite schedule) information. A dispatch list is a list of tasks to be completed by a manufacturing execution system in order to fulfill production orders. After production orders are sent out, master scheduling creates the dispatch list. Several applications (such as finite scheduling and ERP) provide a dispatch list to a manufacturing system. This XML causes updates to occur.

## Sync Maintorder

Sync Maintorder is an XML that ensures that all business software components in a specific integration instance have the current maintenance order information. This XML is commonly used to publish the need to create or update a Maintenance Order in a publish and subscribe integration environment. One possible scenario is the synchronization of Maintenance Order between field devices, service trucks, and so on, with a Computerized Maintenance Management System (CMMS). The synchronization process can ensure that all of the components in the integration scenario have the same data necessary to communicate. This data may include a description of the maintenance order, any accounting distribution information associated with the order, safety information related to work, location, and equipment, information on failure, cause and remedy, resources to perform the maintenance order, labor and tooling requirements to perform the operation, and information on the specific maintenance operation to be performed.

## Create Maintorder

The purpose of the Create Maintorder XML document is to publish to a business application component or system the need to create or update a maintenance order. This XML is commonly used to in a publish and subscribe integration environment. This XML may be used individually, or as part of a larger interface scenario. For example, creation of a maintenance order may be sent from a field device to a Computerized Maintenance Management System (CMMS).

## Update Maintorder

The purpose of the Update Maintorder XML document is to communicate any updates or changes necessary in an existing maintenance order. The environment for this XML can be within the enterprise or outside the enterprise. Maintenance orders detail the necessary maintenance operations for service equipment and tools used in the manufacturing scenario. Updates or changes may be made with the maintenance order information such as labor or craft resources, tool resources, operation, labor, and material resources or header information describing the maintenance order.

## Cancel Maintorder

Cancel Maintorder is an XML business service request that communicates from business application component such as a field device to one or more other business applications (that is, a computerized maintenance management system) that a previous maintenance order is no longer needed. This cancel must refer to the original document and/or maintenance order posted.

## Get Maintorder and Show Maintorder

The purpose of the Get Maintorder XML is to enable a business applications module to request order information from another business application. The response to this XML is SHOW. For example, a field device may want to get relevant information such as the resources to be used in the conduct of the maintenance operation, the operations that need to be performed under the order, and accounting distribution that may be necessary to relate the expenses of the maintenance to a particular cost center or department from a Computerized Maintenance Management System (CMMS).

In response, the CMMS creates a Show Maintorder XML to communicate data that meets the selection criteria posted under a Get Maintorder XML. The sending application sends what is requested in the Get Maintorder XML, if applicable, or alternatively, sends information that matches the data within the specified data type. A Show Maintorder XML communicates to a business application module or system the sending systems representation of maintenance order information.

## Getlist Maintorder List Maintorder

A Getlist Maintorder XML enables a business application module to request information containing summary information for one or more maintenance orders. The response to this request is the LIST. The environment for this XML can be within the enterprise or outside the enterprise. The Getlist Maintorder also enables the retrieval of information across several documents by using selection fields. An example of this could be requesting all RESOURCE data type occurrences for a specific OPERATION. This type of functionality is limited to the capabilities of the responding application and needs to be determined during the implementation project. This XML does not usually cause updates to occur.

A List Maintorder XML publishes one or more summary listings of maintenance order information to other business application component. This may be in response to a Getlist Maintorder request or to proactively publish a listing of summary maintenance order information for a business event. When a receiving application receives this XML, the information can be used as is or it may be used to initiate a selection of a specific maintenance order through the Get Maintorder XML request. The processing is designed to provide multiple occurrences of summary data.

## Sync UOMGroup

A UOMGROUP is a set of item-independent relationships that describe how an alternate units-of-measure is related to the stocking unit-of-measure or to other alternate units-of-measure. The environment for this XML can be within the enterprise or outside the enterprise. The purpose of the Sync UOMGROUP XML is to supply a set of unit-of-measure relationships to another business application module. This XML addresses the need for applications to exchange item-independent alternative UOM information beyond the stocking UOM. Item-independent implies that the materials management component or other subscribing applications manage the item's UOM as an entirely separate grouping that are later associated with one or more items.

This XML supports unit-of-measure (UOM) information flows associated with items being managed as inventory. The materials management, inventory control, warehousing and receiving, or shipping departments within an organization require the packaging relationship details between UOMs and the handling characteristics for each UOM to effectively manage the flow and storage of inventory. While the stocking level UOM provides for basic inventory accounting functionality, it may not be the most efficient, common, or natural UOM for manufacturing, purchasing, selling, or handling the item. The item may be packaged into standardized or supplier-specific bulk quantities for import or export, wholesale, or retail sales (for example, each, box, case, pallet, and so on).

## Get UOMGroup and Show UOMGroup

A UOMGROUP is a set of item-independent relationships that describe how an alternate units-of-measure is related to the stocking unit-of-measure or to other alternate units-of-measure.

The purpose of the Get UOMGROUP XML is to request an existing UOMGROUP structure or structures from a business application component or module to be returned in a Show UOMGROUP XML. There are many possible business applications in several environments that may use this capability. For example, an MRP, inventory, or manufacturing business application could use this to request alternate UOM information for one or more items.

The Show UOMGROUP XML transfers the UOM relationships independent of the item definition. This XML supplies Unit-of-Measure Group relationship information to another business application module. This request may be issued as a response to a Get UOMGROUP request or as the result of some other business event. This XML addresses the need for applications to exchange item-independent alternative UOM information beyond the stocking UOM. Item-independent implies that the materials management component or other subscribing applications manage the item's UOM as an entirely separate grouping that are later associated with one or more items. The environment for this XML can be within or outside the enterprise.

## Getlist UOMGroup and List UOMGroup

A UOMGROUP is a set of item-independent relationships that describe how an alternate units-of-measure is related to the stocking unit-of-measure or to other alternate units-of-measure.

The purpose of the Getlist UOMGROUP XML is to request a summary list of a UOMGRPHDR structure or structures from a business application component or module to be returned in a List UOMGROUP XML. The environment for this integration is application-to-application (A2A) within a single enterprise, or extended across enterprises, where there is a single master application that manages the assignment of all item identifiers. There are many possible business applications in several environments that may use this capability. For example, an MRP, inventory, or manufacturing business application could use this to request alternate UOM information for one or more items.

A List UOMGROUP XML supplies unit-of-measure group summary information to another business application module. This may be the result of a Getlist UOMGROUP request or some initiated by some other business event. When a receiving application receives this XML, the information can be used as is or it may be used to initiate a selection of a specific UOM group through the Get UOMGroup request. The processing is designed to provide multiple occurrences of summary data. The List XML is used for the receiver of the Getlist XML to respond with the results of the search that was initiated by the Getlist. Data such as those describing the packing material to be used to package the UOM, the inventory stocking unit of measure that can be tracked by an inventory control application, physical characteristics of the UOM (that is, height, volume, width), description of the shipping material to be used, are listed in summary by a List UOMGROUP XML to respond to a particular GetList XML.

## Sync Catalog

Sync Catalog is an XML document that communicates the need to initiate the creation of catalog information, as well as update existing catalog information, to a business application module or system. In communicating catalog information, the Sync Catalog may cause other information to be coordinated including item identifiers, specifications, pricing information agreed (that is, purchase agreements, price lists), availability and delivery information, and related items and accessories. This XML may be necessary to address the make to order, ordering scenarios in an Order Management to Manufacturing application integration scenario.

The existing definition does not attempt to model configuration rules, and is therefore not sufficient to model configure to order environments that require cross option validation. Assemble to order environments that can be modeled using a marketing bill of material are addressed. There are many possible business applications in several environments that may use this capability. For example, a Manufacturing, distributor or reseller business application could use this to communicate the requirement to synchronize a Catalog.

It may also be necessary to support Component Supplier Management (CSM) scenarios. In this scenario, a company provides a service of sourcing and codifying the products of many companies and publishing a consolidated catalog. A customer purchases the product from the Catalog provider. They have the capability to do comparison shopping from the catalog.

## Get Catalog and Show Catalog

The purpose of the GET CATALOG XML is to enable a business application module or system to request catalog information. In communicating Catalog information, the Get Catalog XML may cause other information to be coordinated including, but not limited to Item Identifiers, Specifications, Pricing Information agreed (that is, Purchase Agreements, Price Lists), Availability and Delivery Information and related items and accessories. This XML may be necessary to address the Make to Order or ordering scenarios in an Order Management to Manufacturing application integration scenario. There are many possible business applications in several environments that may use this capability. For example, a Manufacturing, distributor, or reseller business application could use this to get Catalog information.

It may also be necessary to support Component Supplier Management (CSM) scenarios. In this scenario, a company provides a service of sourcing and codifying the products of many companies and publishing a consolidated catalog. A customer purchases the product from the Catalog provider. They have the capability to do comparison shopping from the catalog.

A Show Catalog is an XML response to a Get Catalog request. The environment for this XML can be within the enterprise or outside the enterprise, including trading partners. The purpose of the Show Catalog XML is to supply a business application module or system with requested catalog information. Catalog information may include: fields that describe the catalog, identity of the publisher of the catalog, any category defined in the system to group specific items, description or listing of the items identified under the catalog, the specifications and specification value of a given item. The sending application sends what is requested in the Get Catalog XML, if applicable, or alternatively, sends information that matches the data in each of the data types.

## Sync Itemclass

The Item Classification XML may be used in both a business to business context and an application integration context. An example of this in an application integration context might be between a Product data management system and a procurement system to access outsourcing opportunities for items in a similar classification. Another example in a business to business context may be a component supplier management company letting a supplier know the marketing classification scheme it wishes to use in its catalog.

Sync Itemclass is an XML that communicates to a business application module or system the need to synchronize the classification and specification schemes. This may be necessary to address Manufacturers, Distributor Resellers business ordering scenarios in an Order Management to a Manufacturing application integration scenario. It may also be necessary to address Component Supplier Management scenarios.

There are many possible business applications in several environments that may use this capability. For example, a PDM, MRP, Inventory, or Manufacturing business application could use this to communicate the requirement to synchronize Item classification schemes. Examples may include, (but are not limited to): marketing classifications, production classifications, procurement classifications and shipping classifications.

## Get Itemclass and Show Itemclass

The Item Classification XML may be used in both a business to business context and an application integration context. An example of this in an application integration context might be between a Product data management system and a procurement system to access outsourcing opportunities for items in a similar classification. Another example in a business to business context may be a component supplier management company letting a supplier know the marketing classification scheme it wishes to use in its catalog.

Get Itemclass is an XML business document that enables a business application module or system to request information concerning classification and specification schemes. The environment for this XML can be within the enterprise or outside the enterprise, including trading partners. This XML may be necessary to address Manufacturers, Distributor Resellers business ordering scenarios in an Order Management to Manufacturing application integration scenario. It may also be necessary to address Component Supplier Management scenarios.

There are many possible business applications in several environments that may use this capability. For example, a Catalog Management System could use this to communicate the requirement to get Item classification schemes information from Product Data Management, Materials Resource Planning, Inventory, or Manufacturing business applications. The CLSSSCHMID Field Identifier is used as a selection field. This is the only Field Identifier value that should be sent in this GET request.

A Show Itemclass XML is used to supply a business application module or system with information concerning classification and specification schemes. This XML may be necessary to address Manufacturers, Distributor Resellers business ordering scenarios in a Order Management to Manufacturing application integration scenario. It may also be necessary to address Component Supplier Management scenarios. This XML returns information such as classification scheme description, data that describes an element or breakdown of the requested classification scheme, item category and item category assignments.

## Sync ITEMXREF

The Item cross-reference XML may be used in both a business to business context and an application integration context. An example of this in a business to business context might be a customer letting a supplier know the item numbering for a given European Article Number. An example of this in an application integration context might be between a Product Data Management system being the source system for Harmonized Schedule B numbers that are used by the transportation management system.

Sync ITEMXREF is an XML document that communicates to a business application module or system the need to synchronize an Item cross-reference. Cross-references may be to other item identifiers to the same form fit and function, as well as references to item identifiers of other items (form fit and function). For this XML, item relationships are used to refer to where the "to item" identifier, identifies a different form, fit and function to the "from item" identifier. It should be noted that the item identifier that is "Primary" in one system may be a secondary identifier in another system.

For example, in the Application Integration space, the manufacturing system may regard the "Item Number" as the primary identifier. The Order Management System may regard the Catalog number as the primary identifier. A company that manufactures hand held multi-meters may identify a given item in manufacturing with a 12 digit numeric code, 5432 123 12345. The marketing and sales department may refer to the same item by its catalog number of FL 30/4.

In the Business to Business case a supplier of hand held multi-meters may market their products through a catalog provider. The supplier has an item identifier with a corresponding party specific cross reference to the catalog providers identifier for the same item. The catalog provider has a item identifier for hand held multi-meters and a corresponding party specific cross reference to the suppliers item number. An example of this in a business to business context might be a customer letting a supplier know the valid substitutes that a supplier may supply to fulfill an order for a specific item number. An example of this in an application integration context might be between a Product Data Management (PDM) system and an Order Management system for accessories that may be offered to a customer with the sales of a major item. For example, if a designer of a video camera has designed it to work with accessories such as tripod, extended life battery pack, external microphone and head cleaner, the video may be designed to have the spares replaced by the consumer such as lens cover, strap and handle. The video camera may need the following consumable items on a recurring basis: video cassettes, batteries or lens cleaners. The relationship between these items and the video camera may need to be represented to the Customer in Web Based ordering or Customer Service Representative (CSR), in desk based order entry.

## Get ITEMXREF and Show ITEMXREF

The purpose of the Get ITEMXREF XML is to enable a business application module or system to request information concerning an Item cross-reference. Cross-references may be to other item identifiers to the same form fit and function, as well as references to item identifiers of other items (form fit and function). For this XML, item relationships are used to refer to where the "to item" identifier, identifies a different form, fit and function to the "from item" identifier. It should be noted that the item identifier that is "Primary" in one system may be a secondary identifier in another system. For example, in the Application Integration space, the manufacturing system may regard the "item Number" as the primary identifier. The Order Management System may regard the Catalog number as the primary identifier. A company that manufacture hand held multi-meters may identify a given item in manufacturing with a 12 digit numeric code, 5432 123 12345. The marketing and sales department may refer to the same item by its catalog number of FL 30/4.

This XML may be necessary to address Manufacturers, Distributor Resellers business ordering scenarios in a Order Management to Manufacturing application integration scenario. It may also be necessary to address Component Supplier Management scenarios. The Catalog Management System quotes a set of cross references that are not currently in the catalog. The cross-references may be either alternate identifiers of the products in the Catalog such as EAN Numbers and UPC Codes or they may be related items such as accessories, spares, or consumables. The Cross Reference document may flow from either the purchasing system of the selling system to let the Catalog Management System be aware of the identifiers used by all buying and selling parties.

A Show ITEMXREF XML supplies a business application module or system with information concerning an Item cross-reference. The XML may be used to relate item identifiers for item identifiers that identify different items (form fit and function). The Relationship types may also be universal. The sending application sends what is requested in the GET, if applicable, or alternatively, sends information that matches the data in the specified Data Type. The Show ITEMXREF XML allows the user to cross-refer either between classifications, or between items.

## Sync Pricelist

A Price List is a list containing the basic selling price per unit for a group of items, item categories, or services offered. Price lists are essential to ordering products because each item entered on an order must have a price. Most Order Management systems contain basic list information and one or more pricing lines, pricing attributes, qualifiers, and secondary price lists. Basic information for Oracle Order Management includes the price list name, effective dates, currency, pricing controls, rounding factor, and shipping defaults such as freight terms and freight carrier.

Sync Pricelist is an XML document that communicates to a business application module or system the need to synchronize product price list information. This allows the publication from the order management system of the Price List that accompanies the catalog. This XML may be necessary to address the Make to Order, Assemble to Order, or Mixed Mode business ordering scenarios in an Order Management to a Manufacturing application integration scenario.

There are many possible business applications in several environments that may use this capability. For example, a Manufacturing, distributor or reseller business application could use this to communicate the price change or request a price list. It may also be necessary to support Component Supplier Management (CSM) scenarios. In this scenario, a company provides a service of sourcing and codifying the products of many companies and publishing a consolidated catalog. A customer purchases the product from the Catalog provider. They have the capability to do comparison shopping from the catalog.

The primary business process the Pricelist XML supports are to provide an instruction from a supplier to a customer that the supplier's list price for the suppliers product needs updating. It may also be an instruction from Marketing Systems to update order management systems. It may be an instruction from Order Management systems to Sales force automation systems to update Price Lists.

## Get Pricelist and Show Pricelist

A Price List is a list containing the basic selling price per unit for a group of items, item categories, or services offered. Price lists are essential to ordering products because each item entered on an order must have a price. Most Order Management systems contain basic list information and one or more pricing lines, pricing attributes, qualifiers, and secondary price lists. Basic information for Oracle Order Management includes the price list name, effective dates, currency, pricing controls, rounding factor, and shipping defaults such as freight terms and freight carrier.

The Get Pricelist XML business document enables a business application module or system to request information concerning new or existing product price lists. The environment for this XML can be within the enterprise or outside the enterprise, including trading partners. This XML may be necessary to address the Make to Order, Assemble to Order, or Mixed Mode business ordering scenarios in an Order Management to Manufacturing application integration scenario.

There are many possible business applications in several environments that may use this capability. For example, a Manufacturing, distributor or reseller business application could use this to request a price list. The Catalog Management System quotes a price list that does not exist in the Catalog Management System causing the Catalog Management System to request the price list. It may also be necessary to support Component Supplier Management (CSM) scenarios. In this scenario, a company provides a service of sourcing and codifying the products of many companies and publishing a consolidated catalog. A customer purchases the product from the Catalog provider. They have the capability to do comparison shopping from the catalog. Selection of price list to be returned may be made by providing a Pricelist ID using the Get Pricelist XML.

The purpose of the Show Pricelist XML is to supply a business application module or system with information concerning new or existing product price lists. This allows for the publication from the order management system of the Price List that accompanies the catalog.

The following types of data may be returned in a Show Pricelist XML:

- Price List Lines—the list of items or commodities and a base price for the items
- List price breaks—the prices and modifiers to the price for buying a given quantity or value of an item or item category on a price list line
- List Price Breaks—the prices and modifiers to the price for buying a given value of any product
- Price List Qualifiers—qualifies the Price Lists that may be used to price an item or item classification, in a given catalog, on a given date or for a given customer.

## Sync Itemspecs

The Item Specification XML may be used in both a business to business context and an application integration context. An example of this in an application integration context might be between a Product Data Management (PDM) system and a Procurement system to access outsourcing opportunities for items with similar specifications.

Sync ITEMSPECS is an XML document that communicates to a business application module or system the need to synchronize the specification of items within a catalog. The Item specification describes items in a catalog. The environment for this XML can be within the enterprise or outside the enterprise, including trading partners.

This XML may be necessary to address Manufacturers, Distributor Resellers business ordering scenarios in a Order Management to Manufacturing application integration scenario. It may also be necessary to address Component Supplier Management scenarios. There are many possible business applications in several environments that may use this capability. For example, a Product Data Management, Material Resource Planning, Inventory, or Manufacturing business applications could use this to communicate the requirement to synchronize Item specifications. Examples may include, (but are not limited to): Engineering systems communicating specification information to a purchasing system or a Supplier to a CSM company letting the CSM know the specifications of the items in the supplier's catalog.

## Get Itemspecs and Show Itemspecs

The purpose of the Get ITEMSPECS XML is to enable a business application module or system to request information concerning the specification of items within a catalog. The Item specification describes items in a catalog. The environment for this XML can be within the enterprise or outside the enterprise, including trading partners. This XML may be necessary to address Manufacturers, Distributor Resellers business ordering scenarios in a Order Management to Manufacturing application integration scenario. It may also be necessary to address Component Supplier Management scenarios. An example scenario for the Get ITEMSPECS XML could be that the specification documents quoted in the catalog are not yet in the Catalog Management System causing the Catalog Management System to request the item specifications from the Product Data Management system (PDM).

Using a Show ITEMSPECS XML, the PDM system publishes a set of Specifications for the items in the catalog. The purpose of the Show ITEMSPECS XML is to supply a business application module or system with information concerning the specification of items within a catalog. The Item specification describes items in a catalog. This XML may be necessary to address Manufacturers, Distributor Resellers business ordering scenarios in a Order Management to Manufacturing application integration scenario. It may also be necessary to address Component Supplier Management scenarios.

The sending application sends what is requested in the GET, if applicable, or alternatively, sends information that matches the data in the following data types:

- Feature Value information - defines the valid list of values for a given feature. An example of a feature value for a feature might be, operating voltage 110/240V AC.
- Feature Value Assignment information - describes the assignment of specifications or the values of specifications to a given item, or item category. An example of Feature Value Assignment information might be that a FL 856 hand held multi-meter may have an operating voltage of 110/240V AC.

## Sync RFQ

Request for Quotation (RFGQ) is a document used to solicit supplier quotations for goods or services needed. Possible sources of RFQs would be Purchasing, Master Scheduling or MRP, Inventory, or Work in Process systems. Another scenario of which the Sync RFQ XML refers to is the integration of a buyer's business software components to supplier's business software components.

Sync RFQ XML document ensures that all business software components in a specific integration instance have the current Request for Quotation information. Sync RFQ XML may be used in an integration scenario between a Buyer's Purchasing system and a Seller's Order Management system. The workflow sequence for custom, built to order involves more activity than that of finished goods. The buyer's focus involves finding the best price for an item or quantity of items that are not currently available. A long-term business relationship is often involved leading to expectations that must be addressed within the quote. Customized products require a higher level of specification. Individual supplier inquiries may be answered formally for all participants to insure competitive parity. Conversely, buyers may have questions related to an individual quote that lead to a change. Sync RFQ XML is used when the RFQ data persists in multiple systems.

## Add RFQ

Request for Quotation (RFC) is a document used to solicit supplier quotations for goods or services needed. Possible sources of RFQs would be Purchasing, Master Scheduling or MRP, Inventory, or Work in Process systems. Another scenario of which the Add RFQ XML refers to is the integration of a buyer's business software components to supplier's business software components.

Add RFQ is an XML used to communicate from one business application to one or more other business applications that additional data related to a Request for Quotation has been added or needs to be added, depending on the business case. The environment for this XML can be within the enterprise or outside the enterprise. A Buyer's Purchasing System may use the Add RFQ XML to add a Request for Quotation to a Supplier's Order Management system.

The Add RFQ XML is used in pre-purchase activities for Quantities of Finished Items and Custom Build to Order Items. Add RFQ XML releases a request to one or more partners providing deadlines for response and item details. Add RFQ XML is used when the recipient takes ownership of the RFQ source data.

## Change RFQ

Request for Quotation (RFC) is a document used to solicit supplier quotations for goods or services needed. Possible sources of RFQs would be Purchasing, Master Scheduling or MRP, Inventory, or Work in Process systems. Another scenario of which the Change RFQ XML refers to is the integration of a buyer's business software components to supplier's business software components.

A Change RFQ XML requests that another business application component make changes to an existing Request for Quotation. The environment for this XML can be within the enterprise or outside the enterprise. A request is modified to include answers to questions or clarification of specifications using a Change RFQ XML.

## Cancel RFQ

Request for Quotation (RFC) is a document used to solicit supplier quotations for goods or services needed. Possible sources of RFQs would be Purchasing, Master Scheduling or MRP, Inventory, or Work in Process systems. Another scenario of which the Cancel RFQ XML refers to is the integration of a buyer's business software components to supplier's business software components.

The purpose of the Cancel RFQ XML is to publish to a business application or system the need to cancel an entire Request for Quotation or one or more of its line items. The environment for this XML can be within the enterprise or outside the enterprise. A Buyer organization's Purchasing system may send a Cancel RFQ XML to a Supplier organization's Order Management system to cancel an existing RFQ or lines of a RFQ.

## Respond RFQ

Request for Quotation (RFC) is a document used to solicit supplier quotations for goods or services needed. Possible sources of RFQs would be Purchasing, Master Scheduling or MRP, Inventory, or Work in Process systems. Another scenario of which the Respond RFQ XML refers to is the integration of a buyer's business software components to supplier's business software components.

A Respond RFQ XML communicates from one business application to one or more other business applications that additional data related to a Request for Quotation is available. The environment for this XML can be within the enterprise or outside the enterprise. The Respond RFQ XML is typically involved in a Custom Build to Order workflow. The workflow sequence for custom, built to order involves more activity than that of finished goods. The buyer's focus involves finding the best price for an item or quantity of items that are not currently available. A long-term business relationship is often involved leading to expectations that must be addressed within the quote. Customized products require a higher level of specification. Individual supplier inquiries may be answered formally for all participants to insure competitive parity. Conversely, buyers may have questions related to an individual quotation that lead to a change. Suppliers respond with questions and/or clarification issues using a Respond RFQ XML.

## Getlist RFQ and List RFQ

Request for Quotation (RFC) is a document used to solicit supplier quotations for goods or services needed. Possible sources of RFQs would be Purchasing, Master Scheduling or MRP, Inventory, or Work in Process systems. Another scenario of which the Getlist RFQ XML refers to is the integration of a buyer's business software components to supplier's business software components.

Getlist RFQ is an XML that enables a business application module to request information containing summary information for one or more Request for Quotations. The response to this request is LIST RFQ. The environment for this XML can be within the enterprise or outside the enterprise. The Getlist RFQ also enables the retrieval of information across several documents by using selection fields. An example of this could be requesting all QUALFICATN Data Type occurrences for a specific RFQLINE. This type of functionality is limited to the capabilities of the responding application and needs to be determined during the implementation project. The typical scenario for use of this XML is that a Supplier or Buyer requests a list of RFQs.

The List is sent to the requestor by using a List RFQ XML. This XML publishes one or more summary listings of Request for Quotation information to other business application component. This may be in response to a Getlist RFQ request or to proactively publish a listing of summary Request for Quotation information for a business event. When a receiving application receives this XML, the information can be used as is or it may be used to initiate a selection of a specific Request for Quotation through the Get RFQ XML. The processing is designed to provide multiple occurrences of summary data.

## Get RFQ and Show RFQ

Request for Quotation (RFC) is a document used to solicit supplier quotations for goods or services needed. Possible sources of RFQs would be Purchasing, Master Scheduling or MRP, Inventory or Work in Process systems. Another scenario of which the Get RFQ and Show RFQ XML refer to is the integration of a buyer's business software components to supplier's business software components.

Get RFQ XML document enables a business applications module to request Request for Quotation (RFQ) information from another business application. The response to this XML is a Show RFQ. The environment for this XML can be within the enterprise or outside the enterprise. A Supplier's Order Management system sends a Get RFQ XML to a Buyer's Purchasing system to request RFQ information. It may also be that intermediaries are used to manage RFQ exchange activities between a Buyer and a Seller. The workflow sequence for scenarios using intermediaries involves additional activity. An intermediary may be independent or an extension of a large organization. Much of the additional activity follows from the aggregation provided by an intermediary. Multiple RFQs could reside with the intermediary. The Get RFQ XML may be used to select one of the items returned by a List RFQ XML for review. The full RFQ is sent by using a Show RFQ XML.

The Show RFQ XML communicates to a business application module or system the sending systems representation of Request for Quotation information. This request may be used as a response to a Get RFQ XML or as a push notification of an event.

## Sync Quote

A Quotation is a statement of the price, terms, and conditions of sale a supplier offers for an item or items. A quotation usually includes a detailed description (specifications) of goods or services the supplier offers. Suppliers consider quotations as an offer to sell when given in response to an inquiry. The integration scenario for the Sync Quote XML is the integration of a Buyer's business software components to Supplier's business software components.

A Sync Quote XML ensures that all business software components in a specific integration instance have the current Quotation information. This XML is commonly used to publish the need to create or update a Quotation in a publish and subscribe integration environment. The scenario of which the Sync Quote XML refers to is the integration of a Buyer's business software components to Supplier's business software components.

## Add Quote

A Quotation is a statement of the price, terms, and conditions of sale a supplier offers for an item or items. A quotation usually includes a detailed description (specifications) of goods or services the supplier offers. Suppliers consider quotations as an offer to sell when given in response to an inquiry. The integration scenario for the Add Quote XML is the integration of a Buyer's business software components to Supplier's business software components.

An Add Quote XML indicates a response to a supplier provided quotation or buyer question on a quotation. The purpose of the Add Quote XML is to communicate from one business application to one or more other business applications that additional data related to a quote has been added or needs to be added, depending on the business case. This XML commonly causes updates to occur. This XML may be used individually, or as part of a larger integration scenario. An example is the sending of an Add Quote XML from a Supplier's Order Management system to a Buyer's Purchasing system, or through an intermediary.

## Change Quote

A Quotation is a statement of the price, terms, and conditions of sale a supplier offers for an item or items. A quotation usually includes a detailed description (specifications) of goods or services the supplier offers. Suppliers consider quotations as an offer to sell when given in response to an inquiry. A quotation often represents a binding document that may change based on negotiations between the buyer or RFQ "owner" and the seller responding to the RFQ. The integration scenario for the Change Quote XML is the integration of a Buyer's business software components to Supplier's business software components.

The purpose of the Change Quote XML is to request that another business application component make changes to an existing Quotation. The environment for this XML can be within the enterprise or outside the enterprise. The Change Quote XML is sent by a Supplier's Order Management system to a Buyer's Purchasing system, or through an intermediary.

The Change Quote XML is used in pre-purchase activities for Quantities of Finished Items and Custom Build to Order Items. Using a Change Quote XML a Supplier may alter a quotation during negotiations in an effort to win the order.

## Cancel Quote

A Quotation is a statement of the price, terms, and conditions of sale a supplier offers for an item or items. A quotation usually includes a detailed description (specifications) of goods or services the supplier offers. Suppliers consider quotations as an offer to sell when given in response to an inquiry. A quotation often represents a binding document that may change based on negotiations between the buyer or RFQ "owner" and the seller responding to the RFQ. The integration scenario for the Cancel Quote XML is the integration of a Buyer's business software components to Supplier's business software components.

Cancel Quote XML is used to publish to a business application or system the need to cancel an entire quotation or one or more of its line items. The environment for this XML can be within the enterprise or outside the enterprise. This XML commonly causes updates to occur.

## Respond Quote

A Quotation is a statement of the price, terms, and conditions of sale a supplier offers for an item or items. A quotation usually includes a detailed description (specifications) of goods or services the supplier offers. Suppliers consider quotations as an offer to sell when given in response to an inquiry. The integration scenario for the Respond Quote XML is the integration of a Buyer's business software components to Supplier's business software components.

Respond Quote XML indicates a response to a supplier-provided quotation or buyer question on a quotation. The purpose of the Respond Quote XML is to communicate from one business application to one or more other business applications that an additional data related to a quotation has been added or needs to be added, depending on the business case. This XML commonly causes updates to occur.

## Getlist Quote and List Quote

A Quotation is a statement of the price, terms, and conditions of sale a supplier offers for an item or items. A quotation usually includes a detailed description (specifications) of goods or services the supplier offers. Suppliers consider quotations as an offer to sell when given in response to an inquiry. The integration scenario for the Getlist and List Quote XML is the integration of a Buyer's business software components to Supplier's business software components.

Getlist Quote XML enables a business application module to request information containing summary information for one or more quotations. The response to this request is LIST QUOTE. The environment for this XML can be within the enterprise or outside the enterprise. The Getlist Quote XML also enables the retrieval of information across several documents by using selection fields. An example of this could be requesting all SALESINFO Data Type occurrences for a specific QTELINE. This type of functionality is limited to the capabilities of the responding application and needs to be determined during an implementation project. This XML does not usually cause updates to occur. This XML may be used individually, or as part of a larger integration scenario. There are many possible business applications in several environments that may use this capability. An example is a Buyer's Purchasing system sending a Getlist Quote XML to a Supplier's Order Management system, or through an intermediary.

The purpose of the List Quote XML is to publish one or more summary listings of quotation information to other business application component. This may be in response to a Getlist Quote request or to proactively publish a listing of summary quotation information for a business event. The environment for this XML can be within the enterprise or outside the enterprise. When a receiving application receives this XML, the information can be used as is or it may be used to initiate a selection of a specific Quote through the GET QUOTE request. The processing is designed to provide multiple occurrences of summary data.

## Get Quote and Show Quote

A Quotation is a statement of the price, terms, and conditions of sale a supplier offers for an item or items. A quotation usually includes a detailed description (specifications) of goods or services the supplier offers. Suppliers consider quotations as an offer to sell when given in response to an inquiry. The integration scenario for the Get and Show Quote XML is the integration of a Buyer's business software components to Supplier's business software components.

Get Quote XML enables a business applications module to request this quotation information from another business application. The response to this XML is the SHOW QUOTE. The environment for this XML: can be within the enterprise or outside the enterprise. This XML does not usually cause updates to occur.

This XML may be used individually, or as part of a larger integration scenario. There are many possible business applications in several environments that may use this capability. An example is a Buyer's Purchasing system sending a Get Quote XML to a Supplier's Order Management system, or through an intermediary.

The purpose of the Show Quote XML is to communicate to a business application module or system the sending systems representation of quotation information. This request may be used as a response to a GET QUOTE request or as a push notification of an event. The environment for this XML can be within the enterprise or outside the enterprise.

## Show Shipment

Shipment is an XML business document that details the intent to transport a specific quantity of material goods from a supplier to a single customer business partner destination. The Shipment has been modeled after similar proprietary documents on popular business software packages (the Oracle E-Business Suite Delivery document, the SAP Delivery Note, and so on). The environment for this XML can be within the enterprise or outside the enterprise.

A Shipment is typically derived from the shipping schedule associated with a customer's purchase or sales order, once overall demand and various other business factors which prioritize the availability of the supplier's goods inventory have been evaluated. The Shipment document is designed to have a dynamic structure & content. Initial shipment planning information can be updated and significant detail (actual picked inventory attributes, ship unit packaging, and so on) may be added during the execution phase of the supplier's order fulfillment and shipping business processes. The final form of the Shipment document provides detail about the carrier and level of service used to transport the material, the exact quantity and attributes of the material shipped, and how that material is physically packaged and identified for transport.

To aid the customer's planning and receiving business processes, the supplier may transmit the final Shipment document to customer in advance so that they can prepare for carrier arrival and then efficiently accept and utilize the ordered material. In this use case, the Shipment document may function as a traditional Advance Ship Notice (ASN).

This XML may be used individually, or as part of a larger interface scenario. For example, a Shipping Management System uses a Show Shipment XML to show shipment information to a Buyer's Purchasing System where the receipt of goods are recorded.

## Sync Planschd

PLANSCHD indicates a demand forecast sent from a customer to a supplier, or a supply schedule sent from a supplier to a customer. Sync Planschd XML communicates requirement information (part number, quantity, and so on) between a customer and their supplier on a regular basis, for example daily, weekly and so on, or for a user-defined time bucket type definition that is sent as part of this PLANSCHD.

Since collaboration between a customer and a supplier can potentially go through several rounds of negotiations, both parties can use the same XML to communicate their current demand or supply schedule in response to what they received from the other party. Either party can indicate detailed exception descriptions along with reason code and action code to the other party why the original demand or supply requirements need to be adjusted.

The Sync Planschd XML may be used individually, or as part of a larger interface scenario. An example would be the synchronization of plan schedules between a Buyer's Scheduling application and the Supplier's Release Management application. The Supplier Scheduling Application maintains schedules regarding planned demand, shipping and sequence of delivery. The Release management Application drives the MRP, the shipment and the sequence schedules in the Suppliers ERP application.

## Get Planschd and Show Planschd

PLANSCHD indicates a demand forecast sent from a customer to a supplier, or a supply schedule sent from a supplier to a customer. The Get Planschd XML enables business applications module to request plan schedule information from another business application. The response to this XML is Show PLANSCHD.

Since collaboration between a customer and a supplier can potentially go through several rounds of negotiations, both parties can use the same XML to communicate their current demand or supply schedule in response to what they received from the other party. Either party can indicate detailed exception descriptions along with reason code and action code to the other party why the original demand or supply requirements need to be adjusted.

This XML may be used individually, or as part of a larger interface scenario. An example would be the Supplier's Release Management application sending a Get Planschd XML to a Buyer's Scheduling application. It could be that the supplier Management application quotes a planning schedule that does not exist in the Demand Management application causing the Demand Management Application to request the planning schedule. This interface scenario assumes that the Supplier Scheduling Application maintains schedules regarding planned demand, shipping and sequence of delivery. The Release management Application drives the MRP, the shipment and the sequence schedules in the Suppliers ERP application.

Show Planschd XML communicates to a business application module or system the sending systems representation of plan schedule information. This request may be used as a response to a Get Planschd XML or as a push notification of an event. This XML is used to publish planning schedule from a Supplier Scheduling application.

## Sync Seqschd (Sequence Schedule)

Sync Seqschd XML enables the exchange of sequence schedule information authorizing a sequenced shipment of parts for specific trading partners and addresses. The environment for this XML can be within the enterprise or outside the enterprise. Commonly, the sequence schedule is generated by a work in process application and transmitted to an order or material planning application. This XML commonly causes updates to occur.

The Sync Seqschd XML may be used individually, or as part of a larger interface scenario. This event is the publication from the supplier scheduling application of a Shipment schedule to the buyer release management application. This interface scenario assumes that the Supplier Scheduling Application maintains schedules regarding planned demand, shipping and sequence of delivery. The Release management Application drives the MRP, the shipment and the sequence schedules in the Suppliers ERP application.

## Get Seqschd (Sequence Schedule) and Show Seqschd (Sequence Schedule)

A Get Seqschd XML enables a Release Management application to request sequence schedule information from another business application such as a Supplier Scheduling application. The response to this XML is Show SEQSCHD. This XML does not usually cause updates to occur.

Commonly, the sequence schedule is generated by a work in process application and transmitted to an order or material planning application. The environment for this XML can be within the enterprise or outside the enterprise. The SCHEDULEID Field Identifier is used as a selection field. This is the only Field Identifier value that is used to send a Get Seqschd XML.

A Show Seqschd XML communicates to a business application module or system the sending systems representation of sequence schedule information. This request may be used as a response to a Get Seqschd request or as a push notification of an event. Information detailing general description of partners, including addresses and contacts, sequence schedule date and time information, list of items ordered along with the quantity, delivery date and other schedule information is data that may be returned with a Show Seqschd XML. The information obtained may be used by a Demand Management application to do demand forecasting.

## Sync Shipschd (Shipment Schedule)

Sync Shipschd XML enables the exchange of shipment schedule information, authorizing a shipment quantity and date for specific trading partners and addresses. Commonly, the ship schedule is generated by a material planning application and transmitted to an order management application. Shipment schedules associated with a customer's purchase or sales order is used to typically derive a shipment. This is completed once overall demand and various other business factors which prioritize the availability of the supplier's goods inventory have been evaluated.

The Sync Shipschd XML is used in an interface scenario between a Supplier Scheduling Application and a Release Management application. This interface scenario assumes that the Supplier Scheduling Application maintains schedules regarding planned demand, shipping and sequence of delivery. The Release management Application drives the MRP, the shipment and the sequence schedules in the Suppliers ERP application.

## Get Shipschd (Shipment Schedule) and Show Shipschd (Shipment Schedule)

The Get ShipSchd XML enables a Seller's Release Management application to request shipment schedule information from a Buyer's Supplier Scheduling application. This interface scenario assumes that the Supplier Scheduling Application maintains schedules regarding planned demand, shipping and sequence of delivery. The Release management Application drives the MRP, the shipment and the sequence schedules in the Suppliers ERP application. The response to this XML is the SHOW SHIPSCHD.

The Show Shipschd XML communicates to a business application module or system the sending systems representation of SHIPSCHD information. This request may be used as a response to a GET SHIPSCHD request or as a push notification of an event. Information on the partner including the location and contacts, the items ordered along with the quantity, delivery date and other schedule information and line item exceptions based on predefined business rules or contract agreements may be returned using a Show Shipschd XML.

## Process Invoice

Process Invoice is an XML that transmits an invoice from a supplier to a customer, thus involving an interface between a Supplier's Accounts Receivable application with a Customer's Accounts Payable application. Invoice in this interface scenario refers to either an item based customer invoice or as a general purpose customer credit or debit memo. A customer invoice is a document that is created in Receivables that lists amounts owed for the purchases of goods or services. This document also lists any tax, freight charges and payment terms. The Process Invoice XML transmits invoice information such as line items, charges, allowances and tax, partner information including location and contacts, invoice payment terms and information about a business partner document reference (that is, customer's purchase order, supplier's sales order) for the invoice as a whole or for a particular invoice line.

## Process WIPSPLIT

Process WIPSLIT (Work in Process Split) is an XML business service request that notifies a Manufacturing Application of the creation of multiple production lots from a single production lot of a product being made on a production order. The business environment most likely to require this capability is a lot-based discrete manufacturing scenario. The environment for this XML is normally within the enterprise. Process WIPSPLIT XML may be used in an integration that involves a manufacturing execution system (MES) and a central ERP system. The MES is the source of production events and activities and the ERP (with Order Management, Bill of Material, Cost Management and Inventory) is the source of related setup events which occur prior to production.

The Process WIPSPLIT XML communicates the originating lot, the resulting lots, their quantities, and the processing step at which this event occurred, along with the time at which this event occurred. This XML commonly causes updates to occur. Process WIPSPLIT XML may be used individually, or as part of a larger interface scenario. The workflow could start with the placement and synchronization of orders in the ERP system and the issuance of materials and charging of resources to the production order. The production order moves through the operations on the shop floor and throughout the production process, the order may experience a number of moves and splits or merges, and the creation of one or more bonus lots of material may possibly occur. The result of a WIP split may cause changes in the cost of the finished goods.

## Process WIPMERGE

Process WIPMERGE (Work in Process Merge) is an XML business service request that notifies a Manufacturing Application of the creation of a single production lot from multiple production lots of a product being made on a production order. The business environment most likely to require this capability is a lot-based discrete manufacturing scenario. The environment for this XML is normally within the enterprise. Process WIPMERGE XML may be used in an integration that involves a manufacturing execution system (MES) and a central ERP system. The MES is the source of production events and activities and the ERP (with Order Management, Bill of Material, Cost Management and Inventory) is the source of related setup events which occur prior to production.

The Process WIPMERGE XML communicates the originating lots, the resulting lot, lot quantities, and the processing step at which this event occurred, along with the time at which this event occurred. This XML commonly causes updates to occur. This XML may be used individually, or as part of a larger interface scenario. The workflow could start with the placement and synchronization of orders in the ERP system and the issuance of materials and charging of resources to the production order. The production order moves through the operations on the shop floor and throughout the production process, the order may experience a number of moves and splits or merges, and the creation of one or more bonus lots of material may possibly occur. The result of a WIP merge may cause changes in the cost of the finished goods.

## Process WIPRECOVER

Process WIPRECOVER is an XML business service request that notifies a Manufacturing Application of the creation of usable production materials from material previously considered unsuitable for production use. This is most often likely to represent a return to production of scrap material. The business environments most likely to require this capability are any type of manufacturing scenario (that is, discrete, process).

This XML communicates what is being recovered, the quantity being recovered, and the processing step at which the recovered material is to re-enter the production process, along with the time at which this event occurred. This XML commonly causes updates to occur. This XML may be used individually, or as part of a larger interface scenario. Process WIPRECOVER XML may be used in an integration that involves a manufacturing execution system (MES) and a central ERP system. The MES is the source of production events and activities and the ERP (with Order Management, Bill of Material, Cost Management and Inventory) is the source of related setup events which occur prior to production.

## Get WIPSTATUS and Show WIPSTATUS

Get WIPSTATUS is an XML business service request that enables a business application module to request information concerning the progress of a production order at a point in time from another business application. The business environments most likely to require this capability are any type of manufacturing scenario (that is, process, discrete) where business service requests for individual manufacturing transactions and events are not utilized. In a discrete manufacturing scenario, discrete job statuses describe the various stages in the life cycle of a job and control the activities that one can perform on it. Examples of Work in Process statuses are Complete, Released, Unreleased, On Hold, Cancelled or Close. The environment for this XML can be within the enterprise or outside the enterprise.

The Get WIPSTATUS XML communicates what quantities of end product reside at which processing steps along with the time this snapshot view was taken. The response to this XML is Show WIPSTATUS. This XML does not usually cause updates to occur. This XML may be used individually, or as part of a larger interface scenario. For example, a Work in Process system sends a Get WIPSTATUS XML to a Manufacturing Execution System to request the status or progress of a production order.

To respond to a Get WIPSTATUS XML, the Show WIPSTATUS XML is used. This Show WIPSTATUS XML notifies a Manufacturing Application of the progress of a production order at a point in time. The business environments most likely to require this capability are any type of manufacturing scenario (discrete, process) where business service requests for individual manufacturing transactions and events are not utilized. The environment for this XML can be within the enterprise or outside the enterprise. This XML communicates what quantities of end product reside at which processing steps along with the time this snapshot view was taken. This XML commonly causes updates to occur.

## Process WIPMOVE

Process WIPMOVE (Work in Process Move) is an XML business service request that notifies a Manufacturing Application of the progression through the production processing steps or operations of a product being made on a production order. The business environments most likely to require this capability are any type of manufacturing scenario (that is, discrete, process). The environment for this XML is normally within the enterprise. Process WIPMOVE XML may be used in an integration that involves a manufacturing execution system (MES) and a central ERP system. The MES is the source of production events and activities and the ERP (with Order Management, Bill of Material, Cost Management and Inventory) is the source of related setup events which occur prior to production.

The Process WIPMOVE XML communicates which processing step the product is coming from and which step it is being moved to, along with the quantity moving and the time this event occurred. This XML assumes that the applications involved in this business scenario have already synchronized the production item and its BOM or Routing information. This XML commonly causes updates to occur.

Process WIPMOVE XML may be used individually, or as part of a larger interface scenario. The workflow could start with the placement and synchronization of orders in the ERP system and the issuance of materials and charging of resources to the production order. The production order moves through the operations on the shop floor and throughout the production process, the order may experience a number of moves and splits or merges, and the creation of one or more bonus lots of material may possibly occur. In an environment such as Oracle Manufacturing, move transactions moves assemblies within an operation, such as from Queue to Run, or from operation to the next. Move transactions can charge resources and overheads.

## Allocate Resource

Allocate Resource is an XML that notifies a Manufacturing Application of the use of required labor or machine time on a production order making a product. The business environments most likely to require this capability are any type of manufacturing scenario (that is, discrete, process).

The Allocate Resource XML communicates what machine was utilized or which person performed the work and their labor skill class, along with the amount of time worked and at what time this event occurred. This XML commonly causes updates to occur. This XML may be used individually, or as part of a larger interface scenario. For example, interface between a Manufacturing Execution System and a Cost Management system to make updates to the cost of a product with the allocated resources. Information as to the resource transaction, work order the resource is to be charged against, resources to be charged, the production order against which the resources are to be charged, the lot and/or serial number information on the production items, the operation at which resources are to be charged, and the resources (worker, machine and tools) required to perform the operation assists in allocating the right resources for the order.

## Get Customer and Show Customer

Get Customer is an Way XML used to request customer information. This is likely between an Order Management system getting customer information from a customer management system. In Oracle E-Business Suite, customer records are maintained and managed in the Oracle Accounts Receivable system. Customer records include information on the customer (that is, customer name, payment method, partner type), customer's addresses and contacts. This XML does not cause updates to occur. An order in an Order Entry system can only be processed when customer records are in place and can be validated.

As a response to a GET Customer XML or a trigger by a business event, the Show Customer XML is used. The purpose of the Show Customer XML is to provide Customer information to a requesting business application, such as an Order Management system. This XML does not usually cause updates to occur.

## Get Supplier and Show Supplier

Get Supplier is an Way XML used to request supplier information. This is likely between an Order Management system getting supplier information from a supplier management system. In Oracle E-Business Suite, supplier records are maintained and managed in the Oracle Purchasing system. Supplier records include information on the supplier (that is, supplier ID, currency, payment method, partner type), supplier's addresses and contacts. This XML does not cause updates to occur.

The purpose of the Show Supplier XML is to provide Supplier information to a requesting business application, such as Order Management system. This XML may be in response to a Get Supplier XML, or it may be triggered by a business event. This XML does not usually cause updates to occur.

## Sync Ecatalog

Sync ECATALOG is an XML that synchronizes catalog information between two systems. The environment for this XML can be within the enterprise or outside the enterprise, including trading partners.

There are many possible business applications in several environments that may use this capability. Some examples of usage scenarios are a Manufacturer synchronizing catalogs with distributors, suppliers, or e-marketplaces and distributors, suppliers, or e-marketplaces synchronizing catalogs with buyers or other trading partners. It may also be necessary to support Component Supplier Management (CSM) scenarios. In this scenario, a company provides a service of sourcing and codifying the products of many companies and publishing a consolidated catalog.

The existing definition does not attempt to model configuration rules, and is therefore not sufficient to model configure to order environments that require cross option validation. Assemble to order environments that can be modeled using a marketing bill of material is addressed. The Catalog exchange scenario can be implemented either as a simple scenario using a single XML, or in the case of large catalogs involving complex pricing scenarios or partner specific details, as multiple XMLs.

## Get ECATALOG and Show ECATALOG

Get ECATALOG, is an XML that enables a business application module or system to request catalog information. The environment for this XML can be within the enterprise or outside the enterprise, including trading partners. The Catalog information that is requested by the Get CATALOG XML may include item identifiers, specifications, pricing information agreed on, price lists and availability and delivery information.

There are many possible business applications in several environments that may use this capability. Some examples of usage scenarios are Manufacturer exchanging catalogs with distributors, suppliers, or e-marketplaces and distributors, suppliers or e-marketplaces exchanging catalogs with buyers or other trading partners. It may also be necessary to support Component Supplier Management (CSM) scenarios. In this scenario, a company provides a service of sourcing and codifying the products of many companies and publishing a consolidated catalog. The Catalog exchange scenario can be implemented either as a simple scenario using a single XML, or in the case of large catalogs involving complex pricing scenarios or partner specific details, as multiple XMLs.

The purpose of the Show ECATALOG XML is to supply a business application module such as a Catalog Management System with requested catalog information. The environment for this XML can be within the enterprise or outside the enterprise, including trading partners. A Catalog Publisher should be able to publish catalog information to a customer or agent on information such as description of the product or service, party specific part identifiers, pricing information agreed on and other information depending on the needs of the subscriber. A Catalog Searcher should be able to request catalog information for a part or service identifier including description of product or service, part specific part numbers and other relevant information to the catalog.

## Sync Invoice

Sync Invoice is an XML that synchronizes or transmits an invoice from a supplier to a customer, thus involving an interface between a Supplier's Billing system with a Customer's Accounts Payable application. Invoice in this interface scenario refers to either an item-based customer invoice or as a general purpose customer credit or debit memo. A customer invoice is a document that is created in Receivables that lists amounts owed for the purchases of goods or services. This document also lists any tax, freight charges and payment terms. The Sync Invoice XML synchronizes invoice information such as line items, charges, allowances and tax, partner information including location and contacts, invoice payment terms and information about a business partner document reference (that is, customer's purchase order, supplier's sales order) for the invoice as a whole or for a particular invoice line.

## Get Invoice and Show Invoice

A Get Invoice XML enables a request of a customer invoice. This XML may be used as a request by a Customer to its Supplier. The interface would involve a Customer's Accounts Payable system requesting for invoice information from a Supplier's billing application. This allows the customer to get details of the invoice for processing and payment. A billing invoice may include information such as line items, charges, allowances and tax, partner information including location and contacts, invoice payment terms and information about a business partner document reference.

A response from the Supplier's billing system is to be carried through a Show Invoice XML. A Show Invoice XML transmits an invoice from a supplier to a customer. This XML may be used as a response to a Get Invoice request or as a push notification of an event.

## Get Consumption and Show Consumption

The most common use of the Get Consumptn XML is to request a buyer's usage information about an item or product for the supplier of such item or product. This XML does not create or update either buyer's or supplier's inventory records. The receiver of the request is responsible to make effective use of this information. The Get Consumption XML may be used for a supplier of goods to request from the buyer the consumption status of goods. This XML may also be used for a vendor to request from the retailer if retail sales of goods have been made and for inventory systems to request consumption status from plant data collection and warehouse management systems.

The most common use of the Show Consumtn XML is to share a buyer's usage information about an item or product with the supplier of such item or product. This XML does not create or update either buyer's or supplier's inventory records. The receiver of the request is responsible to make effective use of this information.

This is an outline of the business flow that these XML supports:

1. Overall purchase, replenishment or vendor managed inventory agreement is in place and/or a Get Consumptn message is sent by the supplier.
2. Show Consumptn Message is returned to the supplier, distributor or third party logistics provider, that material has been consumed. This is done in response to events such as these (and/or the Get message), depending on implementation context:
3. Material is replenished to line side at manufacturing facility.
4. Material is assembled into final product.
5. Material is purchased and removed from facility by customer.
6. Supplier, distributor, third party logistics provider replenishes material, using information provided in the Show Consumptn message, the demand and shipment forecasts, and the terms of the overall purchase or vendor managed inventory agreement.

## Create Requisitn

Create Requisitn is an XML request that notifies another business application of the need to order parts in a specific quantity, for a specific need by date. This XML usually causes updates to occur and may be used as part of a larger integration scenario or as a single tool for communicating demand. A Material Resource Planning (MRP) or an Inventory system may send a Create Requistn XML to a Purchasing System that handles purchase requisitions and orders maybe because reorder points indicate a need to request materials for production. Requisitions signify demand for goods and services to another business application for consideration of buying or in some way obtaining requested items. In Oracle, this facilitates the sending of a purchase requisition to trigger the issuance of a purchase order for items requested.

## Getlist LDGRACTUAL and List LDGRACTUAL

A **Getlist LDGRACTUAL** is an XML that requests information containing summary information for one or more ledgers. Many applications in the enterprise environment create data that causes changes in the account balances of a general ledger application (that is, Benefits, Costing, Human Resources and Payroll, Inventory, Manufacturing, Production, Treasury). The integration scenario for this XML is for enterprise applications business software components to obtain and receive accounting data from the general ledger business software component. The request or response style of messaging which the enterprise application sends a request message and expects to receive a response message back. The general ledger application receives the request message and produces the response message that is sent back to the enterprise application. The general ledger application uses information in the request message to know how to send the response message back to the enterprise application. This scenario assumes that the general ledger component "owns" the chart of accounts definition and the instances of data within it.

A List LDGRACTUAL XML is used to publish one or more summary listings of ledger information. This may be in response to a Getlist LDGRACTUAL request or to published proactively as a listing of summary ledger information for a business event. This ensures that subsidiary ledgers which keep details of the financial transactions are reflected correctly in summary in the general ledger application. Ledger actuals may also be used in the analysis of accounts.

## Get LDGRACTUAL and Show LDGRACTUAL

Get LDGRACTUAL XML enables an enterprise application to request actual detailed accounting data from a general ledger system. General Ledger is a central repository of accounting data that is summarized into account balances for analysis and reporting in the books. Each subsidiary ledger usually sends journal data (usually in summary) to the general ledger. The general ledger system then posts this details to the appropriate accounts and books. The Get LDGRACTUAL XML is used to request specific ledger information.

The purpose of the Show LDGRACTUAL XML is to communicate to an enterprise application (subsidiary ledgers) the sending systems representation of ledger information specifically requested. This may be used as a to a Get LDGRACTUALS XML or as a push notification of an event (updated general ledger data). This XML may be used individually or as part of a larger interface scenario. This XML uses a Data Type called LDGRACTUAL, which represents any of the general ledger elements corresponding to the Account Structure hierarchy that can be queried.

## Acknowledge Delivery

A DELIVERY is an XML business document that details the receipt of goods by a customer or consignee destination from a supplier business partner using the services of a transportation provider (carrier). The DELIVERY document has been modeled for use in conjunction with the SHIPMENT XML when issued by the shipping business partner as an Advance Shipment Notification. The environment for this XML can be within the enterprise or outside the enterprise. DELIVERY was designed to support the physical process of receiving of goods from a carrier and is not biased toward receiving against a particular purchase, transfer or sales order reference document. This feature enables the receiving of goods simultaneously across multiple orders that were consolidated for shipping efficiency.

The Acknowledge Delivery XML may be used individually, or as part of a larger integration scenario. The ACKNOWLEDGE DELIVERY document may be used to notify the shipping business partner that the shipment has been received by the customer or consignee destination, and alert them to any discovered discrepancies. The acknowledgement may contain the full detail of the receipt as created by the receiving party or just the discrepancies and other exception conditions. This XML supports receipt acknowledgements at either the line item level and/or the ship unit level. Intermediate transportation or logistics providers or freight forwarding partners can use this document to acknowledge the receipt of entire shipping units without detailing the corresponding contents.

## Receive Delivery

A DELIVERY is an XML business document that details the receipt of goods by a customer or consignee destination from a supplier business partner using the services of a transportation provider (carrier). The DELIVERY document has been modeled for use in conjunction with the SHIPMENT XML when issued by the shipping business partner as an Advance Shipment Notification. The environment for this XML can be within the enterprise or outside the enterprise. DELIVERY was designed to support the physical process of receiving of goods from a carrier and is not biased toward receiving against a particular purchase, transfer or sales order reference document. This feature enables the receiving of goods simultaneously across multiple orders that were consolidated for shipping efficiency.

The Receive Delivery XML may be used individually, or as part of a larger integration scenario. The RECEIVE DELIVERY document may be used to update the receiver's internal receiving and order management business applications to indicate that the requested material has arrived, including any unexpected quantity, condition or other exception discrepancies. This XML supports receiving at either the line item level and/or the ship unit level. Intermediate transportation or logistics providers or freight forwarding partners can use this document to acknowledge the receipt of entire shipping units without detailing the corresponding contents.

## Get Delivery and Show Delivery

A DELIVERY is an XML business document that details the receipt of goods by a customer or consignee destination from a supplier business partner using the services of a transportation provider (carrier). The DELIVERY document has been modeled for use in conjunction with the SHIPMENT XML when issued by the shipping business partner as an Advance Shipment Notification. The environment for this XML can be within the enterprise or outside the enterprise. DELIVERY was designed to support the physical process of receiving of goods from a carrier and is not biased toward receiving against a particular purchase, transfer or sales order reference document. This feature enables the receiving of goods simultaneously across multiple orders that were consolidated for shipping efficiency.

The Get Delivery XML may be used individually, or as part of a larger integration scenario. For example, a Warehouse Management system may send a Get Delivery XML to an Order Management system. The GET DELIVERY XML may be used to request information about a specific expected (unreceived) or previously received goods delivery.

The Show Delivery is an XML document that may be used to obtain information about a specific expected (unreceived) or previously received goods delivery. The SHOW DELIVERY XML supports describing shipment content at either the line item level and/or the ship unit level. Intermediate transportation or logistics providers or freight forwarding partners can use this document to acknowledge the receipt of entire shipping units without detailing the corresponding contents. The Show Delivery XML may be issued in response to a Get Delivery request, or emitted asynchronously for notification upon some business event.

For expected deliveries, the SHOW DELIVERY document content may act as a receiving template or checklist to identify the quantity and shipping configuration of the expected goods. In this manner the SHOW DELIVERY XML may be considered logically equivalent to the Advance Ship Notice information in a SHOW SHIPMENT document. This similarity is by design, as the receiver's SHOW DELIVERY may be directly derived from shipper's SHOW SHIPMENT content after the receiver's business logic has appropriately validated the Advance Ship Notification information.

## Getlist Delivery and List Delivery

A DELIVERY is an XML business document that details the receipt of goods by a customer or consignee destination from a supplier business partner using the services of a transportation provider (carrier). The DELIVERY document has been modeled for use in conjunction with the SHIPMENT XML when issued by the shipping business partner as an Advance Shipment Notification. The environment for this XML can be within the enterprise or outside the enterprise. DELIVERY was designed to support the physical process of receiving of goods from a carrier and is not biased toward receiving against a particular purchase, transfer or sales order reference document. This feature enables the receiving of goods simultaneously across multiple orders that were consolidated for shipping efficiency.

The GETLIST DELIVERY is an XML that is used to request information about a set of expected (unreceived) or previously received goods deliveries meeting certain selection criteria. The response to the GETLIST DELIVERY request is LIST DELIVERY XML. The GetList Delivery XML may be used individually, or as part of a larger integration scenario. For example, a Warehouse Management system may send a Getlist Delivery XML to an Order Management system to request information on previously received goods deliveries.

The LIST DELIVERY is an XML document used to obtain limited information listing about an expected (unreceived) or previously received goods deliveries that match certain selection criteria in a Getlist Delivery request. Additional information about a specific DELIVERY may be obtained through a Show Delivery XML by using the listing information to populate a GET DELIVERY request. The XML provides general information about the delivery receipt document, the partner including the address and contacts, information on the item inventory being delivered, information on the particular shipping unit being received, and specific quantity of goods contained within a shipping unit. The List Delivery XML returns specific data that matches the selection criteria provided in a Getlist Delivery XML.

APPENDIX C

# Sample Request and Response Documents

**Topics:**

- Interface Tables and Concurrent Programs
- Stored Procedures
- Base Tables

This chapter describes the format of BEA WebLogic Adapter for Oracle E-Business Suite service request and response documents. You can generate request and response document schemas using Application Explorer. Then, use a third-party XML tool to generate a request document instance.

For services, you can generate request and response documents for:

- Oracle interface tables and custom interface tables; concurrent programs
- Stored procedures and functions under a package
- Base tables and views

# Interface Tables and Concurrent Programs

When processing a request document, the adapter performs all interface table insertions before it runs any concurrent programs (using the submit_request element). If an interface table insertion fails, all insertions are rolled back; otherwise, they are committed, regardless of the concurrent program result.

This section shows sample interface table request and response documents, followed by sample concurrent program service request and response documents.

## Example: Interface Table Request Document for WIP_JOB_SCHEDULE_INTERFACE

The following interface table service request document inserts a record into WIP_JOB_SCHEDULE_INTERFACE.

```
<ORACLE>
   <WIP_JOB_SCHEDULE_INTERFACE>
      <LAST_UPDATE_DATE>2002-12-02</LAST_UPDATE_DATE>
      <LAST_UPDATED_BY>1001611</LAST_UPDATED_BY>
      <CREATION_DATE>2002-12-02</CREATION_DATE>
      <CREATED_BY>1001611</CREATED_BY>
      <LAST_UPDATE_LOGIN/>
      <REQUEST_ID/>
      <PROGRAM_ID/>
      <PROGRAM_APPLICATION_ID/>
      <PROGRAM_UPDATE_DATE/>
      <GROUP_ID>2</GROUP_ID>
      <SOURCE_CODE/>

<SOURCE_LINE_ID/>
      <PROCESS_TYPE/>
      <ORGANIZATION_ID/>
      <LOAD_TYPE>1</LOAD_TYPE>
      <STATUS_TYPE>3</STATUS_TYPE>
      <OLD_STATUS_TYPE/>
      <LAST_UNIT_COMPLETION_DATE/>
      <OLD_COMPLETION_DATE/>

<PROCESSING_WORK_DAYS/>
      <DAILY_PRODUCTION_RATE/>
      <LINE_ID/>
      <PRIMARY_ITEM_ID>155</PRIMARY_ITEM_ID>
      <BOM_REFERENCE_ID/>
      <ROUTING_REFERENCE_ID/>
      <BOM_REVISION_DATE/>
      <ROUTING_REVISION_DATE/>
      <WIP_SUPPLY_TYPE>7</WIP_SUPPLY_TYPE>
      <CLASS_CODE>Discrete</CLASS_CODE>
      <LOT_NUMBER/>
      <LOT_CONTROL_CODE/>
```

```
<JOB_NAME/>
<DESCRIPTION/>
<FIRM_PLANNED_FLAG/>
<ALTERNATE_ROUTING_DESIGNATOR/>
<ALTERNATE_BOM_DESIGNATOR> </ALTERNATE_BOM_DESIGNATOR>
<DEMAND_CLASS/>
<START_QUANTITY>100</START_QUANTITY>
<OLD_START_QUANTITY/>
<WIP_ENTITY_ID/>
<REPETITIVE_SCHEDULE_ID/>
<ERROR/>
<PARENT_GROUP_ID/>
<ATTRIBUTE_CATEGORY/>
<ATTRIBUTE1/>
<ATTRIBUTE2/>
<ATTRIBUTE3/>
<ATTRIBUTE4/>
<ATTRIBUTE5/>
<ATTRIBUTE6/>
<ATTRIBUTE7/>
<ATTRIBUTE8/>
<ATTRIBUTE9/>
<ATTRIBUTE10/>
<ATTRIBUTE11/>
<ATTRIBUTE12/>
<ATTRIBUTE13/>
<ATTRIBUTE14/>
<ATTRIBUTE15/>
<INTERFACE_ID/>
<LAST_UPDATED_BY_NAME/>
<CREATED_BY_NAME/>
<PROCESS_PHASE>2</PROCESS_PHASE>
<PROCESS_STATUS>1</PROCESS_STATUS>
<ORGANIZATION_CODE>M1</ORGANIZATION_CODE>
<FIRST_UNIT_START_DATE>2002-12-02</FIRST_UNIT_START_DATE>
<FIRST_UNIT_COMPLETION_DATE>2002-12-02</FIRST_UNIT_COMPLETION_DATE>
<LAST_UNIT_START_DATE>2002-12-02</LAST_UNIT_START_DATE>
<SCHEDULING_METHOD/>
<LINE_CODE/>
<PRIMARY_ITEM_SEGMENTS/>
<BOM_REFERENCE_SEGMENTS/>
<ROUTING_REFERENCE_SEGMENTS/>
<ROUTING_REVISION/>
<BOM_REVISION/>
<COMPLETION_SUBINVENTORY/>
<COMPLETION_LOCATOR_ID/>
<COMPLETION_LOCATOR_SEGMENTS/>
<SCHEDULE_GROUP_ID/>
<SCHEDULE_GROUP_NAME/>
<BUILD_SEQUENCE/>
<PROJECT_ID/>
```

```
        <PROJECT_NAME/>
        <TASK_ID/>
        <TASK_NAME/>
        <NET_QUANTITY>100</NET_QUANTITY>
        <DESCRIPTIVE_FLEX_SEGMENTS/>
        <PROJECT_NUMBER/>
        <TASK_NUMBER/>
        <PROJECT_COSTED/>
        <END_ITEM_UNIT_NUMBER/>
        <OVERCOMPLETION_TOLERANCE_TYPE/>
        <OVERCOMPLETION_TOLERANCE_VALUE/>
        <KANBAN_CARD_ID/>
        <PRIORITY>2</PRIORITY>
        <DUE_DATE>2002-12-02</DUE_DATE>
        <ALLOW_EXPLOSION>Y</ALLOW_EXPLOSION>
        <HEADER_ID/>
        <DELIVERY_ID/>
        <COPRODUCTS_SUPPLY/>
        <DUE_DATE_PENALTY/>
        <DUE_DATE_TOLERANCE/>
    </WIP_JOB_SCHEDULE_INTERFACE>

</ORACLE>
```

## Example: Interface Table Response Document for WIP_JOB_SCHEDULE_INTERFACE

The following BEA WebLogic Adapter for Oracle E-Business Suite response document was returned by Oracle after inserting a record into the WIP_JOB_SCHEDULE_INTERFACE interface table.

```
<ORACLE>
   <Processed_table>WIP_JOB_SCHEDULE_INTERFACE</Processed_table>
</ORACLE>
```

The following examples show request and response documents for concurrent program services.

## Example: Sample Request for Running the WIP Mass Load Concurrent Program

This example shows a request for running the WIP Mass Load concurrent program.

```
<ORACLE>
  <submit_request>
    <resp_appl_shrtnm>SYSADMIN</resp_appl_shrtnm>
    <responsibility>SYSADMIN</responsibility>
    <username>SYSADMIN</username>
    <wait>N</wait>
    <prog_appl_shrtnm>WICMPL</prog_appl_shrtnm>
    <program>WICMLX</program>
    <argument1>3993</argument1>
    <argument2>0</argument2>
    <argument3>1</argument3>
  </submit_request>
</ORACLE>
```

where:

`submit_request`

Identifies a concurrent program invocation. Each concurrent program invocation requires its own submit_request element. One document can include multiple submit_request elements.

`resp_appl_shrtnm`

Is the application short name of your responsibility. SYSADMIN is the default value.

`responsibility`

Is the responsibility of the application user. SYSADMIN is the default value.

`username`

Is the name of your Application Object Library user. This name is used to update WHO information for data that the concurrent program changes and to create the report output file name for the specific request. This parameter is different from the user ID used to log on to the Oracle database. SYSADMIN is the default value.

`wait`

Indicates whether the agent waits until the concurrent program finishes. *Y* specifies synchronous processing. The agent waits as the system checks the status of the concurrent program every 60 seconds. *N*, the default value, specifies asynchronous processing. The agent does not wait.

`prog_appl_shrtnm`

Is the application short name of your program. This value cannot be null.

`program`

Is the name of the concurrent program. This value cannot be null.

### Example: Sample Concurrent Program Response

The following is a sample concurrent program service response document returned to the BEA WebLogic Adapter for Oracle E-Business Suite:

```
<?xml version="1.0" encoding="UTF-8"?>
<ORACLE xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="schema_location">
   <submit_response>
      <request_id>requestID</request_id>
   </submit_response>
</ORACLE>
```

where:

*`schema_location`*

Is the name and full path of the schema.

*`requestID`*

The <submit_response_id> element returned in the reply is the request id returned from the concsub command. This request id can be used through Oracle E-Business Suite to monitor the status of the concurrent manager program instance that was invoked.

## Stored Procedures

This section shows sample request and response documents for stored procedure services.

### Example: Sample Stored Procedure Service Request

```
<null_APPS_Procedures_FND_USER_PKG.CreateUser_request session="1">
   <x_user_name>Desmond</x_user_name>
   <x_unencrypted_password>ORACLE</x_unencrypted_password>
   <x_owner>SEED</x_owner>
</null_APPS_Procedures_FND_USER_PKG.CreateUser_request>
```

where:

`x_user_name`

Specifies a name for the new user. This must be a name that does not exist in the Oracle database.

`x_unencrypted_password`

Specifies a password for this new user.

`x_owner`

Can be either 'SEED' or 'CUST' (customer).

The following is an example of a stored procedure service response document. If output parameters are defined in the stored procedure or function, they will be returned in the response document.

### Example: Sample Stored Procedure Service Response

```
<?xml version="1.0" encoding="UTF-8" ?>

<SOAP-ENV:Envelope xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

    <SOAP-ENV:Body>

        <NewOracleMethodResponse
        xmlns="urn:iwaysoftware:ibse:jul2003:NewOracleMethod:response"
        cid="887F5775C36136A581736D204683D131">

        <null_APPS_Procedures_FND_USER_PKG_CreateUser_Reply
        xmlns:xsd="http://www.w3.org/2001/XMLSchema"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" />

        </NewOracleMethodResponse>

    </SOAP-ENV:Body>

</SOAP-ENV:Envelope>
```

## Base Tables

This section shows sample request and response documents for base tables.

### Example: Sample Base Table Service Request

HR_LOCATIONS_ALL is a table in the HR schema. It holds information about specific work locations defined for an enterprise, including address details. The following is a sample request that queries locations by location ID:

```
<PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_Request>

    <Filter>LOCATION_ID=202</Filter>

    <MaxRows>10</MaxRows>

</PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_Request>
```

where:

`Filter`

Is the element that should contain the field element and data on which you are applying the restriction.

`MaxRows`

Specifies the maxium number of rows returned in the resulting record set.

The following is an example of a response document.

## Example: Sample Base Table Service Response

```
<?xml version="1.0" encoding="UTF-8" ?>

<SOAP-ENV:Envelope xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

<SOAP-ENV:Body>

<HR_EXAMPLE_MethodResponse
xmlns="urn:iwaysoftware:ibse:jul2003:HR_EXAMPLE_Method:response"
cid="DC5E53D348ED788AF5ABA7024ABA4C47">

<PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_Reply
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

<Return xsi:type="PIESD_HR_Tables_HR_LOCATIONS_ALL_QueryRecordSet">

<item xsi:type="PIESD_HR_Tables_HR_LOCATIONS_ALL_Record">

  <LOCATION_ID>202</LOCATION_ID>

  <ENTERED_BY>1001</ENTERED_BY>

  <LOCATION_CODE>HR- San Francisco</LOCATION_CODE>

  <ADDRESS_LINE_1>334 Maple Street</ADDRESS_LINE_1>

  <ADDRESS_LINE_2 />

  <ADDRESS_LINE_3 />

  <BILL_TO_SITE_FLAG>N</BILL_TO_SITE_FLAG>

  <COUNTRY>US</COUNTRY>

  <DESCRIPTION>San Francisco Office</DESCRIPTION>

  <DESIGNATED_RECEIVER_ID />

  <IN_ORGANIZATION_FLAG>N</IN_ORGANIZATION_FLAG>

  <INACTIVE_DATE />
```

```
<INVENTORY_ORGANIZATION_ID>204</INVENTORY_ORGANIZATION_ID>
<OFFICE_SITE_FLAG>Y</OFFICE_SITE_FLAG>
<POSTAL_CODE>94105-2356</POSTAL_CODE>
<RECEIVING_SITE_FLAG>N</RECEIVING_SITE_FLAG>
<REGION_1>San Francisco</REGION_1>
<REGION_2>CA</REGION_2>
<REGION_3 />
<SHIP_TO_LOCATION_ID>202</SHIP_TO_LOCATION_ID>
<SHIP_TO_SITE_FLAG>N</SHIP_TO_SITE_FLAG>
<STYLE>US</STYLE>
<TAX_NAME />
<TELEPHONE_NUMBER_1 />
<TELEPHONE_NUMBER_2 />
<TELEPHONE_NUMBER_3 />
<TOWN_OR_CITY>San Francisco</TOWN_OR_CITY>
<ATTRIBUTE_CATEGORY />
<ATTRIBUTE1 />
<ATTRIBUTE2 />
 ...
<ATTRIBUTE20 />
<LAST_UPDATE_DATE>1998-05-20T19:13:58+00:00</LAST_UPDATE_DATE>
<LAST_UPDATED_BY>1384</LAST_UPDATED_BY>
<LAST_UPDATE_LOGIN>232552</LAST_UPDATE_LOGIN>
<CREATED_BY>1001</CREATED_BY>
<CREATION_DATE>1996-11-11T16:56:22+00:00</CREATION_DATE>
<OBJECT_VERSION_NUMBER>1</OBJECT_VERSION_NUMBER>
<TP_HEADER_ID />
<ECE_TP_LOCATION_CODE />
<GLOBAL_ATTRIBUTE_CATEGORY />
<GLOBAL_ATTRIBUTE1 />
<GLOBAL_ATTRIBUTE2 />
```

```
...
<GLOBAL_ATTRIBUTE20 />
<BUSINESS_GROUP_ID />
<LOC_INFORMATION13 />
<LOC_INFORMATION14 />
<LOC_INFORMATION15 />
<LOC_INFORMATION16 />
<LOC_INFORMATION17 />
<LOC_INFORMATION18 />
<LOC_INFORMATION19 />
<LOC_INFORMATION20 />
<DERIVED_LOCALE />
</item>
</Return>
</PIESD_HR_Tables_HR_LOCATIONS_ALL_Query_Reply>
</HR_EXAMPLE_MethodResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

APPENDIX D

# Sample WSDL File

**Topics:**

- Sample WSDL File

This section shows an example of a WSDL file generated from a Web service using Application Explorer.

# Sample WSDL File

The following is the full text of a sample WSDL file.

## Example: WSDL File Generated from A Web Service

```
<definitions xmlns:tns="urn:schemas-iwaysoftware-com:iwse"
targetNamespace="urn:schemas-iwaysoftware-com:iwse"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
xmlns:m11="urn:iwaysoftware:ibse:jul2003:test:response"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:m1="urn:iwaysoftware:ibse:jul2003:test"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"><types><xs:schema
targetNamespace="urn:schemas-iwaysoftware-com:iwse"
elementFormDefault="qualified"><xs:element
name="ibsinfo"><xs:complexType><xs:sequence><xs:element type="xs:string"
name="service"/><xs:element type="xs:string" name="method"/><xs:element
type="xs:string" name="license"/><xs:element type="xs:string"
minOccurs="0" name="disposition"/><xs:element type="xs:string"
minOccurs="0" name="Username"/><xs:element type="xs:string" minOccurs="0"
name="Password"/><xs:element type="xs:string" minOccurs="0"
name="language"/></xs:sequence></xs:complexType>
         </xs:element><xs:element
name="adapterexception"><xs:complexType><xs:sequence><xs:element
type="xs:string"
name="error"/></xs:sequence></xs:complexType></xs:element>
      </xs:schema><xs:schema xml:lang="en"
targetNamespace="urn:iwaysoftware:ibse:jul2003:test"
attributeFormDefault="unqualified"
xmlns:m1="urn:iwaysoftware:ibse:jul2003:test"
elementFormDefault="qualified"><xs:element
name="test"><xs:complexType><xs:sequence><xs:element
name="ORACLE"><xs:complexType><xs:sequence><xs:element
name="WIP_JOB_SCHEDULE_INTERFACE"><xs:complexType><xs:sequence><xs:elemen
t minOccurs="1" name="LAST_UPDATE_DATE" maxOccurs="1"/><xs:element
minOccurs="0" name="LAST_UPDATED_BY" maxOccurs="1"/><xs:element
minOccurs="1" name="CREATION_DATE" maxOccurs="1"/><xs:element
minOccurs="0" name="CREATED_BY" maxOccurs="1"/><xs:element minOccurs="0"
name="LAST_UPDATE_LOGIN" maxOccurs="1"/><xs:element minOccurs="0"
name="REQUEST_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="PROGRAM_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="PROGRAM_APPLICATION_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="PROGRAM_UPDATE_DATE" maxOccurs="1"/><xs:element minOccurs="0"
name="GROUP_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="SOURCE_CODE" maxOccurs="1"/><xs:element minOccurs="0"
name="SOURCE_LINE_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="PROCESS_TYPE" maxOccurs="1"/><xs:element minOccurs="0"
```

```
name="ORGANIZATION_ID" maxOccurs="1"/><xs:element minOccurs="1"
name="LOAD_TYPE" maxOccurs="1"/><xs:element minOccurs="0"
name="STATUS_TYPE" maxOccurs="1"/><xs:element minOccurs="0"
name="OLD_STATUS_TYPE" maxOccurs="1"/><xs:element minOccurs="0"
name="LAST_UNIT_COMPLETION_DATE" maxOccurs="1"/><xs:element minOccurs="0"
name="OLD_COMPLETION_DATE" maxOccurs="1"/><xs:element minOccurs="0"
name="PROCESSING_WORK_DAYS" maxOccurs="1"/><xs:element minOccurs="0"
name="DAILY_PRODUCTION_RATE" maxOccurs="1"/><xs:element minOccurs="0"
name="LINE_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="PRIMARY_ITEM_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="BOM_REFERENCE_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="ROUTING_REFERENCE_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="BOM_REVISION_DATE" maxOccurs="1"/><xs:element minOccurs="0"
name="ROUTING_REVISION_DATE" maxOccurs="1"/><xs:element minOccurs="0"
name="WIP_SUPPLY_TYPE" maxOccurs="1"/><xs:element minOccurs="0"
name="CLASS_CODE" maxOccurs="1"/><xs:element minOccurs="0"
name="LOT_NUMBER" maxOccurs="1"/><xs:element minOccurs="0"
name="LOT_CONTROL_CODE" maxOccurs="1"/><xs:element minOccurs="0"
name="JOB_NAME" maxOccurs="1"/><xs:element minOccurs="0"
name="DESCRIPTION" maxOccurs="1"/><xs:element minOccurs="0"
name="FIRM_PLANNED_FLAG" maxOccurs="1"/><xs:element minOccurs="0"
name="ALTERNATE_ROUTING_DESIGNATOR" maxOccurs="1"/><xs:element
minOccurs="0" name="ALTERNATE_BOM_DESIGNATOR" maxOccurs="1"/><xs:element
minOccurs="0" name="DEMAND_CLASS" maxOccurs="1"/><xs:element
minOccurs="0" name="START_QUANTITY" maxOccurs="1"/><xs:element
minOccurs="0" name="OLD_START_QUANTITY" maxOccurs="1"/><xs:element
minOccurs="0" name="WIP_ENTITY_ID" maxOccurs="1"/><xs:element
minOccurs="0" name="REPETITIVE_SCHEDULE_ID" maxOccurs="1"/><xs:element
minOccurs="0" name="ERROR" maxOccurs="1"/><xs:element minOccurs="0"
name="PARENT_GROUP_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE_CATEGORY" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE1" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE2" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE3" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE4" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE5" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE6" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE7" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE8" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE9" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE10" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE11" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE12" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE13" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE14" maxOccurs="1"/><xs:element minOccurs="0"
name="ATTRIBUTE15" maxOccurs="1"/><xs:element minOccurs="0"
name="INTERFACE_ID" maxOccurs="1"/><xs:element minOccurs="0"
name="LAST_UPDATED_BY_NAME" maxOccurs="1"/><xs:element minOccurs="0"
name="CREATED_BY_NAME" maxOccurs="1"/><xs:element minOccurs="0"
name="PROCESS_PHASE" maxOccurs="1"/><xs:element minOccurs="0"
name="PROCESS_STATUS" maxOccurs="1"/><xs:element minOccurs="0"
```

```
name="ORGANIZATION_CODE" maxOccurs="1"/><xs:element minOccurs="0"
name="FIRST_UNIT_START_DATE" maxOccurs="1"/><xs:element minOccurs="0"
name="FIRST_UNIT_COMPLETION_DATE" maxOccurs="1"/><xs:element
minOccurs="0" name="LAST_UNIT_START_DATE" maxOccurs="1"/><xs:element
minOccurs="0" name="SCHEDULING_METHOD" maxOccurs="1"/><xs:element
minOccurs="0" name="LINE_CODE" maxOccurs="1"/><xs:element minOccurs="0"
name="PRIMARY_ITEM_SEGMENTS" maxOccurs="1"/><xs:element minOccurs="0"
name="BOM_REFERENCE_SEGMENTS" maxOccurs="1"/><xs:element minOccurs="0"
name="ROUTING_REFERENCE_SEGMENTS" maxOccurs="1"/><xs:element
minOccurs="0" name="ROUTING_REVISION" maxOccurs="1"/><xs:element
minOccurs="0" name="BOM_REVISION" maxOccurs="1"/><xs:element
minOccurs="0" name="COMPLETION_SUBINVENTORY" maxOccurs="1"/><xs:element
minOccurs="0" name="COMPLETION_LOCATOR_ID" maxOccurs="1"/><xs:element
minOccurs="0" name="COMPLETION_LOCATOR_SEGMENTS"
maxOccurs="1"/><xs:element minOccurs="0" name="SCHEDULE_GROUP_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="SCHEDULE_GROUP_NAME"
maxOccurs="1"/><xs:element minOccurs="0" name="BUILD_SEQUENCE"
maxOccurs="1"/><xs:element minOccurs="0" name="PROJECT_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="PROJECT_NAME"
maxOccurs="1"/><xs:element minOccurs="0" name="TASK_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="TASK_NAME"
maxOccurs="1"/><xs:element minOccurs="0" name="NET_QUANTITY"
maxOccurs="1"/><xs:element minOccurs="0" name="DESCRIPTIVE_FLEX_SEGMENTS"
maxOccurs="1"/><xs:element minOccurs="0" name="PROJECT_NUMBER"
maxOccurs="1"/><xs:element minOccurs="0" name="TASK_NUMBER"
maxOccurs="1"/><xs:element minOccurs="0" name="PROJECT_COSTED"
maxOccurs="1"/><xs:element minOccurs="0" name="END_ITEM_UNIT_NUMBER"
maxOccurs="1"/><xs:element minOccurs="0"
name="OVERCOMPLETION_TOLERANCE_TYPE" maxOccurs="1"/><xs:element
minOccurs="0" name="OVERCOMPLETION_TOLERANCE_VALUE"
maxOccurs="1"/><xs:element minOccurs="0" name="KANBAN_CARD_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="PRIORITY"
maxOccurs="1"/><xs:element minOccurs="0" name="DUE_DATE"
maxOccurs="1"/><xs:element minOccurs="0" name="ALLOW_EXPLOSION"
maxOccurs="1"/><xs:element minOccurs="0" name="HEADER_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="DELIVERY_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="COPRODUCTS_SUPPLY"
maxOccurs="1"/><xs:element minOccurs="0" name="DUE_DATE_PENALTY"
maxOccurs="1"/><xs:element minOccurs="0" name="DUE_DATE_TOLERANCE"
maxOccurs="1"/><xs:element minOccurs="0" name="XML_DOCUMENT_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="PARENT_WIP_ENTITY_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="PARENT_JOB_NAME"
maxOccurs="1"/><xs:element minOccurs="0" name="ASSET_NUMBER"
maxOccurs="1"/><xs:element minOccurs="0" name="ASSET_GROUP_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="ASSET_GROUP_SEGMENTS"
maxOccurs="1"/><xs:element minOccurs="0" name="PM_SCHEDULE_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="REBUILD_ITEM_ID"
maxOccurs="1"/><xs:element minOccurs="0" name="REBUILD_ITEM_SEGMENTS"
maxOccurs="1"/><xs:element minOccurs="0" name="REBUILD_SERIAL_NUMBER"
maxOccurs="1"/><xs:element minOccurs="0" name="MANUAL_REBUILD_FLAG"
maxOccurs="1"/><xs:element minOccurs="0" name="SHUTDOWN_TYPE"
```

```
maxOccurs="1"/><xs:element minOccurs="0" name="NOTIFICATION_REQUIRED"
maxOccurs="1"/><xs:element minOccurs="0" name="WORK_ORDER_TYPE"
maxOccurs="1"/><xs:element minOccurs="0" name="OWNING_DEPARTMENT"
maxOccurs="1"/><xs:element minOccurs="0" name="OWNING_DEPARTMENT_CODE"
maxOccurs="1"/><xs:element minOccurs="0" name="ACTIVITY_TYPE"
maxOccurs="1"/><xs:element minOccurs="0" name="ACTIVITY_CAUSE"
maxOccurs="1"/><xs:element minOccurs="0" name="TAGOUT_REQUIRED"
maxOccurs="1"/><xs:element minOccurs="0" name="PLAN_MAINTENANCE"
maxOccurs="1"/><xs:element minOccurs="0" name="DATE_RELEASED"
maxOccurs="1"/><xs:element minOccurs="0" name="REQUESTED_START_DATE"
maxOccurs="1"/></xs:sequence></xs:complexType></xs:element></xs:sequence>
</xs:complexType></xs:element></xs:sequence></xs:complexType></xs:element
>

      </xs:schema><xs:schema xml:lang="en"
targetNamespace="urn:iwaysoftware:ibse:jul2003:test:response"
attributeFormDefault="unqualified"
xmlns:m11="urn:iwaysoftware:ibse:jul2003:test:response"
elementFormDefault="qualified"><xs:element
name="testResponse"><xs:complexType><xs:sequence><xs:element
name="ORACLE"><xs:complexType><xs:sequence><xs:element minOccurs="0"
name="Processed_table" maxOccurs="unbounded"/><xs:element minOccurs="0"
name="submit_response_id" maxOccurs="unbounded"/><xs:element
name="Return_Code"/></xs:sequence></xs:complexType></xs:element>

               </xs:sequence><xs:attribute type="xs:string"
use="required" name="cid"/></xs:complexType></xs:element></xs:schema>

   </types><message name="testIn"><part element="m1:test"
name="parameters"/>

   </message><message name="testOut"><part element="m11:testResponse"
name="parameters"/>

   </message><message name="testserviceHeader"><part
element="tns:ibsinfo" name="header"/>

   </message><message name="AdapterException"><part
element="tns:adapterexception" name="fault"/>

   </message><portType name="testserviceSoap"><operation
name="test"><documentation/><input message="tns:testIn"/><output
message="tns:testOut"/><fault message="tns:AdapterException"
name="AdapterExceptionFault"/></operation>

   </portType><binding type="tns:testserviceSoap"
name="testserviceSoap"><soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/><operation
name="test"><soap:operation style="document"
soapAction="testservice.testRequest@test@@"/><input><soap:body
use="literal"/><soap:header part="header" message="tns:testserviceHeader"
use="literal"/>

         </input><output><soap:body use="literal"/>
```

```
         </output><fault name="AdapterExceptionFault"><soap:fault
use="literal" name="AdapterExceptionFault"/></fault></operation>

   </binding><service
name="testservice"><documentation>testservice</documentation><port
binding="tns:testserviceSoap" name="testserviceSoap1"><soap:address
location="http://111KLEINMAN.ibi.com:7001/ibse/IBSEServlet/XDSOAPRouter"/
></port></service></definitions>
```

APPENDIX E

# Best Practices and Performance Considerations

**Topics:**

- Overview of the BEA WebLogic Adapter for Oracle E-Business Suite
- Supported Tools and Technologies
- Understanding Web Services and Java Connector Architecture Functionality
- Understanding JCA Managed and Non-managed Modes
- Application Design
- Configuration Tuning

This topic provides best practices and performance considerations for the BEA WebLogic Adapter for Oracle E-Business Suite when deployed to the BEA WebLogic Server.

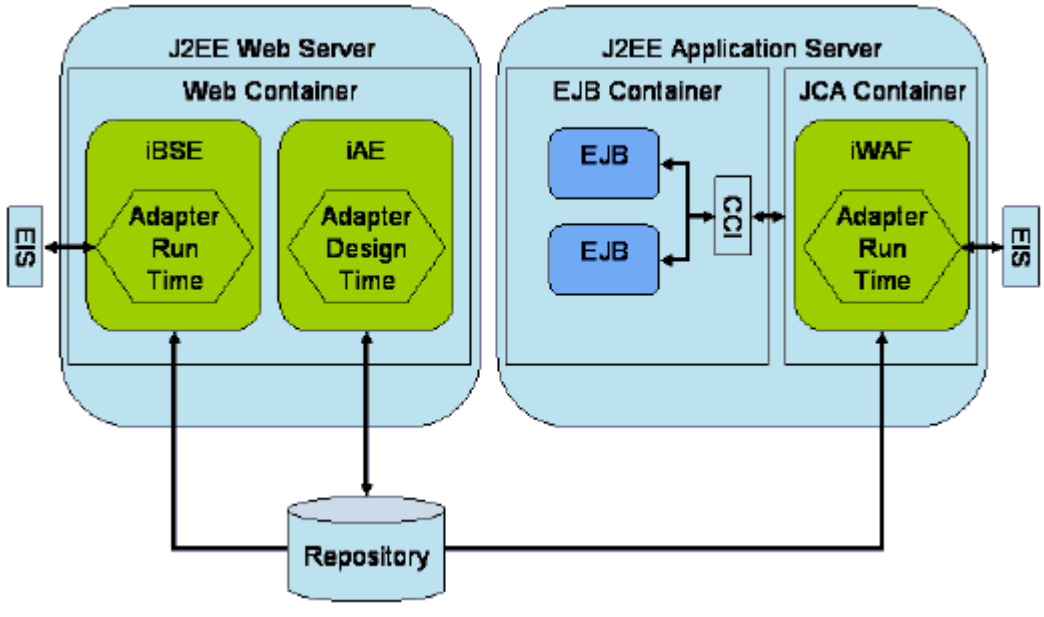
# Overview of the BEA WebLogic Adapter for Oracle E-Business Suite

The BEA WebLogic Adapter for Oracle E-Business Suite provides simple open standard access to Oracle E-Business Suite through Oracle E-Business Suite open interface tables and custom interface tables, stored procedures and functions under a package, and direct interaction with base tables and views. No recoding or modifications of the Oracle E-Business Suite system are required.

In addition, the BEA WebLogic Adapter for Oracle E-Business Suite enables you to fully integrate an Oracle E-Business Suite system with other enterprise resources, such as a Database Management System (DBMS) that has a JDBC™ 2.0–compliant driver, e-mail system, HTTP protocol–based server, or FTP server.

## Adapter Framework

The following diagram illustrates the BEA WebLogic Adapter for Oracle E-Business Suite framework.




The Integration Business Services Engine (iBSE) and Application Explorer (iAE) are deployed to the J2EE Web container. The Connector for JCA is deployed to the JCA container in the J2EE server. The repository is written at design time and read at run time. The container (iAE, iWAF, or iBSE) is responsible for the connection to the repository as shown.

### Integrating With Oracle E-Business Suite

Using BEA WebLogic Adapter for Oracle E-Business Suite, you can now interact with Oracle E-Business Suite using:

- Oracle Interface Tables and Custom Interface Tables.
- Oracle Stored Procedures and Functions Under a Package (PL/SQL APIs).
- Direct Interaction with Oracle Base Tables and Views.

## Supported Tools and Technologies

The BEA WebLogic Adapter for Oracle E-Business Suite works in conjunction with the following components:

- Application Explorer
- Integration Business Services Engine (iBSE)
- Enterprise Connector for J2EE™ Connector Architecture (JCA)

### Application Explorer

Application Explorer uses an explorer metaphor to browse the Oracle E-Business Suite system for metadata. The explorer enables you to create XML schemas and Web services for the associated object. In addition, you can create ports and channels to listen for events in your Oracle E-Business Suite application. External applications that access Oracle E-Business Suite through the BEA WebLogic Adapter for Oracle E-Business Suite use either XML schemas or Web services to pass data between the external application and the adapter.

### Integration Business Services Engine

The Integration Business Services Engine (iBSE) exposes—as Web services—enterprise assets that are accessible from adapters regardless of the programming language or the particular operating system.

iBSE simplifies the creation and execution of Web services when running:

- Custom and legacy applications
- Database queries and stored procedures
- Packaged applications
- Terminal emulation and screen-based systems
- Transactional systems

Web services is a distributed programming architecture that solves Enterprise Application Integration (EAI) hurdles that other programming models cannot. It enables programs to communicate with one another using a text-based, platform- and language-independent message format called XML.

Coupled with a platform and language independent messaging protocol called SOAP (Simple Object Access Protocol), XML enables application development and integration by assembling previously built components from multiple Web services.

### Enterprise Connector for J2EE Connector Architecture (JCA)

The Enterprise Connector for J2EE Connector Architecture (JCA) enables developers of JCA-compliant applications to deploy adapters as JCA resources. The connector is supported on J2EE-compliant application servers, such as your application server.

The Connector for JCA is distributed as a standard Resource Adapter Archive (RAR) for deployment to the application server. Thus, the connector can be used in systems that are non-compliant, although services such as pooled connections are not available.

## Understanding Web Services and Java Connector Architecture Functionality

The following section describes how the BEA WebLogic Adapter for Oracle E-Business Suite can incorporate Web services and Java Connector Architecture technology.

### Web Services

Web services allow Oracle E-Business Suite  application calls to be made across the Internet or an intranet, using specialized versions of the XML language that allow a developer to specify the parameters, connections methods, and remote calls and store them for reference in a repository. At runtime, a person, an interface, or another function, can read this repository and automatically invoke the service. Web services currently do not have industry standards for transactional behavior.  Web services are useful when your function calls must be made across firewall boundaries. Using Web services, you can use functions provided by external providers, as long as you know the function interface.

### Java Connector Architecture

Java Connector Architecture (JCA) provides a reusable component model to build and deploy multi-tier applications that are platform and vendor-independent. JCA acts as a type of envelope or "container" that will allow the adapter to run inside the application server and connect to Oracle E-Business Suite and immediately return the results. JCA is useful when your Oracle E-Business Suite  application system resides within a local intranet or is accesed directly. JCA implements JAVA Connection and Transaction models. JCA requires a resource adapter to be physically deployed on the host application server to access the remote EIS system.

Using combinations of JCA and Web services is possible. For example, a JCA application can be invoked via a Web service or a Web service may be implemented inside a JCA container. The standards and protocols are still evolving.

# Understanding JCA Managed and Non-managed Modes

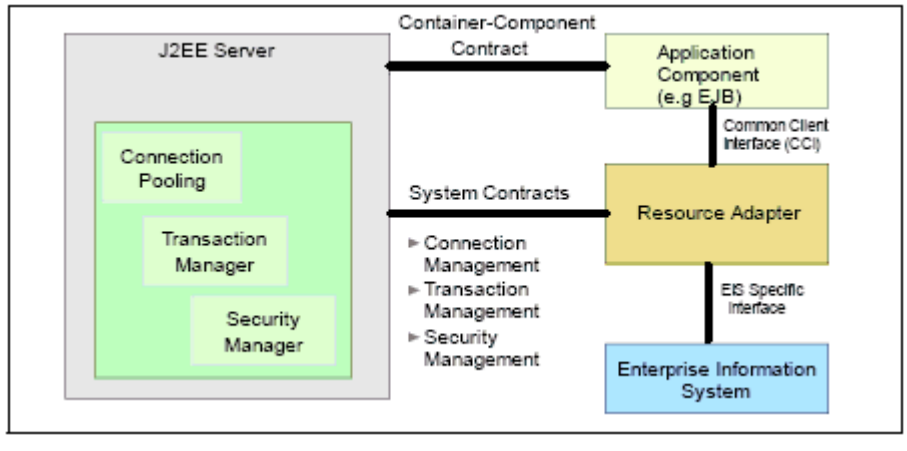
The J2EE Connector Architecture (JCA) provides a specification that standardizes access to Enterprise Information Systems (EIS). When a connection to an EIS is made, this connection can exist in a managed or non-managed mode, depending on your environment and deployment method.

The following section provides an overview of JCA managed and non-managed modes and their key differences. In addition, information relating to the deployment of the Connector for JCA in a managed or non-managed mode is provided.

## JCA Managed Mode

By default, the Connector for JCA runs in managed mode when deployed to an application server, for example, BEA WebLogic. In this case, the BEA WebLogic server manages the connections, transactions, and security. As a result, the Connector for JCA provides features such as connection pooling. Connection pooling allows the BEA WebLogic server to pool connections to a back-end EIS, which results in efficient performance and increased scalability.

The following diagram illustrates the Connector for JCA (Resource Adapter) being used in managed mode. In this scenario, the application is running inside the J2EE application server.



In order to make connections to an EIS in managed mode, the Connector for JCA obtains an `IWAFConnectionFactory` from the BEA WebLogic server. In managed mode, the `IWAFConnectionFactory` is accessed from the JNDI and its properties will be configured by the BEA WebLogic server.

The following connection properties can be found in the weblogic-ra.xml file, which is packaged in the iwafjca.rar file.

```
<connection-instance>
        <jndi-name>eis/IWAFConnectionFactory</jndi-name>
         <connection-properties>
            <pool-params>
               <initial-capacity>0</initial-capacity>
               <max-capacity>10</max-capacity>
            </pool-params>
         </connection-properties>
</connection-instance>
```

The following connection properties can be found in the web.xml file, which is used by the iWay JCA IVP test tool to run in managed mode.

```
<context-param>
    <description>JNDI name for the IWAF JCA Resource Adapter.
      If not provided, the application will create a new one based on
      iway.home, iway.config and iway.loglevel.
    </description>
    <param-name>iway.jndi</param-name>
    <param-value>eis/IWAFConnectionFactory</param-value>
</context-param>
```

The iway.jndi parameter is the connection factory name for Connector for JCA. The connection factory name under BEA WebLogic is eis/IWAFConnectionFactory. The iWay JCA IVP test tool attempts to connect to the adapter via JNDI if JNDI is defined (managed mode). If JNDI is undefined, iway.home, iway.config, and iway.loglevel are used instead (non-managed-mode).

The default location of the web.xml file on Windows is:

```
C:\Program Files\iWay55\bea\iwfjcaivp\WEB-INF\web.xml
```

## JCA Non-managed Mode

You can use the Connector for JCA in non-managed mode by embedding it in an application instead of deploying it to an application server. In this case, the application must manage connections, transactions, and security itself. To enable non-managed mode for the the Connector for JCA, you must specify the iWay55\lib connector library in the classpath. No RAR file or ra.xml descriptor is needed. In non-managed mode, the default connection manager is used.

Performance may be reduced when deploying the Connector for JCA in non-managed mode since connection pooling is not available.

# Application Design

This section addresses best practice principles that can be used during application design stages when using the BEA WebLogic Adapter for Oracle E-Business Suite.

## Web Services and JCA Usage Considerations

The following four factors explain the differences between deploying Web services and deploying the JCA option. Understanding the factors can help in selecting a deployment option.

1. Web services is the preferred deployment option because JCA:

- Can be deployed in a separate instance of BEA WebLogic server.
- Provides better distribution of load.
- Provides better isolation from any errors from third-party libraries.
- Provides better capability to isolate issues for debugging purposes.
- Conforms more closely to SOA model for building applications.

2. JCA provides slightly better performance

   JCA does provide slightly better performance than the Web services option; however, the difference decreases as the transaction rate increases.

3. The Web services and JCA options both provide identity propagation at run time.

   The Web services option provides the capability to pass identity using the SOAP header. For the JCA option, user name and password can be passed using the connection spec of the CCI.

4. Transactions

   Because no adapters currently being resold by BEA support XA transactions, transactions are not a consideration when choosing between JCA and Web services.

## Configuring a Clustered Environment

Events can be configured in a clustered BEA WebLogic environment. You can deploy iBSE or JCA to this environment.

A cluster consists of multiple server instances running simultaneously, yet appears to clients to be a single server instance. The server instances that contain a cluster can be run on one machine, but are usually run on multiple machines.

Service requests are processed through the HTTP router and routed to an available managed server.

Events are server-specific and are not processed through the HTTP router. You must configure each server separately.

A WebLogic cluster is a group of servers that, from the application point-of-view, operate as a single server. A cluster provides:

- **Scalability.** Additional servers can be added to the cluster dynamically to increase capacity.
- **High-availability.** Redundancy of multiple servers insulates applications from failures.

The following operations performed on one managed server will be replicated on all other managed servers:

- Create port and channel. Creates the channel and port under all available servers.
- Delete port and channel. Deletes the port and channel under all available servers.

The following operations must be performed on each server:

- Start channel. Starts the channel for the specific server.
- Stop channel. Stops the channel for the specific server.

For more information on configuring BEA WebLogic for deployment in a clustered environment, see the *Deploying WebLogic Integration Solutions* documentation.

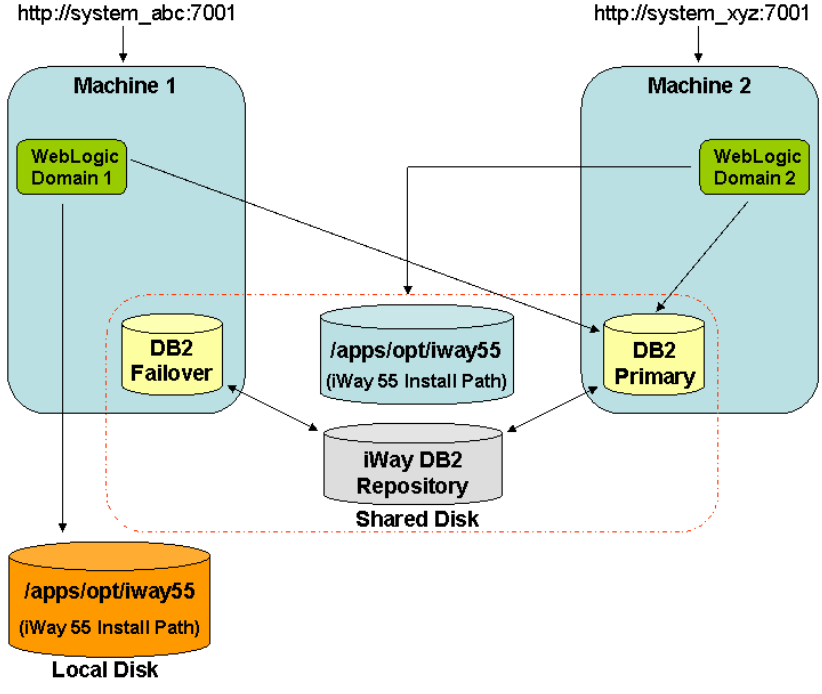
## Load Balancing Support with WebLogic Server

The WebLogic Administration Console provides you with the tools to configure WebLogic for load balancing. Load balancing is one of the primary tools employed in making systems scalable. BEA WebLogic Adapter for Oracle E-Business Suite takes advantage of the sophisticated load balancing features of WebLogic clusters.

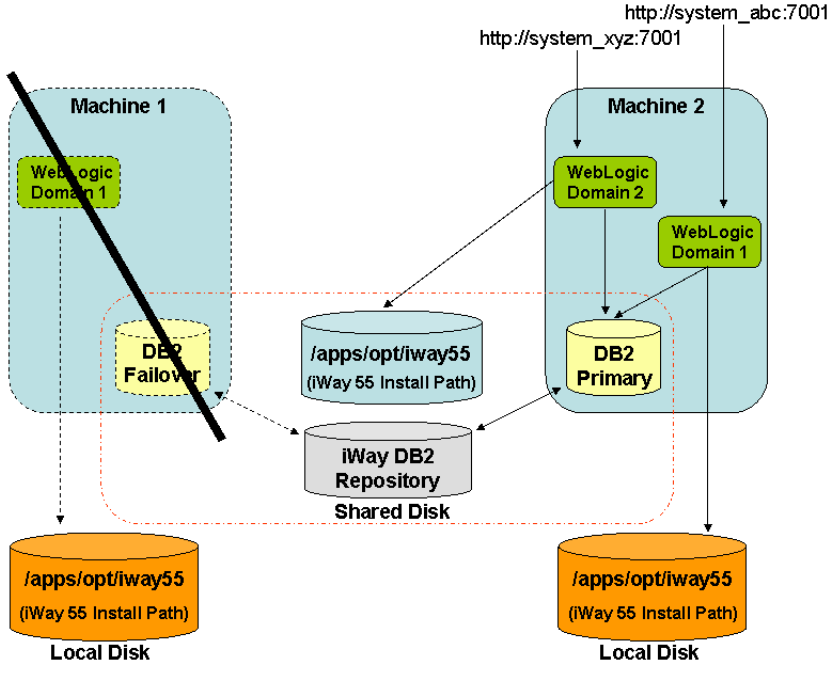
## Failover Support with WebLogic Server

Failover is the ability of a system to detect a service failure and automatically retry the operation using another Gateway. This includes the ability to recover in the event of a server failure and the ability to find another instance of a service on an available server. Under the best of conditions the results of a service are idempotent, meaning that multiple invocations of the service, with the same input, produce the same output with no side effects. An example of an idempotent service would be a currency translation service. The service produces the same output each time it is run for a given input value and it has no side effects. Under these conditions it is safe to failover a request for any type of failure.

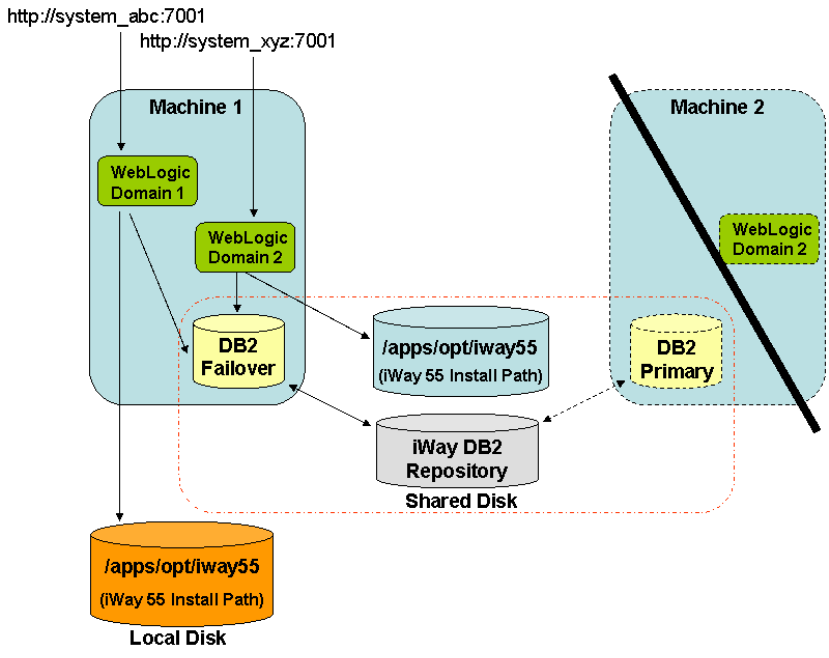
The following diagram illustrates a sample configuration where two WebLogic domains are configured on two separate machines. DB2 Failover and DB2 Primary represent a scenario where DB2 is configured for each WebLogic domain respectively. In the event of a failover condition, the DB2 Primary database instance would be switched over to the DB2 Failover instance.



The following diagram illustrates a failover situation when the first machine becomes unavailable. As you can see, Machine 2 takes over in the clustered environment.




The following diagram illustrates a failover situation when the second machine becomes unavailable. In this case, Machine 1 takes over in the clustered environment.




# Configuration Tuning

This section explores tuning considerations during design time and run time.

## Repository Migration Using iBSE Administrative Services

iBSE Administrative Services allow a client application to export, import, and modify an existing iBSE repository, regardless of the underlying format. When suitably configured, the iBSE Administrative Services represent a best practice methodology for maintaining separate development, QA, and production environments.

For more information on using iBSE administrative services, see Chapter 4, *Management and Monitoring*.

## JCA Troubleshooting

JCA provides the ability to set multiple log levels. The log level is set in the META-INF\ra.xml file.

To change defaults, you must:

1. Extract the META-INF\ra.xml file from the iwafjca.rar archive.

   a. Open a command prompt and navigate to the directory containing the connector, for example:

   ```
   iWay55\etc\setup
   ```

   where:

   ```
   iWay55
   ```

   Is the full path to your iWay 5.5 installation. The default is C:\Program Files\iWay55.

   b. Issue the following command:

   ```
   jar xvf iwafjca.rar META-INF/ra.xml
   ```

   The JAR command is located in the Java SDK bin directory which might not be in your search path. If you receive an error, execute the jar command using its full path. This path varies depending on which version of Java is installed, for example:

   ```
   C:\j2sdk1.4.1_03\bin\jar -xvf iwafjca.rar META-INF/ra.xml
   ```

   **Note:** Ensure you use the JAR command and not Winzip. Winzip does not properly extract Java related archives.

2. Open the extracted ra.xml file in a text editor.
3. Modify the contents of the <param-value> tags to change defaults.

   - **LogLevel.** Trace setting. This can be set to DEBUG, INFO, or ERROR.

   ```
   <context-param>
   <config-property>
       <config-property-name>LogLevel</config-property-name>
       <config-property-type>java.lang.String</config-property-type>
       <config-property-value></config-property-value>
   </config-property>
   ```

   For example:

   ```
   <config-property-value>DEBUG</config-property-value>
   ```

   Leave the remainder of this file unchanged.

4. Save the file and exit the editor.

5. Use the JAR command to return the ra.xml file to the META-INF directory within the archive. To do this:

   a. Ensure that you are in the following directory that contains the connector:

      ```
      iWay55\etc\setup
      ```

      where:

      *iWay55*

      Is the full path of your iWay 5.5 installation directory. The default is C:\Program Files\iWay55.

   b. Issue the following command:

      ```
      jar -uvf iwafjca.rar META-INF/ra.xml
      ```

6. Redeploy the connector.

   The trace information is written to the BEA WebLogic server log file.