TIBCO ActiveMatrix BusinessWorks™ Service Engine Plug-in for Oracle E-Business Suite

User's Guide

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Preface

This user's guide explains how to use TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite in the TIBCO ActiveMatrix environment.

Topics

- Related Documentation, page x
- Typographical Conventions, page xi
- Connecting with TIBCO Resources, page xiii

Related Documentation

This section lists documentation resources you may find useful.

TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite Documentation

The following documents form the TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite documentation set:

- *TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite Installation* Read this manual for instructions on site preparation and installation.
- *TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite User's Guide* Read this manual for instruction on using the product.
- *TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite Release Notes* Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.

Other TIBCO Product Documentation

You may find it useful to read the documentation for the following TIBCO products:

- TIBCO Designer™
- TIBCO ActiveMatrix BusinessWorks™
- TIBCO ActiveMatrix BusinessWorks™ Service Engine
- TIBCO Rendezvous®
- TIBCO Enterprise Message Service™
- TIBCO Hawk®
- TIBCO Runtime Agent™
- TIBCO Business Studio™
- TIBCO ActiveMatrix BusinessWorks™ Plug-in for Oracle E-Business Suite

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

Convention	Use
TIBCO_HOME *ENV_NAME* *CONFIG_HOME*	Many TIBCO products must be installed within the same home directory. This directory is referenced in documentation as *TIBCO_HOME*. The default value of *TIBCO_HOME* depends on the operating system. For example, on Windows systems, the default value is `C:\tibco`. Other TIBCO products are installed into an installation environment. Products installed into different installation environments do not share components. Incompatible products and multiple instances of the same product must be installed into different installation environments. An installation environment consists of the following properties: • **Name** Identifies the installation environment. The name is appended to the name of Windows services created by the installer and is a component of the path to the product in the Windows Start > All Programs menu. This directory is referenced in documentation as *ENV_NAME*. • **Description** Provides information about what the environment contains or is used for. • **Path** The directory into which the product is installed. This directory is referenced in documentation as *TIBCO_HOME*. The value of *TIBCO_HOME* depends on the operating system. For example, on Windows systems the default value is `C:\tibco`. A TIBCO configuration folder stores configuration data generated by TIBCO products. Configuration data can include sample scripts, session data, configured binaries, logs, and so on. This folder is referenced in documentation as *CONFIG_HOME*. The default location of the folder is `USER_HOME/ENV_NAME/data`. For example, on Windows, the default location is `C:\Documents and Settings\UserName\Application Data\ENV_NAME\data`.
`code font`	Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example: Use `MyCommand` to start the foo process.

Table 1 General Typographical Conventions

Convention	Use
`bold code font`	Bold code font is used in the following ways: • In procedures, to indicate what a user types. For example: Type the username **`admin`**. • In large code samples, to indicate the parts of the sample that are of particular interest. • In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, `MyCommand` is enabled: `MyCommand [enable | disable]`
italic font	Italic font is used in the following ways: • To indicate a document title. For example: See *TIBCO BusinessWorks Concepts*. • To introduce new terms. For example: A portal page may contain several portlets. *Portlets* are mini-applications that run in a portal. • To indicate a variable in a command or code syntax that you must replace. For example: `MyCommand` *pathname*
Key combinations	Key names separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C. Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.
	The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.
	The tip icon indicates an idea that could be useful, for example, a way to apply the information provided in the current section to achieve a specific result.
	The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.

Connecting with TIBCO Resources

How to Join TIBCOmmunity

TIBCOmmunity is an online destination for TIBCO customers, partners, and resident experts, a place to share and access the collective experience of the TIBCO community. TIBCOmmunity offers forums, blogs, and access to a variety of resources. To register, go to http://www.tibcommunity.com.

How to Access All TIBCO Documentation

After you join TIBCOmmunity, you can access the documentation for all supported product versions here:

http://docs.tibco.com/TibcoDoc

How to Contact TIBCO Support

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- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

  http://www.tibco.com/services/support

- If you already have a valid maintenance or support contract, visit this site:

  https://support.tibco.com

  Entry to this site requires a username and password. If you do not have a username, you can request one.

Chapter 1 Introduction

This chapter gives an overview of TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite.

Topics

- Overview, page 2

Overview

TIBCO ActiveMatrix BusinessWorks Service Engine (BWSE) is a gateway for TIBCO BusinessWorks to the Service Oriented Architecture (SOA) world. It implements all of the functionality of the BusinessWorks Engine, and it allows you to deploy those components into the TIBCO ActiveMatrix environment via the TIBCO ActiveMatrix Administrator.

TIBCO ActiveMatrix BusinessWorks Service Engine provides a BWSE component that can be associated with a BusinessWorks project to expose BusinessWorks services in the TIBCO ActiveMatrix environment. It also lets TIBCO ActiveMatrix BusinessWorks projects consume services provided by other components in the TIBCO ActiveMatrix environment.

Before starting this menu, it is recommended that you become familiar with:

- TIBCO ActiveMatrix platform terminology and concepts.

  Refer to *TIBCO ActiveMatrix BusinessWorks Service Engine User's Guide* for detailed information.

- TIBCO ActiveMatrix BusinessWorks Plug-in for Oracle E-Business Suite functions and features.

  Refer to *TIBCO ActiveMatrix BusinessWorks Plug-in for Oracle E-Business Suite User's Guide* for detailed information.

TIBCO ActiveMatrix Development Tools

The TIBCO ActiveMatrix development tools consist of TIBCO Business Studio Workbench and a set of TIBCO ActiveMatrix plug-ins.

TIBCO Business Studio allows you to create and configure composites, services, references, shared resources, and substitution variables in the Composite Editor. In TIBCO Business Studio, you can associate a BusinessWorks Designer project with a BWSE component in an ActiveMatrix SOA Project. For information on TIBCO Business Studio, refer to *Workbench User Guide* in the Workbench online help. To view the online help, select **Help > Help Contents**.

TIBCO Designer Add-in for TIBCO Business Studio allows you to create classic TIBCO BusinessWorks projects in TIBCO Business Studio.

TIBCO ActiveMatrix Deployment Tool

TIBCO ActiveMatrix Administrator is the utility used to create, configure, monitor, and manage objects in the TIBCO ActiveMatrix runtime.

Chapter 2 Working with TIBCO Business Studio

This chapter describes how to create a classic TIBCO BusinessWorks project, create a TIBCO SOA project, enable BusinessWorks service resources for TIBCO ActiveMatrix, and associate a BWSE component with a service resource using TIBCO Business Studio.

Topics

- Starting TIBCO Business Studio, page 4
- Creating a TIBCO BusinessWorks Designer Project, page 6
- Enabling BusinessWorks Service Resources for ActiveMatrix, page 8
- Creating a TIBCO SOA Project, page 7
- Associating a BWSE Component with a Service Resource, page 10

Starting TIBCO Business Studio

To start TIBCO Business Stutio, complete the following steps:

1. From the Start menu, select **All Programs > TIBCO > TIBCO Business Studio *version_number* ActiveMatrix SOA Edition > Studio for Designers.**

   or

   From the command line, run *TIBCO_HOME*\studio*version_number*\eclipse\TIBCOBusinessStudio.exe.

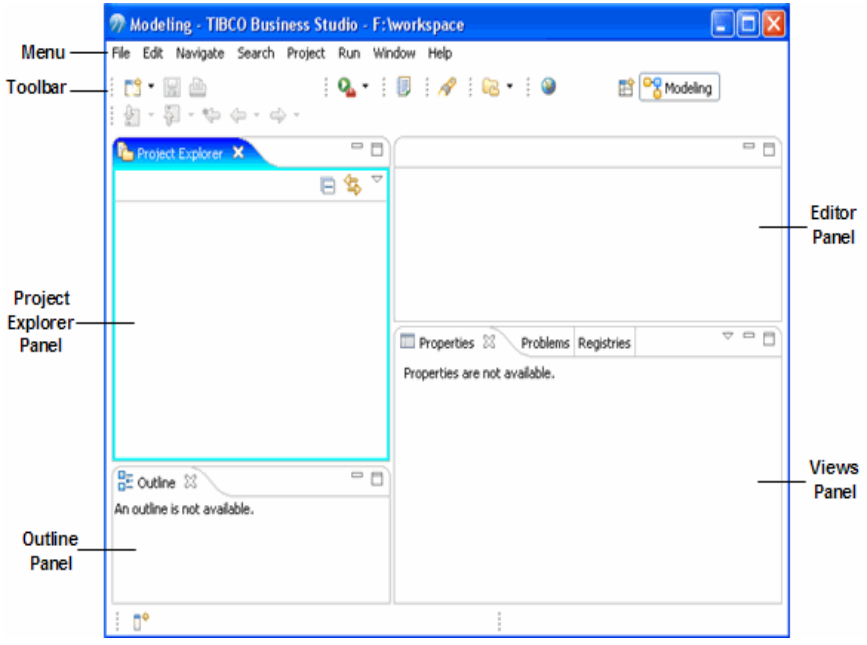
2. The Workspace Launcher dialog appears. Accept the default workspace or to create a new workspace, and click the **OK** button.

   The Workbench window appears. The first time a new workspace is selected, a Welcome screen is displayed in the window.

The Layout of the Workbench Window

The Workbench window contains the following: Menu, Toolbar, Project Explorer Panel, Outline Panel, Editor Panel, and Views Panel. For detailed information, select **Help** > **Help Content**.

Figure 1 The Workbench Window



- **Menu**

  Contains menu items such as File, Edit, Navigate, Search, Project, Run, Window, and Help.

- **Toolbar**

  Contains buttons for the most frequently used commands.

- **Project Explorer Panel**

  Displays a tree containing all the project resources, such as project folders, shared resource definition files, WSDL files, composite files, service assembly files, and so on.

- **Editor Panel**

  Displays editors for the objects currently being edited. You can switch between editors by clicking the tabs at the top of the Editor area. The Composite Editor contains a canvas on which you can drop elements and a palette that organizes the elements that you have added to the composite. Other editors allow you to configure shared resources and service assemblies.

- **Outline Panel**

  Provides an overview of the Composite Editor canvas. You can easily navigate from one part of a composite to another.

  The Outline view also displays a content tree structure that contains the composite elements inside the composite. In this view you can delete the contents of the composite. When you select a composite element in the Outline tree, the corresponding artifact in the composite is selected.

- **Views Panel**

  Displayed under the Editor area and contains the following views by default:

  — Properties

    Displays property sheets for editing composites and composite elements. When you select a composite or composite element in the Composite Editor canvas, this view shows the properties of the selected object in a vertical tabbed notebook.

  — Problems

    Displays validation and other errors.

  — Registries

    Lists UDDI registries and the WSDL files returned from searching a registry.

  To open a view, select **Window > Show View**.

Creating a TIBCO BusinessWorks Designer Project

After starting TIBCO Business Studio, complete the following steps to create a TIBCO Designer project:

1. Select **File > New > Project** from the Menu to open the New Project window.
2. Select **TIBCO Designer > TIBCO Designer Project** in the Select A Wizard dialog, and click the **Next** button.

Before you create a new TIBCO Designer project, you need to install TIBCO ActiveMatrix BusinessWorks Plug-in for Oracle E-Business Suite.

   — To create a new TIBCO Designer project in the workspace, select the **Create New Project In Workspace** radio button and type a TIBCO Designer project name (for example, `OEBSBWSE`) in the Project Name field.

   — To create a new TIBCO Designer project using an existing Designer project, select the **Create Project Using Existing Designer Project** radio button, and click the **Browse** button to specify the project location.

3. Click the **Finish** button.

   The project appears in the Project Explorer panel.

Creating a TIBCO SOA Project

TIBCO SOA projects are Implementation Types for the ActiveMatrix resources that you can develop with TIBCO Business Studio.

After starting TIBCO Business Studio, complete the following steps to create a TIBCO SOA project:

1. Select **File > New > Project** from the Menu to open the New Project dialog.
2. Expand the **TIBCO SOA Platform** folder, select **TIBCO SOA Project** in the Select A Wizard page, and click the **Next** button.
3. Enter an SOA project name in the Project Name field, for example, `OEBSReference`.

   Check the **Use Default Location** checkbox if you want to save the SOA project to your default workspace, and click the **Next** button.
4. In the Asset Type Selection screen, keep the default selection and click the **Next** button.
5. Select the **Empty SOA Project** item from the Project Types column, then click the **Next** button.

By selecting the Empty SOA Project type, an SOA project with an empty composite is created.

6. Click the **Next** button in the Composite File Name page.
7. Click the **Finish** button in the Set Special Folders page.

   The new SOA project appears in the Project Explorer panel and displays `OEBSReference.composite` in the Design panel by default.

Enabling BusinessWorks Service Resources for ActiveMatrix

In order to provide services to other ActiveMatrix components, ensure that the TIBCO ActiveMatrix BusinessWorks project with Service resources is available.

Complete the following steps to check if the Service resource is available:

1. Start TIBCO Business Studio.
2. Expand the project in Project Explorer.
3. Search for a BusinessWorks Service resource, for example, `bomService.serviceagent`.

If the project does not contain a Service resource, complete the following steps to enable a BusinessWorks Service resource:

Before creating a Service resource, you will need to create a WSDL file that contains abstract interface descriptions. The interface can include one or more operations. Refer to *TIBCO ActiveMatrix BusinessWorks Palette Reference* for details about how to create a WSDL file.

1. Right-click in the design panel and select **Add Resource** > **Service** > **Service**.
2. In the **Service** tab,
   a. Check the **Enable For AMX** checkbox.
   b. Click the button (the Add A New Interface button) to select a resource.
   c. Select a WSDL resource file, for example, `bomWSDL.wsdl`, and click the **OK** button in the Select A Resource dialog.
   d. Double-click the **Operation Implementation** field and use the Browse button to locate the resource that implements each operation.

      Process definitions that implement an operation must have an input, output, and error schemas that match the input, output, and fault messages of the operation.
   e. Select the **Endpoint Bindings** tab, then click the button (the Add New Endpoint button) to add the binding point automatically.
   f. In the Endpoint Bindings tab, specify a name for the endpoint in the Endpoint Name field. And specify the endpoint type by double-clicking

the Endpoint Type field, then select one of the following options: AMX, SOAP, or Local.

g. Check the **Expose** ceckbox in the Properties tab to expose the global variables used by resources in a TIBCO BusinessWorks project.

h. Click the **Apply** button to save the configuration.

Associating a BWSE Component with a Service Resource

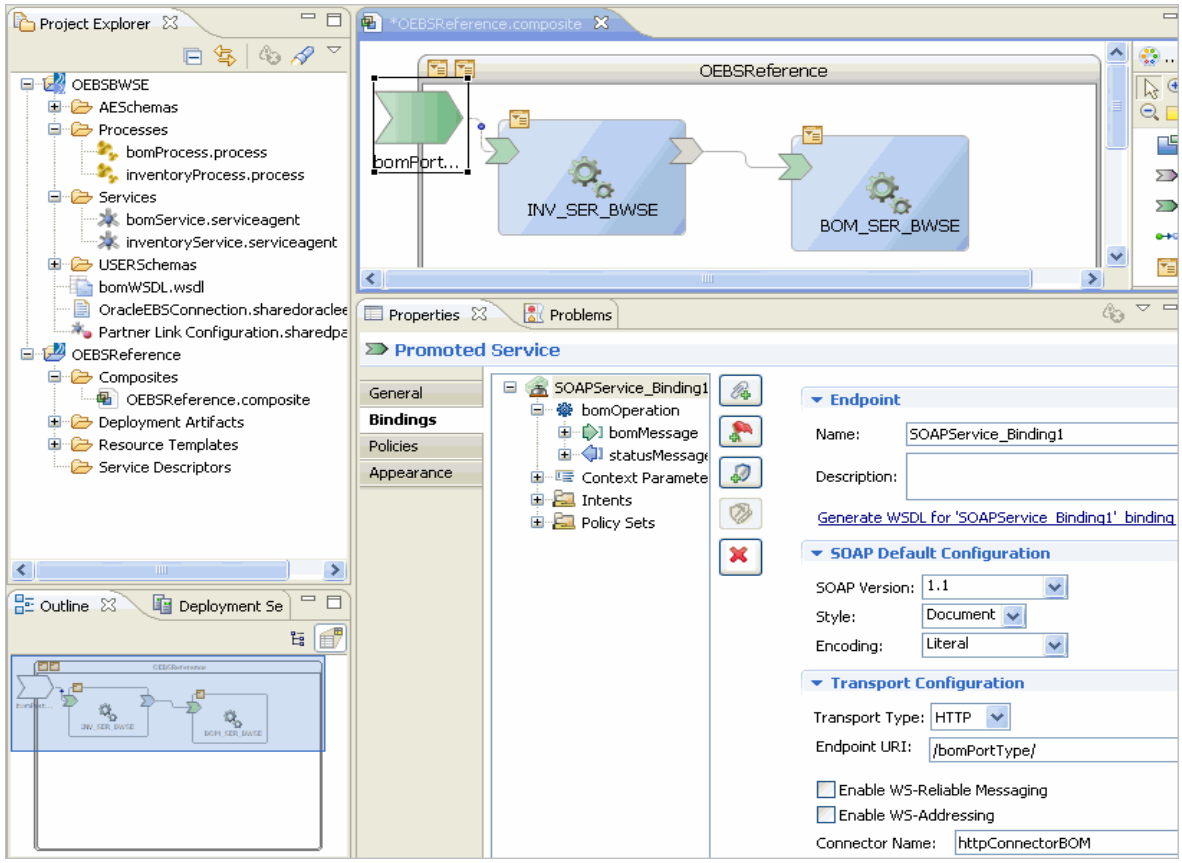
Associate a BWSE Component with a BusinessWorks Service resource by completing the following steps:

1. Start TIBCO Business Studio.
2. Click an SOA project in the Project Explorer Panel, for example, `OEBSReference`. Then double-click the composite file under the Composites folder, for example, `OEBSReference.composite`, to launch the Composite Editor on the right.
3. From the Project Explorer panel, select a TIBCO BusinessWorks project, for example, `OEBSBWSE`, and locate Service resource, for example, `bomService.serviceagent`.
4. Drag a service agent, for example, `bomService.serviceagent`, into the Composite Editor in the Editor panel.
5. Select the **BWSE** component, right-click it, and then select **Promote All** from the popup menu.
6. Click the composite service, for example, the `bomPortType` composite service in the composite editor.
7. Click the **Bindings** tab on the left side of the Promoted Service panel, then click the button to add a binding.
8. Save the project.

Bindings enable communication between TIBCO ActiveMatrix and its environment. Service bindings enable consumers outside the TIBCO ActiveMatrix environment to consume services provided by TIBCO ActiveMatrix.

In the composite sample screen shown in Figure 2, a SOAP binding type has been selected. Refer to *TIBCO ActiveMatrix BusinessWorks Service Engine User's Guide* for details.

Figure 2 Composite Sample Screen



Chapter 3

Working with TIBCO ActiveMatrix Administrator

This chapter describes how to add a new node to the development environment, and how to set up the TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite application on the newly created node using TIBCO ActiveMatrix Administrator.

Topics

- Adding a New Node to the Development Environment, page 14
- Setting Up a New Node, page 15

Adding a New Node to the Development Environment

When you create TIBCO ActiveMatrix Administrator, a node named `DevNode` is created by default. If you want to add a new node, complete the following steps:

1. Open TIBCO ActiveMatrix Administrator.
2. Select **Infrastucture > Nodes**.
3. Click the **New** button to add a node.
4. Enter a node name in the New Node dialog, for example, `testNode`, then click the **Save** button.
5. Select the newly created node.
6. Click the **Install** button to install the node into the environment.
7. After the node has been installed, click the **Start** button to run the node.

Setting Up a New Node

If you launch TIBCO Configuration Tool after you install the ActiveMatrix platform and TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite, by default, the TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite application is automatically installed on the `DevNode`.

However, if you use the newly created node, before deploying the TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite applications on this node, you must complete the following steps to configure the new node:

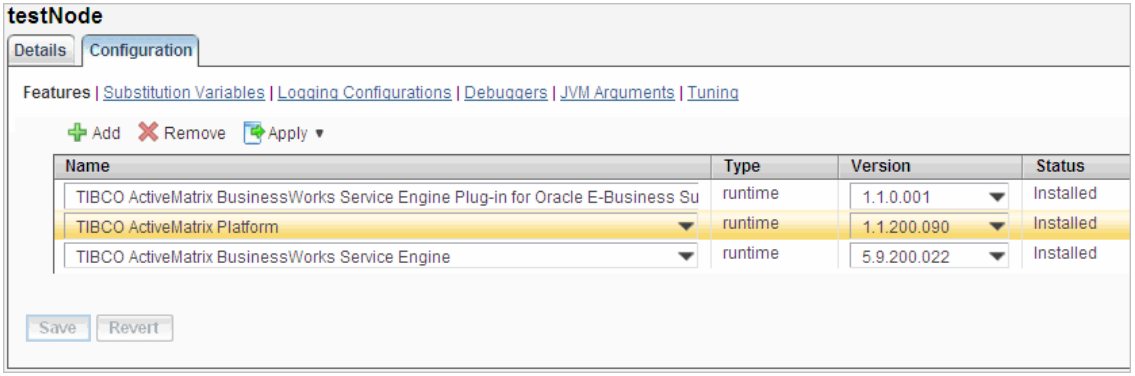
1. Select the new node you created.
2. Click the **Configuration** tab under the selected node.
3. Click the **Add** button, then select the **TIBCO ActiveMatrix BusinessWorks Service Engine** item.
4. Click the **Add** button, then select the **TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite** item.

You should also add third-party drivers, for example, TIBCO Enabled JDBC Driver For Oracle, on this new node. Refer to the Post Installation chapter in *TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite Installation* for details.

5. Click the **Save** button to save the configuration.
6. Click the **Apply** button to install the new applications to the node.

   The new applications are installed successfully, as shown in Figure 3.

Figure 3 New Application Installation



7. Click the **Applications** tab, then select the **TIBCO ActiveMatrix BusinessWorks Service Engine** application.
8. Click the **Distribution** tab, move the **testNode** item from the Available Nodes list to the Selected Nodes list, then click the **Save** button.
9. Repeat step 7 and step 8 to distribute the TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite application to the testNode.

After completing the above steps, the Runtime State and Synchronization columns for each of the allication should be Running and In Sync respectively, if not, you need to undeploy, then deploy and start the application.

Chapter 4 Creating a Distributed Application Archive

This chapter describes how to create a Distributed Application Archive (DAA).

Topics

- Overview, page 18
- Using Business Studio to Create a DAA, page 19
- Using the EAR2DAA Utility to Convert an EAR File to a DAA File, page 20

Overview

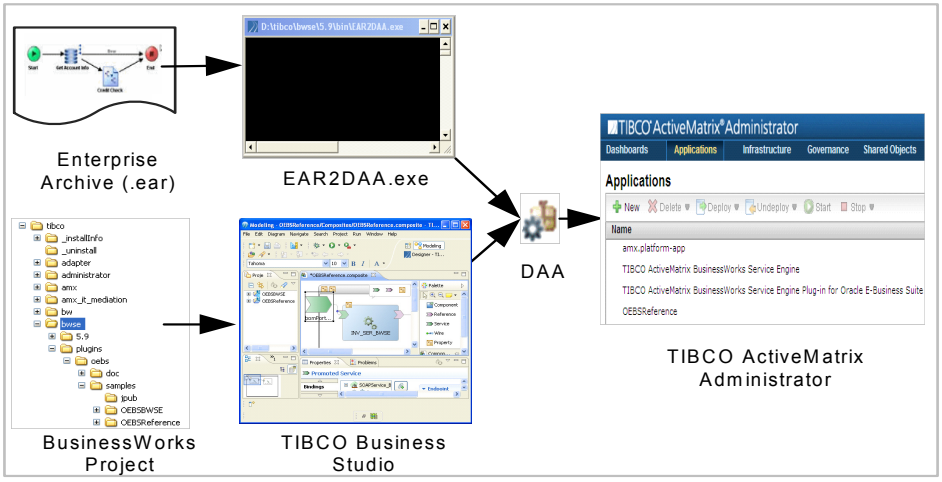
A Distributed Application Archive (DAA) is a deployable archive of the composite. It is a file imported into TIBCO ActiveMatrix Administrator to deploy a project to a running node.

Once a component is configured, you can create a DAA for deployment. The DAA file gathers all the information required by the component at runtime.

TIBCO ActiveMatrix BusinessWorks Service Engine provides two ways of creating a DAA:

- Using Business Studio to Create a DAA, page 19
- Using the EAR2DAA Utility to Convert an EAR File to a DAA File, page 20

Figure 4 Two Methods of Creating a DAA



Using Business Studio to Create a DAA

To create a DAA using Business Studio, complete the following steps:

Before creating a DAA, it is good practice to validate the project using the button (the Designer Validate Project for Development button) in Designer - TIBCO Perspective.

1. Expand the **Composite** folder in the Project Explorer panel. Then select a composite, right-click it, and select **Create DAA** from the popup menu.

   Or

   Right-click the composite in the Editor panel, and select **Create DAA** from the popup menu.
2. Select the **Deployment Artifacts** folder under a SOA project in the Select Archive Location page.
3. Enter a new filename or accept the default name.
4. Click the **Next** button.
5. Select the **Do Not Use A Distribution File** radio button in the Select Distribution page, then click the **Next** button.
6. Check the **Save DAA Spec** checkbox in the DAA Specification page, then click the **Finish** button.

Using the EAR2DAA Utility to Convert an EAR File to a DAA File

This section shows how to use the EAR2DAA utility to convert an EAR file to a DAA file.

The EAR2DAA utility allows you to create a DAA archive without creating an ActiveMatrix SOA project. The utility is available at the following location only if the product UI features are installed on the machine:
TIBCO_HOME\bwse*version*\bin

Run the utility on the command line with the following syntax:

```
EAR2DAA.exe -earPath EarPath [ -daaLocation DAALocation -componentName
ComponentName -componentVersion ComponentVersion -compositeName
CompositeName -compositeVersion CompositeVersion -verbose true]
```

where *EarPath* is the absolute path of the EAR file.

The EAR2DAA utility accepts the optional arguments specified in the following table.

Table 2 EAR2DAA Optional Arguments

Argument	Default Value
daaLocation	*TIBCO_HOME*/bwse/*version*/bin
componentName	*EarName*
componentVersion	1.0.0
compositeName	*EarName*_Composite
compositeVersion	1.0.0
verbose	false

Chapter 5 Tutorial

This chapter demonstrates how to configure, deploy, and run a classic TIBCO BusinessWorks project in the TIBCO ActiveMatrix environment.

Topics

- Overview, page 22
- Procedure, page 24
- Running the Example, page 33
- Viewing the Result in Oracle E-Business Suite, page 36

Overview

The example associated with TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite is in the *TIBCO_HOME*\bwse\plugins\oebs\samples directory.

The example has two projects:

- OEBSBWSE is a classic TIBCO BusinessWorks project with two processes:
  - inventoryProcess Five Inventory items are created, namely, TIBCO_CPU, TIBCO_HD, TIBCO_RAM, TIBCO_SUB_RAM, and TIBCO_MAINBOARD.
  - bomProcess The TIBCO_MainMachine BOM bill, which includes the five Inventory items, is created.
- OEBSReference In this SOA project, an OEBSReference composite has been created, which includes two components: BOM_SER_BWSE, and INV_SER_BWSE.

Input

The input of this example are the following strings:

- Inventory items TIBCO_CPU, TIBCO_HD, TIBCO_RAM, TIBCO_SUB_RAM, TIBCO_MAINBOARD
- BOM bill TIBCO_MAINMACHINE

Output

After deploying the example project successfully, you can use SOAP client, such as, SOAPUI, for testing and running the example. You can also use TIBCO Business Studio to check the output.

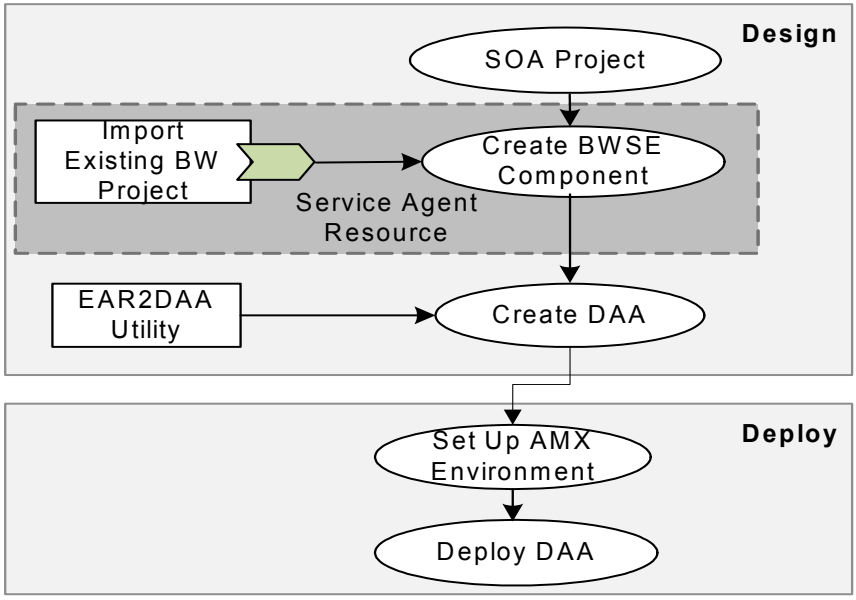
Refer to Running the Example on page 33 for more information.

Procedure

A detailed procedure about how to deploy the example project is specified in Procedure on page 24.

Figure 5 shows the general implementation process.

Figure 5 Project Implementation



Legend

BWSE	TIBCO BusinessWorks Service Engine	AMX	TIBCO ActiveMatrix
BW	TIBCO BusinessWorks	DAA	Distributed Application Archive

Procedure

The following sections provide details about how to develop, deploy, and run the example:

1. Importing the Classic OEBSBWSE TIBCO BusinessWorks Project
2. Configuring the Classic OEBSBWSE TIBCO BusinessWorks Project
3. Importing the OEBSReference SOA Project
4. Reviewing the Composite Configuration of the OEBSReference SOA Project
5. Creating a Distributed Application Archive (DAA)
6. Setting Up the TIBCO ActiveMatrix Environment
7. Adding an HTTP Connector Resource Instance
8. Deploying the DAA

Importing the Classic OEBSBWSE TIBCO BusinessWorks Project

This section shows how to import the predefined `OEBSBWSE` TIBCO BusinessWorks project to TIBCO Business Studio.

Complete the following steps to import an existing TIBCO BusinessWorks project:

1. Start TIBCO Business Studio.
2. Select **File > New > Project** from the Menu to open the New Project dialog.
3. Select **TIBCO Designer > TIBCO Designer Project** in the Select A Wizard page, and then click the **Next** button.

Before creating or importing a TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite Designer project, you need to install TIBCO ActiveMatrix BusinessWorks Plug-in for Oracle E-Business Suite.

4. Select the **Create Project Using Existing Designer Project** radio button, then click the **Browse** button to specify the project location.

   The directory for the `OEBSBWSE` TIBCO Designer project is *TIBCO_HOME*`\bwse\plugins\oebs\samples`.

5. Check the **Copy Project Into Workspace** checkbox, then click the **Finish** button.

   The classic `OEBSBWSE` TIBCO BusinessWorks project appears in the Project Explorer panel.

Configuring the Classic OEBSBWSE TIBCO BusinessWorks Project

After importing the classic `OEBSBWSE` TIBCO BusinessWorks project, configure it by completing the following tasks:

Task A Connect to Oracle Database Server

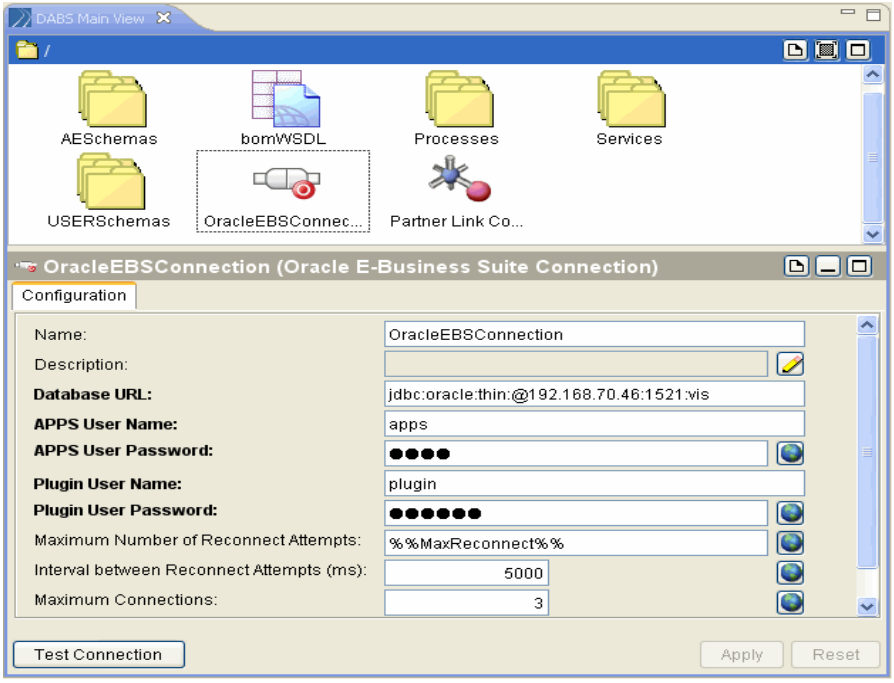
A connection to the Oracle database server is required by the plug-in for the configuration of the basic settings. Refer to Chapter 2 of *TIBCO ActiveMatrix BusinessWorks Plug-in for Oracle E-Business Suite User's Guide* for details about how to connect to the Oracle database server.

Task B Configure the Oracle E-Business Suite Connection

Before running or deploying the project, you need to configure the Oracle E-Business Suite connection, then test to see f the connection is successfull.

Figure 6 shows a sample screen of the Oracle E-Business Suite Connection panel.

Figure 6 OracleEBSConnection Settings



The following steps shows how to configure and test the Oracle E-Business Suite Connection share resource:

1. Expand the **OEBSBWSE** folder in the Project Explore panel.

2. Click the **OracleEBSConnection** shared resource in the DABS Main View panel.
3. Review and configure the information in the Configuration tab, such as, Database URL, APPS User Name, APPS User Password, and so on.

   Refer to *TIBCO ActiveMatrix BusinessWorks Plug-in for Oracle E-Business Suite User's Guide* for details about Oracle E-Business Suite Connection resource.
4. Click the **Test Connection** button to test the connection.
5. Click the **Apply** button to save the configuration.

Task C Run the BOM_BO_PUB SQL Script Using the Oracle Application Administrator Account

`BOM_BO_PUB` package contains PL/SQL data types that are not accessible outside the package. Therefore, you need to use Oracle JPublisher to generate PL/SQL scripts. After running the generated PL/SQL scripts, the wrappers are created. You are then able to invoke the procedures contained inside the Oracle E-Business Suite APIs packages.

In this example, the generated SQL scripts are associated in the *TIBCO_HOME*`\bwse\plugins\oebs\samples\jpub` directory:

- *BOM_BO_PUB* SQL script
- *BOM_BO_PUB_drop* SQL script

Refer to Apendix D in *TIBCO ActiveMatrix BusinessWorks Plug-in for Oracle E-Business Suite User's Guide* for details about how to use Oracle JPublisher to create the wrappers.

Task D Generate and Run SQL Scripts

After reviewing and configuring each activity in the two processes, you need to generate the SQL scripts for the involved PL/SQL APIs, for example, `BOM_BO_PUB` and `EGO_ITEM_PUB`:

1. Expand the **OEBSBWSE > Processes** folder in the Project Explore panel.
2. Select an activity in the process, for example, the `CreateInventoryItem1` activity in `inventoryProcess`.
3. Click the **Generate SQL Script** button to generate two SQL scripts.

The two SQL scripts *ProcessName_ActivityName_APIPackageAndName.APIProcedureName.sql* and *ProcessName_ActivityName_APIPackageName.APIProcedureName_undo.sql* are created in the `TIBCO_HOME\bw\plugins\oracleebs\sql` directory.

4. Select and run the appropriate SQL script from the two generated in step 3.

   Repeat the above steps to run the SQL script for the other activities. Refer to Chapter 5 of *TIBCO ActiveMatrix BusinessWorks Plug-in for Oracle E-Business Suite User's Guide* for details.

Importing the OEBSReference SOA Project

Complete the following steps to import the existing `OEBSReference` SOA project:

1. Select **File > Import** from the Menu in TIBCO Business Studio.
2. Select **General > Existing Projects Into Workspace**, then click the **Next** button in the Import dialog.
3. Click the **Browse** button to select the root directory of the SOA project.

   The directory for the `OEBSReference` SOA project is *TIBCO_HOME*`\bwse\plugins\oebs\samples`.
4. Check the **Copy Projects Into Workspace** checkbox, then click the **Finish** button.

   The `OEBSReference` SOA project appears in the Project Explorer panel.

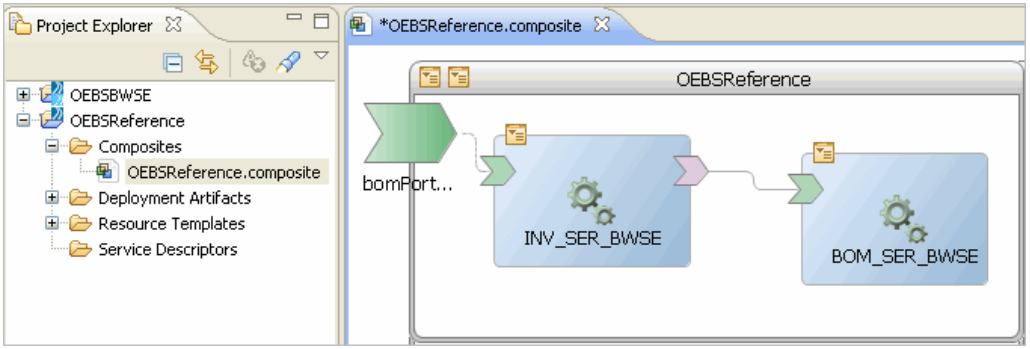
To create a new TIBCO SOA project, refer to Creating a TIBCO SOA Project on page 7 for details.

Reviewing the Composite Configuration of the OEBSReference SOA Project

Complete the following steps to review the composite configuration:

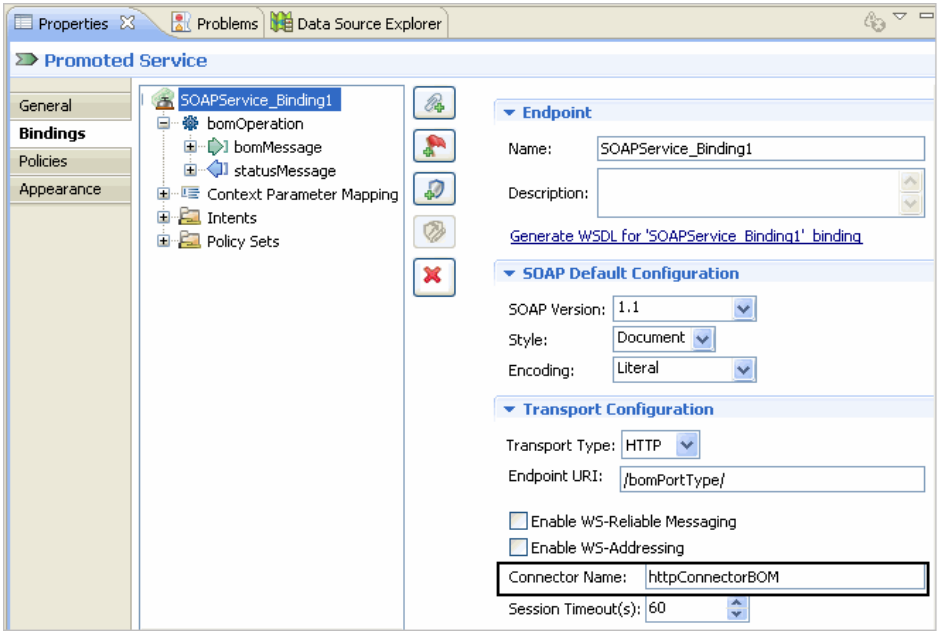
1. Expand the **Composites** folder of the `OEBSReference` project in the Project Explorer panel.
2. Double-click the predefined `OEBSReference.composite` composite to launch the Composite Editor, as shown in Figure 7.

Figure 7 OEBSReference Composite



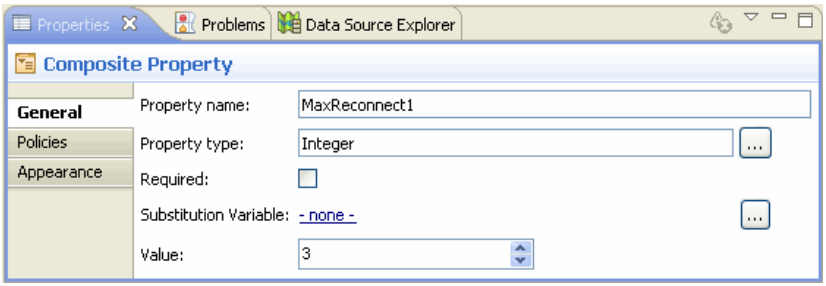
3. Select a component in the `OEBSReference` composite and view the configuration of the component from the Properties tab. There are two components in this composite: `BOM_SER_BWSE` and `INV_SER_BWSE`.
4. Select the promoted service named `bomPortType` and view the binding configuration from a Properties tab, as shown in Figure 8.

Figure 8 Promoted Service Binding



5. Select a component or composite property to view the property configuration from the Properties tab. Figure 9 show a sample screen of the Composite property.

Figure 9 Composite Property



6. Save the configuration if any changes have been made.

Creating a Distributed Application Archive (DAA)

Projects developed during design time need to be packaged into a DAA file before you can deploy them in the TIBCO ActiveMatrix environment.

To create a DAA using Business Studio, complete the following steps:

1. Expand the **Composite** folder in the Project Explorer panel, right-click `OEBSReference.composite`, and select **Create DAA** from the popup menu.
2. Select the **Deployment Artifacts** folder in the Select Archive Location page.

   Enter a new filename or accept the default name in the File Name field. Then click the **Next** button.
3. Select the **Do Not Use A Distribution File** radio button in the Select Distribution page, then click the **Next** button.
4. Check the **Save DAA Spec** checkbox in the DAA Specification page, then click the **Finish** button.

   The `OEBSReference` DAA file is created successfully and stored in the `OEBSReference\Deployment Artifacts` folder in your workspace.

To check the location of the DAA file, you can expand the **OEBSReference > Deployment Artifacts** folder in the Project Explorer panel, right-click **OEBSReference.daa**, then select **Properties** from the popup menu.

Setting Up the TIBCO ActiveMatrix Environment

Complete the following steps to set up the TIBCO ActiveMatrix environment:

1. Start TIBCO Enterprise Message Service (EMS) Server.
   - — Right-click the **My Computer** icon on your desktop, select **Manage** from the pop-up menu.
   - — Expand the **Services and Applications > Services** folder in the Computer Management window. Select and then start the **TIBCO EMS Server** service.
2. Start the predefined TIBCO host.

   Run the executable named `tibcohost.exe` located in the TIBCO ActiveMatrix configuration directory: *TIBCO_Configuration_Folder*`\tibcohost\`*TibcohostInstance_name*`\host\bin`.
3. Start TIBCO ActiveMatrix Administrator.

   If TIBCO ActiveMatrix Administrator has been created:

   a. Launch a web browser and enter the Administrator URL, **`http://`***`host_name`*`:`*`port_number`*`/amxadministrator/loginForm.jsp`**, in the address bar to start the TIBCO ActiveMatrix Administrator Server.

   b. Enter the username and password to log in. The default username is `root`, and the password is `t`.

   If TIBCO ActiveMatrix Administrator has not been created, see *TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite Installation* for instructions about how to create it.
4. Add the TIBCO Enabled JDBC Driver For Oracle driver on the node where the application will be deployed, for example, `DevNode`. Refer to Chapter 3 of *TIBCO ActiveMatrix BusinessWorks Service Engine Plug-in for Oracle E-Business Suite Installation* for details.

Adding an HTTP Connector Resource Instance

An HTTP connector describes an incoming HTTP connection. The following steps describe how to add an HTTP Connector resource instance using TIBCO ActiveMatrix Administrator:

1. Open TIBCO ActiveMatrix Administrator.
2. Select **Shared Objects > Resource Templates**.
3. Click the **New** button in the Resource Templates page. The Add Resource Template dialog appears.

4. In the Add Resource Template dialog:
   - Enter **`httpConnectorBOM`** in the Name field.
   - Select **HTTP Connector** from the Type drop-down list.

The name of the HTTP Connector resource must be the same as the binding connector name of the `bomPortType` promoted service, for example, `httpConnectorBOM`, as shown in Figure 8.

Also, make sure that the values in the Machine Name and Port fields are consistent with the Host and Port fields when creating the concrete WSDL to run the example project. See Running the Example on page 33 for details.

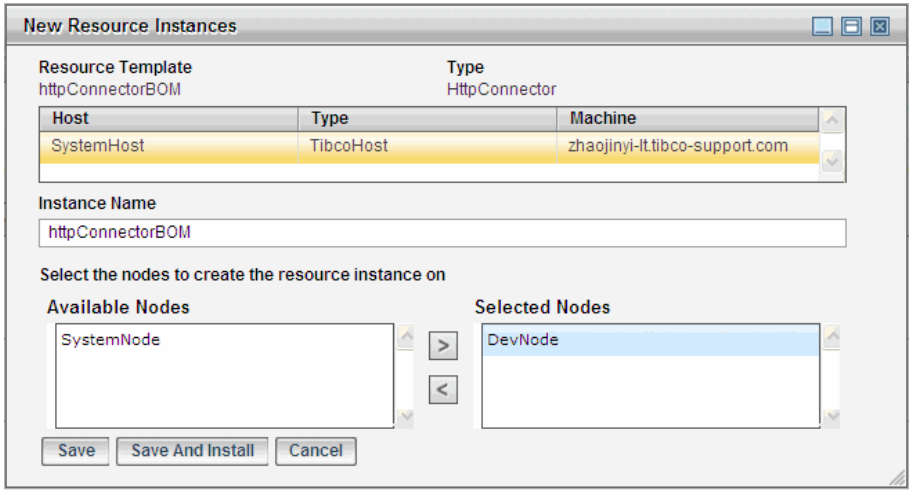
   - Click the **Save** button.

5. Select the newly created HTTP Connector resource, then click the **New Resource Instances** button in the Resource Templates page.

   The New Resource Instances dialog appears.

6. In the New Resource Instances dialog, as shown in Figure 10:
   - Select the **SystemHost** item (the default host) in the Host column.
   - Select a node on which the application will be deployed, for example, `DevNode`, in the Available Nodes list, then click the > button to move the DevNode item to the Selected Nodes list.
   - Click the **Save And Install** button.

Figure 10 New Resource Instances



The HTTP Connector resource instance is created successfully.

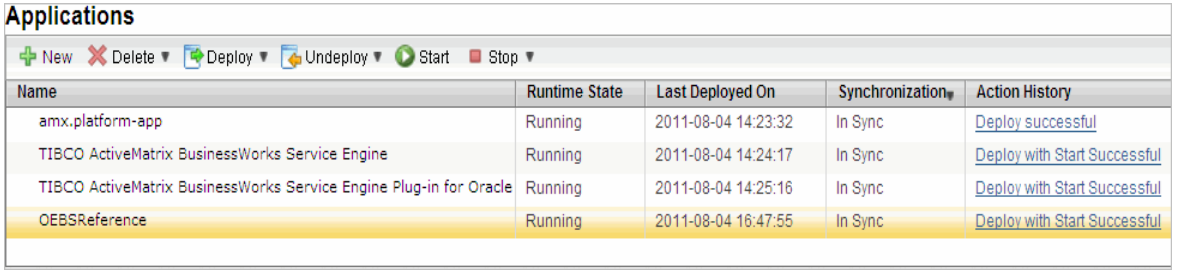
Deploying the DAA

The following steps describe how to deploy the DAA using TIBCO ActiveMatrix Administrator:

1. Open TIBCO ActiveMatrix Administrator.
2. Select the **Applications** tab and click the **New** button.
3. Configure the application in the New Application dialog.
   a. Enter a name in the Application Name field, for example, `OEBSReference`.
   b. Select the **Upload A DAA File** radio button.
   c. Click the **Next** button.
4. Click the **Browse** button and select the DAA file created previously in Creating a Distributed Application Archive (DAA) on page 29.
5. Click the **Next** button.
6. Review the setup information of the newly created application. Click the **Save And Exit** button.
7. Select the newly created **OEBSReference** item from the Applications list. Click the **Distribution** tab of the selected application.
8. Select the application in the left-hand panel, then select the node on which you want to distribute it. For example, select the **DevNode** item in the Available Nodes column, then move it to the Selected Nodes column.
9. Click the **Save** button.
10. Click the **Deploy** button, then select **Deploy With Start** from the pop-up menu to deploy and start the application.

    The OEBSReference application status in the Runtime State column appears as Running, as shown in Figure 11.

Figure 11 Deploy and Run the Service

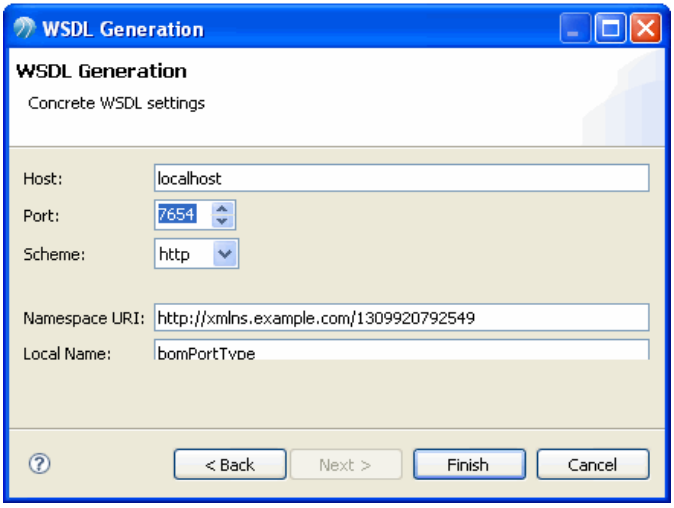


Running the Example

The following steps show how to run the example using TIBCO Business Studio after the example is deployed successfully:

1. Generate the WSDL file.
   a. Select **BomPortType** in the OEBSReference.composite Editor panel, as shown in Figure 7.
   b. Click the **Bindings** tab, then select the **SOAPService_Binding1** item, as shown in Figure 8.
   c. Click the **Generate WSDL For 'SOAPService_Binding1' Binding** link. The WSDL Generation dialog appears.
   d. Accept the defaults, then click the **Next** button.
   e. Provide the host and port in the Host field and Port field, then click the **Finish** button, as shown in Figure 12.

Figure 12 WSDL Generation

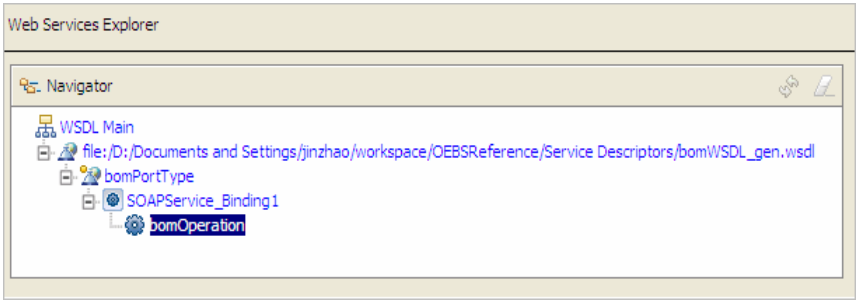


The `bomWSDL_gen.wsdl` is created successfully.

Make sure that the host and the port are consistent with the values provided in the Machine Name and the Port fields when creating the HTTP Connector Resource. See Adding an HTTP Connector Resource Instance on page 30 for more information.

2. Right-click the **BomWSDL_gen.wsdl** file in the Service Descriptors folder under the OEBSReference project, then select **Web Services > Test With Web Services Explorer**. The Web Services Explorer appears in the Editor Panel.
3. Select **BomOperation** in the Navigator panel, as shown in Figure 13.

Figure 13 Web Service Navigator



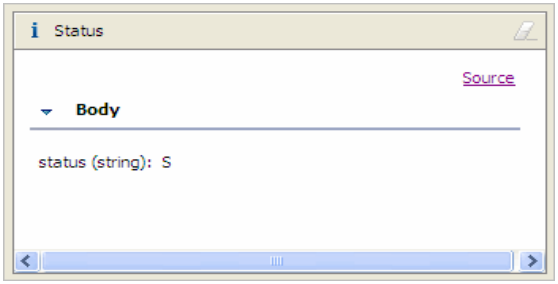
4. Enter the input data for the items, as shown in Figure 14.

Figure 14 Input of the Example

5. Click the **Go** button to run the example.

After running the example successfully, the status `S` indicates that the example ran successfully, as shown in Figure 15. On the other hand, the status `E` indicates an error occurred when running the example.

Figure 15 Output of the Example

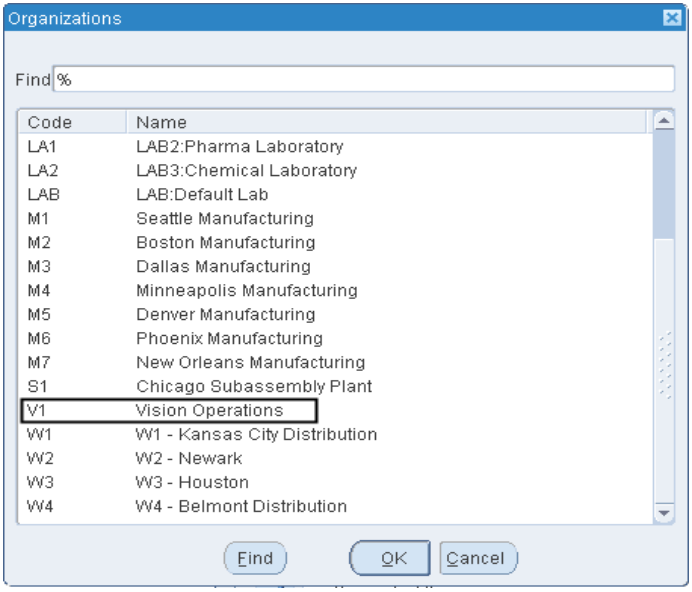


Viewing the Result in Oracle E-Business Suite

The following steps show how to view the result in Oracle E-Business Suite (OEBS) after running the example successfully.

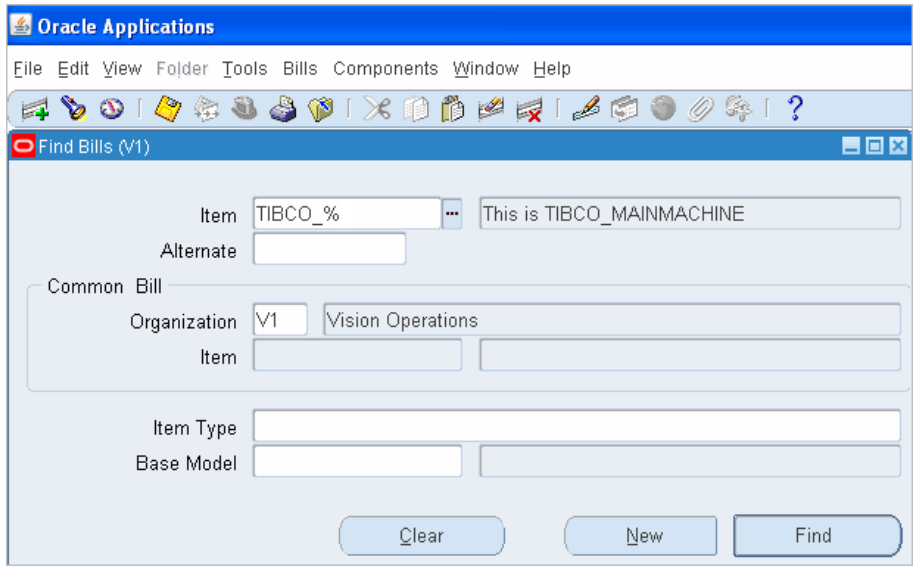
1. Log in to the OEBS system. The defaul username and password are `MFG` and `welcome` respectively.
2. Select **Manufacturing And Distribution Manager > Bills Of Materials:Bills > Bills**.
3. Select the **V1 Vision Operations** item in the Organizations dialog, then click the **OK** button, as shown in Figure 16.

Figure 16 Select V1 Organization



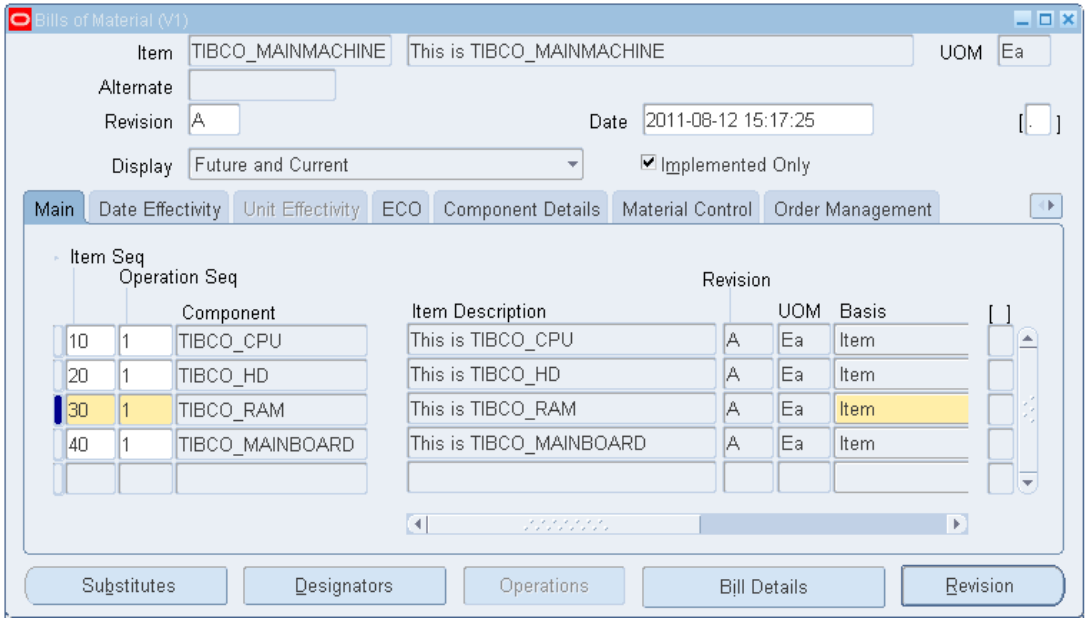
4. Click the button in the toolbar to open the Find Bills (V1) dialog, as shown in Figure 17.
5. Enter **`TIBCO_%`** in the Item field, then click the **Find** button in the Find Bills (V1) dialog, as shown in Figure 17.

Figure 17 Search the Result



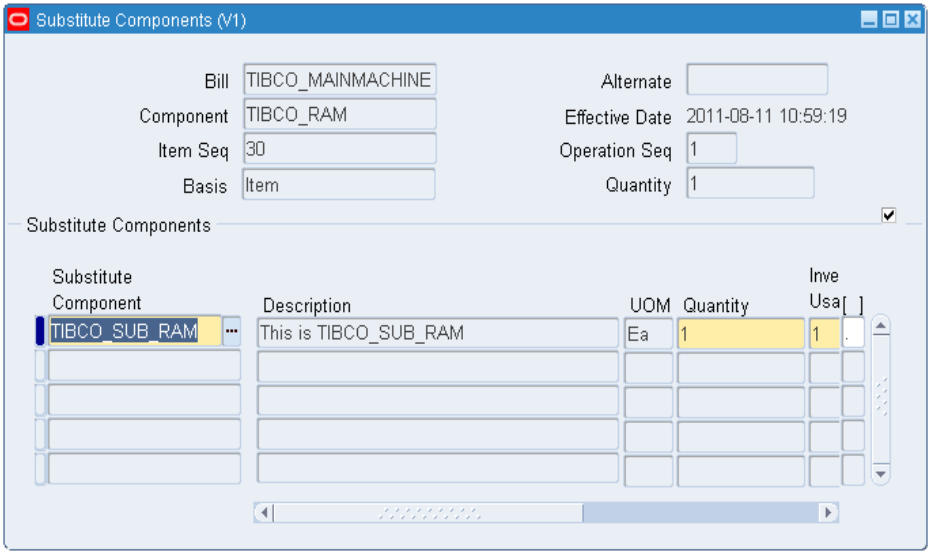
The search result appears, as shown in Figure 18.

Figure 18 Created BOM Bill in OEBS



6. Click the **Substitutes** button to view the substitute component of the TIBCO_RAM item, as shown in Figure 19.

Figure 19 Substitute Components



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