



# **Agile Product Lifecycle Management**

## **EC BPEL Services Guide**

v9.3.0.2

Part No. E17294-01

June 2010

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# CONTENTS

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Oracle Copyright.....	ii
<b>Chapter 1 Introduction .....</b>	<b>1</b>
About Engineering Collaboration (EC) Services .....	1
Software Requirements.....	2
Target Audience .....	2
EC BPEL Services Source and Configuration files .....	2
<b>Chapter 2 What is included .....</b>	<b>3</b>
<b>Chapter 3 Configurations .....</b>	<b>5</b>
Configuration for local access to SOA suite .....	5
Configuration for remote access to SOA suite .....	6
<b>Chapter 4 Compilation/Deployment of Processes .....</b>	<b>9</b>
Resource Bundle Installation.....	9
<b>Chapter 5 Setting up Processes in JDeveloper .....</b>	<b>11</b>
<b>Appendix A Appendix A .....</b>	<b>13</b>
Troubleshooting.....	13
"get-wsdl" task failing.....	13
Could not create task or type of type: validateTask.....	13
Timeout error on deployment .....	13

# Preface

The Agile PLM documentation set includes Adobe® Acrobat PDF files. The [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technology/documentation/agile.html) <http://www.oracle.com/technology/documentation/agile.html> contains the latest versions of the Agile PLM PDF files. You can view or download these manuals from the Web site, or you can ask your Agile administrator if there is an Agile PLM Documentation folder available on your network from which you can access the Agile PLM documentation (PDF) files.

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**Note** To read the PDF files, you must use the free Adobe Acrobat Reader version 7.0 or later. This program can be downloaded from the [Adobe Web site](http://www.adobe.com) <http://www.adobe.com>.

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The [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technology/documentation/agile.html) <http://www.oracle.com/technology/documentation/agile.html> can be accessed through **Help > Manuals** in both Agile Web Client and Agile JavaClient. If you need additional assistance or information, please contact My Oracle Support (<https://support.oracle.com>) for assistance.

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**Note** Before calling Oracle Support about a problem with an Agile PLM manual, please have the full part number, which is located on the title page.

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## TTY Access to Oracle Support Services

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## Readme

Any last-minute information about Agile PLM can be found in the Readme file on the [Oracle Technology Network \(OTN\) Web site](http://www.oracle.com/technology/documentation/agile.html) <http://www.oracle.com/technology/documentation/agile.html>

## Agile Training Aids

Go to the [Oracle University Web page](http://www.oracle.com/education/chooser/selectcountry_new.html) [http://www.oracle.com/education/chooser/selectcountry\\_new.html](http://www.oracle.com/education/chooser/selectcountry_new.html) for more information on Agile Training offerings.

## Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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## Introduction

### About Engineering Collaboration (EC) Services

Agile PLM Engineering Collaboration (EC) Services are a set of Business Services that supplement PLM's Core Web Services for CAD use cases. They also offer a set of higher level BPEL orchestration services. Customers and partners can build next generation MCAD and ECAD connectors utilizing Agile PLM Web Services and Engineering Collaboration Services.

**Some of the benefits are:**

- Significantly Improves WAN performance for CAD connectors because the bulk of the logic is deployed to the server
- Makes it easier for development partners and customers to implement CAD connectors

Customers and partners deploy the following out-of-the box BPEL services or them to meet their business needs.

EC BPEL Service	Description
getDesignPropertiesAndRights	Returns Design metadata and access rights. Orchestrates these calls: getTableMetaData, checkPrivilege
getDesignItemPropertiesAndRights	Returns Part metadata and access rights. Orchestrates these calls: getTableMetaData, checkPrivilege
createUpdateThenReserve	Creates or updates Design objects, and then checks them out. Orchestrates these calls: updateObject, getAutoNumbers, createObject, checkoutFF
reserveThenCreateUpdate	Checks out Design objects, and then updates them (and creates them if they don't exist). Orchestrates these calls: checkoutFF, updateObject, getAutoNumbers, createObject
createUpdateThenRelate	Creates or updates objects (Designs or Parts), and then relates them to Parts or Designs. Orchestrates these calls: updateObject, getAutoNumbers, createObject, addRows
retrieveDesignStructureAndMetadata	Retrieves all Design structure, file IDs, metadata, and access rights. Orchestrates these calls: retrieveDesignStructure, getTableMetaData, checkPrivilege

## Software Requirements

- Oracle SOA Suite 10.1.3.4 (iAS 10.1.3.4)
- jDeveloper 10gR3
- Agile 9.3 EC BPEL Services

## Target Audience

The intended audience for this guide are the Administrators who will deploy EC BPEL Services on Oracle SOA suite.

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**Note**     Note: To deploy Agile EC BPEL services, Oracle SOA suite must be already installed and configured.

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**This guide provides necessary procedures to:**

1.    Configure build properties
2.    Build EC BPEL services in jDeveloper
3.    Deploy the EC services in Oracle SOA suite

## EC BPEL Services Source and Configuration files

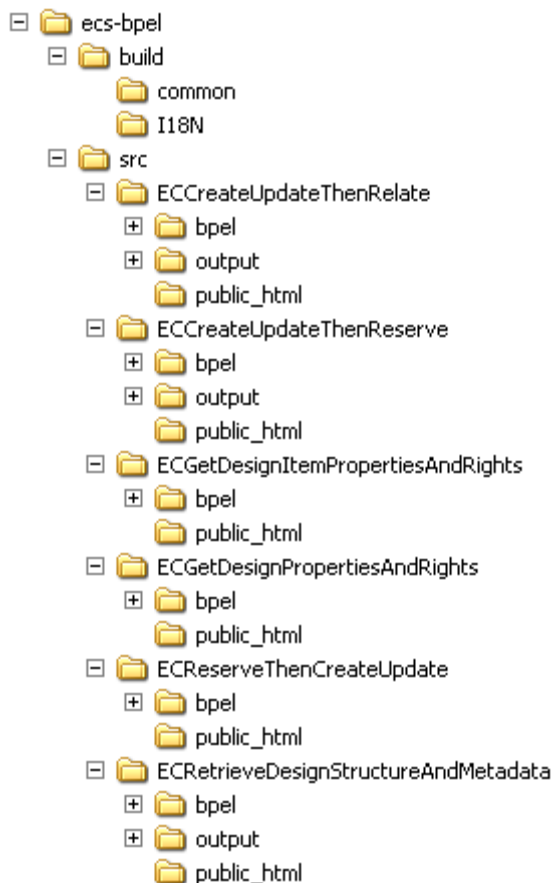
Agile EC BPEL sources and configuration files are available in a zip file („ecs-bpel.zip.)

The „ecs-bpel.zip" file contains the following directory structure when extracted to a folder "bpel". This location will now on be referred to as <ec-bpel-root>.

# What is included

The „ecs-bpel.zip“ file contains the following directory structure when extracted to a folder “bpel”. This location will now on be referred to as <ec-bpel-root>.

Figure 1: Directory structure of ecs-bpel.zip



The “build” folder contains a “build.xml” and “build.properties” file. The build.properties file must be adapted before you can deploy the processes. The “build.xml” contains all the targets you need to perform the deploy. This will be described in the following sections. The “I18N” folder contains the language resource bundle. This needs to be manually deployed which will also be described later.

The bpel processes are found under the “src” folder. Each bpel folder has a “build.xml” and “build.properties” file. These are artifacts from JDeveloper and are not used. They are included anyways if anyone wishes to use them.

The “public\_html” folder under each process contains a sample file that shows a sample request for each of the processes. This can be directly pasted in BpelConsole to directly invoke each process.





# Configurations

**This chapter includes the following:**

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- Configuration for local access to SOA suite ..... 5
- Configuration for remote access to SOA suite..... 6

## Configuration for local access to SOA suite

To compile or deploy bpel processes the following set of properties need to be defined in build.properties file found under "<ec-bpel-root>/build" directory.

Table 2: Table of Properties for compilation/deployment and their function (BPEL Server on local machine)

List of properties (with actual/sample values)	Description
a9.server.hostname	The hostname of machine where Agile 9 is deployed.
a9.server.port	<p>The web context of Agile core web services, e.g.</p> <p><a href="http://agileserver:8888/coreService/services/BusinessObject">http://agileserver:8888/coreService/services/BusinessObject</a></p> <p>So the above url points to the Agile 9 Business object services. The "coreService" is the web context for all these services.</p>
todeploy.dir	The directory where compiled bpel processes will be placed ready for deployment, manually or via the deploy task included in script.
bpel.home=l:/product/10.1.3.4/OracleAS_1/bpel	The location of the bpel dir in the OAS app server installation. (Required)
bpel.process.rev=1.0	The revision of all the processes, this is a must by the bpel server. (Required)
bpel.domain=default	The domain the bpel processes will get deployed to. This is a must by the bpel server. (Required)
bpel.http.hostname=localhost	This is required

<code>bpel.http.port=7777</code>	This is required
<code>bpel.admin.user</code>	This is only required for http mode installation. (Optional)
<code>bpel.admin.encrypted.password</code>	This is required for http deploy. This is decrypted at build time automatically using oracle libraries and value is set in the property “ <code>bpel.admin.password</code> ”. If clear text password is set for <code>bpel.admin.password</code> already than decryption is not done. Either of these 2 properties must be set for successful deploy. It can be found in “ <code>&lt;bpel.home&gt;/utilities/ant-orabpel.properties</code> ” file on the server install.
<code>bpel.admin.password</code>	This is used in http mode installation. This is not needed if “ <code>bpel.admin.encrypted.password</code> ” is supplied. Not recommended to set this, only the above mentioned property is recommended to be set. But if set it works during the http mode deployment. (Optional)
<code>bpel.verbose=true</code>	Bpel process compilation and deployment verbose flag. (Optional)
<code>dummy.bpel.home</code>	This is a special property not required to be set. It used to deploy from a machine that does not have Soa suite locally installed on it. When set it must point to the libraries needed to compile and deploy the processes. If <code>bpel.home</code> is left unspecified than these libraries will be used to compile/deploy the processes. See section “Configurations for a non-SOA suite machine” for more details on how to use this property.

## Configuration for remote access to SOA suite

In general, you can only compile and deploy the bpel processes from a machine that has the Soa suite installed locally on to it. Alternatively JDeveloper can be used to compile the BPEL suitcases and the BPEL console can be used to execute an http deploy. But it is sometimes convenient to be able to deploy all the processes from ANT in one go without manually executing these steps.

To alleviate this problem you need to copy over a few jar files listed below to your local machine

from your Soa server. Your administrator can provide these files. These jars have to be copied over to folder called “lib”. Then you must specify the “dummy.bpel.home” property to be the parent folder of this “lib” directory. The build script will than work transparently for you whether you have the Soa suite installed locally for you or not. This is not a documented approach for Soa server and is given only for convenience. Following are the required jar files for this setting. They can be found under “<SOA-suite-install-location>/bpel/lib” directory.

- orabpel.jar
- orabpel-ant.jar
- orabpel-boot.jar
- orabpel-common.jar
- orabpel-exts.jar
- orabpel-thirdparty.jar
- oracle\_http\_client.jar
- orawsdl.jar
- xmlparserv2.jar



# Compilation/Deployment of Processes

The Oracle BPEL Server must be installed as part of the SOA Suite installation (version 10.1.3.4.0). At least version 1.6.5 of Ant must be present. Recommended version of Java is same as used by SOA Suite (version 10.1.3.4). More details on this are present in the installation guides of the Oracle Application Server and are out of scope of this document.

The properties outlined in Table 2 must be filled with valid values. Then open command line in directory "<ec-bpel-root>/build". Then for deploying the bpel processes execute the following ant command:

**ant deploy-bpel-processes**

To just compile and place the processes in the folder specified by property "todeploy.dir", execute on the command line in directory "<ec-bpel-root>/build":

**ant compile-bpel-processes**

## Resource Bundle Installation

The folder under "<ec-bpel-root>/build/l18N" contains a file "agileEcBpelResourceBundle.jar" file. This contains the language resource bundles for the bpel processes. The languages supported are the only ones that Agile PLM itself supports. The processes will not work without installing this jar file on the server.

The steps to manually install this jar file are as follows:

1. Copy the "agileEcBpelResourceBundle.jar" file to the "<SOA-suite-install-location>/bpel/lib" directory. Or alternatively you can copy it to some other location of your preference. Remember this path for later reference.
2. Goto the "<SOA-suite-install-location>/j2ee" directory. Next open the home directory in which the bpel server is installed. This is typically "oc4j\_soa" for default installations.
  - Open the "/config/server.xml" file in the above directory.
3. Find the xml node below :
  - <shared-library name="oracle.bpel.common" version="10.1.3">
4. Add the following line

```
<code-source path="<SOA-suite-install-  
location>/bpel/lib/agileEcBpelResourceBundle.jar"/>
```

where the string "<SOA-suite-install-location >" refers to the absolute path of your Soa Suite installation on your system.

Alternatively if you saved the "agileEcBpelResourceBundle.jar" to some other location, please provide the path to the same here.

Restart the Soa Suite server after this step for the changes to take effect. The bpel processes should now successfully run after this step.



# Setting up Processes in JDeveloper

The properties outlined in Table 2 must be filled with valid values. Then for developing or viewing the processes in JDeveloper execute the following ant command:

**ant init-bpel**

JDeveloper version 10g was used in development of these processes and is the recommended IDE to be used with SOA Suite 10.1.3.4.

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**Note** Please don't use JDeveloper 11g as this might cause conflicts with the BPEL server.

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Now the next step is to open the processes in JDeveloper for development. You can do it in 2 ways:

1. Navigate to the directory "<ec-bpel-root>/src". Double click the "ECS-BPEL-V1.jws" file there. If this extension is associated with JDeveloper it will automatically open the projects in JDeveloper.
2. Alternatively if \*.jws files are not associated with JDeveloper, than you can use JDeveloper itself to open this file.
  - Click File->Open...
  - Navigate to the "<ec-bpel-root>/src" directory.
  - Select the "ECS-BPEL-V1.jws" file there in the open dialog box.
  - This will create the ECS-BPEL-V1 application for you with all the bpel processes added to it.





# Appendix A

## Troubleshooting

### "get-wsdl" task failing

This is a core task for the complete script. Nothing will work as expected if this task fails. It uses the ant "get" task to download the required wsdl files from the Agile 9 server. Possible reasons for failure could be:

- False Agile 9 server hostname / port, this translates to a wrong url for downloading the wsdl files.
- False setting of the "core.service.virtual.path" property, this translates to a wrong url for downloading the wsdl files.
- Agile 9 server is down.

Make sure that the Url's given in the "get" task of the "get-wsdl" target in the build script are valid and that you can access and download the wsdl files with a browser.

Another possible issue could be you need to use a proxy server to get at the Agile 93 server. If the case is so than please refer to the ant "get" task manual. While using Ant 1.7 with Java 5 or later, the default proxy settings of OS are used. In other cases there is a <setproxy> task that you might need to write yourself than.

### Could not create task or type of type: validateTask

This is indicative of the fact that your "bpel.home" variable is not set properly. Please verify your SOA Suite installation directory and reset this variable to valid value that points to the bpel folder in your SOA Suite installation directory.

### Timeout error on deployment

In some cases, especially in clustered application server environments, a timeout exception might be thrown either during deployment or while calling the BPEL services (error message contains: javax.transaction.RollbackException: Timed out).

Adjusting some configuration values in the SOA Suite installation will solve this issue. The placeholder "\${SOA\_Oracle\_Home}" should point to the installation location of the SOA Suite (usually the iAS install location).

1. In \${SOA\_Oracle\_Home}\j2ee\home\config\transaction-manager.xml, the value of transaction-timeout property should be set to 7200 at a minimum.
2. In \${SOA\_Oracle\_Home}\j2ee\home\application-deployments\orabpel\ejb\_ob\_engine\orion-ejb-jar.xml, the value of transaction-timeout property should be set to 3600 at a minimum.
3. In \${SOA\_Oracle\_Home}\bpel\domains\domain\_name\config\domain.xml, the value of

syncMaxWaitTime should be set to 240 at a minimum.