

Oracle® SOA Suite

Installation Guide for JBoss Application Server

10g Release 3 (10.1.3.4) for UNIX and Microsoft Windows

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Oracle SOA Suite Installation Guide for JBoss Application Server, 10g Release 3 (10.1.3.4) for UNIX and Microsoft Windows

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Contents

Preface	v
Audience.....	v
Documentation Accessibility	v
Related Documentation	vi
Conventions	vi
 1 Installing Oracle SOA Suite with JBoss Application Server	
Overview of Oracle SOA Suite on JBoss	1-1
System and Database Requirements	1-2
Installation and Configuration	1-3
Step 1: Create the Oracle SOA Suite Schema in the Oracle Database.....	1-3
Step 2: Install Oracle SOA Suite Basic 10.1.3.1.0 for OC4J.....	1-4
Step 3: Apply SOA Suite Patchset 10.1.3.4.....	1-4
Step 4: Upgrade SOA Schema to 10.1.3.4.....	1-5
Step 5: Apply MLR#3 on Oracle SOA Suite 10.1.3.4	1-5
Step 6: Upgrade SOA Schemas to MLR#3 Level	1-6
Step 7: Install JBoss and Configure Oracle SOA Suite for JBoss.....	1-6
Design-Time Deployment Support Oracle SOA Suite 10.1.3.4 on JBoss	1-9
From the BPELPM Developer Prompt Using Ant.....	1-9
Prerequisite Checks	1-9
Steps to Deploy Using the BPELPM Prompt	1-10
From JDeveloper	1-10
Prerequisite Checks	1-10
Steps to Deploy Using JDeveloper	1-11
Additional Configuration Steps of JBoss	1-12
Using LDAP	1-12
Using High Availability Setup	1-12
Prerequisite Checks	1-12
Steps to Configure HA for Oracle SOA Suite	1-12
Using ESB System Configurations.....	1-13
Using MQ and Tibco Client Classes	1-14
Postinstallation Verification Tasks	1-14
Verifying BPEL, ESB, OWSM Consoles	1-14
Verifying the SelectAllByTitle Sample for the Database Adapter	1-16
Running Adapter Samples.....	1-17

Configuring Outbound Connection Pool for Adapters in JBoss.....	1-17
Deploying Samples Using Ant.....	1-18
Limitations and Known Issues	1-18
Limitations	1-18
Known Issues.....	1-19

Index

Preface

This guide is the primary source of installation information for Oracle SOA Suite.

This preface contains these topics:

- [Audience](#)
- [Documentation Accessibility](#)
- [Related Documentation](#)
- [Conventions](#)

Audience

Oracle SOA Suite Installation Guide for JBoss Application Server is intended for customers who want to install Oracle SOA Suite.

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at

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<http://www.fcc.gov/cgb/consumerfacts/trs.html>, and a list of phone numbers is available at <http://www.fcc.gov/cgb/dro/trsphonebk.html>.

Related Documentation

For more information, see these Oracle resources:

- *Oracle Application Server Installation Guide* for your platform
- *Oracle Database Administrator's Guide*

In North America, printed documentation is available for sale in the Oracle Store at

<http://oraclestore.oracle.com/>

To download free release notes, installation documentation, white papers, or other collateral, please visit the Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at

<http://www.oracle.com/technology/membership>

If you already have a username and password for OTN, then you can go directly to the documentation section of the OTN Web site at

<http://www.oracle.com/technology/documentation>

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Installing Oracle SOA Suite with JBoss Application Server

This chapter provides the requirements and procedures for installing Oracle SOA Suite with JBoss Application Server (JBoss).

This chapter contains the following topics:

- [Overview of Oracle SOA Suite on JBoss](#)
- [System and Database Requirements](#)
- [Installation and Configuration](#)
- [Design-Time Deployment Support Oracle SOA Suite 10.1.3.4 on JBoss](#)
- [Additional Configuration Steps of JBoss](#)
- [Postinstallation Verification Tasks](#)
- [Limitations and Known Issues](#)

See Also: The following documents after completing installation:

- *Oracle BPEL Process Manager Quick Start Guide*
- *Oracle BPEL Process Manager Order Booking Tutorial*
- *Oracle BPEL Process Manager Developer's Guide*
- *Oracle Application Server Adapter for Files, FTP, Databases, and Enterprise Messaging User's Guide*
- *Oracle Application Server Adapter Concepts*

Overview of Oracle SOA Suite on JBoss

You can install and use Oracle SOA Suite with JBoss.

JBoss enables you to set up, operate, and integrate e-business applications across multiple computing platforms using Web technologies. JBoss includes both the run-time components and the tools to develop and design applications.

Oracle SOA Suite provides a complete set of service infrastructure components for designing, deploying, and managing composite applications. Oracle SOA Suite enables services to be created, managed, and orchestrated into composite applications and business processes. Composites enable you to easily assemble multiple technology components into one SOA composite application. Oracle SOA Suite plugs into heterogeneous IT infrastructures and enables enterprises to incrementally adopt SOA.

Oracle Business Rules (Business Rules) and Oracle Adapters plug into the Service Infrastructure, a normalized transport infrastructure, make up the Enterprise Service Bus (ESB). With the addition of Oracle BPEL Process Manager (BPEL) and Human Workflow service components, the suite forms a complete Business Process Management (BPM) platform.

The following components comprise Oracle SOA Suite:

- Oracle Enterprise Service Bus (ESB)
- Oracle BPEL Process Manager (BPEL)
- Human Workflow
- Oracle Web Services Manager (OWSM)
- Oracle Business Rules

The installation of Oracle SOA Suite for JBoss consists broadly of the following steps:

- Create the Oracle SOA Suite schema in the Oracle Database.
This step involves installation of Oracle Database and creation of the required database schemas for the dehydration store for BPEL PM on Oracle Database.
- Install Oracle SOA Suite 10.1.3.1 for OC4J.
This comes with an embedded OC4J J2EE container. Further steps will configure this Oracle SOA Suite to work on top of the JBoss.
- Apply Oracle SOA Suite Patchset 10.1.3.4 on Oracle SOA Suite 10.1.3.1.
This patchset upgrades the existing 10.1.3.1.0 installation to 10.1.3.4.
- Apply MLR#3 on Oracle SOA Suite 10.1.3.4. This MLR#3 opatch upgrades the installation to 10.1.3.4 + MLR#3 level.
The procedure to apply MLR#3 is same as on OC4J (no Hot Plug post patch needs to be run).
- Configure Oracle SOA Suite on JBoss Version 4.2.3.
This step involves running a command-based script, which will configure the Oracle SOA Suite on OC4J installed earlier to run on JBoss. The script performs the following:
 - Creates application server instance - OracleSOAServer
 - Configures the OracleSOAServer shared libraries with Oracle SOA Suite Binaries.
 - Creates and configures the required data sources/JMS resources.
 - Deploys the required J2EE applications for BPEL Console, BPEL Administration, Human WorkFlow, ESB, OWSM, and Business Rules.The above steps, which are further detailed in [Installation and Configuration](#), summarize the installation and configuration of Oracle SOA Suite on the JBoss platform.

System and Database Requirements

[Table 1–1](#) describes the system requirements for using Oracle SOA Suite with JBoss.

Table 1–1 Oracle SOA Suite System Requirements

Element	Requirement
JBoss Application Server	Version 4.2.3
Oracle SOA Suite for OC4J	Oracle SOA Suite for OC4J 10.1.3.4 + MLR#3 Note: Refer to Step 2: Install Oracle SOA Suite Basic 10.1.3.1.0 for OC4J for installing Oracle SOA Suite for OC4J.
Web browsers	Internet Explorer 6.0 or Mozilla Firefox 2.0
Operating systems	Microsoft Windows XP, Microsoft Windows 2003, Red Hat Enterprise Linux release 5.2, and Oracle Enterprise Linux 5.2 Note: See the JBoss Web site for additional details about using these operating systems with the JBoss Application Server.
Dehydration store database	Oracle Database 10g (10.2.0.2) or higher Note: This certification matrix reflects the Oracle SOA Suite certification on Oracle Application Server, and may vary with the application server being used. Confirm the certification matrix of the application server with Oracle Database version.

Installation and Configuration

This section describes the steps involved in creating the required schema in the database and installing and configuring Oracle SOA Suite for JBoss.

This section contains the following topics:

- [Step 1: Create the Oracle SOA Suite Schema in the Oracle Database](#)
- [Step 2: Install Oracle SOA Suite Basic 10.1.3.1.0 for OC4J](#)
- [Step 3: Apply SOA Suite Patchset 10.1.3.4](#)

Note: Oracle Database Lite is automatically installed with the Oracle BPEL Process Manager for Developers install type described in this chapter. However, you *cannot* use Oracle Database Lite as the dehydration store.

- [Step 4: Upgrade SOA Schema to 10.1.3.4](#)
- [Step 5: Apply MLR#3 on Oracle SOA Suite 10.1.3.4](#)
- [Step 6: Upgrade SOA Schemas to MLR#3 Level](#)
- [Step 7: Install JBoss and Configure Oracle SOA Suite for JBoss](#)

Step 1: Create the Oracle SOA Suite Schema in the Oracle Database

Note: These instructions assume that you have installed Oracle Database 10g version 10.2.0.1 and Oracle Database 10g Patch version 10.2.0.2. For all other Database versions, refer to the Oracle Documentation Web site at <http://www.oracle.com/technology/documentation/index.html>

To create the Oracle SOA Suite schema in the Oracle Database:

1. Navigate to the `Disk1\install\soa_schemas\irca` folder in the Oracle SOA Suite installation setup files directory.

2. Set `ORACLE_HOME` to point to the Oracle Database installation location. For example,

```
set ORACLE_HOME=c:\Oracle10g
```

3. Enter `irca.bat` on Windows and `./irca.sh` in Linux.

This runs the `irca` script to create the schemas required for BPEL, ESB, and OWSM.

4. Enter `sys` password when prompted.

The SOA schema is loaded into the Oracle Database.

Step 2: Install Oracle SOA Suite Basic 10.1.3.1.0 for OC4J

You can download and install the basic Oracle SOA Suite 10.1.3.1 for OC4J from Oracle SOA Suite 10g Software Downloads Web site at

<http://www.oracle.com/technology/software/tech/soa/index.html>

You must install Oracle SOA Suite into its own directory outside of JBoss. JBoss installation will refer to binaries and property files from this installation. This external installation must be there permanently, it is not a temporary staging area. Even though it also contains OC4J, you will not be starting and stopping it. This is an important prerequisite prior to the JBoss installation.

Note:

- In this step, you are required to install only the basic installation of Oracle SOA Suite 10.1.3.1, and not the advanced.
- These instructions assume that you have obtained Oracle Database 10g version 10.2.0.1 and Oracle Database 10g Patch version 10.2.0.2. For all other Database versions, refer to the Oracle Documentation Web site at

<http://www.oracle.com/technology/documentation/index.html>

Step 3: Apply SOA Suite Patchset 10.1.3.4

You must download the SOA Suite patchset 10.1.3.4 from *OracleMetaLink* and then apply the patch number - 7272722 Oracle Fusion Middleware Family: Patchset 10.1.3.4 PATCHSET UPLOAD. Perform the following steps:

1. Log in to *OracleMetaLink* at <http://metalink.oracle.com>. The *OracleMetaLink* home page is displayed.
2. Follow the instructions in the patchset to install the patchset.

Caution: You should not start/restart the Oracle SOA Suite instance of OC4J server after applying the patch.

3. Shutdown the SOA Suite Post patch upgrade as follows:

WARNING: Do not start Oracle SOA Server from the Windows Start Menu or by running the *SOA_Home\opmn\bin\opmnctl -startall* script. These actions are not supported.

Caution: You should not start/restart the Oracle SOA Suite instance of OC4J server after applying the patch.

For...	Run...
Windows XP	SOA_HOME\opmn\bin> opmnctl stopall
Linux	SOA_HOME\opmn\bin> ./opmnctl stopall

Step 4: Upgrade SOA Schema to 10.1.3.4

In this step, you will apply the SOA Suite Patchset 10.1.3.4 and also upgrade ORAPBPEL and ORAESB schemas to 10.1.3.4, as mentioned in the steps below:

1. Execute the following script to upgrade the ORAPBPEL schema:

```
Disk1\install\soa_schema_upgrade\bpel\scripts\upgrade_10133_10134_oracle.sql
```

2. Execute the following script to upgrade the ORAESB schema:

```
Disk1\install\soa_schema_upgrade\esb\sql\oracle\upgrade_10131_10134_oracle.sql
```

Note: Although the ORAESB script states that we are upgrading from 10.1.3.3 to 10.1.3.4, it works fine for upgrading from 10.1.3.1.

Step 5: Apply MLR#3 on Oracle SOA Suite 10.1.3.4

Note: The procedure to apply MLR#3 is same as on OC4J (no Hot Plug post patch needs to be run).

You need to download the MLR#3 opatch for Bug 7586063 (TRACKING BUG for Cumulative MLR#3 on Top of 10.1.3.4) from [OracleMetaLink](#) and then apply the patchset on Oracle SOA Suite 10.1.3.4.

1. Download the OPatch `p7586063_101340_GENERIC.zip` file for Bug 7586063.
2. Follow the instructions given in the `Readme.txt` file of patch 7586063 and apply the patch on Oracle SOA Suite 10.1.3.4.
3. Shutdown the SOA Suite post patch upgrade as follows:

For...	Run...
Windows XP	SOA_HOME\opmn\bin> opmnctl stopall
Linux	SOA_HOME\opmn\bin> ./opmnctl stopall

Step 6: Upgrade SOA Schemas to MLR#3 Level

To upgrade SOA Schemas to MLR#3 level, upgrade both ORAPPEL and ORAESB schemas from the following locations in the SOA_HOME directory:

- `bpel/system/database/scripts/upgrade_10134_10134mlr_oracle.sql`
- `integration/esb/sql/oracle/upgrade_10134_10134MLR.sql`

Step 7: Install JBoss and Configure Oracle SOA Suite for JBoss

1. Install JBoss Application Server 4.2.3 GA.

Note: If installing on Linux, then change the permissions using the command `chmod a+x jboss-4.2.3.GA`.

2. Download the Oracle SOA Suite 10.1.3.4 JBoss (JBOSS_SOA10134.zip) from the Application Server 10g Release 3 (10.1.3.x) Downloads page at <http://www.oracle.com/technology/software/products/ias/htdocs/101310.html> and unzip to your local machine. The contents of this zip file are extracted to the JBOSS_SOA10134 folder with the following sub-folders:

- `bin`
- `cfg`
- `libraries`
- `packaging`
- `soapps`

3. Modify the following mandatory installation properties in the JBOSS_SOA10134\cfg\SOAJboss.properties file:

Note:

- These instructions assume that you have obtained JBoss version 4.2.3.
 - The directory to which you download the Oracle SOA Suite should be the same host on which JBoss is installed.
 - Unzip the JBOSS_SOA10134 folder as a non-root user (same user as used to install Oracle SOA Suite 10.1.3.1 for OC4J). For example, Oracle.
 - If installing on Linux, then change the permissions to the JBOSS_SOA10134 folder using the `chmod -R 755 JBOSS_SOA10134` command.
-
-

Note: Mandatory properties cannot have a comment tag or contain blank values. Failure to follow this requirement results in errors during installation. Also, ensure that you enter the appropriate information for each of the fields. Any typo will cause errors during installation. Use forward slash ("/") as path separator when entering the file paths in SOAJboss.properties.

However, the proxy settings properties, such as PROXY_HOST, PROXY_PORT, and NON_PROXY_HOST are non-mandatory.

Property	Description
JBoss_HOME	The directory path in which JBoss is installed. For example, JBoss_HOME=C:/jboss-4.2.3.GA
SOA_HOME	The directory path in which Oracle SOA Suite is installed. For example, SOA_HOME=C:/product/10.1.3.1/OracleSOA_JBoss
DRIVER_TYPE	The datasource class that the installable utilizes to create datasources for the OracleSOAServer managed server. For example, DRIVER_TYPE=jdbc:oracle:thin
HOSTNAME	This is the name of the system in which the database is installed. For example, HOSTNAME=localhost
PORTNUMBER	The port to which the database is listening. For example, PORTNUMBER=1521
SID	The name of the database instance. For example, SID=ORCL
HTTP_PORT_SOASERVER	The port where OracleSOAServer is configured to run. For example, HTTP_PORT_SOASERVER=9700
RMI_PORT_SOASERVER	The default RMI port for OracleSOAServer. For example, RMI_PORT_SOASERVER=9099
AQ.JMS.ENABLED	If the value of the property is true, then AQ is enabled; if the value of the property is false, then JBoss JMS is enabled. For example, AQ.JMS.ENABLED=true
DB_BPEL_PASSWORD	The password for ORABPEL schema in the database. For example DB_BPEL_PASSWORD=orabpel
DB_OWSM_PASSWORD	The password for ORAWSM schema in the database. For example, OWSM.JAASAUTHPASSWD=orawsm
DB_ESB_PASSWORD	The password for ORAESB schema in the database. For example, ESB.JAASAUTHPASSWD=oraesb
PROXYSET	Indicates whether proxy settings need to be configured for the server. The valid values are true or false. For example, PROXYSET=true

- If you want to use the following optional properties, remove the <comment> tag from the properties, and then specify values.

Note: Optional properties are commented by the # tag, by default. If you remove the # tag for these properties, then they cannot contain blank values. Change the default values for the four properties. Failure to follow this requirement results in errors during installation.

Property	Description
PROXY_HOST	The host name of the proxy server. Set this property, only if PROXYSET=true. For example, PROXY_HOST=www-proxy.us.oracle.com
PROXY_PORT	The port where the proxy server is running. Set this property, only if PROXYSET=true. For example, PROXY_PORT=80
NON_PROXY_HOST	The list of non-proxy hosts that are divided by a symbol. Set this property, only if PROXYSET=true. For example, NON_PROXY_HOST=*.oracle.com *.oraclecorp.com localhost

- Run the following script from the JBOSS_SOA10134\bin folder at the operating system command prompt:

For...	Run...
Windows XP	setup.bat
Linux	setup.sh

Note: The setup.sh script would not have execute privileges. So, run `chmod +x setup.sh`.

This script creates a folder called OracleSOAServer in the JBOSS_HOME\server\ directory. This configures the required applications, server properties, classpaths, database connections, and adapters for OracleSOAServer to run Oracle SOA Suite 10.1.3.4 + MLR#3.

Note: While running the setup.bat or setup.sh file, set the environment variable JAVA_HOME to the SOA_HOME\jdk folder. For example, SOA_HOME\jdk in Microsoft Windows or /SOA_HOME/jdk in Linux. If JAVA_HOME path does not exist, then setup file throws a message asking to set the JAVA_HOME before running the setup file.

Installation progress is logged to the JBOSS_SOA10134\bin\logs\output.log file.

- Start JBoss as follows:

For...	Run...
Windows XP	JBOSS_HOME\bin\startServer.bat -c OracleSOAServer
Linux	JBOSS_HOME/bin/startServer.sh -c OracleSOAServer

Note: Do not start OracleSOAServer from the Windows Start Menu or by running the SOA_Home\opmn\bin\opmnctl -startall script. These actions are not supported.

7. (Optional). Commands to stop the OracleSOAServer is as follows:

Note: Use these commands to stop OracleSOAServer.

Stop the OracleSOAServer as follows:

For...	Run...
Windows XP	stopServer.bat -s jnp://localhost:\${RMI_PORT_SOASERVER}
Linux	stopServer.sh -s jnp://localhost:\${RMI_PORT_SOASERVER}

Design-Time Deployment Support Oracle SOA Suite 10.1.3.4 on JBoss

This section describes the various design-time support functions available on JBoss, for the deployment of J2EE applications in JDeveloper. You can deploy BPEL PM components on JBoss by using the following methods:

- [From the BPELPM Developer Prompt Using Ant](#)
- [From JDeveloper](#)

From the BPELPM Developer Prompt Using Ant

You can use ant in the BPEL PM developer prompt to deploy J2EE applications. This section contains the following topics:

- [Prerequisite Checks](#)
- [Steps to Deploy Using the BPELPM Prompt](#)

Prerequisite Checks

1. Ensure that bpelPlatform is set to **jboss_3** in the SOA_HOME\bpel\system\config\collaxa-config.xml file.
2. Ensure that the following properties are set in SOA_HOME\bpel\utilities\ant-orabpel.properties file:
 - platform to **jboss_3**
 - admin.user to valid user in JBoss realm
 - admin.password to the password of the above mentioned user
 - jndi.url to **jnp://\${HOSTNAME}:\${RMI_PORT_SOASERVER}**
 - jndi.InitialContextFactory to **org.jnp.interfaces.NamingContextFactory**

Note: If the admin.user property is not set correctly, then the deployment may throw authentication errors.

Steps to Deploy Using the BPELPM Prompt

Follow these instructions to deploy BPEL PM from the developer prompt using ant:

1. Open a BPEL PM Developer prompt.
2. Run `ant .sh/bat` from the `SOA_HOME\ant\bin` directory of the BPEL application.

Note: For more information, refer to
`C:\product\10.1.3.1\OracleSOA_JBoss\bpel\GETTING_STARTED.html`.

The only exceptions to be noted are as follows:

- If the BPEL Process contains any Decision Service applications, UI applications, or Work Flow applications, then these applications will not be automatically deployed in JBoss by the ant script.
- The corresponding EAR/WAR files are custom built for the JBoss platform but must be manually deployed on the target server **OracleSOAServer** in JBoss.

From JDeveloper

You can also deploy J2EE applications from JDeveloper. This section contains the following topics:

- [Prerequisite Checks](#)
- [Steps to Deploy Using JDeveloper](#)

Prerequisite Checks

1. Download JDeveloper Studio 10.1.3.4 (`jdevstudio10134.zip`) from Oracle JDeveloper (10.1.3.3) (Build 4157) Web site at
<http://www.oracle.com/technology/software/products/jdev/htdocs/soft10134.html>
2. Copy the `bpm-services.jar` file from the `SOA_HOME\bpel\system\services\lib` directory to `JDEV_HOME\integration\lib` directory.
3. Copy the `orabpel-ant.jar` file from the `SOA_HOME\bpel\lib` directory to the `JDEV_HOME\integration\lib` directory.
4. Ensure that the following properties are set in the `SOA_HOME\bpel\utilities\ant-orabpel.properties` file. Ensure that `bpelPlatform` is set to **jboss_3** in the `SOA_HOME\bpel\system\config\collaxa-config.xml` file.
 - `platform` to **jboss_3**
 - `admin.user` to valid user in JBoss realm
 - `admin.password` to the password of the above mentioned user
 - `jndi.url` to **jnp://\${HOSTNAME}:\${RMI_PORT_SOASERVER}!**
 - `jndi.InitialContextFactory` to **org.jnp.interfaces.NamingContextFactory**

Note: If the `admin.user` property is not set correctly, then the deployment may throw authentication errors.

Creating Connections to Oracle SOA Server

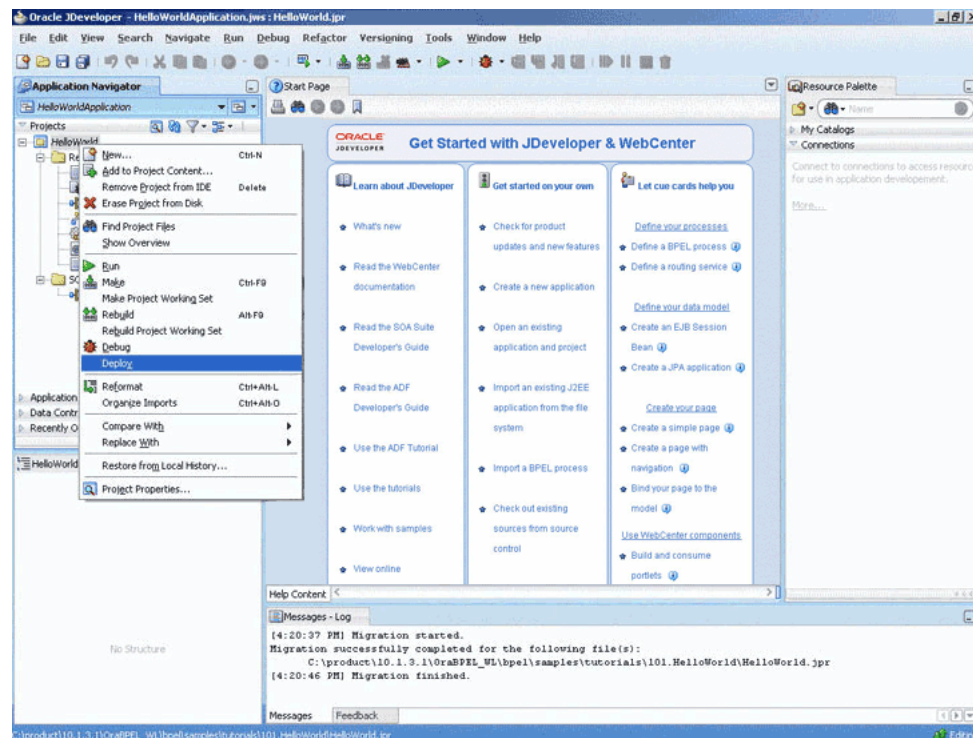
Follow the steps below to create an application server connection and an integration server connection:

1. Create an application server connection of the Standalone OC4J 10.1.3 type.
 - Choose OC4J standalone as server type as there is no plugin available for JBoss
 - Ignore errors when testing this connection. This is due to OPMN absent on JBoss
2. Create an Integration Server connection to **hostname:<HTTP_PORT_SOASERVER>**. The default port is as mentioned in the `SOAJboss.properties` file.
 - Choose the above-created Application Server connection
 - BPEL and ESB should pass when this connection is tested

Steps to Deploy Using JDeveloper

Follow these instructions to deploy BPEL PM from the developer prompt using JDeveloper:

1. From JDeveloper, right-click and deploy the BPEL application into the required domain.



2. To deploy an ESB Services project, right-click and select **Register with ESB** to the required Integration Server connection.

The only exceptions to be noted are as follows:

- If the BPEL Process contains any Decision Service applications, UI applications, or Work Flow applications, then these applications will not be automatically deployed in JBoss by JDeveloper.
- The corresponding EAR/WAR files are custom built for JBoss but must be manually deployed on the target server **OracleSOAServer** in JBoss.

Additional Configuration Steps of JBoss

The configuration steps mentioned in this section are optional and you can perform these only if there is a need:

- [Using LDAP](#)
- [Using High Availability Setup](#)

Using LDAP

This section describes the following steps to configure LDAP in JBoss and to enable LDAP authentication for OracleSOAServer:

1. Navigate to `login-config.xml` in the `JBOSS_HOME\server\OracleSOAServer\conf` directory.
2. Precede the "UsersRolesLoginModule" text with a comment character for application-policy BPELAuthentication.
3. Remove the comment character for the "LdapLoginModule" text (By default, the "LdapLoginModule" text is commented.)
4. Save the changes.
5. Restart **OracleSOAServer**.

The above step disables the default file-based authentication and enables external LDAP authentication.

Note: The LdapLoginModule contains default values. Ensure that you change them to customer specific environment values.

Using High Availability Setup

This section describes the High Availability (HA) support available for Oracle SOA Suite 10.1.3.4 on JBoss. This section contains the following topics:

- [Prerequisite Checks](#)
- [Steps to Configure HA for Oracle SOA Suite](#)

Prerequisite Checks

Ensure that HA setup of Oracle SOA Suite is configured on two machines. Let us assume the host names of the two machines as `hostname01` and `hostname02`.

Steps to Configure HA for Oracle SOA Suite

Follow these instructions to configure HA for Oracle SOA Suite on JBoss:

1. Configure Oracle SOA Suite on JBoss on `hostname01` and `hostname02` separately.

Note:

- To configure Oracle SOA Suite on JBoss on a host name, refer to ["Installation and Configuration"](#).
- While configuring ensure that the data source host info property points to the same database in `SOAJboss.properties` for both the nodes.

2. Install any load balancing software on one of the hosts (hostname01 or hostname02) or some other host, and point `http://hostname01:9700` and `http://hostname02:9700` using the common load balancing URL (`http://<loadbalancer>:9800`).
3. Modify the `SOA_HOME\bpel\system\config\collaxa-config.xml` file on both hostname01 and hostname02.
 - Update **soapCallbackUrl** property in the `collaxa-config.xml` file to `http://<loadbalancer>:9800` so that the **soapCallbackUrl** property points to the load balancer URL.
 - Update **soapServerUrl** property in the `collaxa-config.xml` file to `http://<loadbalancer>:9800` so that the **soapServerUrl** property points to the load balancer URL.
4. Undeploy the ESB design-time application, `x_esb-dt.ear`, in any one of these hosts, either hostname01 or hostname02, before running OracleSOAServer.
 - This application should not be running on both the hosts. Failure to undeploy this ESB design-time application (`x_esb-dt.ear`) might result in producing unwanted errors.
5. Modify the `DT_OC4J_HOST` and `DT_OC4J_PORT` parameter in `ESB_PARAMETER` (`oraesb`) table with `hostName/port` of the machine where ESB Design time application `x_esb-dt.ear` is deployed.
6. Start **OracleSOAServer** on both the hostname01 and hostname02 hosts.
7. Log in to the BPEL Process Manager Console at `http://<loadbalancer>:9800/BPELConsole`
8. Log in to the ESB Console at `http://<hostname01>:9700/esb` (assuming that you have retained ESB design-time (`x_esb-dt.ear`) application in the hostname01 machine).
9. Log in to OWSM at `http://<loadbalancer>:9800/ccore/index.jsp`

Using ESB System Configurations

Ensure that the system information for the ESB services deployed is as follows:

- Virtual Host: The hostname of the ESB design-time instance.
- Port: The port number of ESB design-time instance.
- Topic Location: `ESB_JAVA_DEFERRED`

Note: The value of the Connection Factory Location parameter does not matter for ESB on JBoss application server because ESB, by default, uses AQ messaging and AQ JMS API to connect to the AQ messaging topics.

Using MQ and Tibco Client Classes

The Client jars for WebSphere MQ and Tibco messaging providers should be copied to `SOA_HOME\lib\MQ` directory. These are required to connect to these messaging providers from JMS or MQ adapters.

Postinstallation Verification Tasks

This section describes the postinstallation verification tasks to be performed, and it contains the following topics:

- [Verifying BPEL, ESB, OWSM Consoles](#)
- [Verifying the SelectAllByTitle Sample for the Database Adapter](#)
- [Running Adapter Samples](#)
- [Deploying Samples Using Ant](#)

Verifying BPEL, ESB, OWSM Consoles

Perform the following steps to check if the BPEL, ESB, OWSM Consoles have started:

1. Navigate to `http://localhost:<HTTP_PORT_SOASERVER>/BPEL_Console` (Or to the location where the software is installed, for example, `http://<machine-name>:<HTTP_PORT_SOASERVER>/BPEL_Console`). The BPEL Console window is displayed as shown in [Figure 1-1](#).

Navigate to the `http://localhost:<HTTP_PORT_SOASERVER>/esb`. The ESB Console window is displayed, as shown in [Figure 1-2](#).

Navigate to the `http://localhost:<HTTP_PORT_SOASERVER>/ccore/index.jsp`. The OWSM Console window is displayed, as shown in [Figure 1-3](#).

Note: The `HTTP_PORT_SOASERVER` parameter is defined in the `SOAJboss.properties` file.

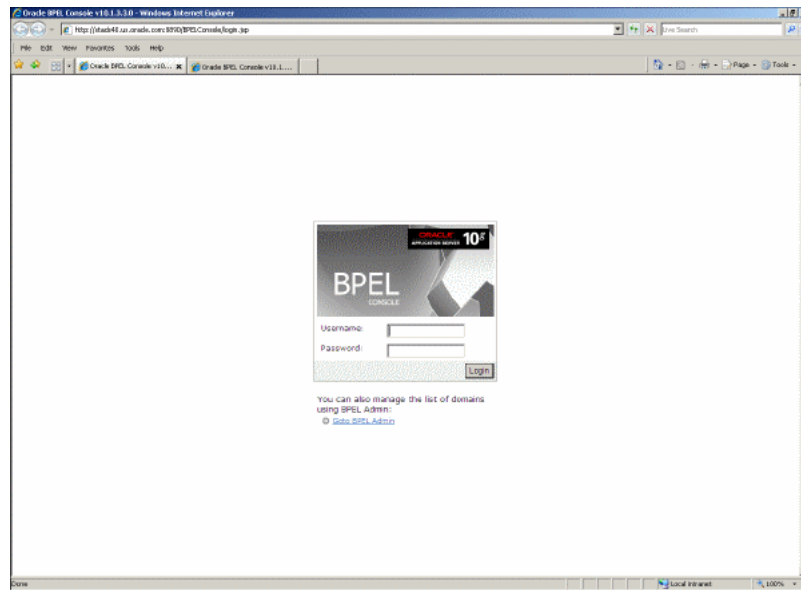
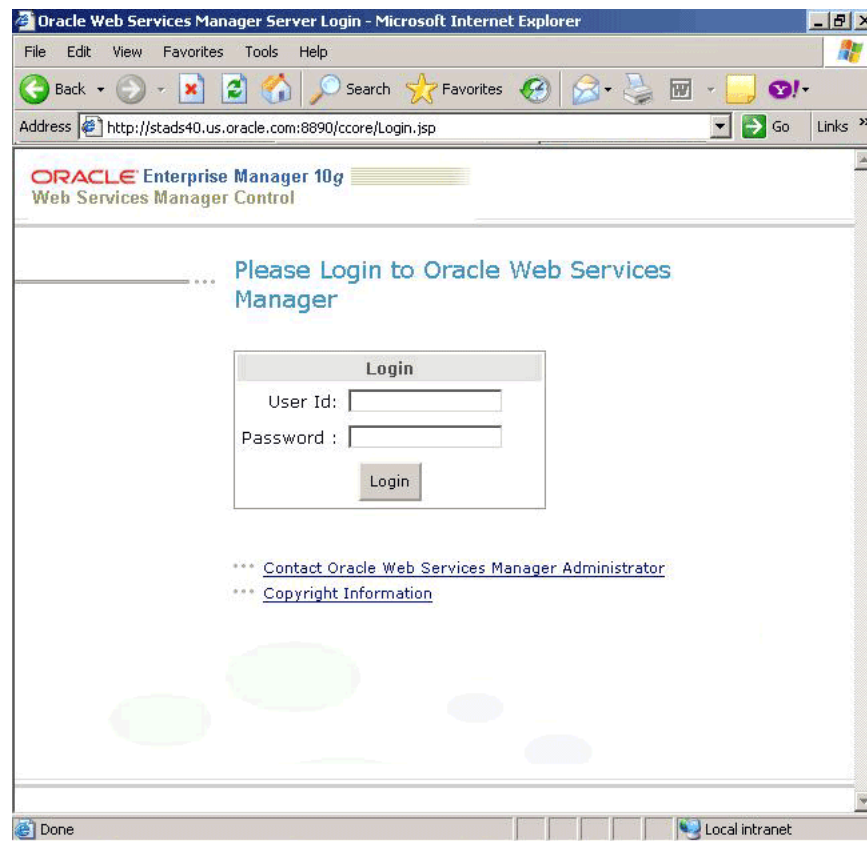
Figure 1–1 BPEL Console Window**Figure 1–2 ESB Console Window**

Figure 1–3 OWSM Console Window

2. Log in to the BPEL Console using the username and password as per the application authentication policy. The Oracle Enterprise Manager BPEL Console page is displayed.

Log in to the ESB Console using the username and password, as per the application authentication policy, the Oracle Enterprise Manager ESB Console page is displayed.

Log in to the OWSM Console using the username and password, as per the application authentication policy, the Oracle Enterprise Manager Web Services Manager Console page is displayed.

Verifying the SelectAllByTitle Sample for the Database Adapter

1. Log in to the database and start SQL*Plus.
2. Run the `setup.sql` script:

```
SQL> @Oracle_Home/samples/tutorials/122.DBAdapter/sql/setup.sql;
```

This script creates and populates the `movies` table in the database.

3. Point the database adapter to your database by editing the `DbAdapter-ds.xml` file in the `JBOSS_HOME\server\OracleSOAServer\deploy\` directory and modify the `<tx-connection-factory>` `jndi-name` property for Outbound Connection Factories to `eis/DB/BPELSamples`.

Note: Refer to Section, "[Running Adapter Samples](#)" for more information.

4. Select **Start, All Programs, Oracle - Oracle_Home, Oracle SOA Suite, Developer Prompt**.
5. Change to the following directory:
`tutorials\122.DBAdapter\SelectAllByTitle`
6. Run the following command:
`ant`

This compiles and deploys all projects dependent on this tutorial. Projects are deployed into `Oracle_Home\bpel\domains\domain_name\deploy`.
7. Select **Start, All Programs, Oracle - Oracle_Home, Oracle SOA Suite, BPEL Console**.
8. Click **SelectAllByTitle** in the **Deployed BPEL Processes** list.
9. Refer to the **MOVIES** table, and enter the movie title on the **Initiate** page. For example, 'The Aviator'.
10. Click **Post XML Message**.
11. View the results and inspect the instance.

Running Adapter Samples

This section contains the following topics:

Configuring Outbound Connection Pool for Adapters in JBoss

You should create the required connection factories that are used by BPEL Process Partnerlinks before deploying BPEL Processes using Adapters. Perform the following steps to create the required connection factories:

1. Navigate to the `JBOSS_HOME\server\OracleSOAServer\deploy` directory.
2. Edit the `*-ds.xml` files for creating new connection factories as required by the resource adapters. For example, `MQAdapter-ds.xml` for MQ Adapter.
3. Ensure that the connection factory properties, as shown in [Table 1-2](#), are modified for the required resource adapters.

Table 1-2 Connection Factory Properties

Adapter Type	Properties
Database	■ <code>driverClassName</code> ■ <code>connectionString</code>
FTP	■ <code>host</code> ■ <code>port</code> Note: A new authentication alias must be created for connecting to the FTP server.

Table 1–2 (Cont.) Connection Factory Properties

Adapter Type	Properties
Applications	■ <code>connectionString</code> ■ <code>userName</code> ■ <code>password</code>
AQ	■ <code>connectionString</code> ■ <code>userName</code> ■ <code>password</code>
JMS	■ <code>connectionFactoryLocation</code> ■ <code>isTopic</code> ■ <code>isTransacted</code> Note: The <code>isTopic</code> property must be set to <code>false</code> for queues. The <code>isTransacted</code> property must be set to <code>false</code> for the JMS samples to run.
MQ	■ <code>channelName</code> ■ <code>portNumber</code> ■ <code>queueManagerName</code> ■ <code>hostName</code>

Deploying Samples Using Ant

Ensure that `admin.user` and `admin.password` in `SOA_HOME\bpel\utilities\ant-orabpel.properties` are updated with the credentials of a valid user from the authentication store setup for authentication.

Samples can be deployed from the developer prompt using the ant script following the above step.

The samples containing only BPEL processes can be fully deployed using the ant script.

Samples containing additional components such as Decision Service applications, workflow forms, and UI applications must be deployed in the following manner.

1. Use the ant script to deploy the BPEL process of the sample.
2. For each Decision Service application, deploy the generated ear file into `OracleSOAServer`.
3. For each workflow form application, deploy the generated the workflow form war into **OracleSOAServer**.
4. For each UI application, generate the war or ear file, and deploy into **OracleSOAServer**.

Limitations and Known Issues

This section describes the limitations, known issues, and troubleshooting tips for Oracle SOA Suite 10.1.3.4 on JBoss version.

Limitations

Note the following limitations:

- JBoss and Oracle SOA Suite 10.1.3.4 should be installed as the same user on Linux and the user should not be a root user.

Note: When deploying BPEL processes into BPEL Server on JBoss, you only must specify the following two properties in build property files:

- `http.hostname = <SOA_hostname>`
- `http.port = 9700`

These properties can be either defined in the `build.properties` file in your project or in the `ant-orabpel.properties` file. You can also create a customized build property file, which will overwrite the other two build property files when properties get loaded by ant.

Once properties are loaded by ant, the order in which the properties are loaded are as follows:

1. Customized build property file

To use this file when deploying a BPEL project, use the following command:

```
ant -propertyfile <name>, where <name> is the build property filename created by users.
```

2. `build.properties` file in your BPEL project

3. If `BPEL_HOME` environment variable is specified, then `BPEL_HOME/utilities/ant-orabpel.properties` will be used, otherwise, `JDEV_HOME/integration/bpel/utilities/ant-orabpel.properties` is loaded by ant, where `JDEV_HOME` is the JDeveloper installation directory.

It is recommended using `build.properties` file or customized build property files when deploying BPEL processes using ant.

Known Issues

Note the following known issues:

JMS Adapter

- JMS Adapter throws the following `NullPointerException` during initialization on non-Oracle platforms:

```
JmsConnectionFactory: Unable to set connectionparameters for
OracleConnectionManager
java.lang.NullPointerException
at
oracle.tip.adapter.jms.JmsConnectionFactory.<init>(JmsConnectionFactory.java:91)
)
at
oracle.tip.adapter.jms.JmsManagedConnectionFactory.createConnectionFactory(JmsManagedConnectionFactory.java:81)
at
org.jboss.resource.connectionmanager.ConnectionFactoryBindingService.createConnectionFactory(ConnectionFactoryBindingService.java:128)
at
org.jboss.resource.connectionmanager.ConnectionFactoryBindingService.startService(ConnectionFactoryBindingService.java:65)
at
```

```
org.jboss.system.ServiceMBeanSupport.jbossInternalStart(ServiceMBeanSupport.java:289)
at
org.jboss.system.ServiceMBeanSupport.jbossInternalLifecycle(ServiceMBeanSupport.java:245)
at sun.reflect.GeneratedMethodAccessor2.invoke(Unknown Source)
```

This is a benign error and does not stop the JMS connection factory from initializing.

Decision Service Applications

Make the following modifications in the Decision Service Applications generated using the build scripts to enable them to deploy and function properly on JBoss Application Server 4.2.3. These modifications are necessary so that the marshal/unmarshal of decision service web service results are handled as expected by JBossXBSerializer.

Modify the BPEL process file (.bpel), which calls the Decision Service partnerlinks, and update the xpath query for the resultList element as shown below:

```
<copy> <from variable="dsOut" part="payload" query=
"/ns2:assertExecuteWatchStatelessDecision/ns2:childElements/ns2:resultList/ns3:
rating"/> <to variable="creditrating_Rating_o"/> </copy>
```

Intermittent ESB Deployment Failure

The deployment of ESB Services can fail occasionally with the following error:

```
ERROR [STDERR] SEVERE: Failed to process control event for "Service" with GUID
"<GUID>". Reason : oracle.tip.esb.server.common.cache.CacheException: Could not
load RuntimeService into the cache for service GUID "<GUID>"! Reason : Could not
read Service object from repository for service "GUID : <GUID> "
```

This occurs due to latency between ESB Runtime getting notified for deployment and ESB Design time committing the metadata in the database. The workaround is to redeploy the ESB Service, without undeploying it whenever this error occurs.

Human Workflow API

If you use the SOAP_CLIENT parameter for Human Workflow API, then the following error occurs during TaskQueryService authentication:

```
org.jboss.xb.binding.JBossXBRuntimeException: Failed to find read method or field
for property 'credential' in class org.jboss.ws.core.soap.SOAPBodyElementDoc
0
```

The REMOTE_CLIENT parameter should be used to connect to Human Workflow API for Oracle SOA Suite on JBoss.

Index

C

components
 Oracle SOA Suite, 1-2

I

installation
 JBoss Application Server, 1-1, 1-3

J

JBoss Application Server
 installing, 1-1, 1-3
 known issues, 1-19, 1-20
 limitations, 1-18
 postinstallation tasks, 1-12
 postinstallation verification tasks, 1-14
 system requirements, 1-2
 workarounds, limitations, and unsupported features, 1-18

K

known issues
 JBoss Application Server
 decision services, 1-20
 JMS adapter, 1-19
 JBoss Application Server with Oracle SOA Suite, 1-19

L

limitations
 JBoss Application Server with Oracle SOA Suite, 1-18

O

Oracle Business Rules, 1-2
Oracle SOA Suite, 1-1

P

postinstallation tasks
 JBoss Application Server with Oracle SOA Suite, 1-12

postinstallation verification tasks
 JBoss Application Server with Oracle SOA Suite, 1-14

S

system requirements
 JBoss Application Server with Oracle SOA Suite, 1-2

W

workarounds, limitations, and unsupported features
 JBoss Application Server with Oracle SOA Suite, 1-18

