

SOA Suite 10.1.3.4 Installation Guide

This document describes how to install the SOA Suite 10.1.3.4 components as described in the SOA Suite 10g Developers Guide on Windows Server 2003. It covers installation of BPEL, Rules, Web Services Manager, Enterprise Service Bus, Oracle Service Bus, and BAM. It also explains how to use Oracle database XE as the database for SOA Suite. The same basic install steps can be applied to other operating systems, with one exception; Oracle BAM is only supported on the Windows platform in the 10g release of SOA Suite. All other components can run on most Linux and Unix versions.

Installation overview

After acquiring the required software installation files the software can be installed and configured in the following order:

- Database, if not already installed
- SOA Suite 10.1.3.1
- SOA Suite Patch to take SOA Suite to 10.1.3.4 revision level
- Business Activity Monitoring 10.1.3.3
- SOA Suite Patch to take BAM to 10.1.3.4 revision level
- Oracle Service Bus 10gR3
- Oracle JDeveloper 10.1.3.4

Note that some of the software requires patching in order to bring it up to the correct levels.

Acquiring the software

The list of required files to install Oracle SOA Suite 10.1.3.4 on Windows is shown in the following table. The location column indicates the URL where the software can be located for the given component. The filename is the name of the file to download. The notes column gives additional information about what to download. Oracle database XE is only required if you do not already have an 11g or 10.1.2 Oracle database available.

Component	Location	Filename	Notes
Oracle Database 10g Express Edition	http://www.oracle.com/technology/software/products/database/xe/htdocs/102xewinsoft.html	OracleXE.exe	Only required if you don't already have a suitable database.
Oracle SOA Suite 10g (10.1.3.1)	http://www.oracle.com/technology/software/products/ias/htdocs/101310.html	soa_windows_x86_101310_disk1.zip	Download CD1.
Oracle SOA Suite 10.1.3.4 Patch	http://www.oracle.com/technology/software/products/ias/htdocs/101310.html	ias_windows_x86_101340.zip	Download 10.1.3.4 patch . This patch covers both SOA Suite 10.1.3.1 and BAM 10.1.3.3
Oracle Business Activity Monitoring 10g (10.1.3.3)	http://www.oracle.com/technology/software/products/bam/index.html	bam_windows_x86_101330.zip	Download Oracle Business Activity Monitoring 10g For Microsoft Windows (x86) , not the download with Enterprise Link.
Oracle Service Bus 10gR3	http://www.oracle.com/technology/software/products/osb/index.html	osb103_wls103_win32.exe	Download Oracle Service Bus 10gR3

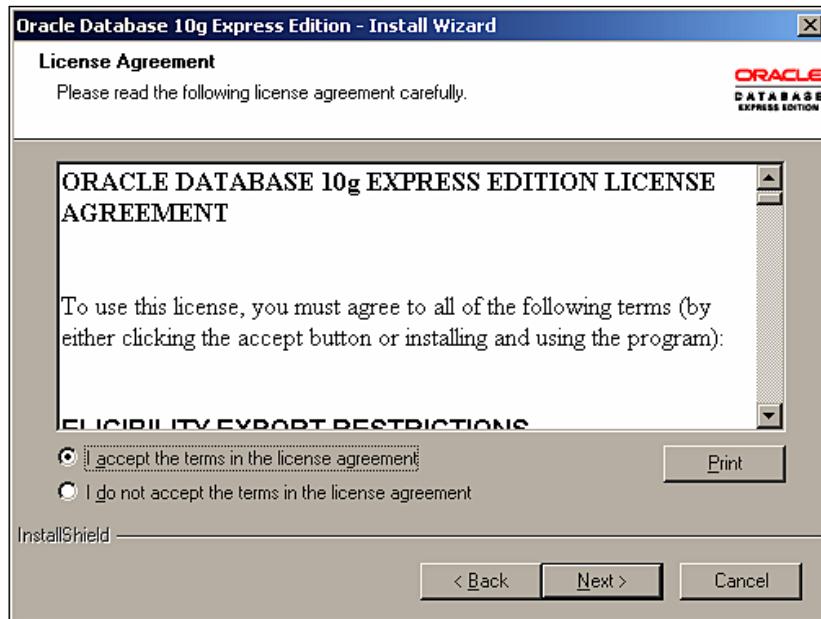
Component	Location	Filename	Notes
Oracle JDeveloper 10.1.3.4	http://www.oracle.com/technology/software/products/jdev/htdocs/soft10134.html	jdevstudio10134.zip	Download the Windows Install, Studio Edition .

Installing and configuring Oracle Database XE

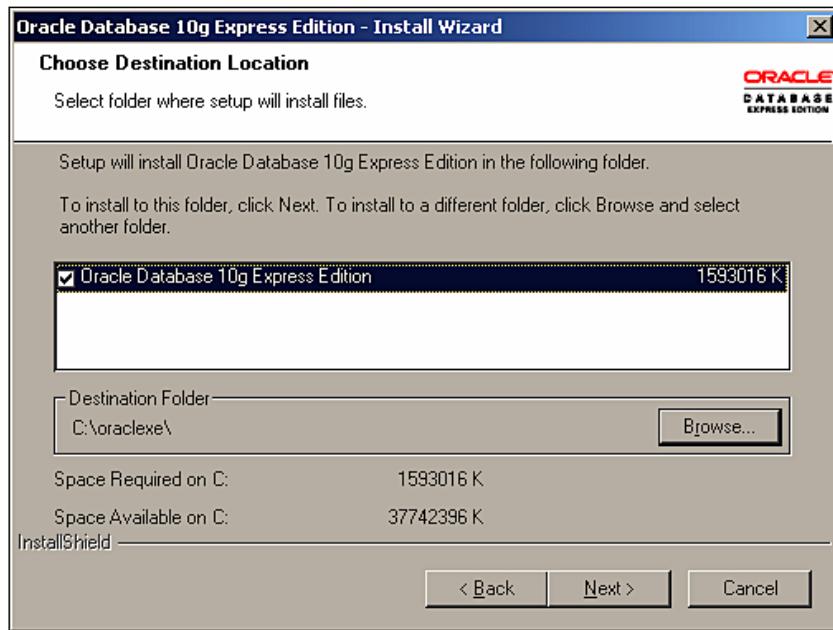
In this section we will go through the installation and configuration of an XE database for use with SOA Suite.

Installing XE

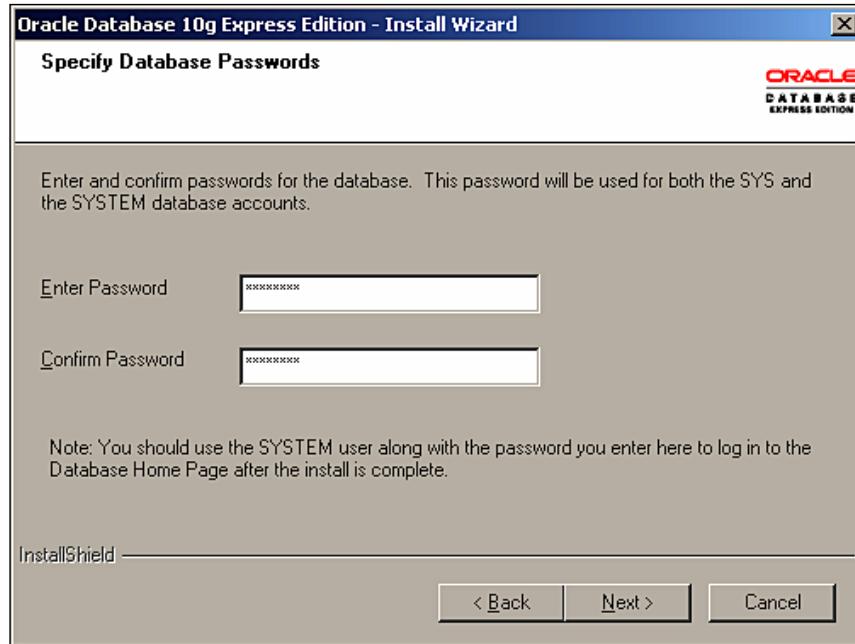
Run the installer by executing the `OracleXE.exe` file.



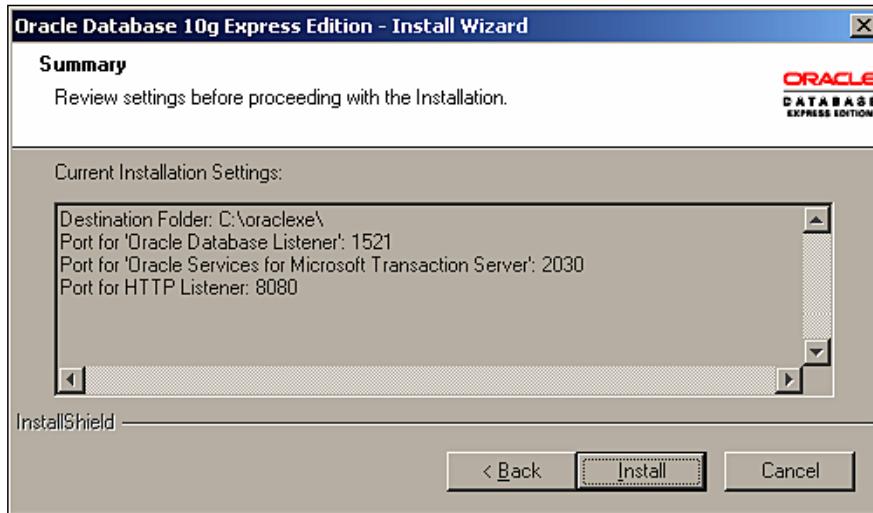
When prompted accept the license agreement.



Choose the destination location for the install by using the **Browse** button.



When prompted for a password it is a good idea to use the same password for all SOA Suite components.



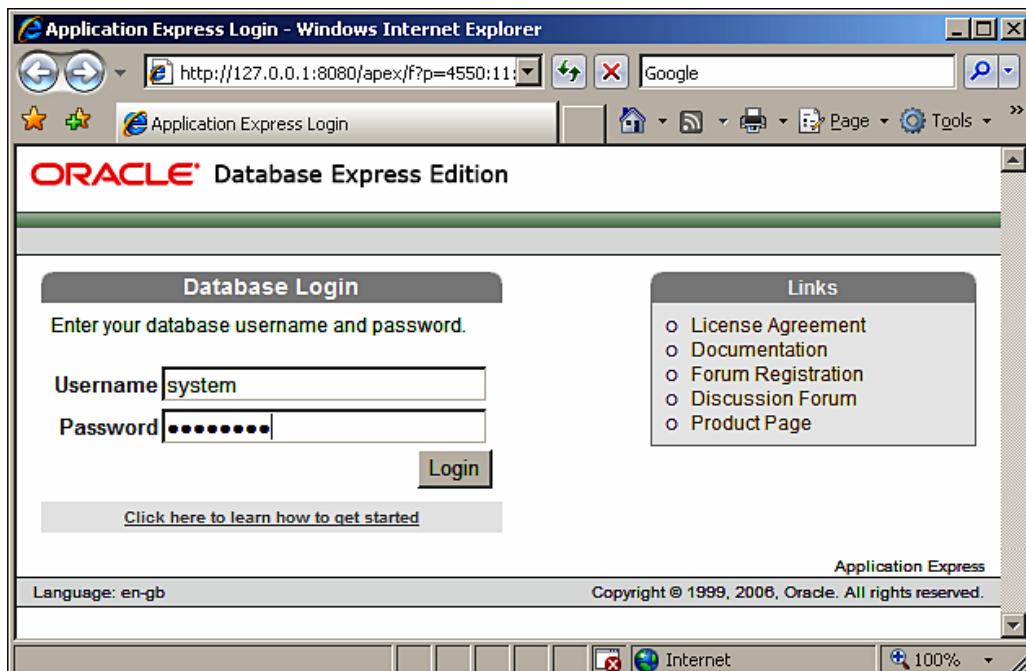
Make a note of the database listener port, usually 1521, and the HTTP listener port, usually 8080, before clicking the **Install** button.



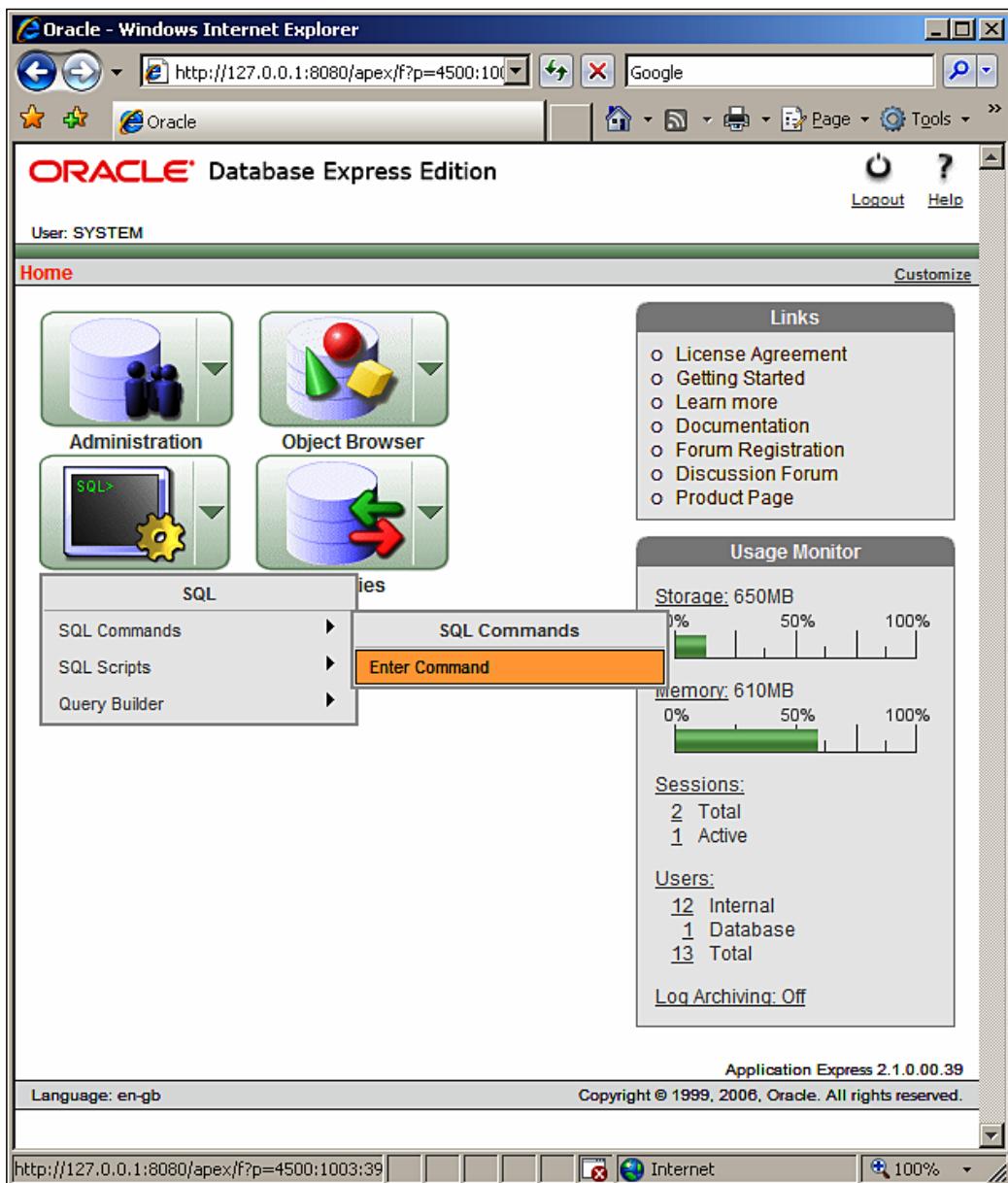
When the installation has completed, accept the option to launch the database home page. We will use this to configure the database for use by the SOA Suite. The database home page is a web page that provides access to a web based management console for Windows XE.

Configuring XE

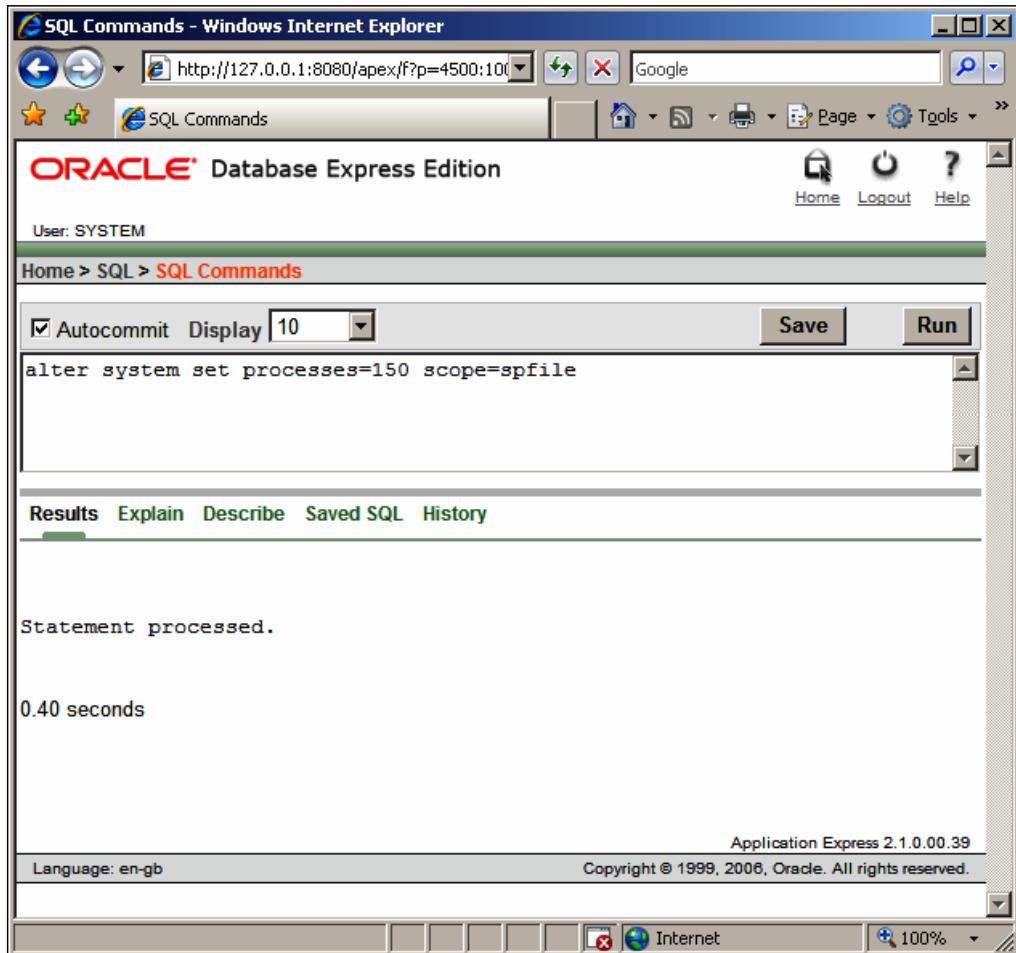
Before using the database we need to modify its configuration to support SOA Suite.



Log in to the database using **system** as the user and the password you set earlier in the installation.



Navigate using the menu structure to the **SQL Commands, Enter Command** screen.



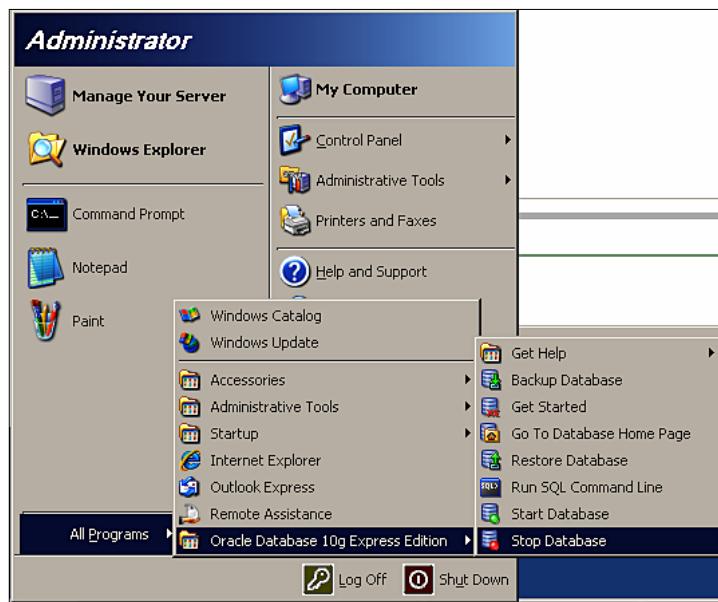
In the top dialog area enter the following command which will increase the number of processes available to the database to a number sufficient to run all the SOA Suite components.

```
alter system set processes=150 scope=spfile
```

After entering the command, click the **Run** button which will execute the command.

After executing the above command, enter and run the following command to unset the number of database sessions. This will revert to a default value large enough to run all SOA Suite components.

```
alter system reset sessions scope=spfile sid='*' 
```



Before the above changes will take effect it is necessary to stop and start the database from the **Start** menu. This can be done from the Windows menu.

After restarting the database, it is possible to verify that the settings have changed by issuing the following commands from the **SQL Commands** screen used to confirm that processes is 150 and sessions is a larger number, probably 170.

```
show parameter processes
show parameter sessions
```

Problems starting database

Sometimes the XE database seems to get stuck starting up and this manifests itself as a failure for applications to connect to the database. To fix this problem, select **Run SQL Command Line** from the **Oracle Database 10g Express Edition** menu under **All Programs** on the **Start** menu. Login as an administrator:

```
connect / as sysdba
```

Shutdown the database using the command:

```
shutdown abort
```

Restart the database using the command:

```
startup
```

Installing JDeveloper

In this section, we will look at the installation of JDeveloper. We install this before the SOA Suite because it installs a Java Virtual machine that we will need to configure the database.

Installation

There is no installer for JDeveloper, it is provided as a zipped file (`jdevstudio10134.zip`) that needs to be unpacked. Once the ZIP file is unpacked JDeveloper is ready to run.

Installing Oracle SOA Suite 10.1.3.4

In this section, we will look at how to install the core SOA Suite components of BPEL, Rules, Web Services Manager, and Enterprise Service Bus on an OC4J container. SOA Suite ships as version 10.1.3.1 and requires a patchset to be applied to bring it up to the 10.1.3.4 patch level.

Network considerations

Before installing SOA Suite, it is important to make sure that there is a fixed IP address for the machine. This can be achieved by adding a loopback adapter into Windows and then explicitly setting the hostname in the `Windows\System32\Drivers\etc\hosts` file to the loopback adapter address.

Preparing the SOA Database Schemas

Unzip the `soa_windows_x86_101310_disk1.zip` file into its own directory. Before starting the installation, it is necessary to install the database schemas. This is done by running the `irca.bat` command found `install\soa_schemas\irca` directory where you unpacked the ZIP file.

Before running the `irca` script it is necessary to set the following environment variables:

- `JAVA_HOME`: The location of a Java virtual machine. This can be set to the `jdk` directory underneath where you extracted JDeveloper.
- `ORACLE_HOME`: The location of the database files. This can be set to be the `app\oracle\product\10.2.0\server` directory underneath the directory where you installed Oracle XE.

When run, the `irca` script will ask for the target database details which must be entered in this format:

```
hostname port sid
```

Following this the script will ask for passwords for the schemas it will create. The following schemas are created:

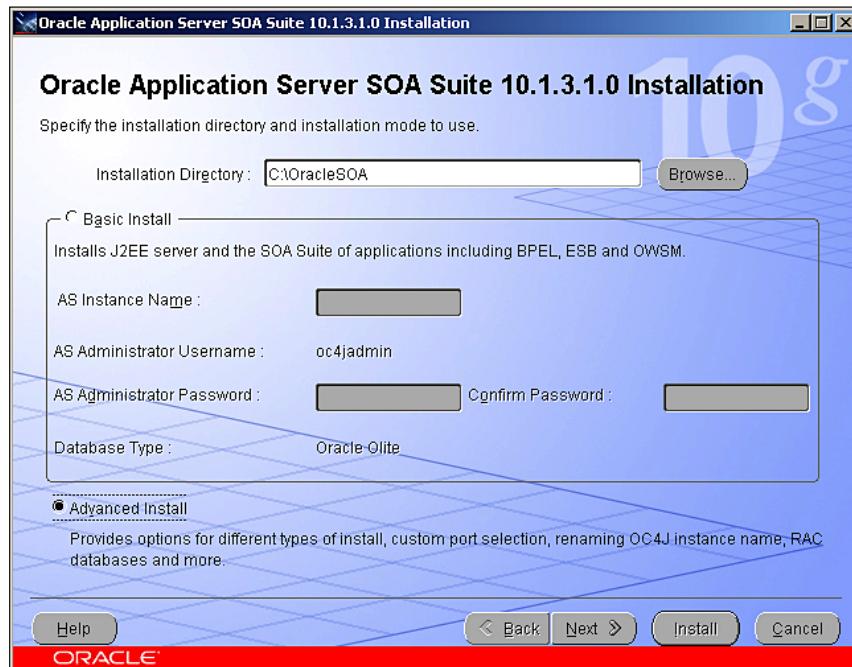
- ORABPEL: The schema for Oracle BPEL.
- ORAESB: The schema for the Oracle Enterprise Service Bus.
- ORAWSM: The schema for Oracle Web Services Manager.

For a development system either set the passwords to be the same as the system password for the database, or set them to be the same as the schema name. You will need these passwords later in the SOA Suite install.

When completed, the script should indicate that a number of objects now exist in each schema. The schemas are now installed and ready for use by the SOA Suite.

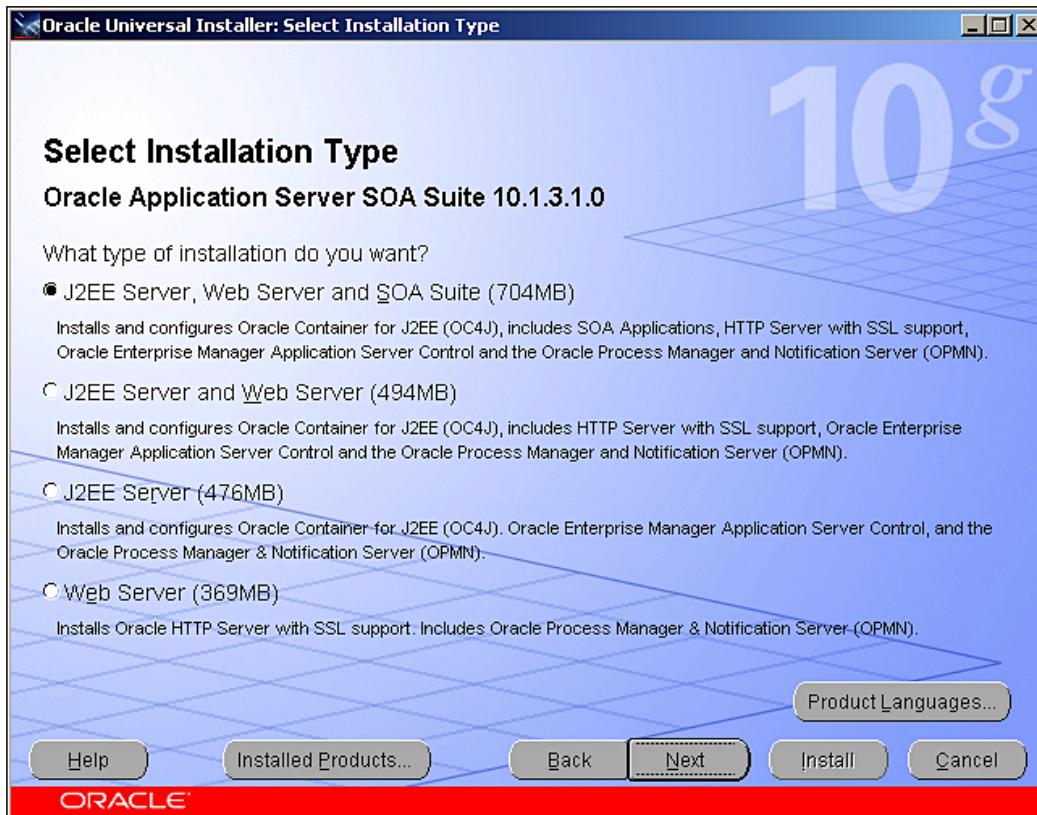
Installing SOA Suite

To start the SOA Suite installer run the `setup.exe` file found in the directory into which you unpacked the installation ZIP.

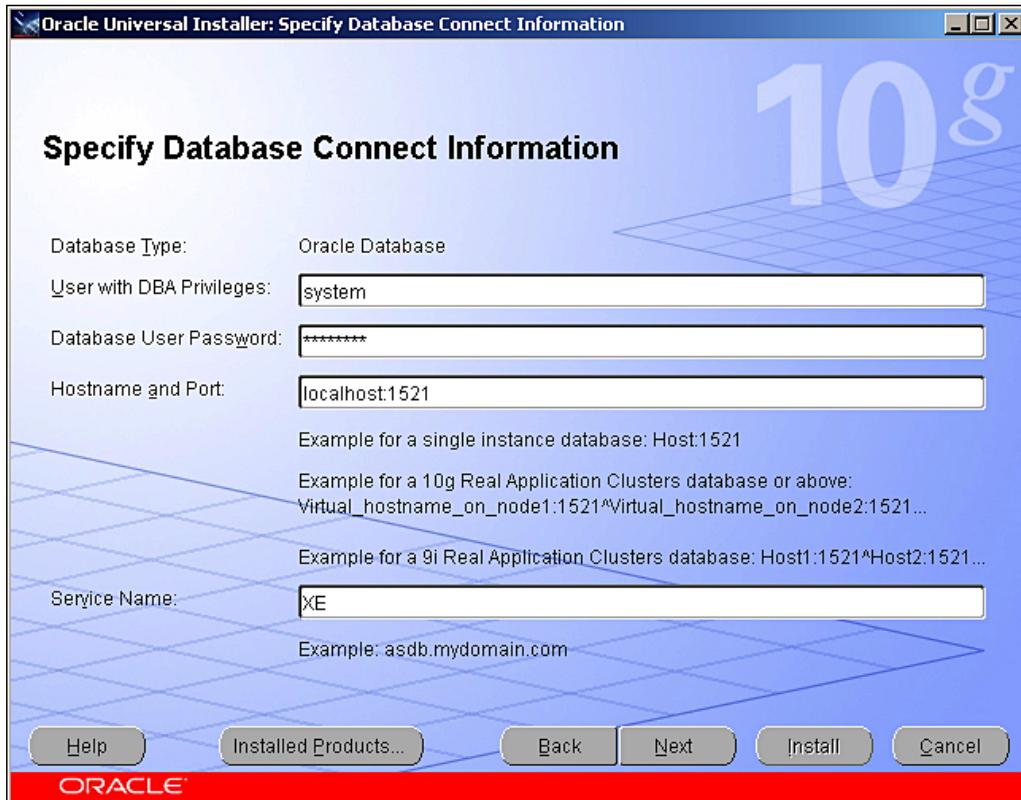


Choose an appropriate **Installation Directory** for the SOA Suite, not a directory already used to hold Oracle software. Select the **Advanced Install** option as this allows the selection of an existing database to house the repositories required by SOA Suite. The **Basic Install** uses a pre-configured Oracle Lite database instance for the repository.

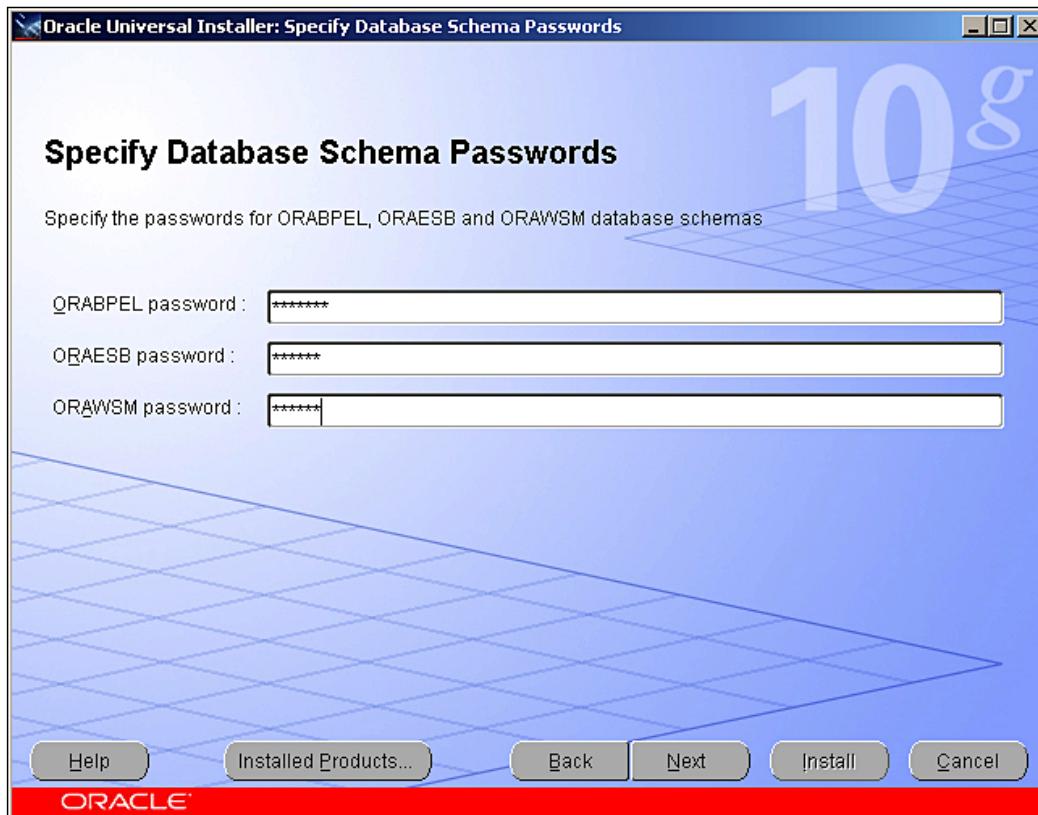
When asked in a dialog box, confirm that you wish to perform an advanced install.



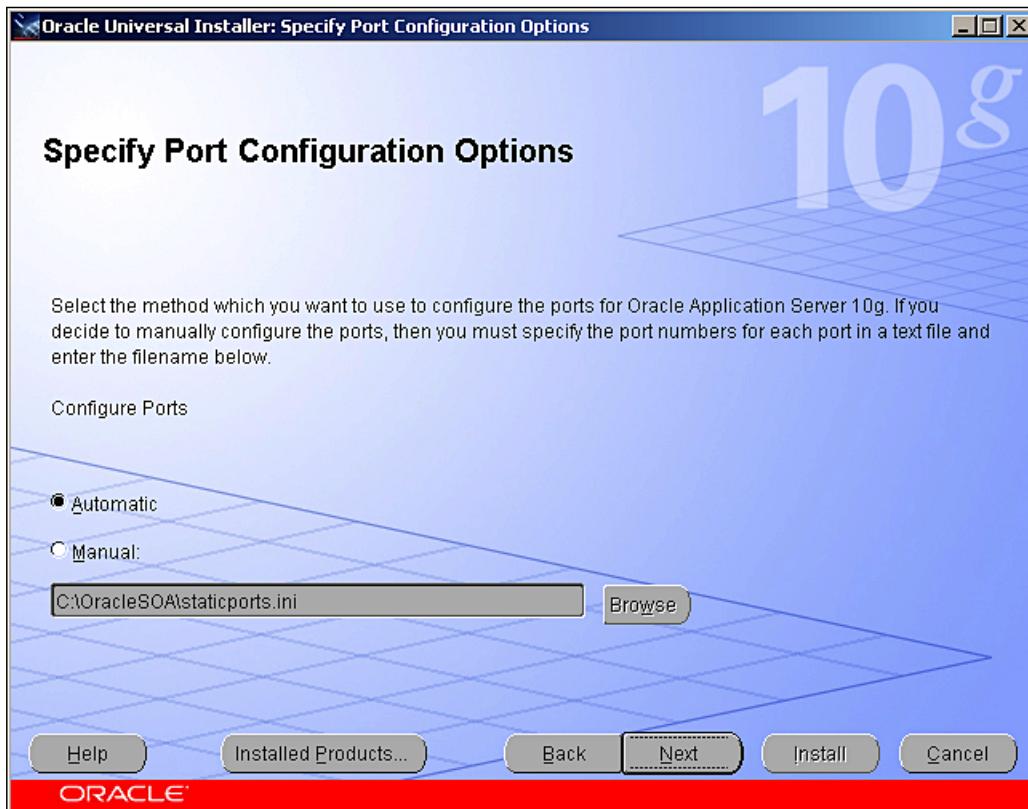
Select the **J2EE, Web Server and SOA Suite** install type. This will install OC4J and Apache as well as the SOA Suite.



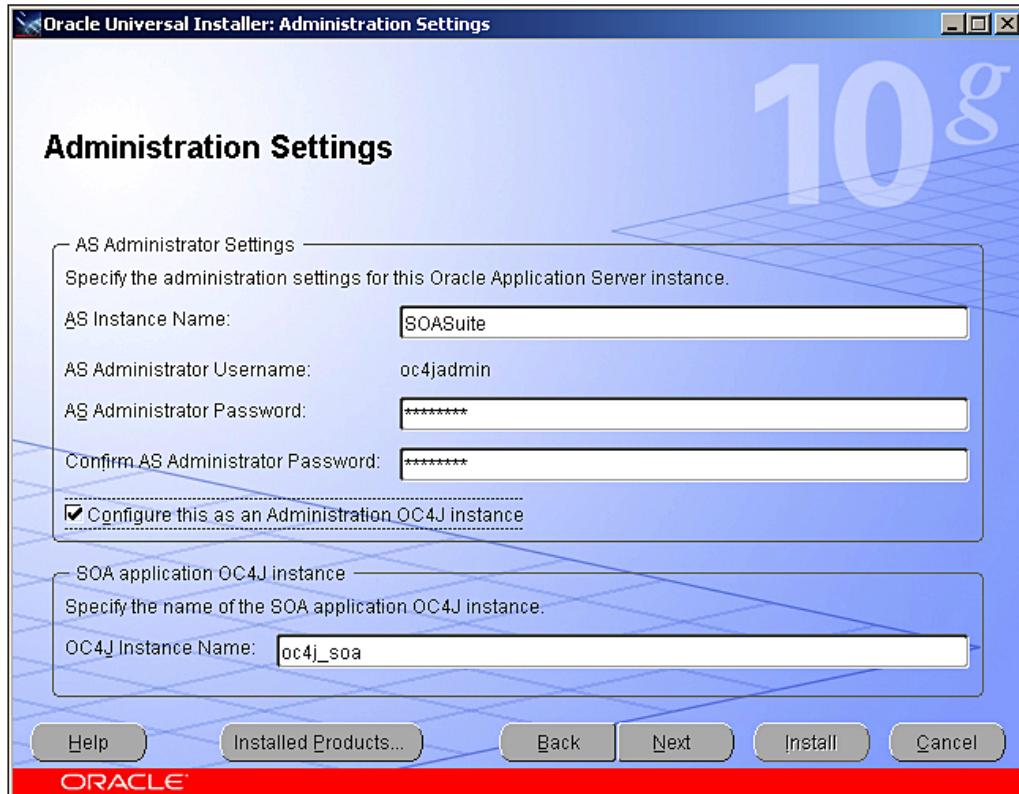
Having selected a SOA install type, we are prompted to enter the database connection details. The installer then verifies connectivity to the database.



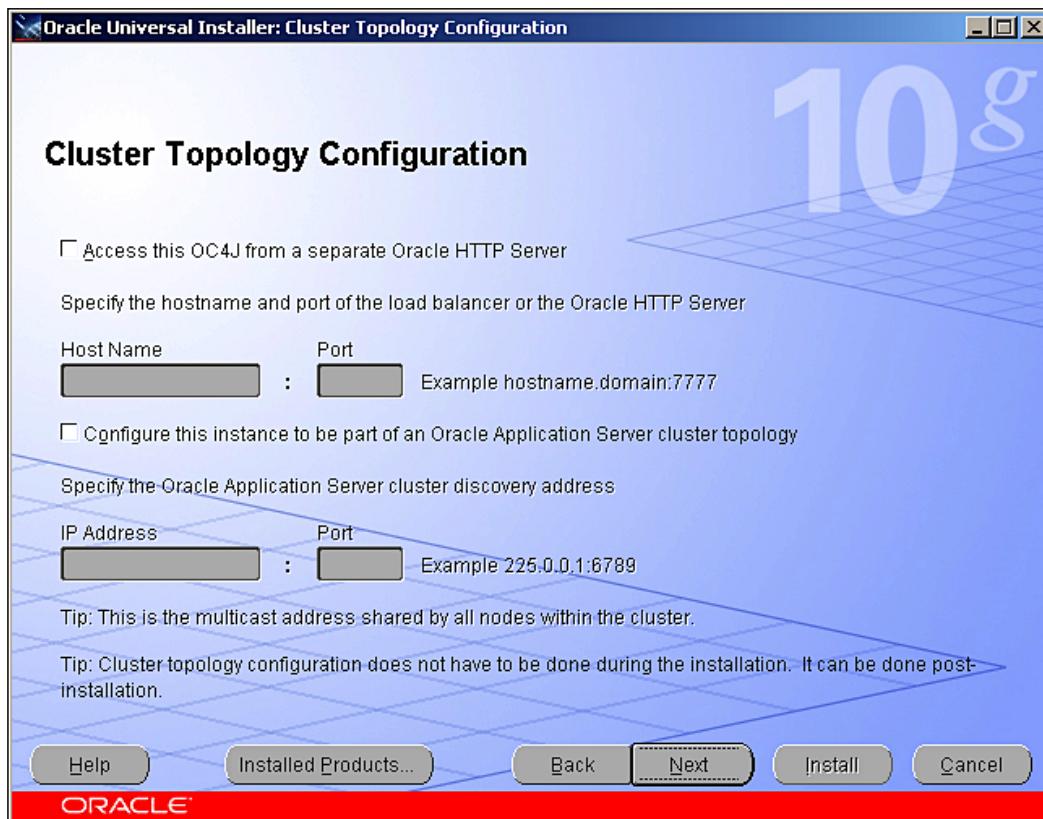
We are then prompted for the passwords for the schemas that we created when preparing the SOA database schemas.



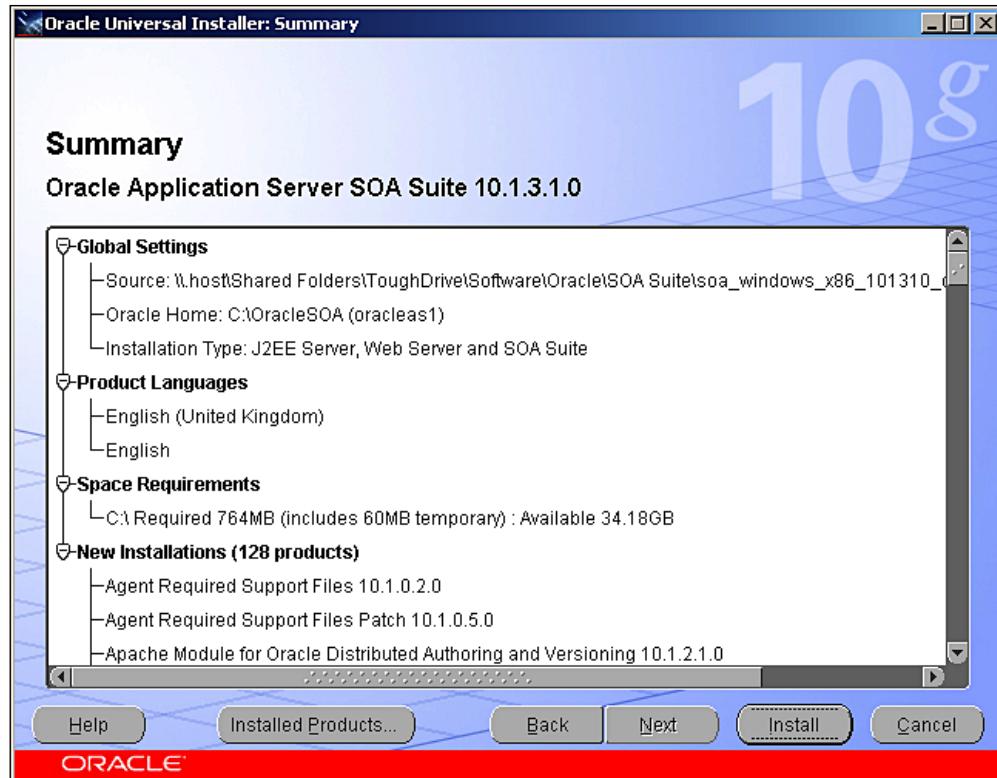
The option is given to change the default port numbers. If port 80 is not in use then a Windows install will default to that port number while Linux will default to port 7777. Port numbers are changed by providing a file with a list of port numbers.



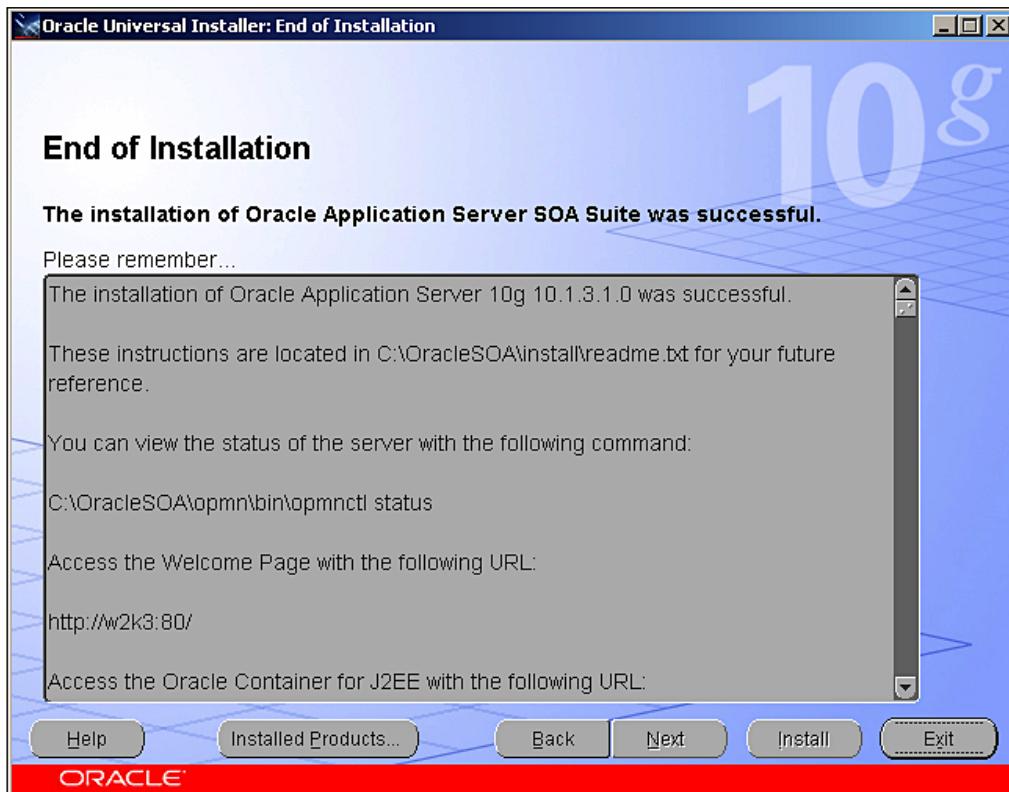
The **Administration Settings** screen allows us to specify the name of the application server instance which is an arbitrary name. It also asks us for the application server password, which is also used for the SOA Suite components. Check the box to configure this as an **Administration OC4J instance** so that the application server can be managed through a web console. The **OC4J Instance Name** is the name of the SOA container.



The cluster topology configuration is only used when this installation is part of a cluster or has an external HTTP server. This screen allows us to specify the virtual hostname and port of the cluster as well as the multicast IP address of an OC4J cluster.



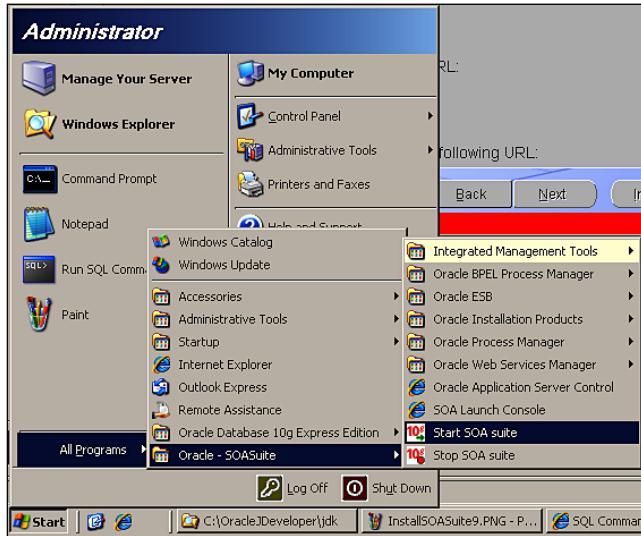
Before starting the actual install we can verify the setting on the Summary screen.



When the install completes, the result screen will show the URLs for the various SOA Suite components installed.

Starting and stopping SOA Suite

The SOA Suite can be started and stopped from the Windows **Start menu | Program Files, Oracle | SOA Suite** menu.



Applying 10.1.3.4 patchset

Unpack the 10.1.3.4 patchset file `ias_windows_x86_101340.zip` into its own directory. This directory can then be used to update the database schemas, update the SOA Suite installation, and update the BAM installation. Before starting it is best to shut down the SOA Suite using the **Stop SOA Suite** menu item described in the previous section.

Update database schemas

Before updating the software we need to update the schemas. Make sure SOA Suite is not running and then run the database upgrade scripts shown in the table below. Each script is run by starting a SQL Plus session in the directory (use `sqlplus/nolog`) holding the script, logging in as the appropriate user and then executing the script. Note that the `ORACLE_HOME` environment variable should be set as when running the `repca` script. For example, to run the BPEL upgrade script use the following highlighted commands:

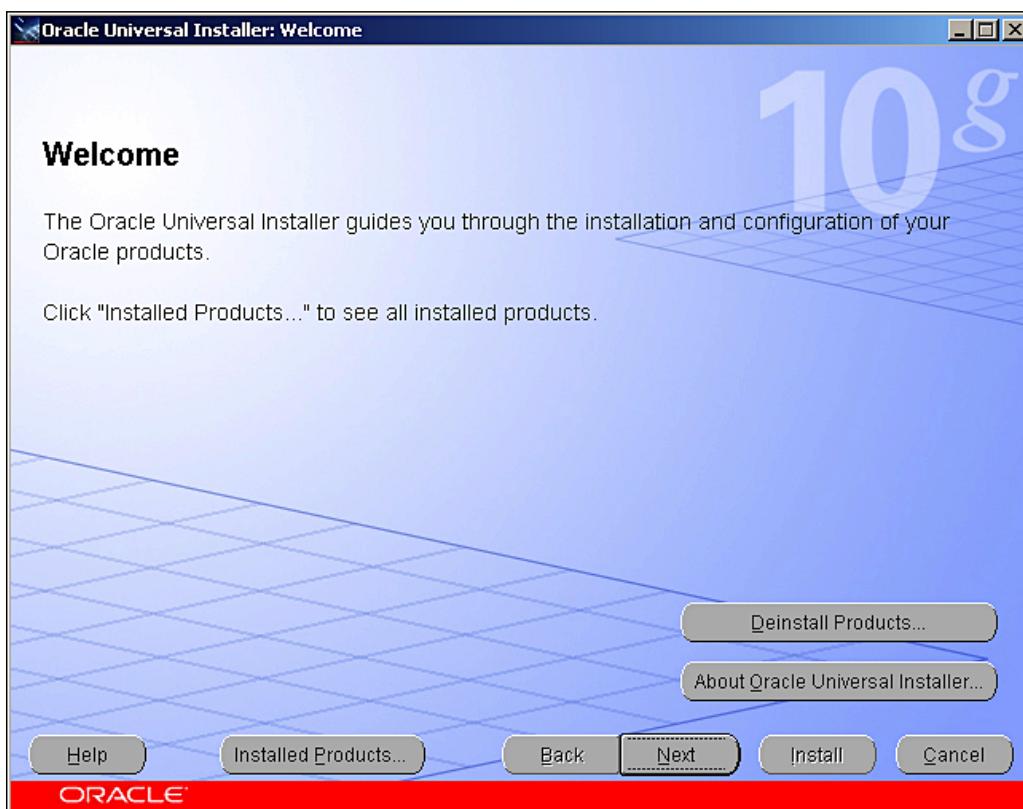
```
C:> sqlplus /nolog
SQL> connect orabpel/orabpel
SQL> @upgrade_10131_10134_oracle.sql
```

The scripts to be run are shown in the table. The schema is also the username under which the script is executed, the directory is the location under the patch directory of the script. **Name** is the name of the script to execute.

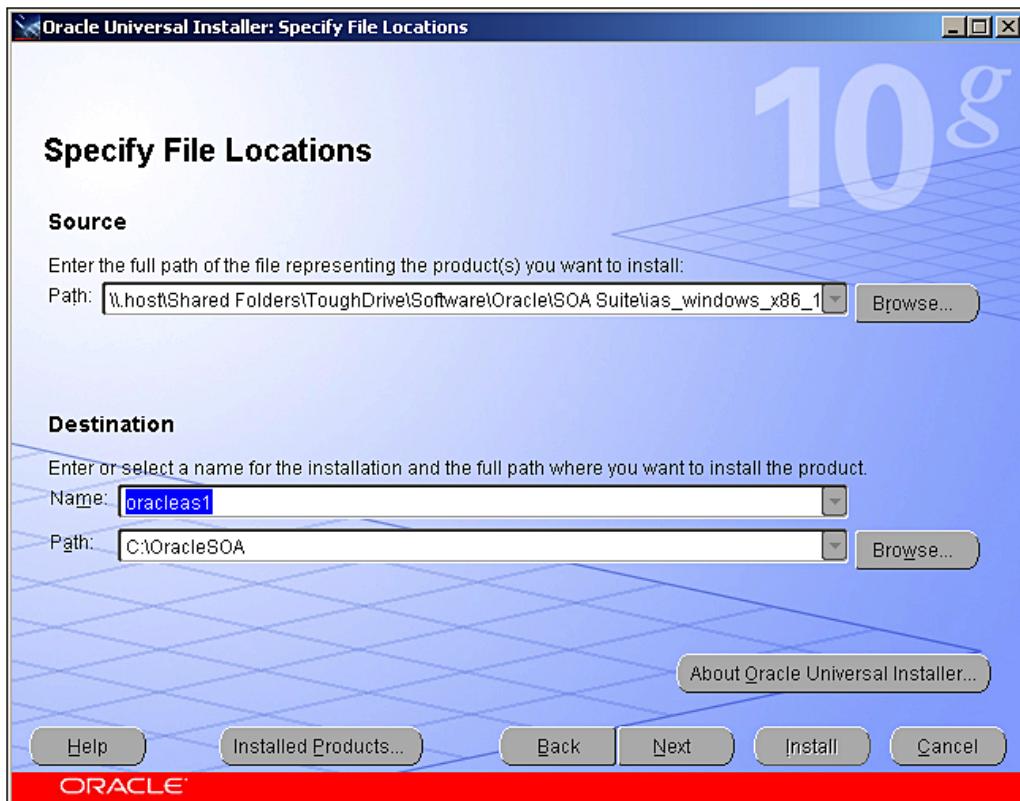
Schema	Directory	Name
orabpel	Disk1/install/soa_schema_upgrade/bpel/scripts	upgrade_10131_10134_oracle.sql
oraesb	Disk1/install/soa_schema_upgrade/esb/sql/oracle	upgrade_10133_10134_oracle.sql

Update SOA Suite code

To apply the patchset to the 10.1.3.1 SOA Suite installation, run the upgrade installer **setup.exe** in the **Disk1** directory underneath where you unpacked the patch set. Note that the SOA Suite must be started before starting the installer.



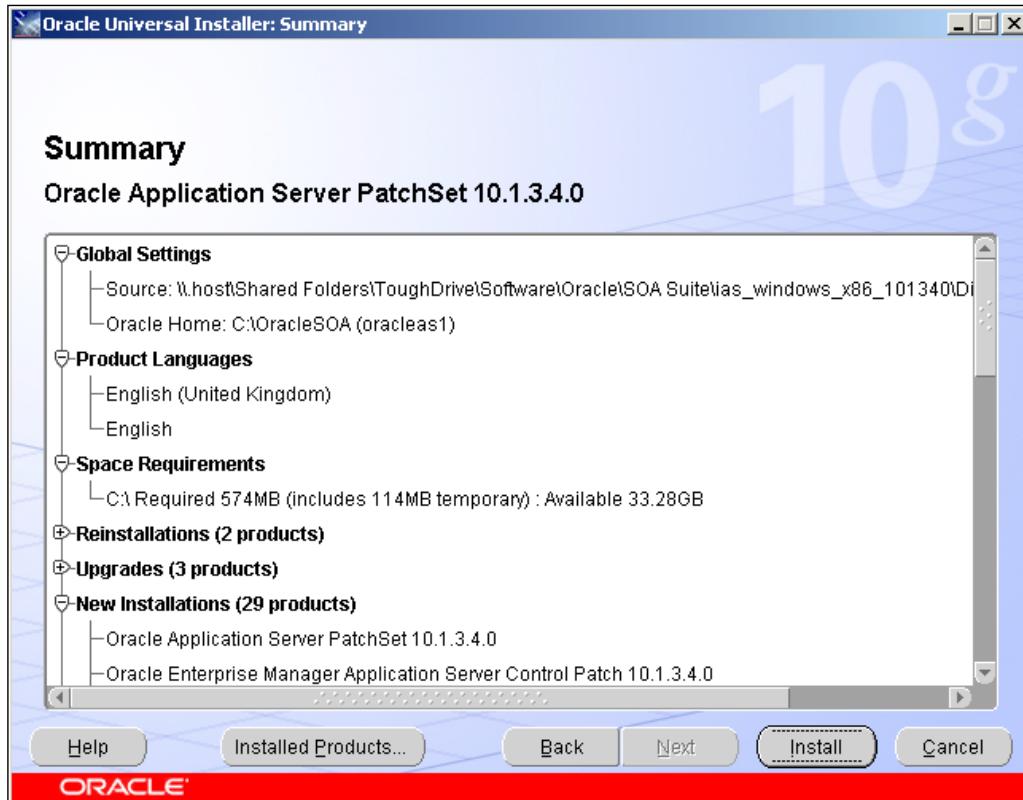
After starting the install for the upgrade you will be prompted to enter the location of the SOA Suite. This will normally be in the **oracleas1** Oracle home, verify that it matches the directory where you installed SOA Suite.



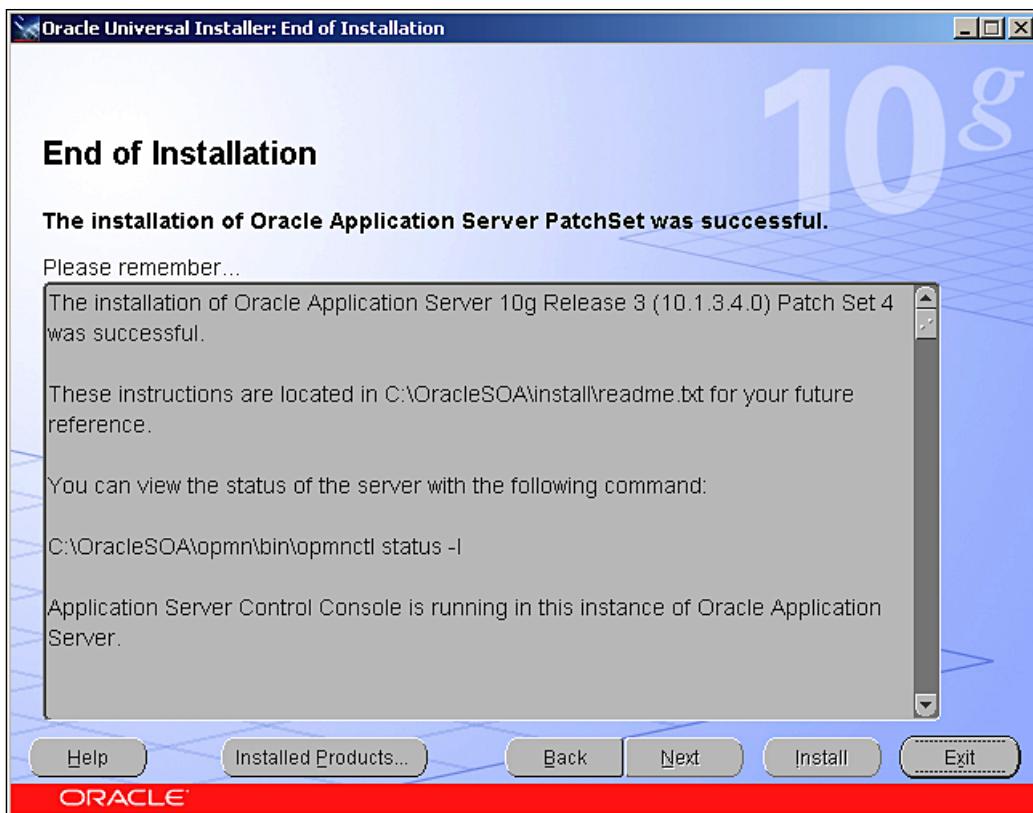
After specifying the Oracle home location the installer will ask for the application server administrator password so that it can shut down the SOA Suite before performing the upgrade.



Before shutting down the SOA Suite, you will be prompted with a dialog box to confirm that it is OK to perform the shut down.



After the SOA Suite is shut down you have the opportunity to review the upgrade settings before starting the install of the patchset.



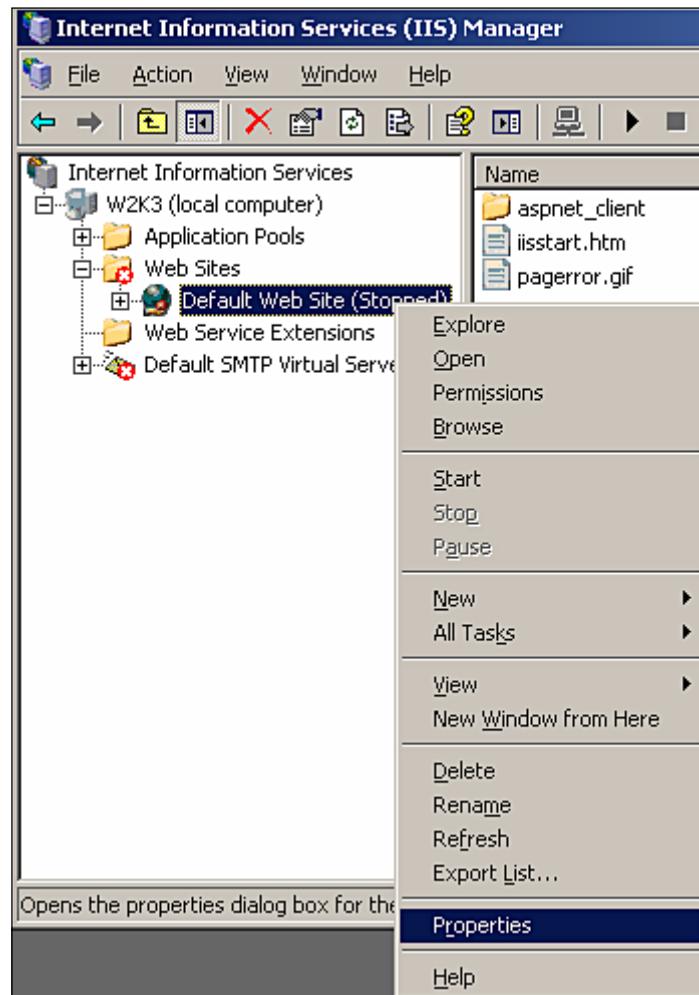
If an error occurs during the installation, it is generally possible to retry the operation, this will often succeed second time around.

Installing Oracle BAM 10.1.3.4

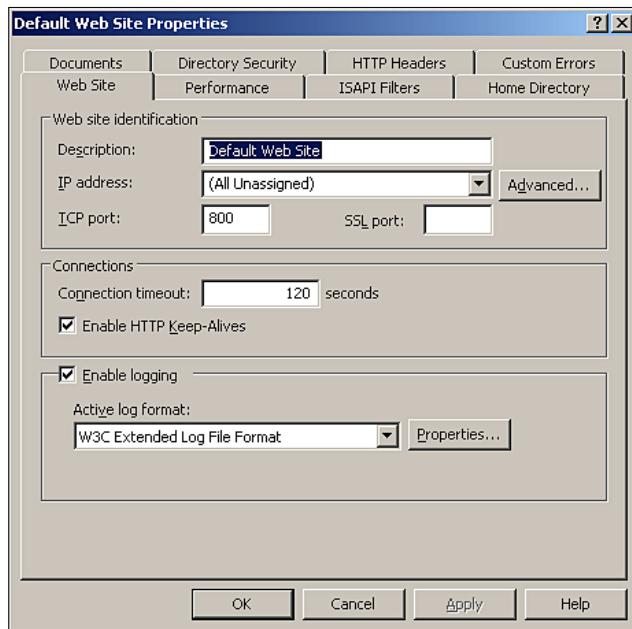
Because the Oracle Business Activity Monitoring is a Windows application it requires a separate install, although the 11g SOA Suite release will contain a Java version of BAM that should be installed with the other SOA Suite components.

Configuring IIS

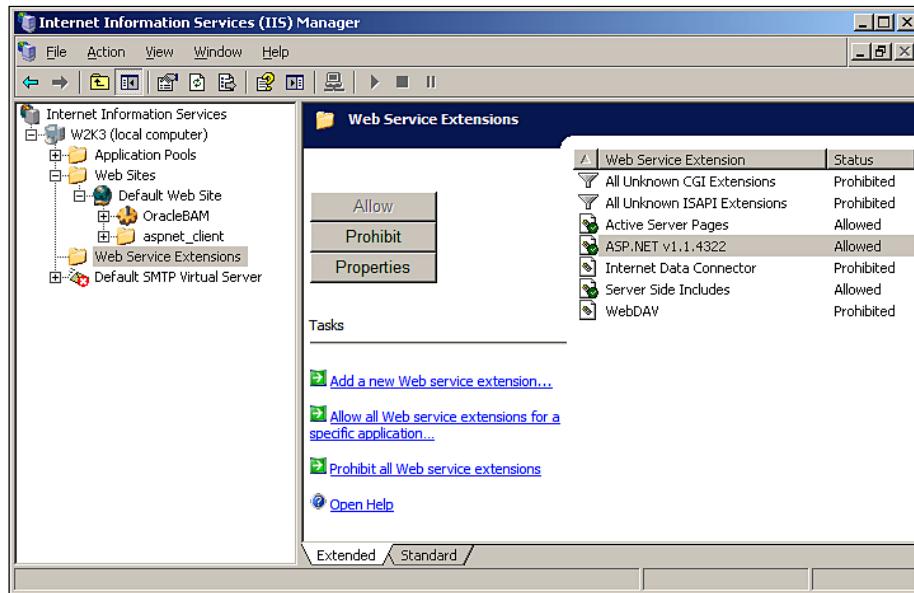
Oracle BAM uses Microsoft Internet Information Services (IIS) as its web server platform. In the 11g release this will move to using the same Java based infrastructure as the rest of the SOA Suite. In the 10.1.3.4 release, it is necessary to configure IIS before starting the BAM install. To configure IIS launch the **Internet Information Service (IIS) Manager** from the **Control Panel**.



Navigate to the **Default Web Site** entry, right-click, it and select **Properties** to check the port number that the IIS web server is running on. If you installed SOA Suite on port 80 then you will need to change IIS to run on a port other than 80, such as TCP port 800.



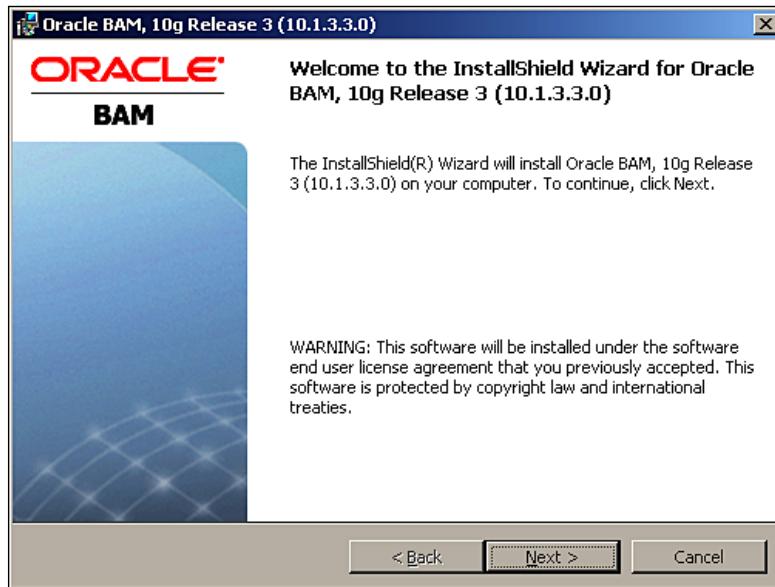
Finally, ensure that asp.net is enabled by navigating to **Web Service Extensions** in IIS Manager and checking that ASP.NET v1.1 is **Allowed**.



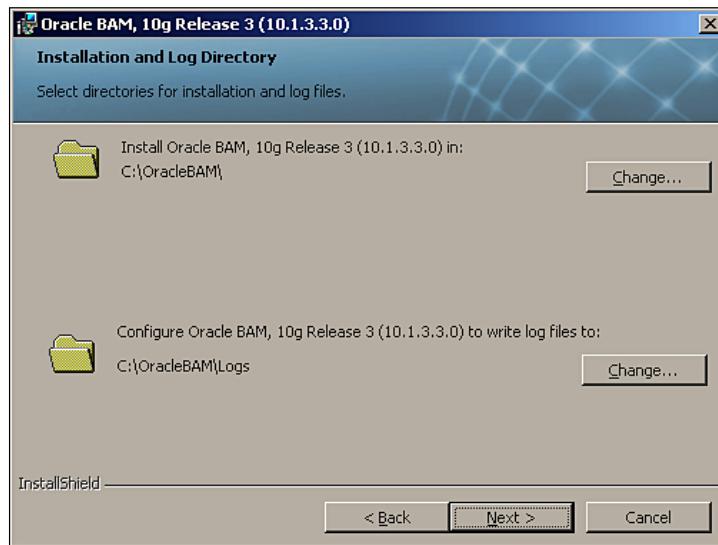
IIS is now configured ready for Oracle BAM.

Installing BAM

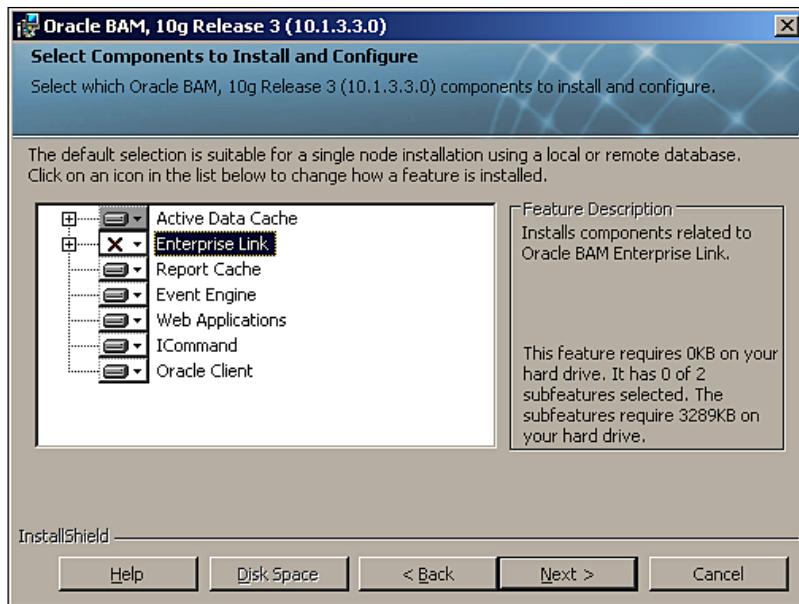
Unpack the BAM install file `bam_windows_x86_101330.zip` into its own directory and run the `setup.exe` file to launch the BAM installer. If you have problems running the installer from a network drive, unzip the file into a directory on a local drive before running `setup.exe`.



Select an appropriate directory in which to install Oracle BAM.



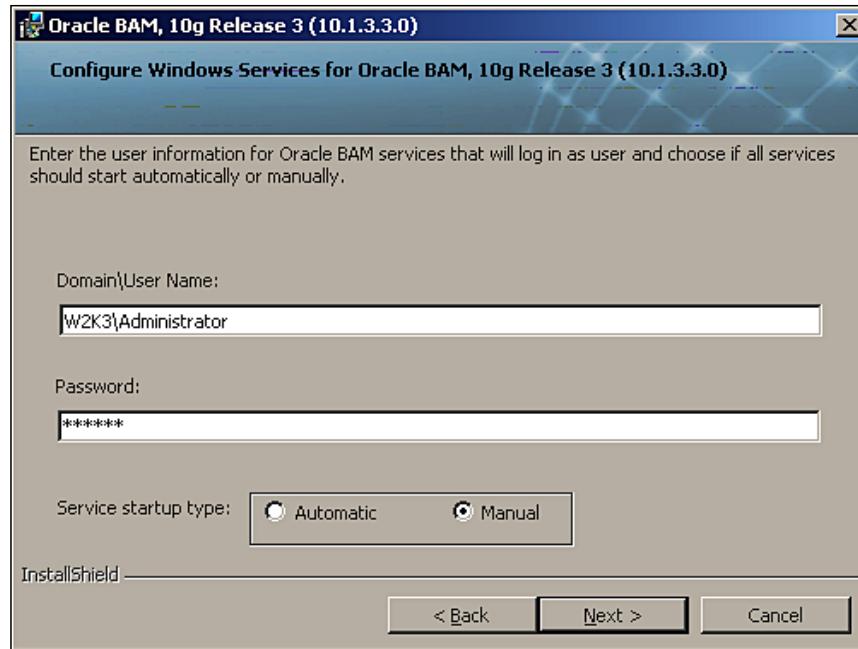
After selecting a directory you are prompted components to install. Unless you expect to use Enterprise Link to capture data from non-SOA Suite components you do not need the Enterprise Link component. All other components should be selected.



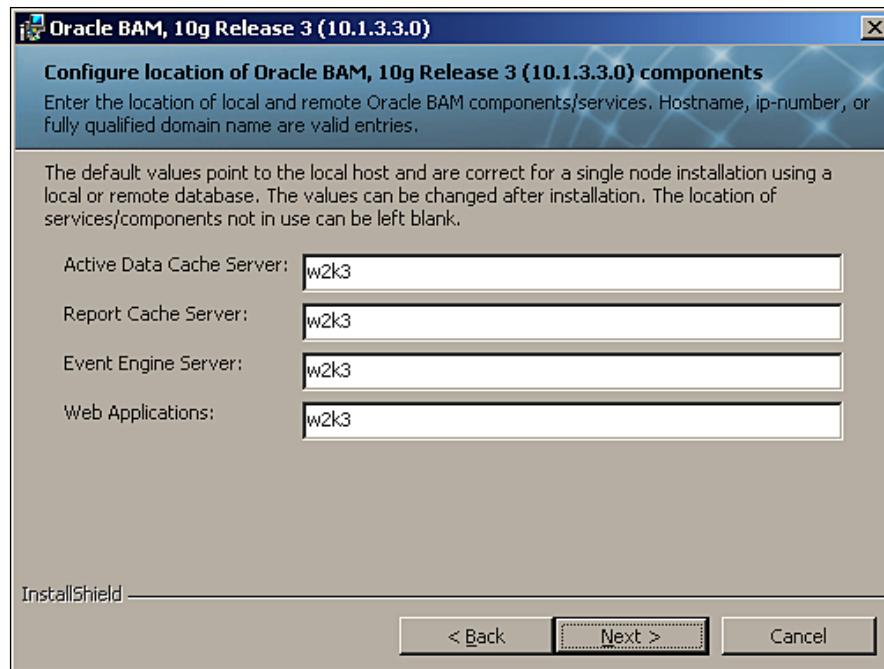
The actual installation consists of two sections, a client installation and a server installation. The client installation will be run first.



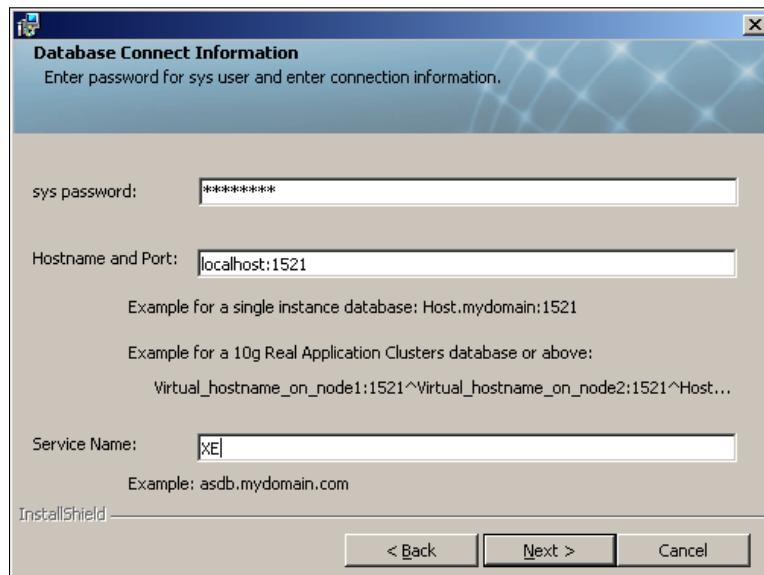
When the client installation is completed, it is necessary to re-run `setup.exe` to resume the BAM server installation. After the initial startup screen the installer will detect that the client is installed and start the process of installing the BAM server components.



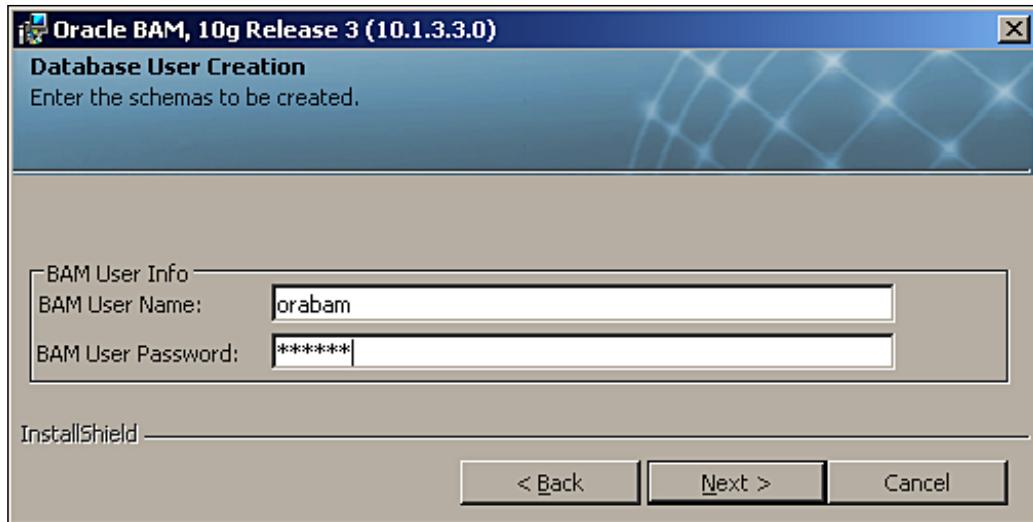
To install BAM needs to have the login credentials of the user that BAM will run under, by default the user running the installation. BAM requires the database to be started and so it is a good idea to set Service startup type to be Manual, this avoids race conditions with the database starting at the same time.



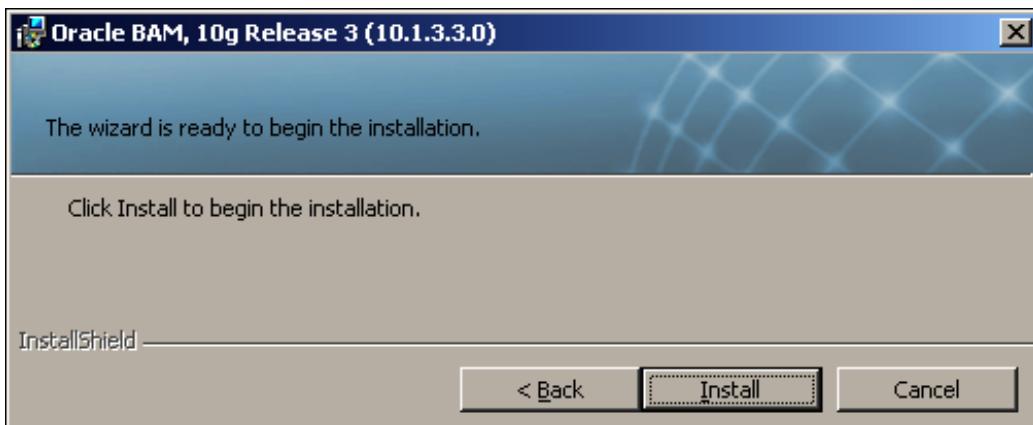
The Oracle BAM components may be installed on different machines and so you are asked which machine the various components are running on. The screen will be set to have all components to be run on the local hostname.



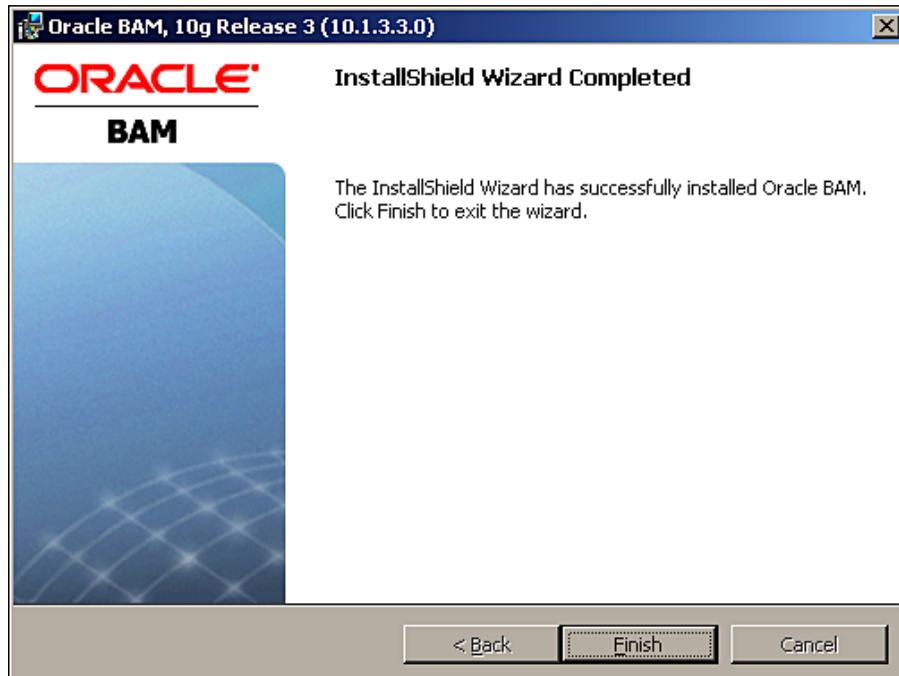
BAM uses a database and so must be provided with access to the database, in this case using the XE database previously installed. Note that unlike the other SOA Suite components BAM does not create a schema using the `repca` utility used previously, hence the need to provide a system password to allow BAM to create a new schema.



We need to provide a username and password for the schema that will be created by the installer and used at runtime by BAM.



BAM is installed as a number of Windows services.



Oracle BAM should now be installed and ready to use on port 800, the port you configured the IIS web server to run on.

BAM may be started and stopped by using the items in the **Start menu | Program Files | Oracle BAM** menu. As with other SOA Suite components Oracle BAM should be started after the database has successfully started.

If you receive the following error messages without having installed Enterprise Link then they can be ignored as they are related to Enterprise Link.

```
Starting "Oracle BAM Data Flow Service"...
The service name is invalid.

Starting "Oracle BAM Plan Monitor"...
The service name is invalid.
```

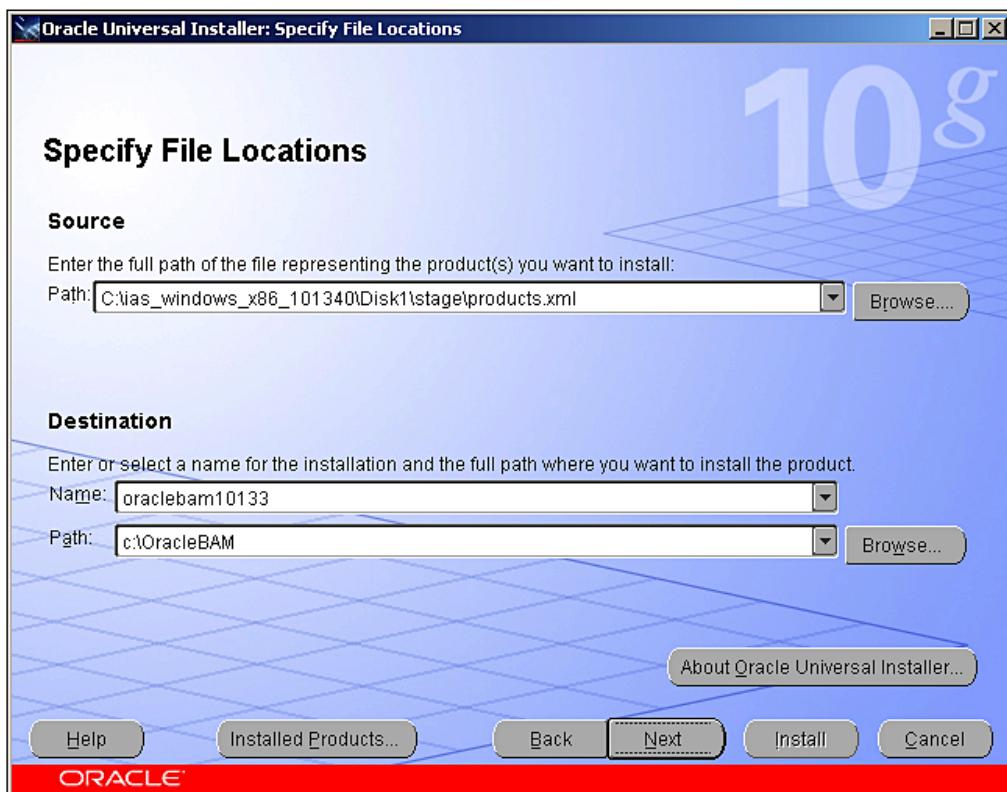
Sometimes other services may give errors, generally they are caused by failure to initialize fast enough. Rerunning the Start Oracle BAM script will report that these services have already been started.

Note that the BAM installer does not notice if IIS is running on a port other than 80, so links to the web interface will need modifying if BAM is not running on port 80.

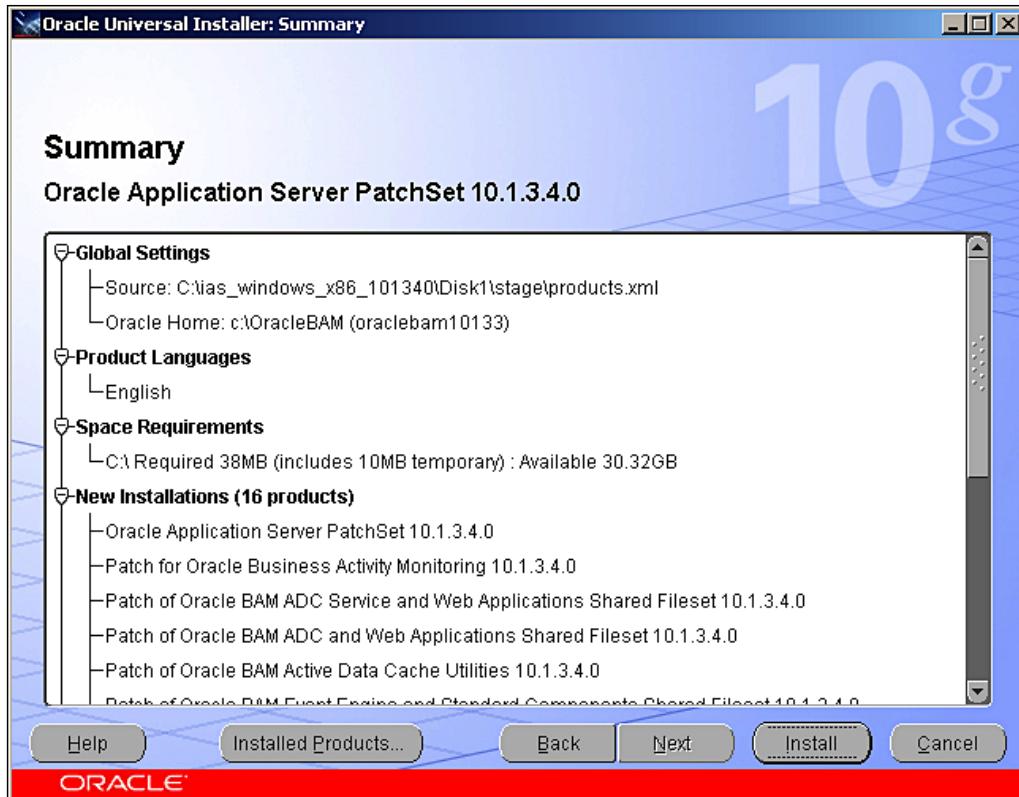
Applying 10.1.3.4 patchset

Before running the patchset, stop Oracle BAM using the Windows menu as described in previous section.

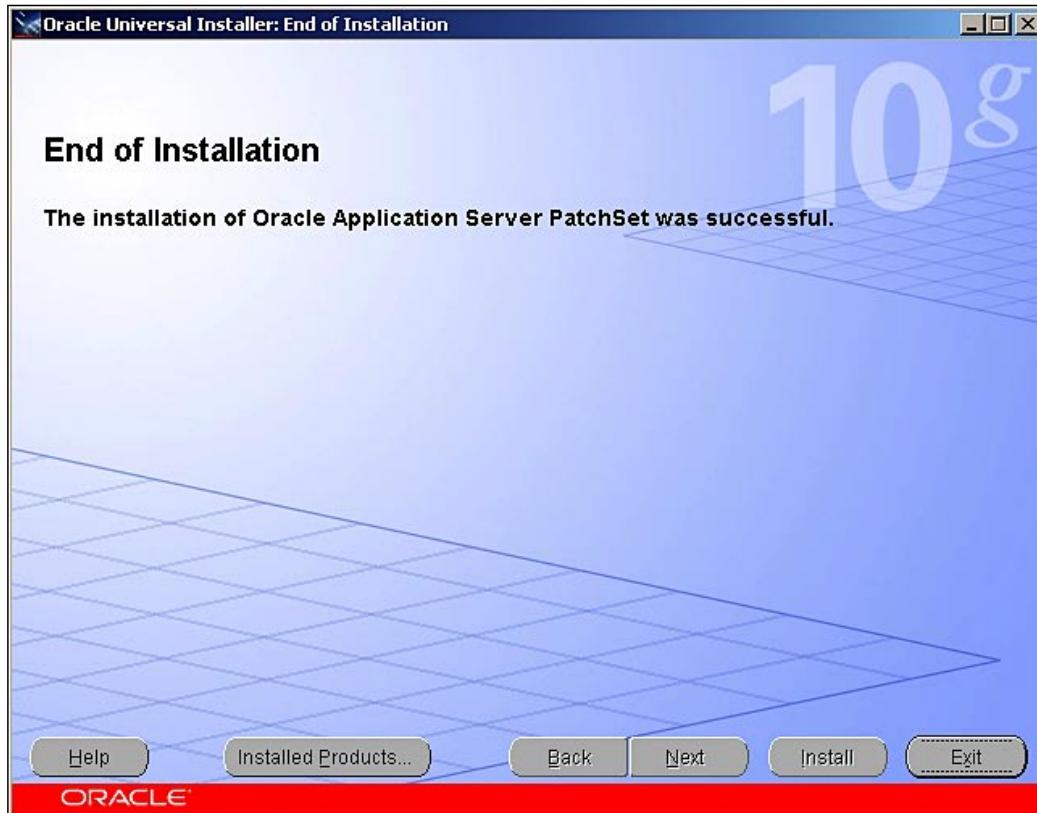
Using the directory created from the patchset file `ias_windows_x86_101340.zip` that was used to update the main SOA Suite package, it is possible to update BAM to 10.1.3.4. To apply the patch, open a DOS prompt and navigate to the `Disk1\bam` sub-directory and run the `setup_bam` script. Note that the patchset directory location should not include spaces in the name.



After verifying that the installer has selected the right location BAM analyses what requires upgrading. If you have not run the patchset before yet it claims to have an up to date BAM installation verify that there are no errors in the DOS Window used to start the installer.



After verifying the software to be updated then the installer will patch BAM up to the 10.1.3.4 level.



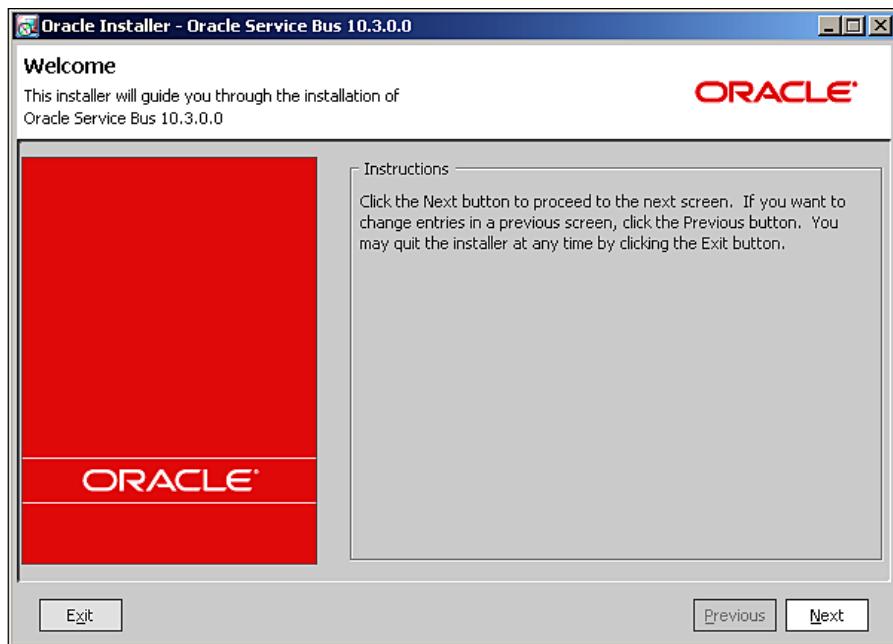
Once upgraded to 10.1.3.4 BAM may be restarted from the **Oracle BAM** menu.

Installing Oracle Service Bus 10.3

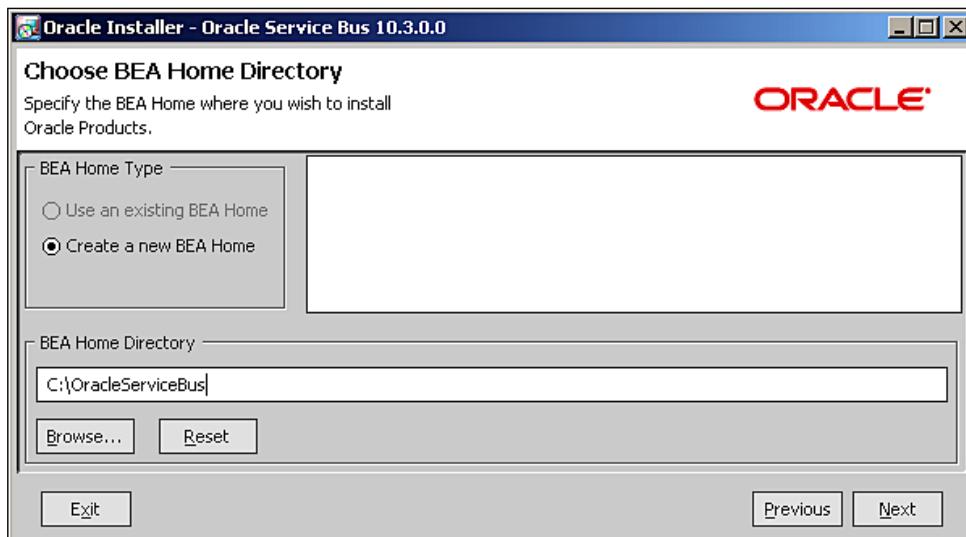
Because the Oracle Service Bus (formerly AquaLogic Service Bus) is a recent addition to the Oracle SOA Suite, it requires a separate install, although some future SOA Suite release will install service bus with the other SOA Suite components.

Installation

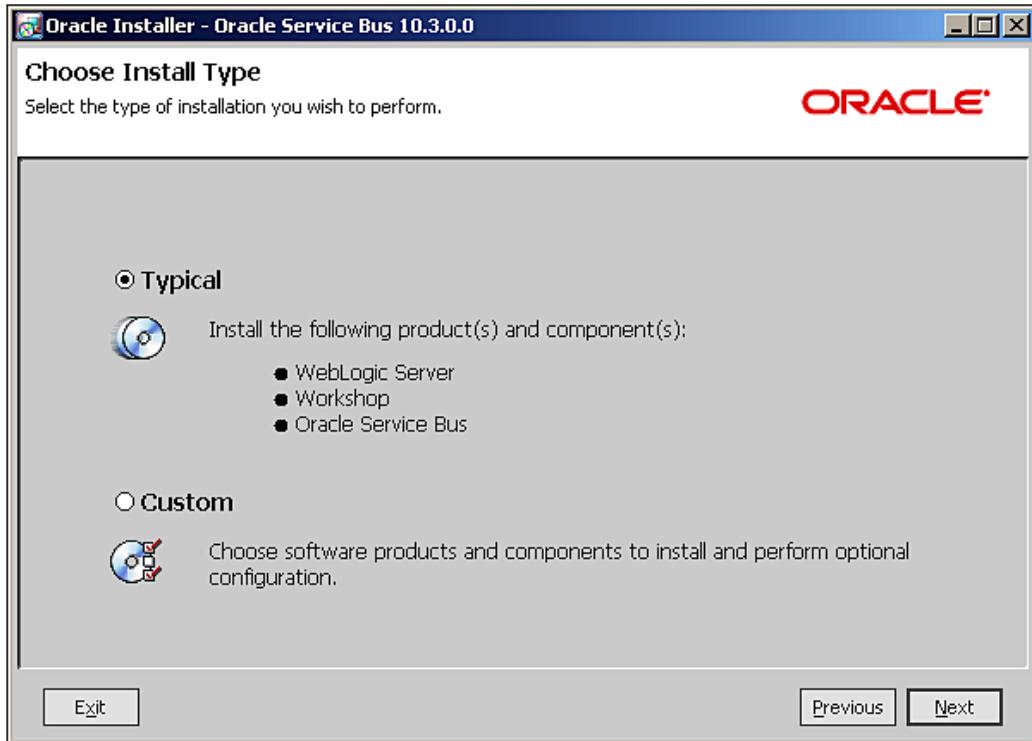
Run the installer by executing the `osb103_wls103_win32.exe` file.



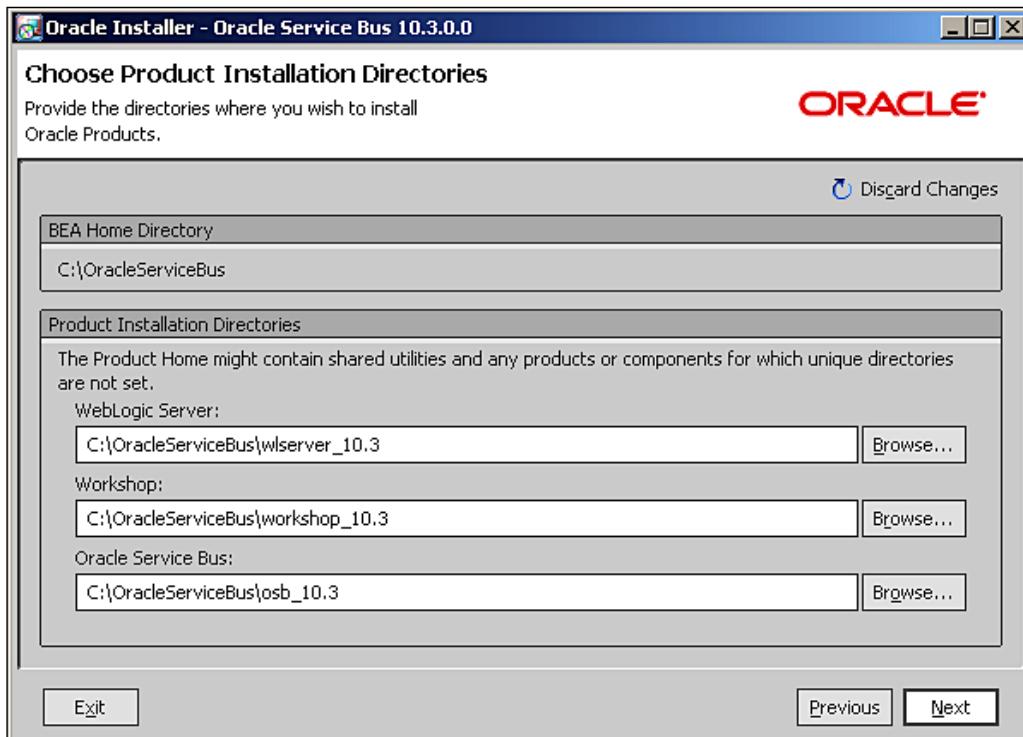
When prompted, select the target directory for the Service Bus. This should not be a directory used to hold any other Oracle products.



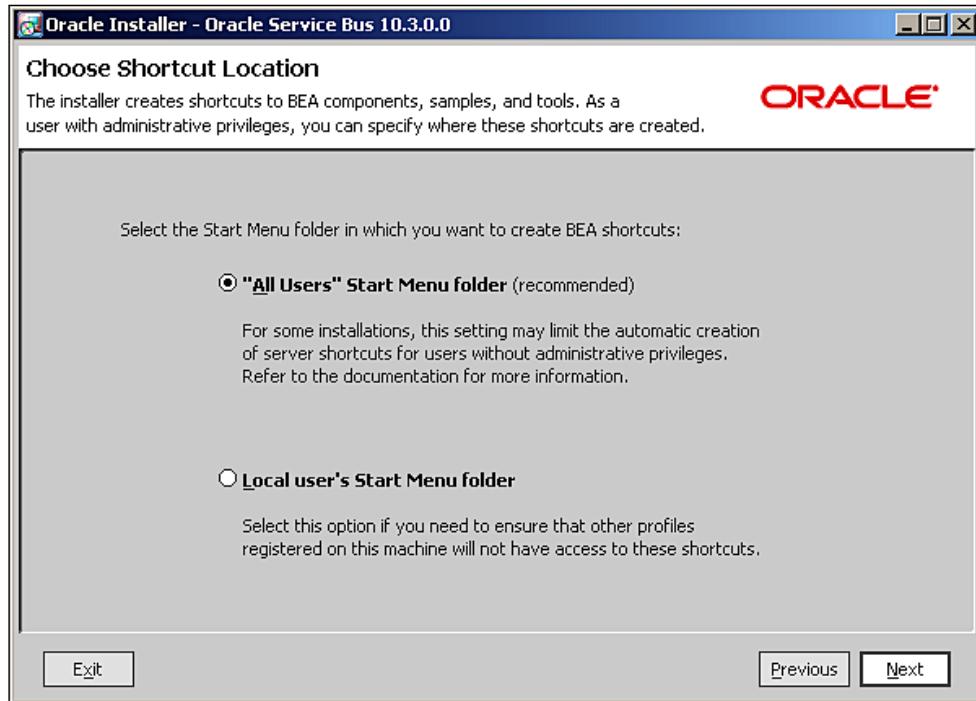
A **Typical** installation will install Oracle Service Bus 10.3 on top of a WebLogic server version 10.3. It will also install the WebLogic workshop which is the Eclipse-based development tool for Service Bus and WebLogic server.



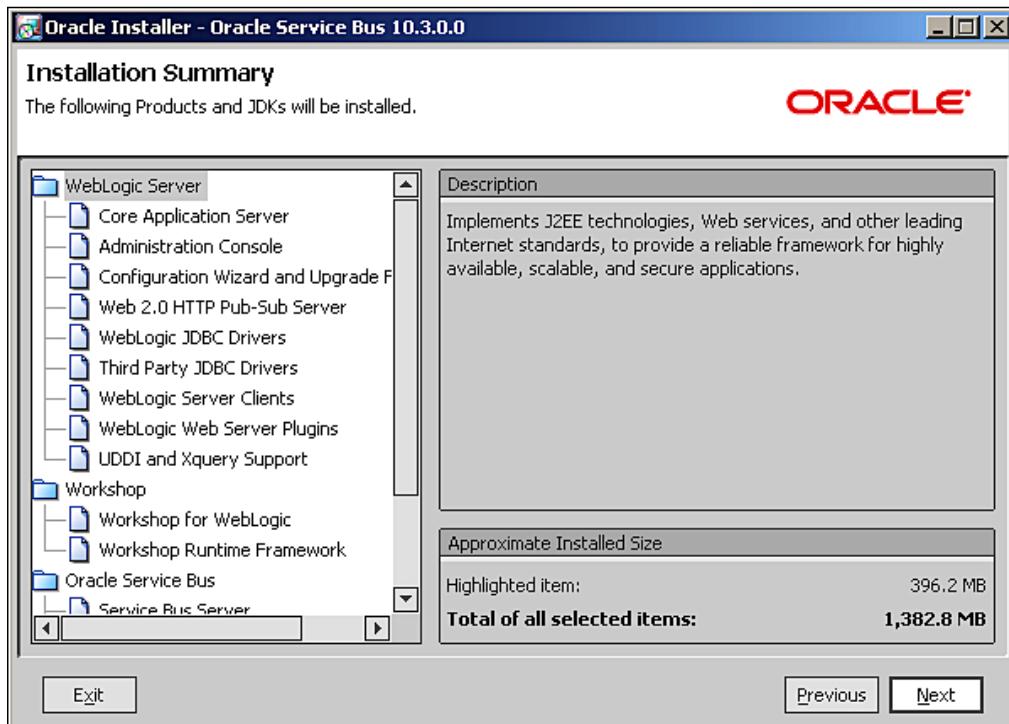
The separate components of Service Bus, WebLogic Server and Workshop are installed into separate directories under the BEA home directory specified earlier.



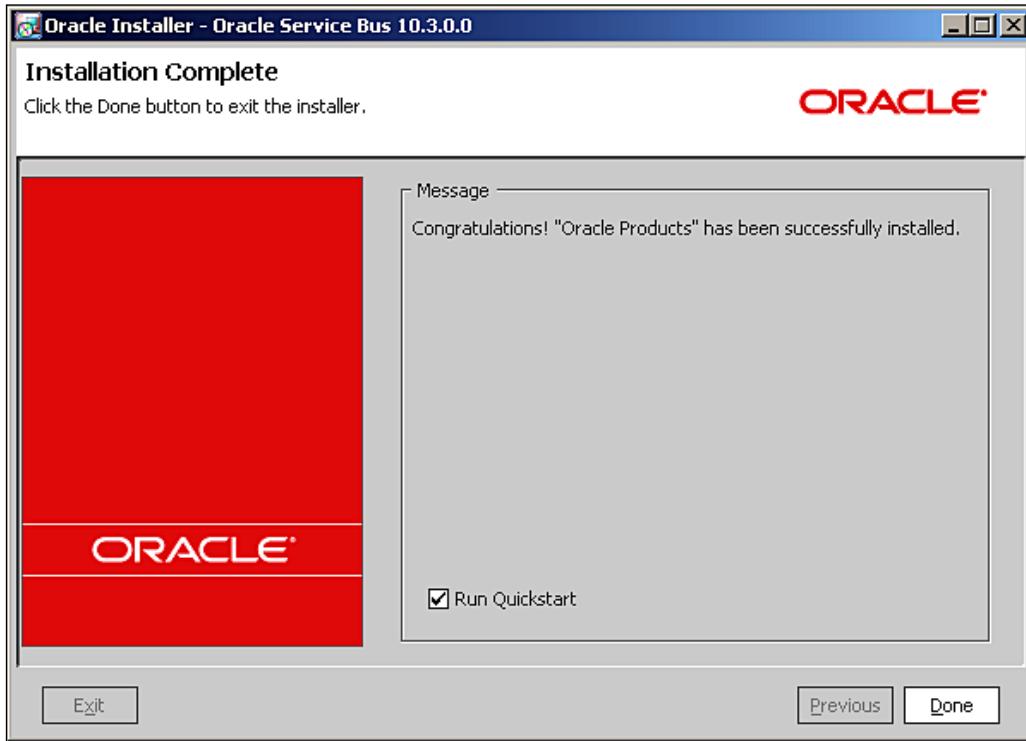
The option is given to provide menu entries for all users on the machine or just the user who is installing the Service Bus.



Finally, you get a chance to review the products to be installed before committing to the install.



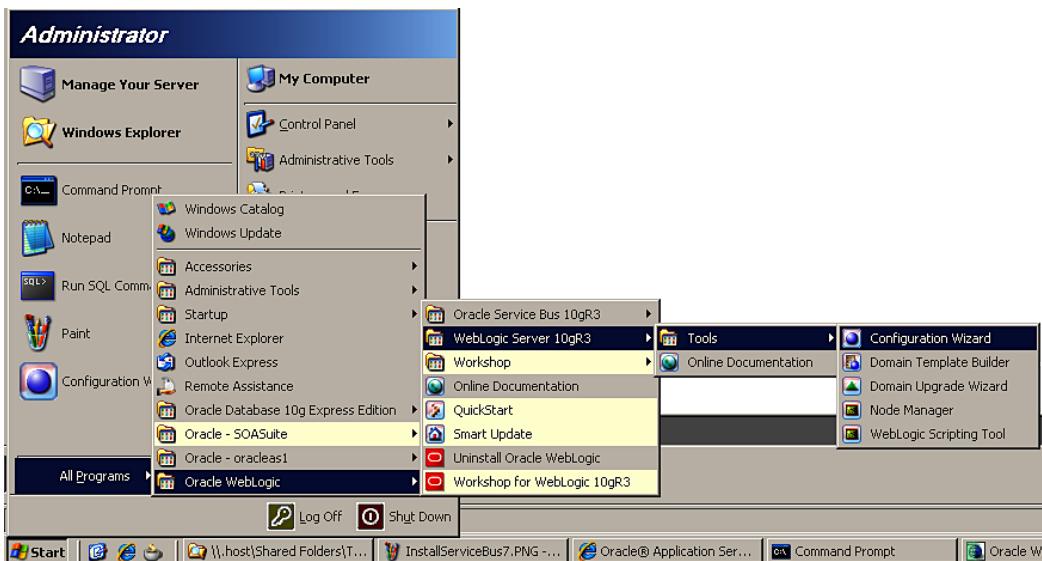
Once the install is complete you have the option to **Run Quickstart**, which provides you with quick links to launch WebLogic Workshop, upgrade earlier configurations, and access online documentation.



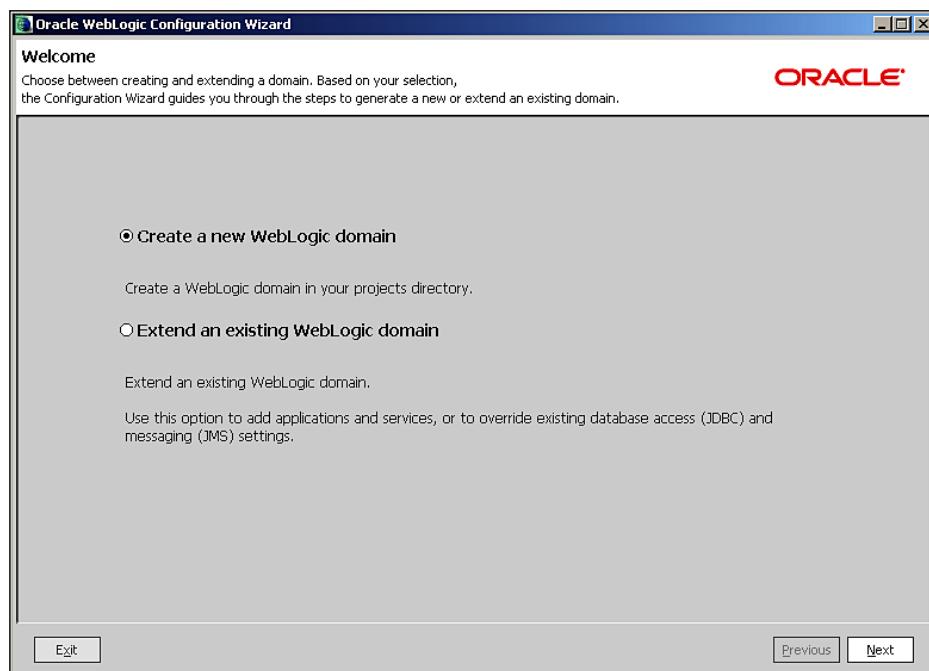
The install will create an Oracle WebLogic menu item on the Start menu that provides access to **Workshop for WebLogic 10gR3** and the **Configuration Wizard** that allows you to create Service Bus domains. In the next section, we will look at how to create a Service Bus domain.

Configuration

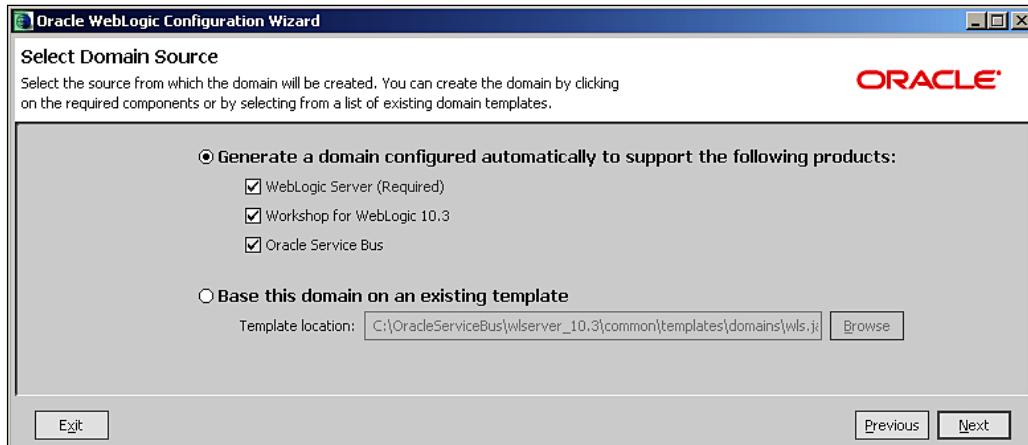
Before using Service Bus we need to create a domain which contains at least one server running Service Bus. To do this we run the **Configuration Wizard** found under the Windows **Start | Program Files | Oracle WebLogic | WebLogic Server 10gR3 | Tools** menu.



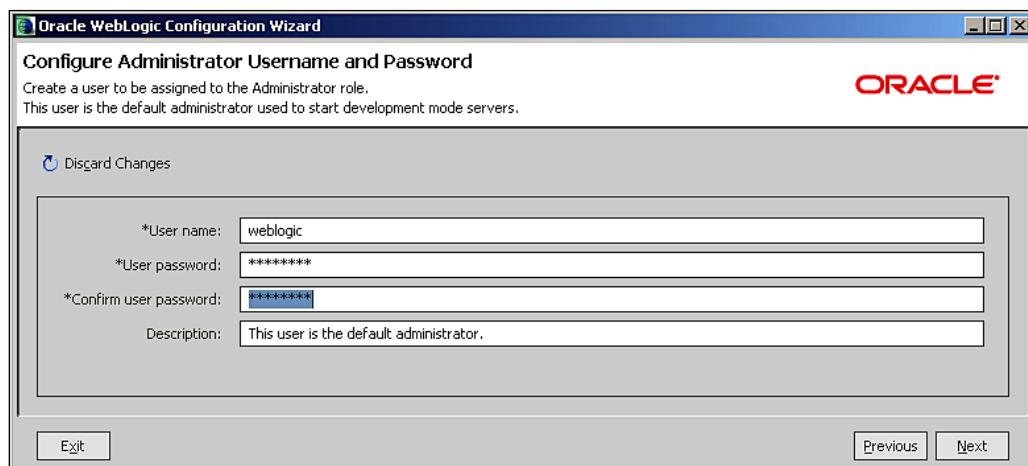
We can either modify an existing domain or create a new domain. In this case, as we have a new installation, we will create a new domain.



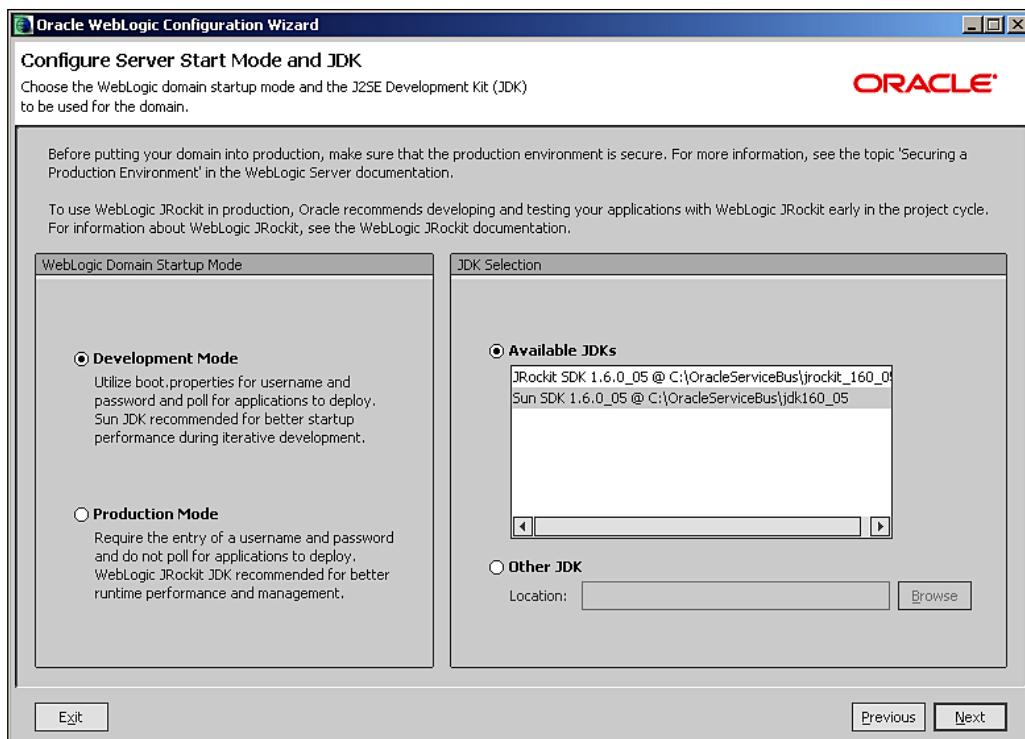
We want to create a domain supporting Oracle Service Bus so we need to select that option, we can also add support for Workshop for WebLogic 10.3.



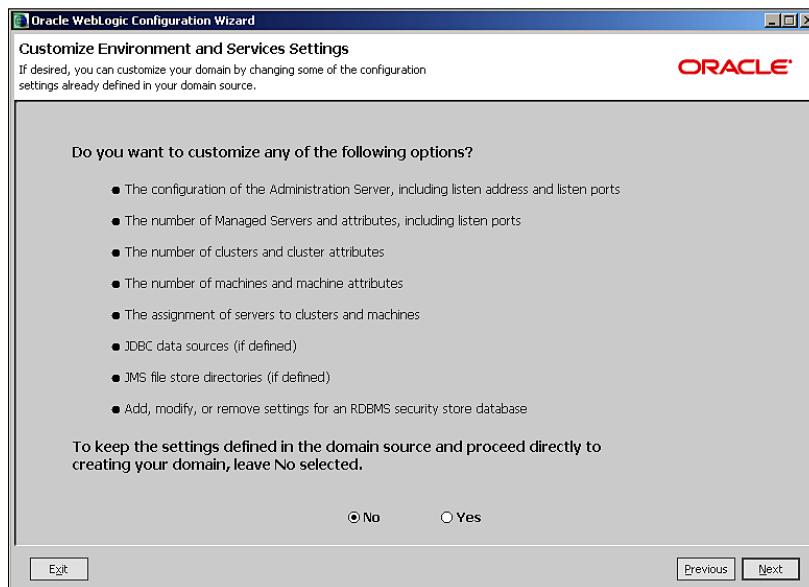
We need to provide administrator details. It is a good idea to set the password to be the same as the password for other components of the SOA Suite.



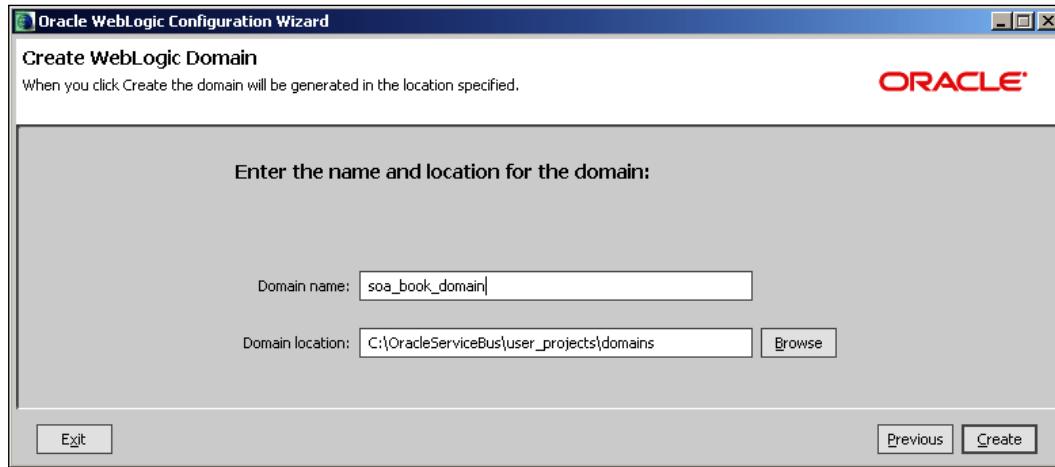
The default settings for the server mode and JDK can be accepted if this is a development install.



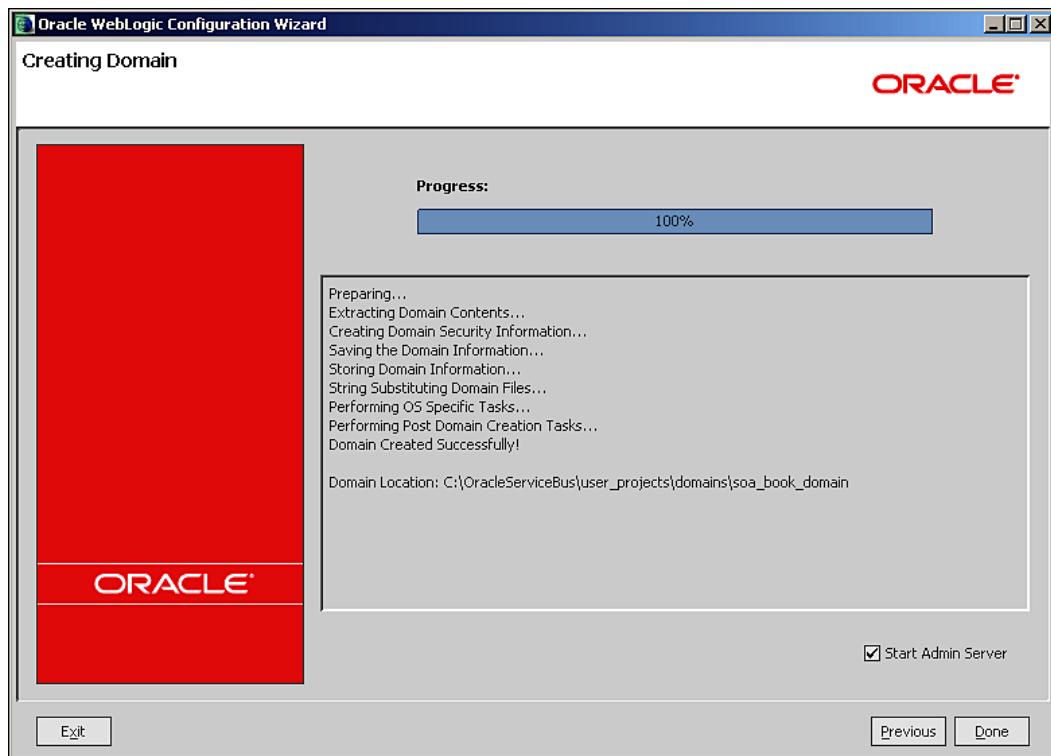
It is possible to perform extensive customization of the domain before it is created but we will just accept the defaults for now.



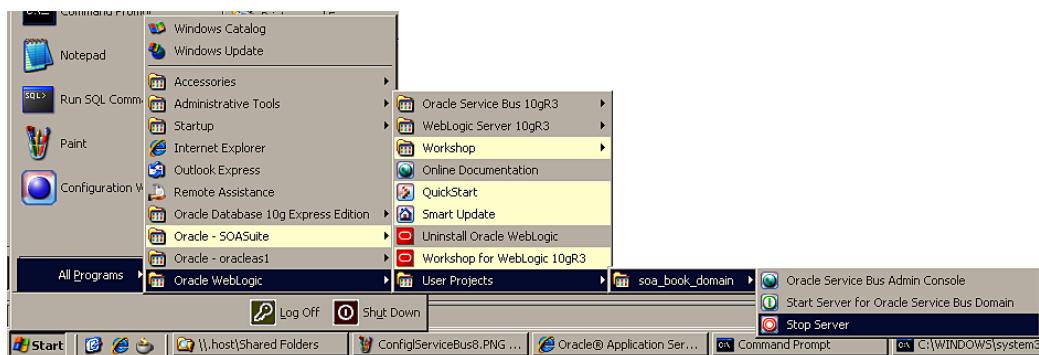
We need to provide a name for the domain that will remind us of what we are using it for. Multiple domains may exist within the same BEA home directory.



Clicking the **Create** button will cause the domain to be created.



After creating the domain the confirmation screen allows us to launch the the administration server for the domain, this server can be used to administer the Oracle Service Bus as well as the domain.



After configuring a domain a new entry is created on the Windows Start menu under the **User Projects** section of the **Oracle WebLogic** menu. This has entries to start and stop the service bus as well as launch the admin console.

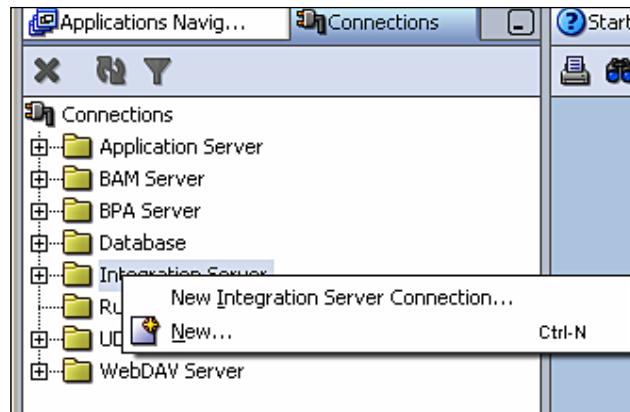
Configuring JDeveloper

In this section, we will look at the installation and configuration of JDeveloper to work with the previously installed SOA Suite components. Before configuring JDeveloper, we need to start it by running the `jdeveloper.exe` file found at the top level of the directory where you unpacked JDeveloper. It is a good idea to create a shortcut to this file on your desktop and/or taskbar.

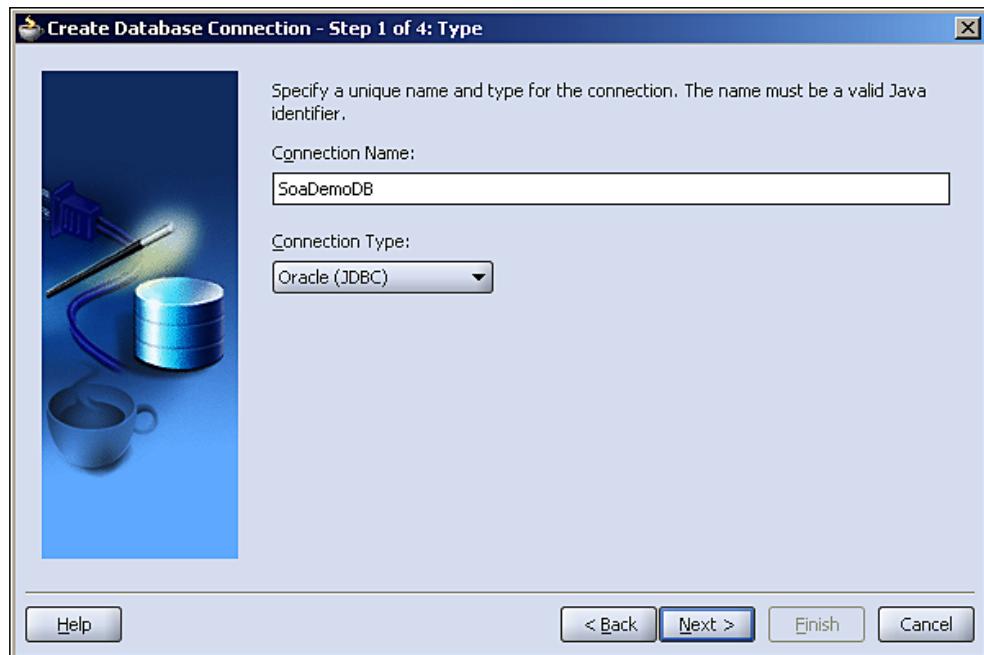
When running JDeveloper for the first time, you will be asked if you wish to migrate projects from a previous version of JDeveloper. After declining JDeveloper starts and you are asked if you wish to associate certain file types with JDeveloper. It is worth associating at least the `.jws` and `.jpr` files with JDeveloper so that you can double click a project or workspace in Explorer and have it opened in JDeveloper.



After dismissing the tip of the day you are ready to create connections to the various SOA Suite components. Select the **Connection** tab or select **View | Connection Navigator** on the menu to view the available connections in the **Connection** navigator.



To configure a connection, right-click on the entry in the **Connection** navigator and select **New Component Connection**. This will launch the wizard to help you configure the appropriate connection. All the wizards will ask you to name the connection.



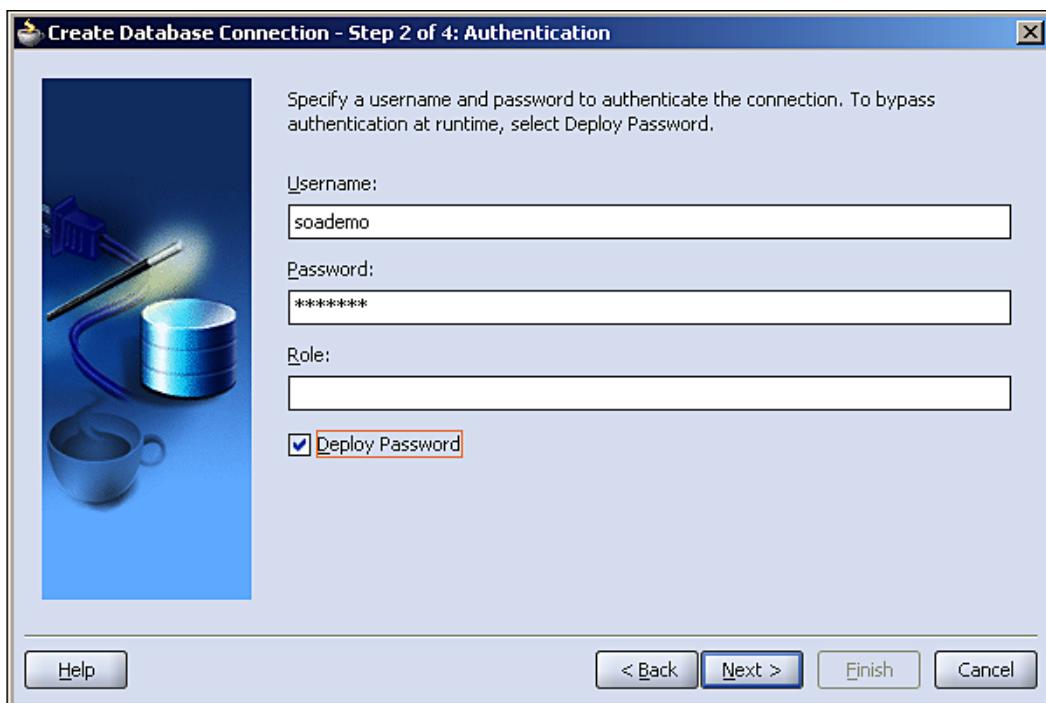
Having a consistent naming convention is important because these connections are used extensively when building and deploying SOA Suite components. One approach is to identify the type of connection with the last two letters of the name such as;

- DB: Database Connections
- AS: Application Server Connection
- IS: Integration Server Connection
- RE: Rules Engine Connection
- BAM: BAM Connection

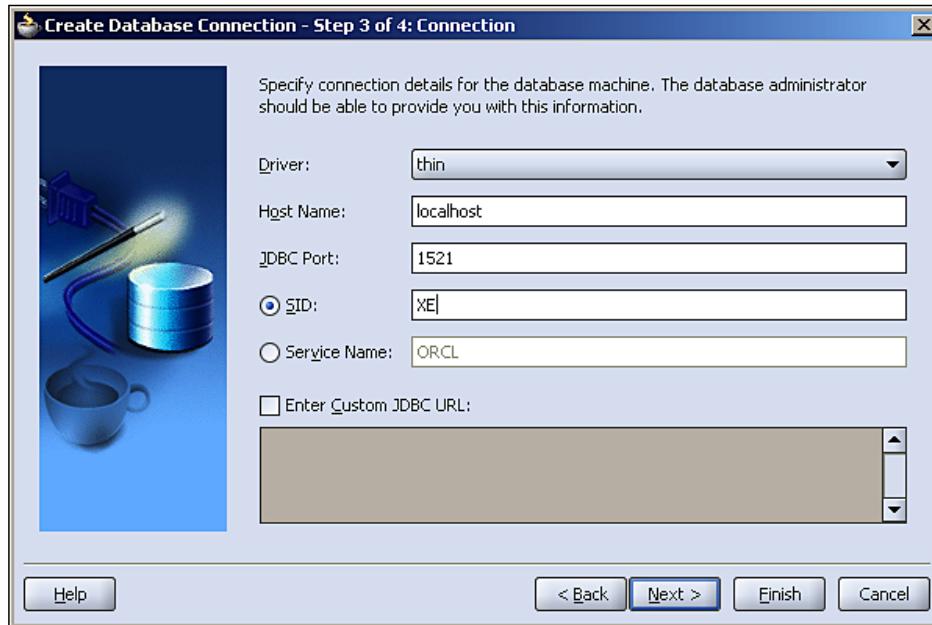
We will now look at configuring each individual connection.

Creating a Database Connection

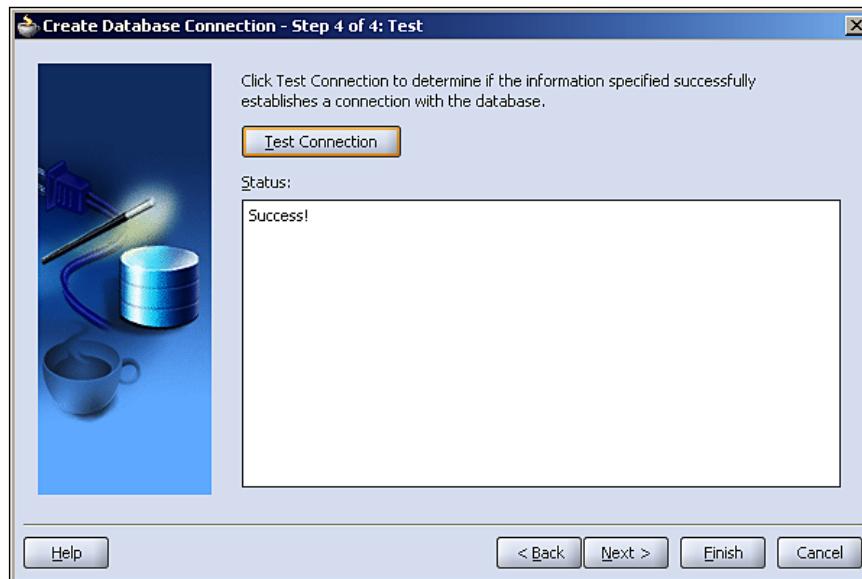
Launch the **Create Database Connection** wizard and select a name and database connection type for the connection. You will then be asked to provide the username and password for the database.



After supplying user credentials for the connection you can then provide the physical connection details.



If using the XE database, the settings shown above will connect to an XE database on the same machine.

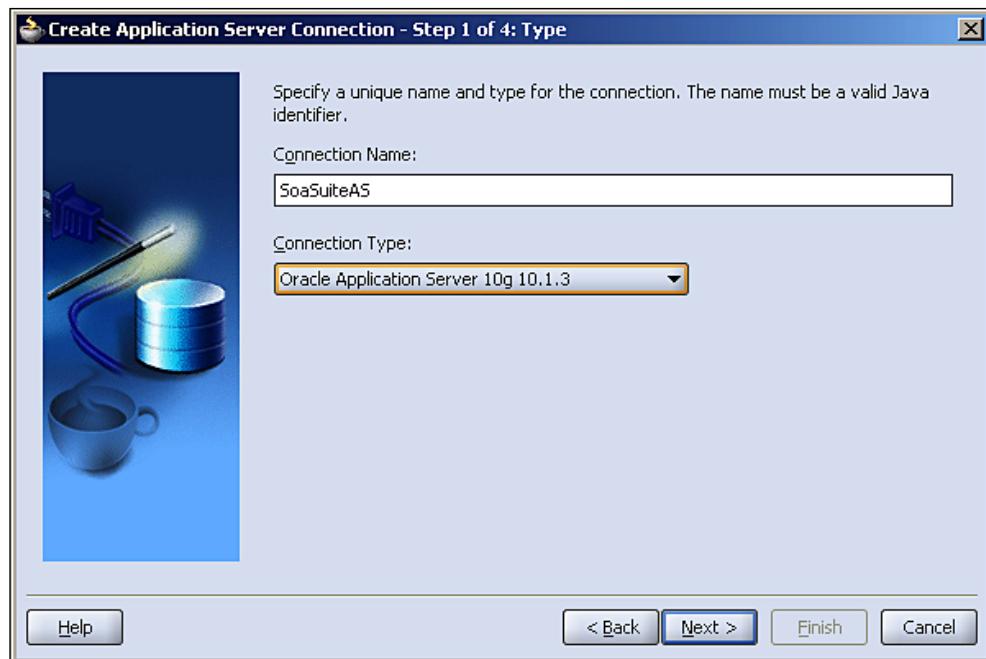


A test screen is provided to validate the details entered. If the test fails, use the **Back** button to go back and correct the error.

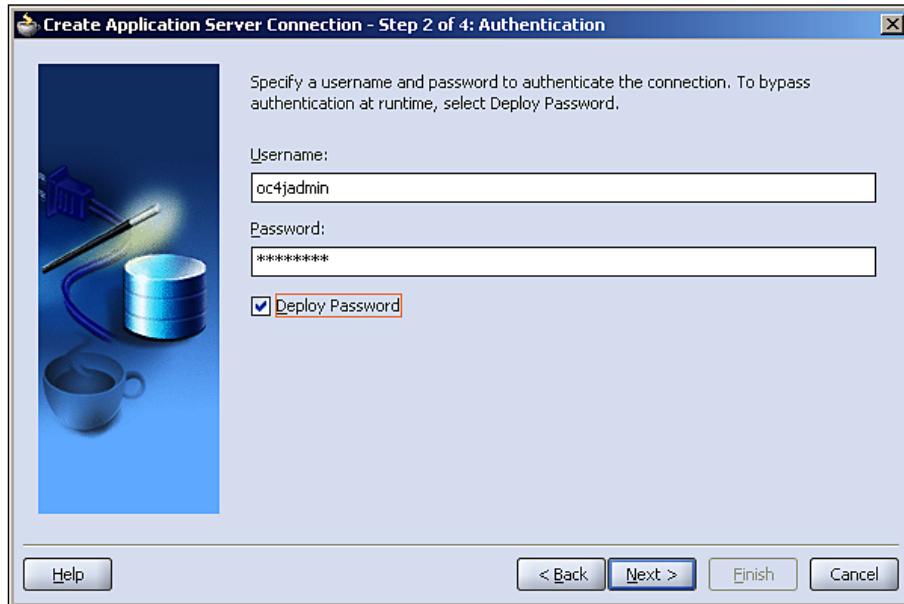
After finishing the wizard, the database connection is then available for use in JDeveloper.

Creating an Application Server Connection

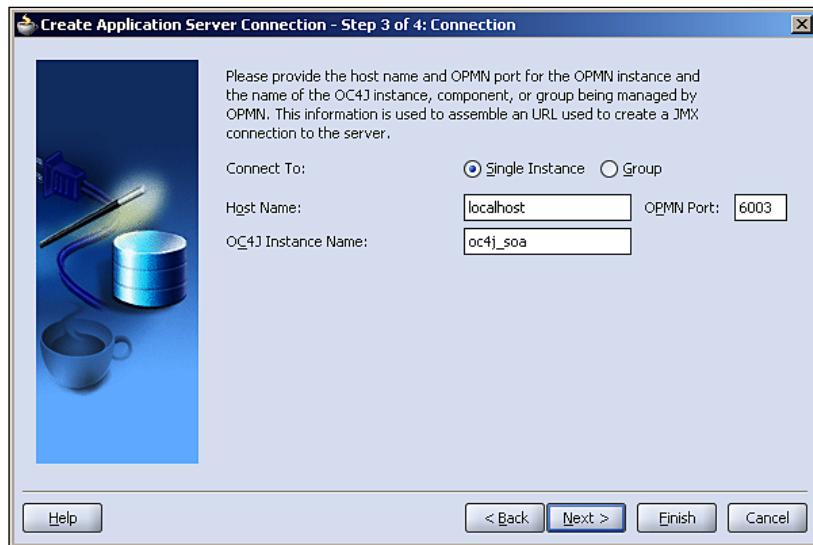
Launch the **Create Application Server Connection** wizard and select a name and application server connection type for the connection. If you installed the default SOA Suite then you need to choose the **Oracle Application Server 10g 10.1.3 Connection Type**.



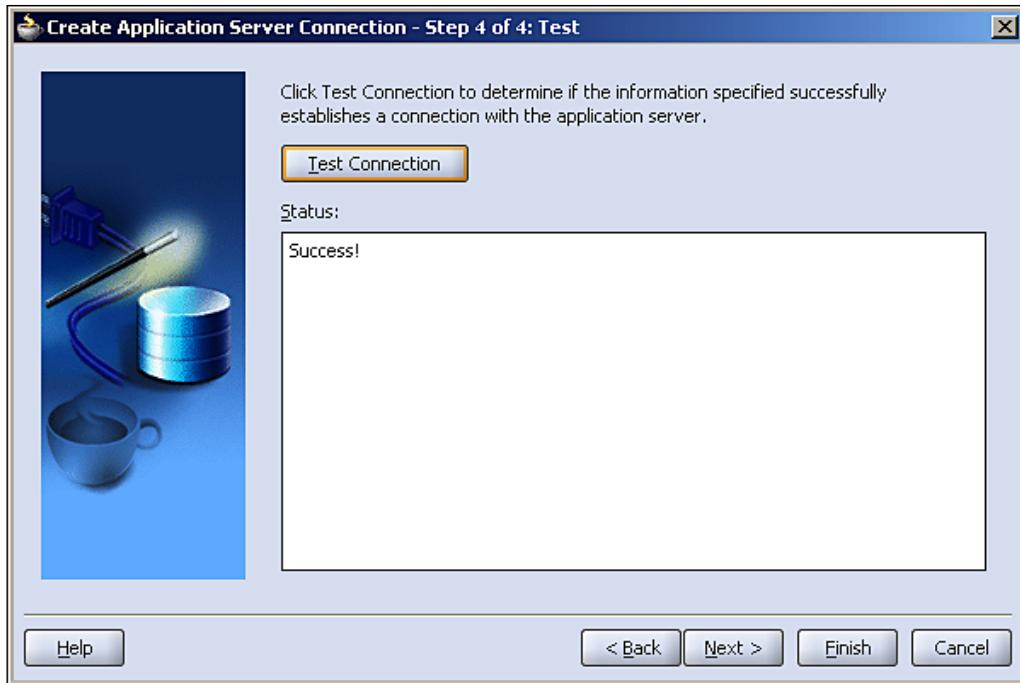
You will then be asked to provide the username and password for the application server. The username is **oc4jadmin** and the password is the one you provided when installing the SOA Suite.



After supplying user credentials for the connection you can then provide the physical connection details.



The settings shown above will connect to the default SOA container for an advanced SOA Suite install, similar to what was done earlier in this document. This assumes the SOA Suite is on the same machine, if not then change the hostname from localhost to the actual hostname.



A test screen is provided to validate the details entered. If the test fails then use the **Back** button to go back and correct the error.

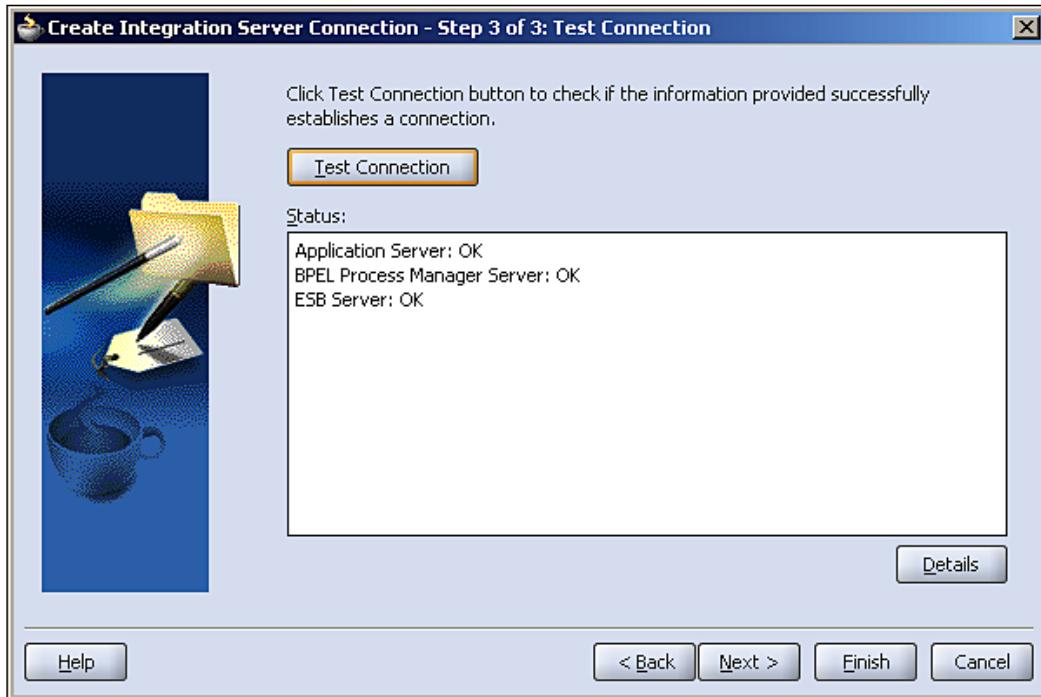
After finishing the wizard, the application server connection is then available for use in JDeveloper.

Creating an Integration Server Connection

Launch the **Create Integration Server Connection** wizard and select a name for the connection. You will then be asked to provide details of the underlying application server that is running the SOA Suite components. This means that we must have an **Application Server** connection to that application server. If one does not already exist we can create a new one by clicking the **green plus sign**. A drop-down list provides access to all existing application server connections in JDeveloper. We must also provide the hostname and port number that the application server is using. We can add the hostname to a list of proxy exceptions in JDeveloper that is used when working with a proxy server.



The user credentials for the SOA Suite are provided as part of the Application Server Connection Configuration.

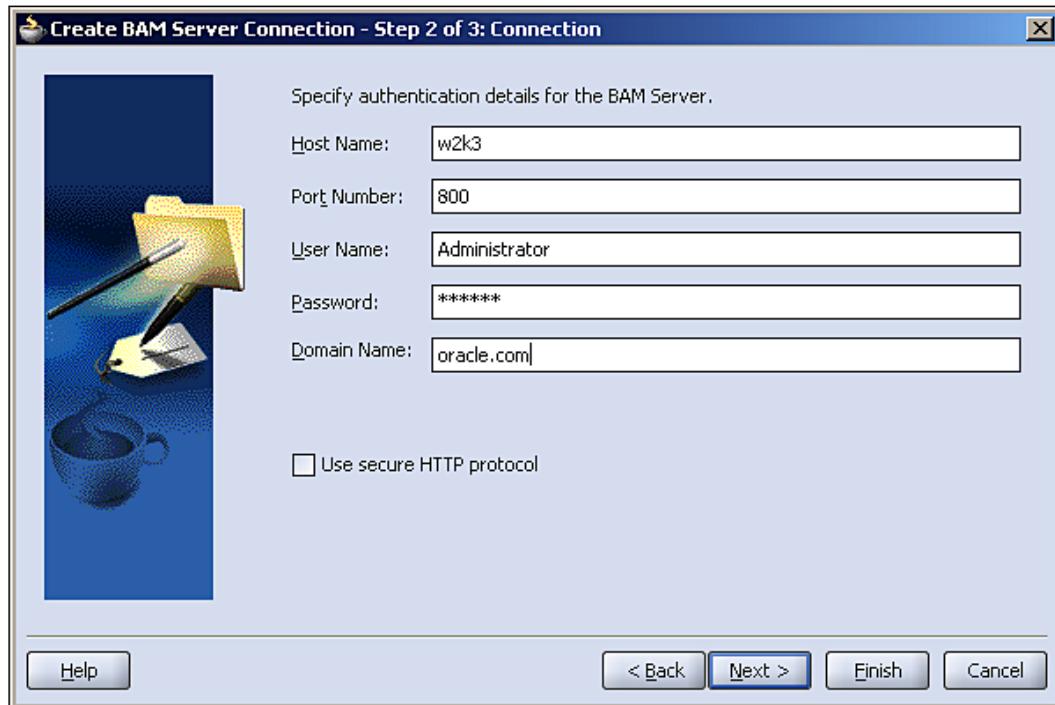


A test screen is provided to validate the details entered. If the test fails then use the **Back** button to go back and correct the error. Note that the test validates access to the application server, the BPEL Process Manager and the Oracle Enterprise Service Number (not to be confused with the Oracle Service Bus).

After finishing the wizard, the integration server connection is then available for use in JDeveloper.

Creating a BAM Server Connection

Launch the **Create BAM Server Connection** wizard and select a name for the connection. You will then be asked to provide the details of the BAM connection.



The hostname and port number are the location of the server running BAM. The credentials are a Windows username and password that have access to the BAM server, by default this will include the user that was used to install BAM. The domain name is the Windows domain or workgroup in which the user is registered.

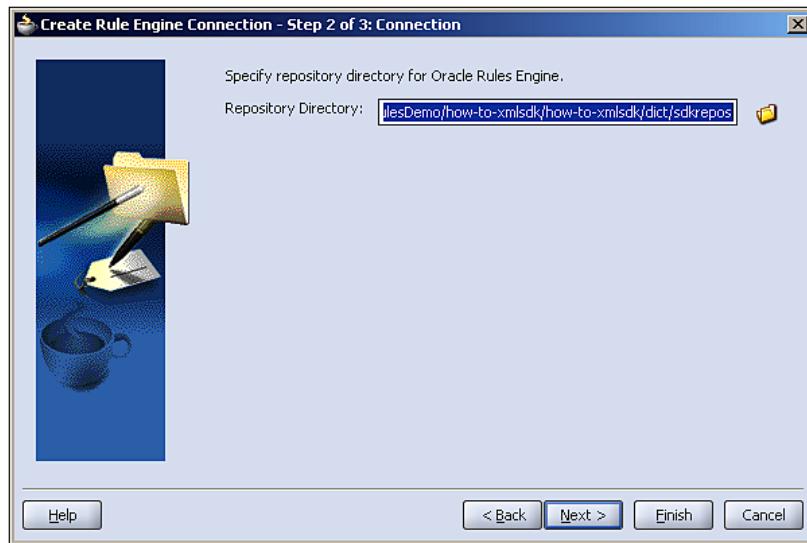


A test screen is provided to validate the details entered. If the test fails then use the **Back** button to go back and correct the error.

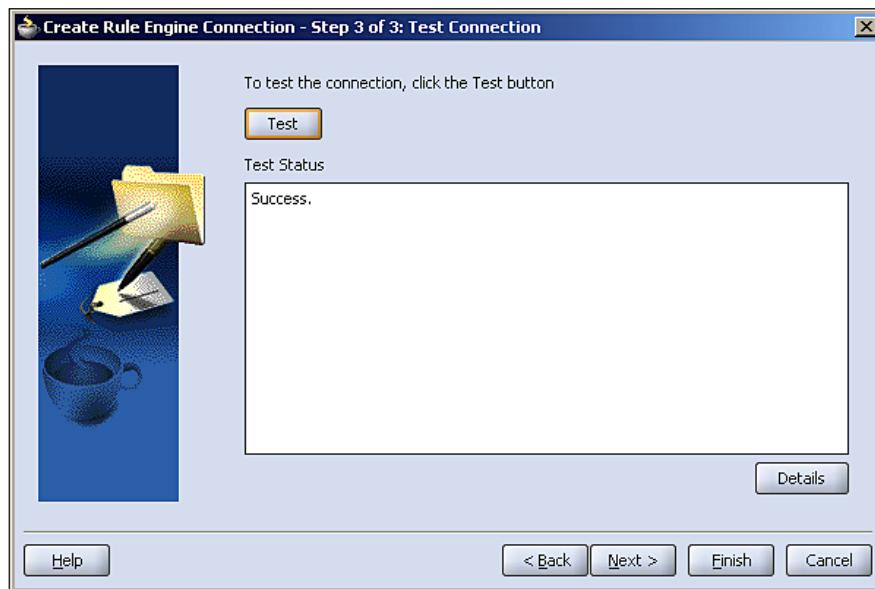
After finishing the wizard, the BAM server connection is then available for use in JDeveloper.

Creating a Rules Engine Connection

Launch the **Create Rules Engine Connection** wizard and select a name and repository type (file or WebDav) for the connection. You will then be asked to provide the location of the rules repository.



Note that although the wizard asks for a directory it actually wants the repository file.



A test screen is provided to validate the details entered. If the test fails then use the **Back** button to go back and correct the error. The **Details** button can be used to find out exactly why a test failed.

After finishing the wizard, the rules engine connection is then available for use in JDeveloper.

Summary

This document has detailed the steps required to get a development version of Oracle SOA Suite with its main components installed and patched to the 10.1.3.4 level. All the software and patches are available from the Oracle Technology Network (OTN) and are available without licenses. There are some additional patches known as MLRs that fix additional problems and provide minor functionality upgrades. These MLRs are only available to customers who have purchased SOA Suite licenses and hence have not been mentioned in this section.

We have also reviewed how to setup connections in JDeveloper to the components just installed.

