Installation Instructions for Oracle Service Bus 11g Development Cookbook

These instructions are for an Oracle Service Bus 11g/SOA Suite 11g installation using version 11gR1 PS3 (11.1.1.4). We have used this version to write all the chapters of the book. If you plan to use the latest 11gR1 PS4 (11.1.1.5) version expect to find some small differences in some of the screenshots in this document as well as in the recipes of the book.

To minimize the resources needed for the environment; these installation instructions guide you to configure both the Oracle Service Bus as well as the Oracle SOA Suite components in a single Admin Server, using a *development-only* setup. *Never use* such a setup for production!

These instructions are Windows-based. Adjust for Linux accordingly. The document is an adaption of the document written by *Antony Reynolds* and *Matt Wright* for their book *Oracle SOA Suite 11g R1 Developer's Guide* also available from Packt Publishing.

In this chapter, we will cover:

- Pre-requisites before you begin installation
- Install Oracle XE Universal database
- Configure Oracle XE Universal database
- Run RCU to setup database schemas for OSB and SOA Suite
- Install WebLogic Server
- Install Oracle Service Bus
- Install Oracle SOA Suite
- Install JDeveloper 11g with SOA extension

- Install soapUI
- Configure WebLogic Domain
- Starting the server
- Setup the OSB Cookbook standard environment

Prerequisites before you begin installation

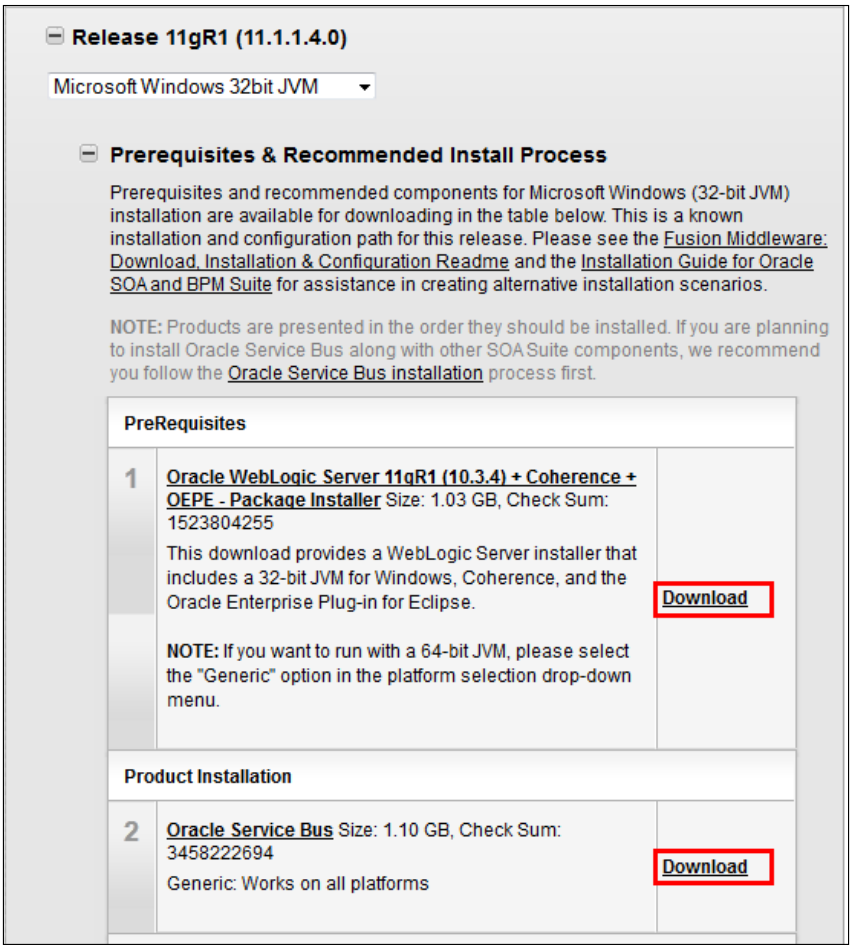
The following are the prerequisites that you require before starting the installation:

Memory requirements

This install requires 2.5 GB or more available memory. If you have less, try separating the installation of the database onto a different machine.

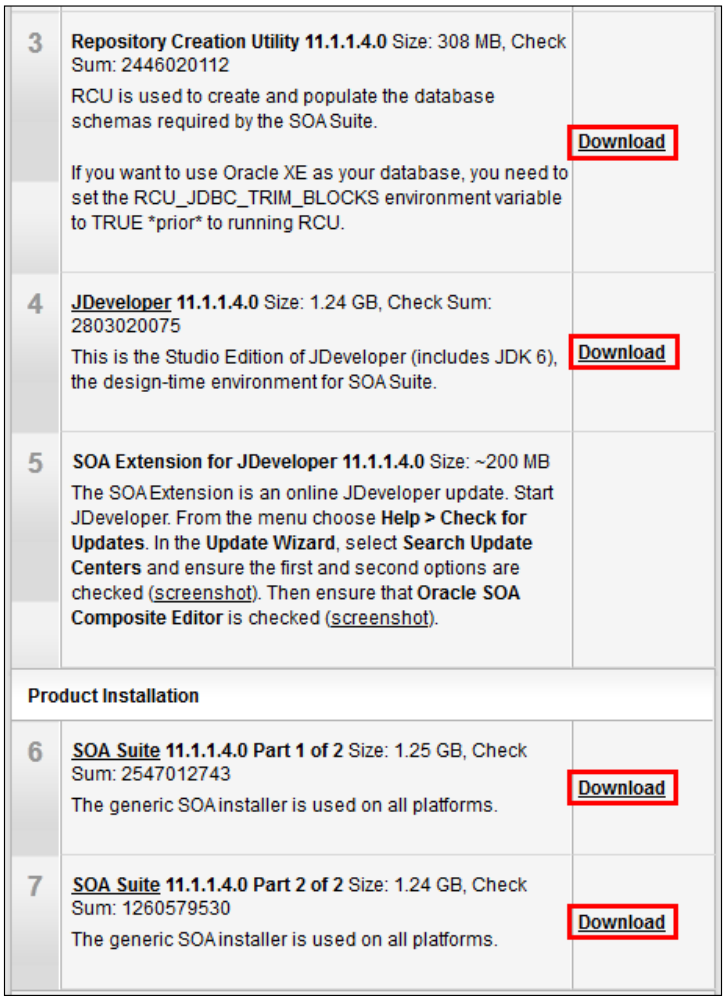
Download files

1. Create `c:\stageSOA` and save there all files downloaded in the next steps. This document assumes that path. If you save them somewhere else, then make sure there are no spaces in your path and adjust accordingly when `c:\stageSOA` is referenced in this document.
2. Go to: `http://www.oracle.com/technetwork/middleware/service-bus/downloads/index.html`, expand **Prerequisites & Recommended Install Process** for **Release 11gR1 (11.1.1.4.0)** and download the following to `c:\stageSOA`:
    - **Oracle WebLogic Server 11gR1 (10.3.4) + Coherence + OEPE – Package Installer**
    - **Oracle Service Bus**



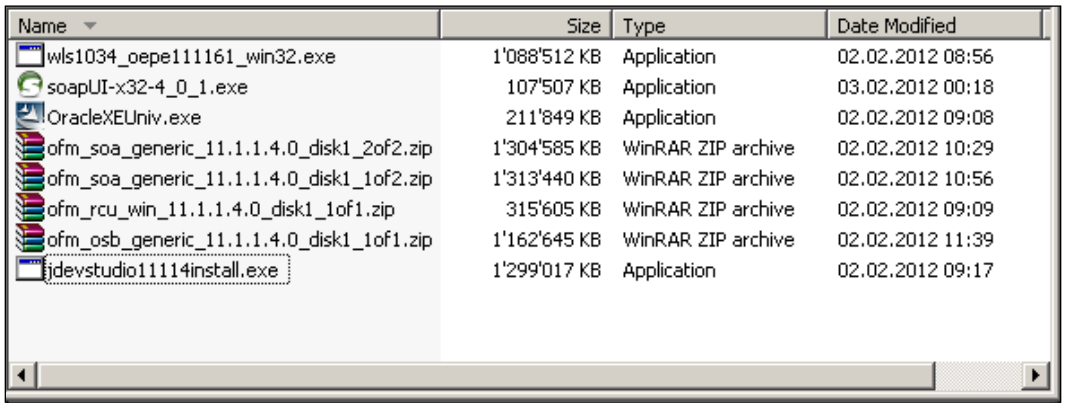
3. Go to: `http://www.oracle.com/technetwork/middleware/soasuite/downloads/index.html`, expand **Prerequisites & Recommended Install Process** for **Release 11gR1 (11.1.1.4.0)** and download the following to `c:\stageSOA`:
   - **Repository Creation Utility 11.1.1.4.0**
   - **JDeveloper 11.1.1.4.0**
   - **SOA Suite 11.1.1.4.0 Part 1 of 2**

- **SOA Suite 11.1.1.4.0 Part 2 of 2**



4. Download an Oracle XE Universal by going to: `http://www.oracle.com/technetwork/database/express-edition/downloads/102xewinsoft-090667.html` and download the following to `c:\stageSOA`:
   - **OracleXEUniv.exe**
5. Download soapUI by going to: `http://sourceforge.net/projects/soapui/files/soapui/4.0.1` and download the following to `c:\stageSOA`:
   - **soapUI-x32-4_0_1.exe**

6. The `c:\stageSOA` folder should contain the files shown by the following screenshot:



7. Unzip `ofm_rcu_win_11.1.1.4.0_disk1_1of1.zip` to `c:\stageSOA\rcu`.
8. Unzip `ofm_osb_generic_11.1.1.4.0_disk1_1of1.zip` to `c:\stageSOA\osb`.
9. Unzip `ofm_soa_generic_11.1.1.4.0_disk1_1of1.zip` to `c:\stageSOA\soa`.
10. Unzip `ofm_soa_generic_11.1.1.4.0_disk1_2of2.zip` to `c:\stageSOA\soa`.

Install Oracle XE Universal database

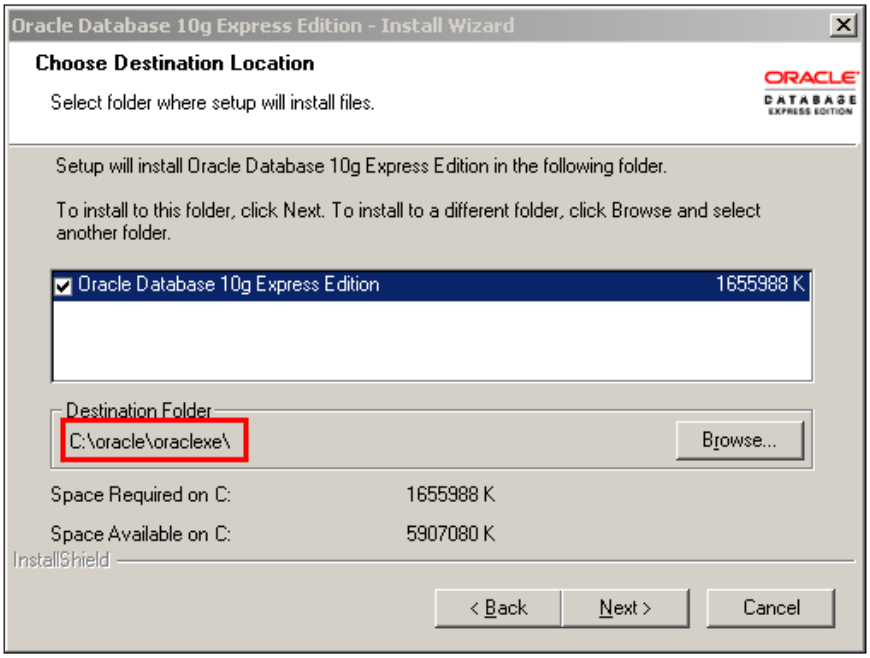
If you already have an Oracle XE Universal available you can skip this step and go directly to the configuration of the XE Universal database.

1. Open a command window and enter the following command:

```
cd c:\stageSOA
OracleXEUniv.exe
```

2. On the Install Wizard, click **Next**.
3. Accept the license agreement and click **Next**.

4. Click **Browse** to change the **Destination Folder** to `c:\oracle\oraclexe` and click **OK**.



5. Click **Next**.
6. Enter `oracle` into the **Enter Password** field and into the **Confirm Password** field.
7. Click **Next**.
8. Click **Install**.
9. Review the summary and make sure the database has been successfully installed and click **Finish**.

Now the database is installed and we can configure it for Oracle Service Bus and SOA Suite usage.

Configure Oracle XE Universal database

You must update database parameters if you have not yet done this for your database installation, that is, if you have just installed the database above. You only have to do this once after installing. Set the processes parameter to `>= 200` as follows.

The `shutdown` command can take a few minutes. Sometimes the shutdown/startup command fails. In that case, simply restart the XE services in the **Control Panel** | **Administrative Tools** | **Services** window after setting your parameters.

1. Run SQL Plus by clicking on the windows Start menu and selecting **Programs** | **Oracle Database 10g Express Edition** | **Run SQL Command Line**.
2. Enter the following commands:

```
SQL> connect sys/oracle@xe as sysdba
SQL> show parameter session
SQL> show parameter processes
SQL> ALTER SYSTEM RESET SESSIONS SCOPE=spfile SID='*';
SQL> ALTER SYSTEM SET PROCESSES=200 SCOPE=spfile;
SQL> shutdown immediate
SQL> startup
SQL> show parameter session
SQL> show parameter processes
```

Run RCU to set up database schemas for OSB and SOA Suite

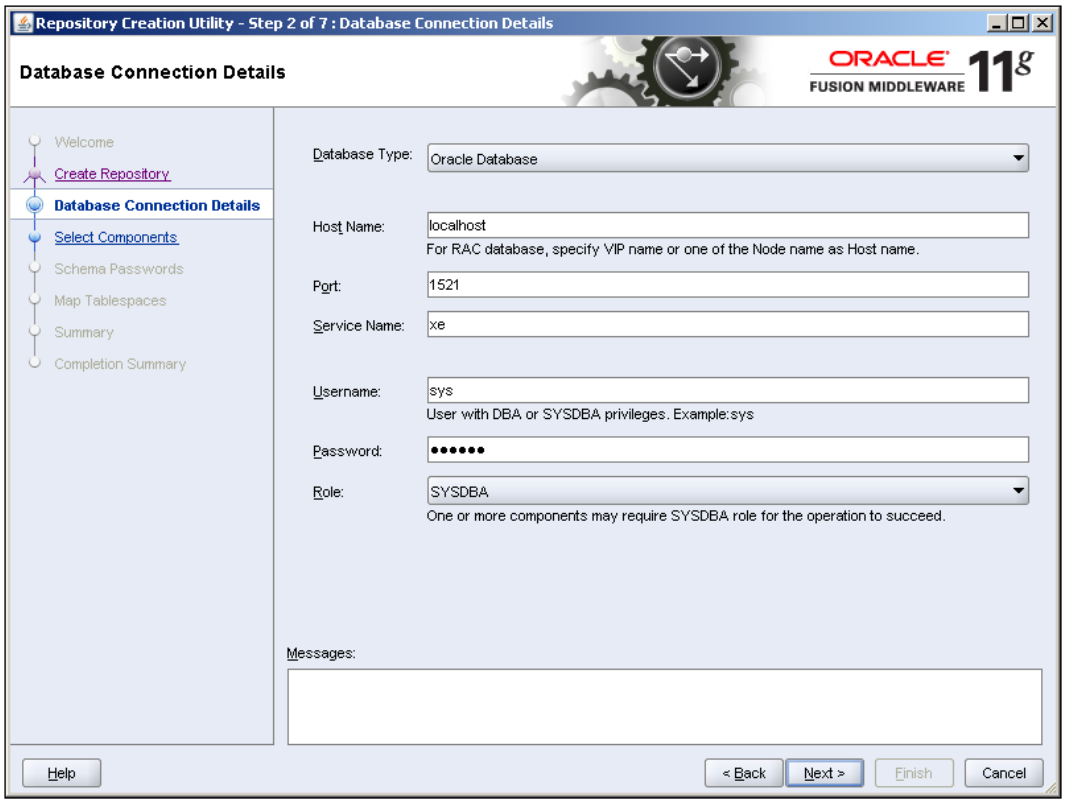
Next we can create the necessary database schemas to be used by Oracle Service Bus and Oracle SOA Suite.

1. Open a command window and enter the following command:

```
cd c:\stageSOA\rcu\rcuHome\bin
rcu.bat
```

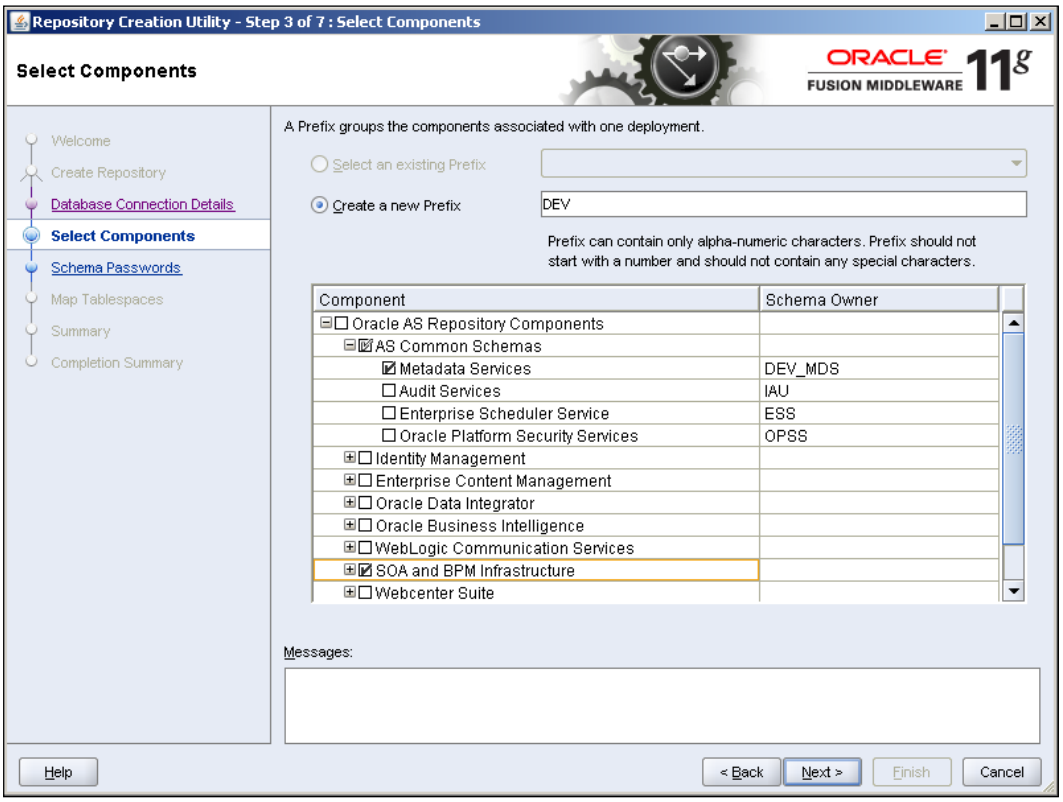
2. On the **Repository Creation Utility – Welcome Screen**, click **Next**.
3. Select the **Create** option to create the database schemas and click **Next**.
4. On the **Step 2 of 7: Database Connection Details** window we can now configure the database settings.
5. Enter `localhost` into the **Host Name** field.
6. Enter `1521` into the **Port** field.
7. Enter `xe` into the **Service Name** field.
8. Enter `sys` into the **Username** field.
9. Enter `oracle` into the **Password** field.

10. Click **Next**.



11. RCU will check the prerequisites.
12. Ignore the **Repository Creation Utility** warning pop up window by clicking **Ignore**. You can safely ignore this warning as long as you are not installing on a production system. But in that case you would not use Oracle XE anyway!
13. Review the **Checking Prerequisites** pop-up window and check that everything is ok.
14. Click **OK**.
15. On the **Step 3 of 7 : Select Components**, enter `DEV` into the **Create a new prefix** field.
16. From the component tree select **SOA and BPM Infrastructure**. All dependent schemas are selected automatically.

17. Click **Next**.



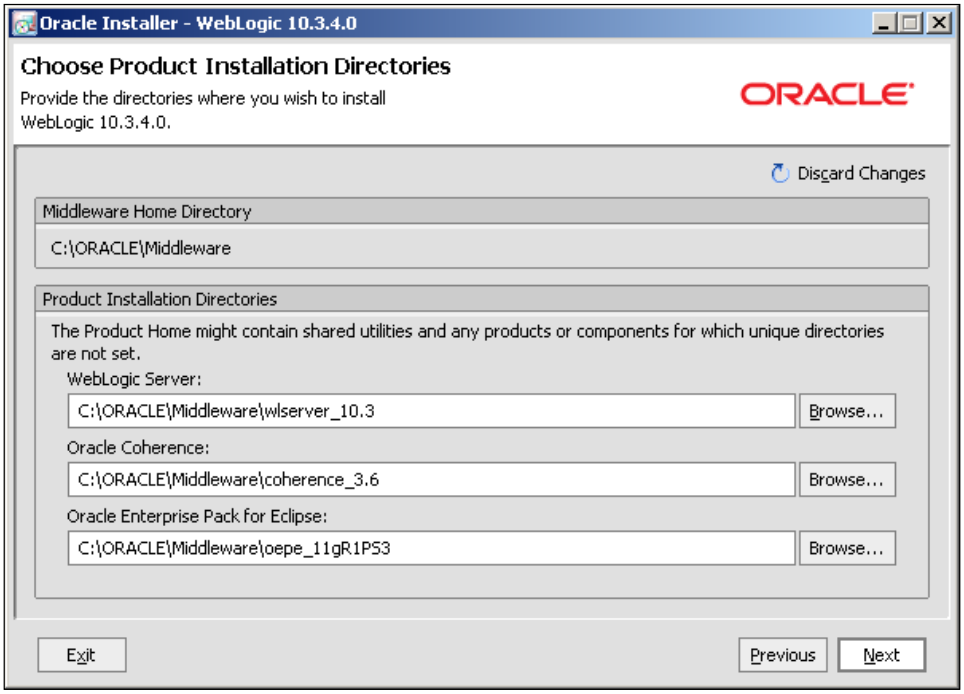
18. Review the **Checking Prerequisites** pop up window and click **OK**.
19. Select the **Use same passwords for all schemas** option and enter `oracle` into the **Password** and **Confirm Password** field.
20. Click **Next**.
21. On the **Step 5 of 7 : Map Tablespaces** page and click **Next**.
22. Click **OK** to create the tablespaces. This will take a while.
23. Click **OK**.
24. Review the **Step 6 of 7 : Summary** page and click **OK**.
25. Click **Create** to start creating the schemas. This will take a minute or two.
26. Review the **Step 7 of 7 : Completion Summary** page and click **Close**.

Install WebLogic Server

1. Open a command window and enter the following command:

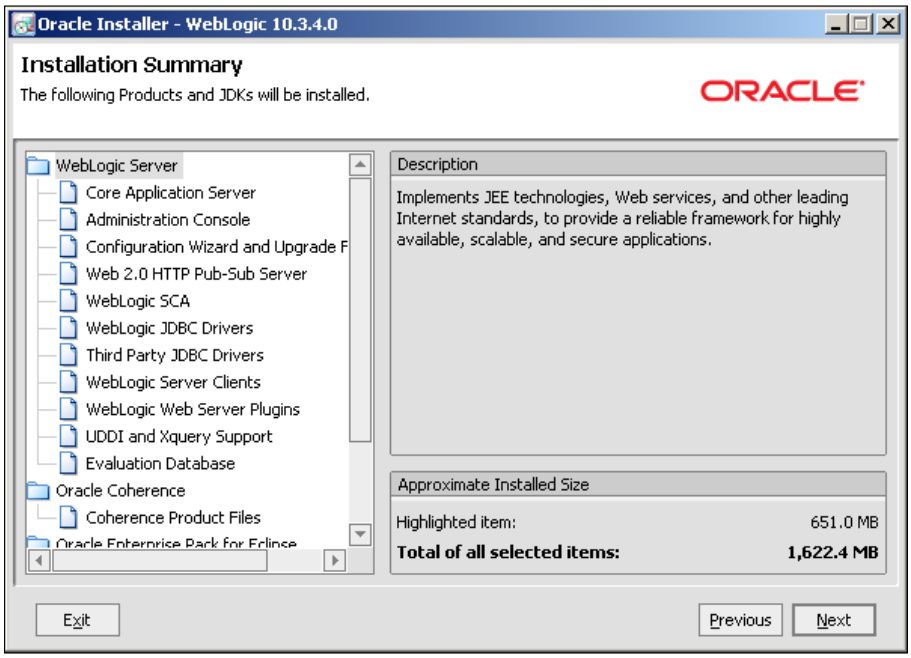
   ```
   cd c:\stageSOA
   wls1034_oepe111161_win32.exe
   ```

2. On the **Oracle Installer** wizard, click **Next**.
3. Select **Create a new Middleware Home** and enter `c:\Oracle\Middleware` into the **Middleware Home Directory** field.
4. Click **Next**.
5. As we are installing a development environment, we can uncheck the **I wish to receive security updates via My Oracle Support** checkbox. Confirm the **Are you sure?** pop-up window by clicking **Yes**.
6. Click **Next**.
7. Select **Typical** and click **Next**.
8. Review the installation directories screen and click **Next**.



9. Select the **"All Users" Start Menu** folder and click **Next**.

10. Review the Installation Summary page and click **Next**.



11. The installation process is started. The installation will take several minutes. Time for a coffee ;-).
12. When the install is complete, deselect the **Run Quickstart** checkbox and click **Done**.

Install Oracle Service Bus

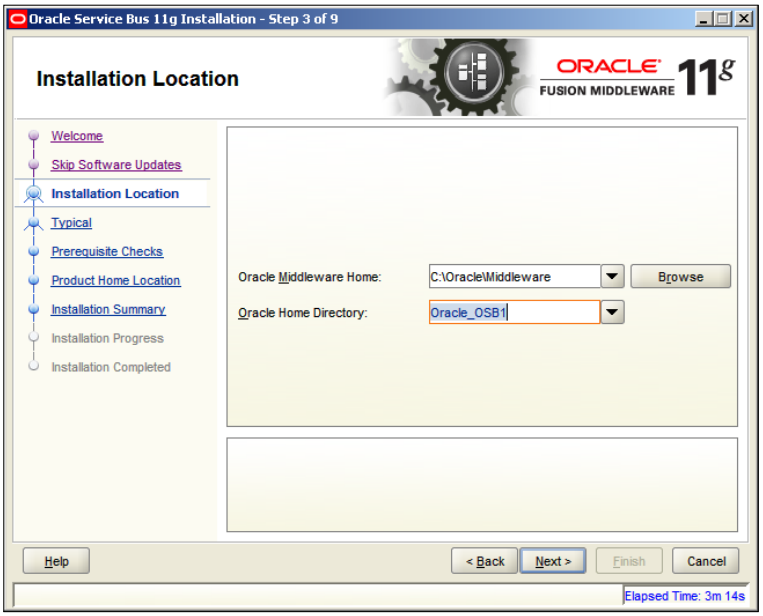
Oracle Service Bus needs to be installed separately from the rest of Oracle SOA Suite, which we will install in the next step. It must be added to an existing Middleware Home.

1. In a command window enter the following command:

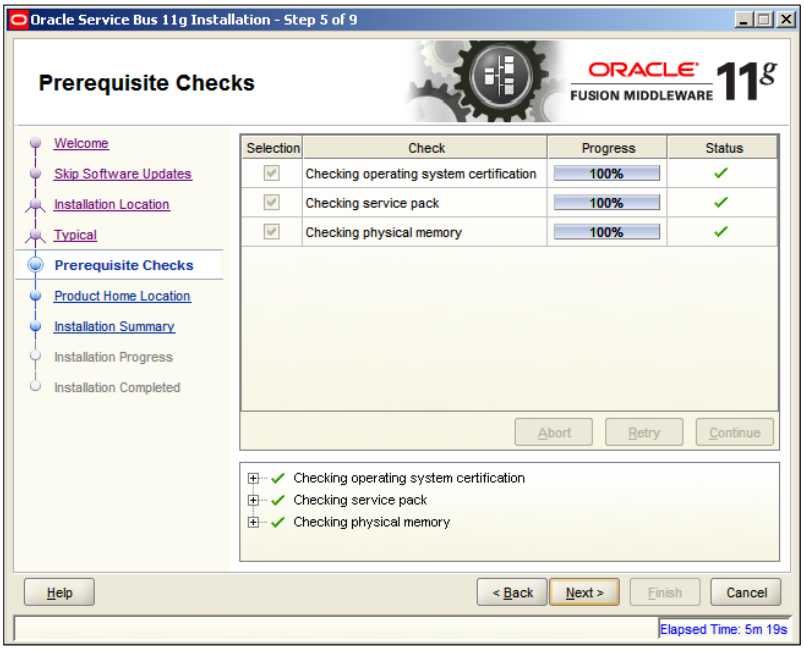
```
cd c:\stageSOA\osb\Disk1
setup -jreLoc c:\Oracle\Middleware\jdk160_21
```

2. When the install welcome screen comes up, click **Next**.
3. Select the **Skip Software Updates** option and click **Next**.
4. Select `C:\Oracle\Middleware` from the **Oracle Middleware Home** drop-down listbox and leave **Oracle_OSB1** for the **Oracle Home Directory**.

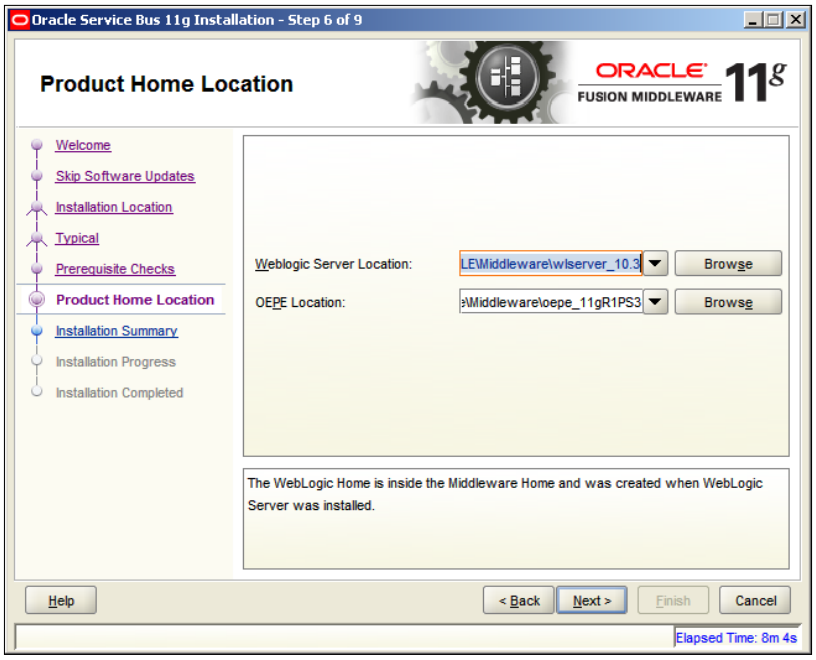
5. Click **Next**.



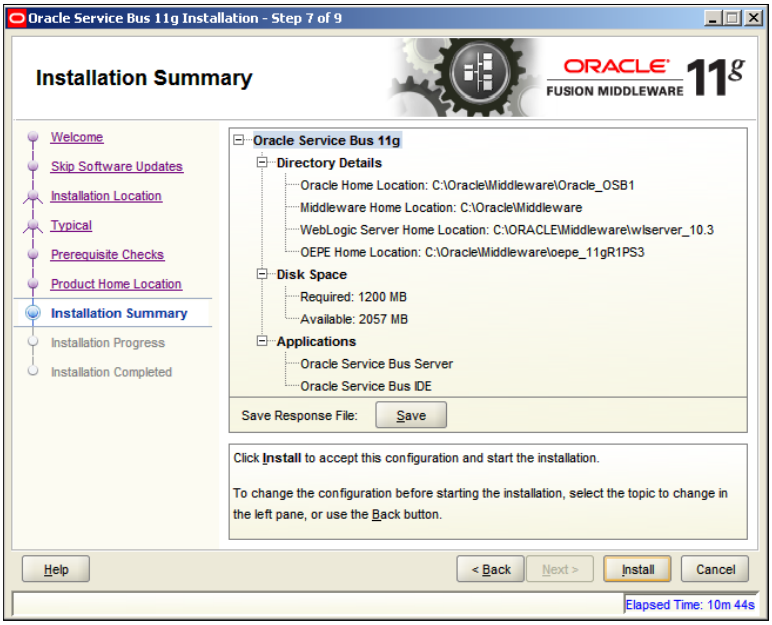
6. Select the **Typical** option and click **Next**.
7. Wait for the **Prerequisite Checks** page to finish and click **Next**.



8. On the **Product Home Location** page leave the default values for both the **WebLogic Server Location** and the **OEPE Location** and click **Next**.



9. Review the **Installation Summary** page and click **Install**.



10. Wait for the installation to complete—will take a few minutes. Time for a Tea ;-)
11. When install reaches 100 percent, click **Next** and then click **Finish**.

The Oracle Service Bus binaries are now installed. Next let's install Oracle SOA Suite binaries.

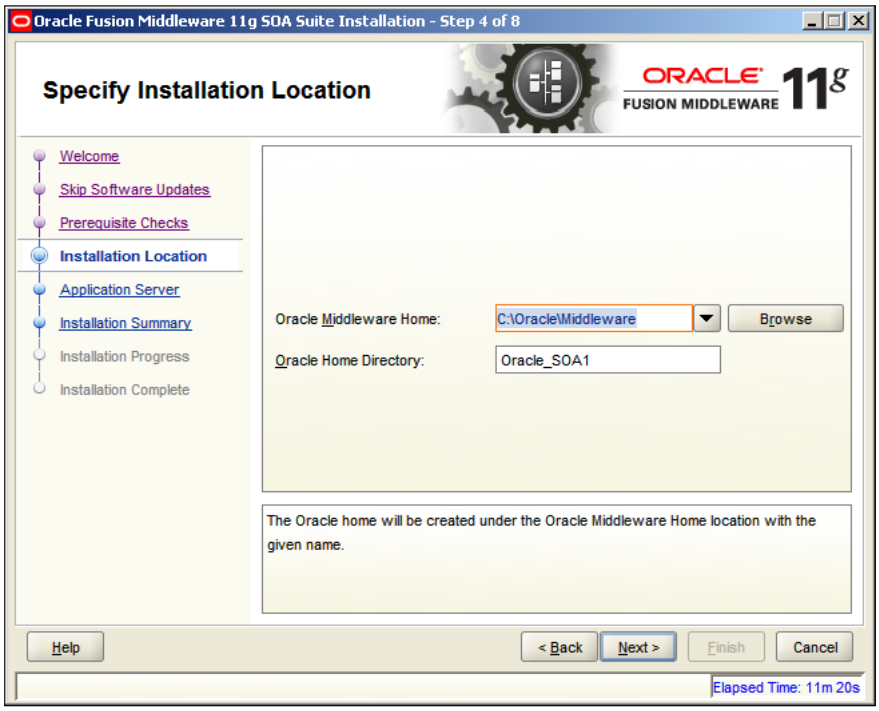
Install Oracle SOA Suite

Oracle SOA Suite must also be added to the existing Middleware Home.

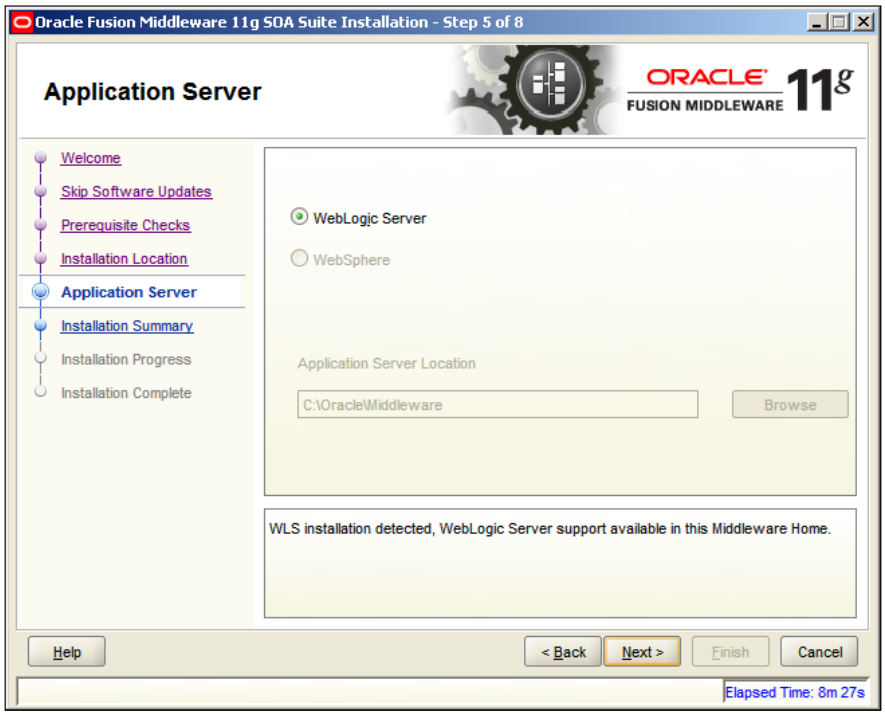
1. In a command window enter the following command:

```
cd c:\stageSOA\soa\Disk1
setup -jreLoc c:\Oracle\Middleware\jdk160_21
```

2. When the install welcome screen comes up, click **Next**.
3. Select the **Skip Software Updates** option and click **Next**.
4. Wait for the **Prerequisite Checks** page to finish and click **Next**.
5. On the **Specify Installation Location** page select `C:\Oracle\Middleware` for the **Oracle Middleware Home** drop-down listbox and leave the **Oracle Home Directory** field to **Oracle_SOA1**.
6. Click **Next**.



7. On the **Application Server** page, select the **WebLogic Server** option and click **Next**.



8. Review the **Installation Summary** page and click **Install**. This will take a few minutes. Time for a walk ;-)
9. When install reaches 100 percent, click **Next** and then click **Finish**.

The Oracle SOA Suite binaries are now installed. Next, let's install the JDeveloper IDE with the SOA extension.

Install JDeveloper 11g with SOA extension

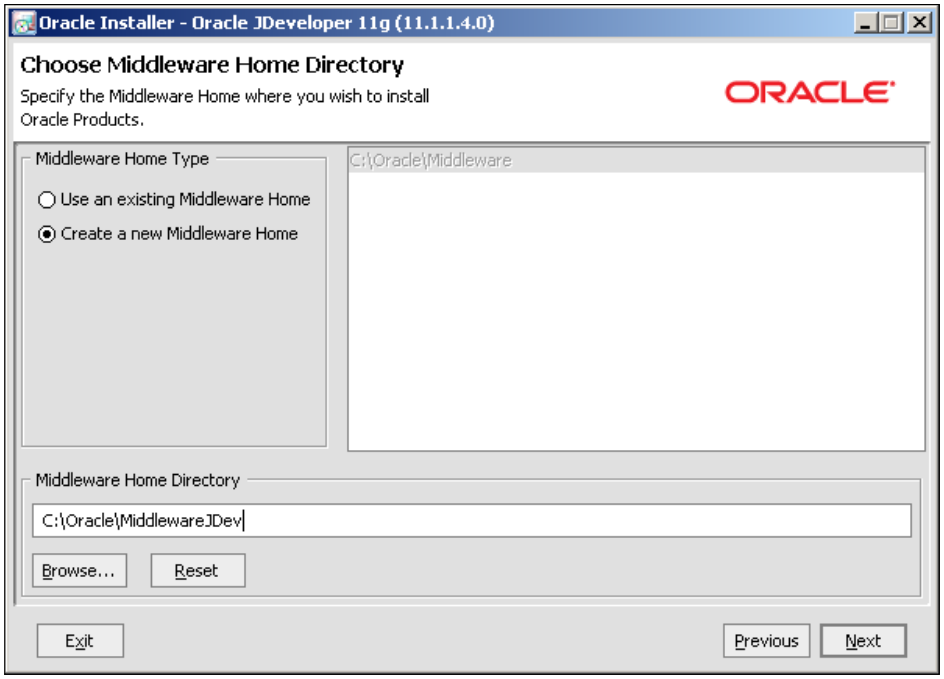
The IDE used for the OSB development, Eclipse OEPE has been installed with the WebLogic Server and Oracle Service Bus install. For the development of the SOA Suite components, JDeveloper with the SOA extension is necessary:

1. In a command window enter the following command:

```
cd c:\stageSOA
jdevstudio11114install.exe
```

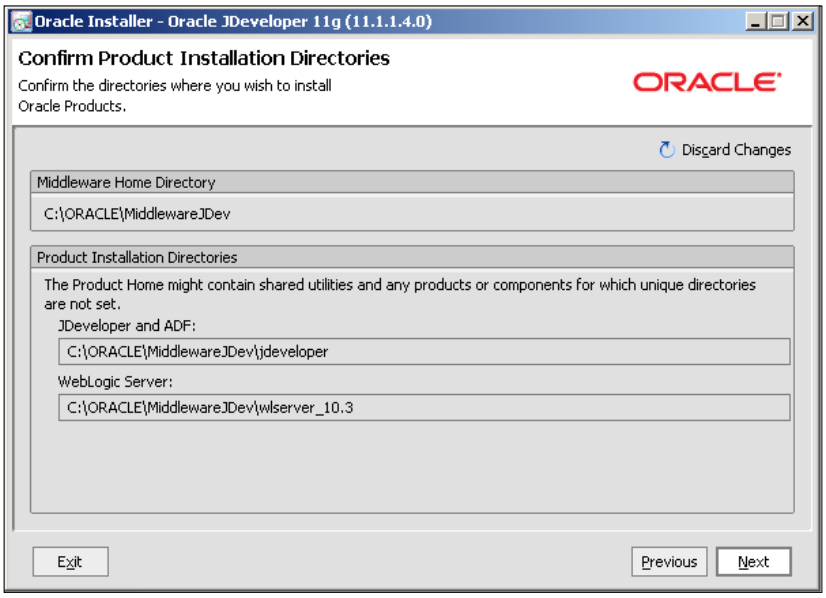
2. The installation wizard will open. This takes a few minutes. How about some Yoga?

3. On the Welcome screen, click **Next**.
5. On the **Choose Middleware Home Directory** page, select the **Create a new Middleware Home** option.
6. Enter `C:\Oracle\MiddlewareJDev` into **the Middleware Home Directory** field.
7. Click **Next**.

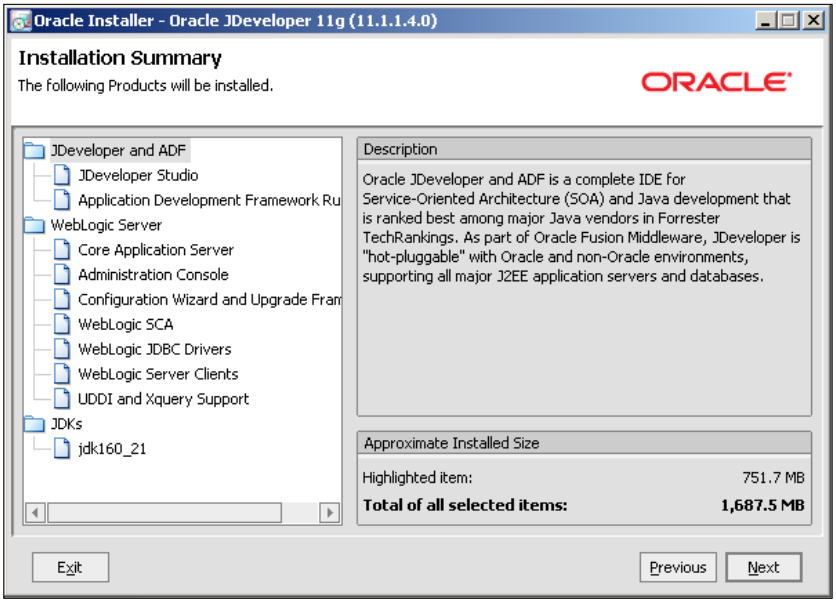


8. Select the **Complete** option and click **Next**.

9. On the **Confirm Product Installation Directories** page, click **Next**.



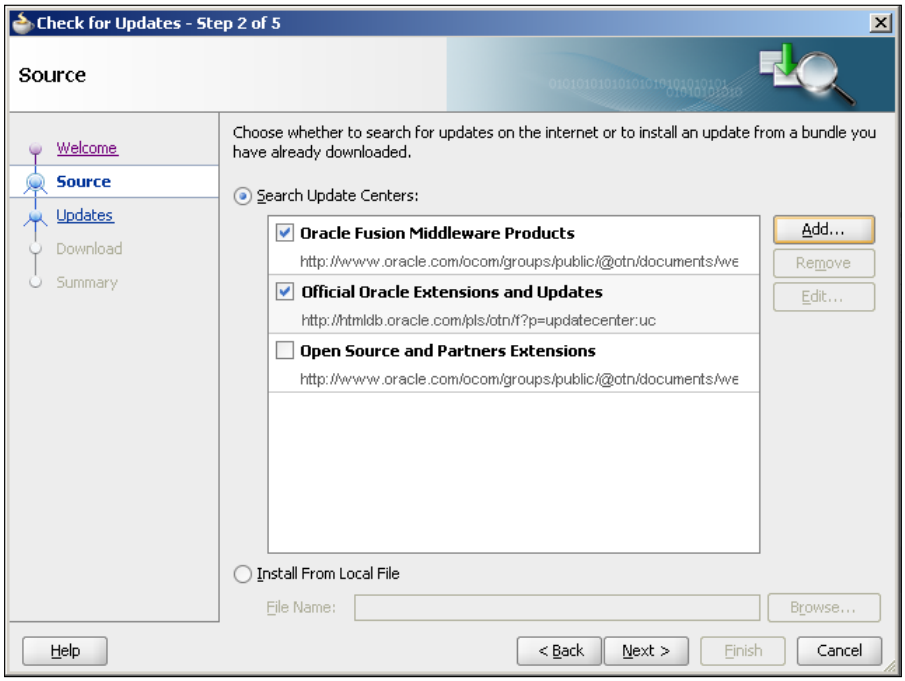
10. Select the **"All Users" Start Menu folder** option and click **Next**.
11. Review the **Installation Summary** page and click **Next**.



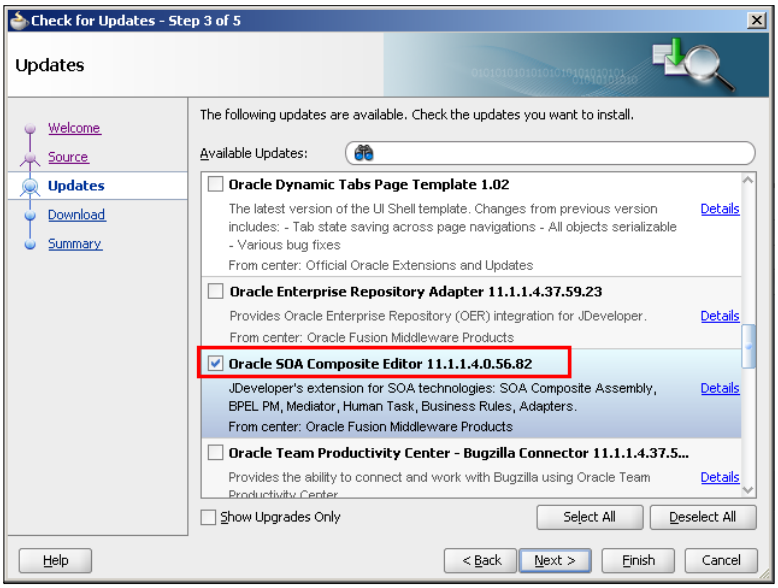
12. The installation starts and will take a few minutes to finish. Time to read the preface of the Oracle Service Bus 11g Development Cookbook ;-).
13. When the installation completes, deselect **Run Quickstart** and click **Done**.

By now we have a standard JDeveloper installation, which we will next extend by the SOA extension.

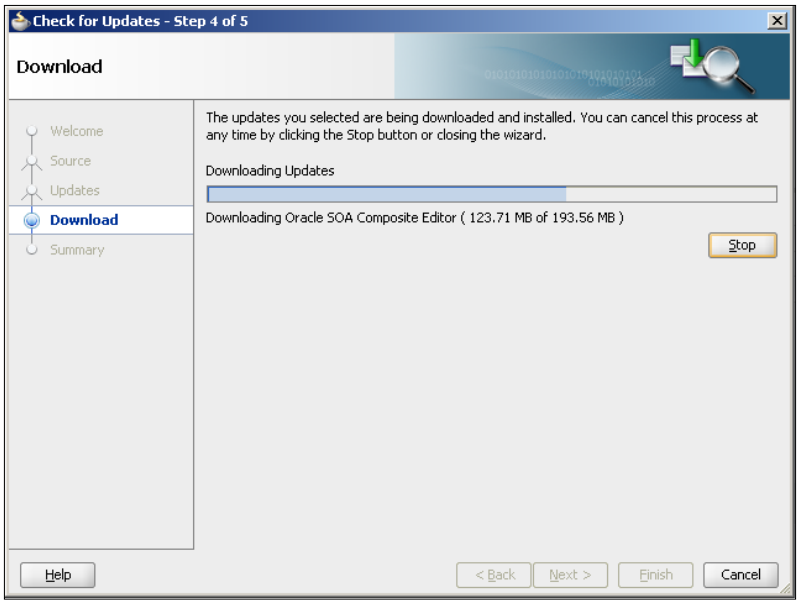
1. Start JDeveloper by clicking on the **Start** menu and selecting **Programs** | **Oracle Fusion Middleware 11.1.1.4.0** | **JDeveloper Studio 11.1.1.4.0**.
2. On the **Select Role** window, select the **Default Role** option and click **OK**.
3. If the **Confirm Import Preferences** dialog will show up, confirm it with **Yes**.
4. On the Configure File Type Associations dialog, select the **JDeveloper Application** and **JDeveloper Project** option and click **OK**.
5. Close the **Tip of the Day** window.
6. From the **Help** menu, select **Check for Updates**.
7. On the welcome page, click **Next**.
8. Select the **Fusion Middleware Products** and **Official Extensions** option and click **Next**.



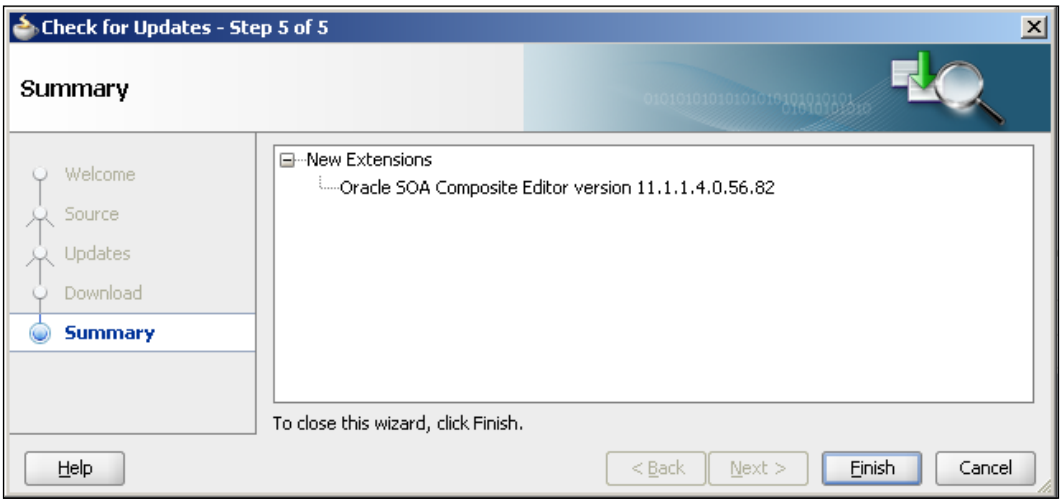
9. In the **Available Updates** list, scroll down to **SOA Composite Editor** and select the checkbox for the **SOA Composite Editor**.
10. Click **Next**.



11. Wait for the update to finish downloading successfully. This is rather quick, depending on the network bandwidth you will get, time for a short break..... ;-)



12. Click **Finish** to finish the update of the SOA extension.



13. Restart JDeveloper when prompted.

JDeveloper is ready to be used. Now let's create a runable server by running the configuration wizard.

Install soapUI

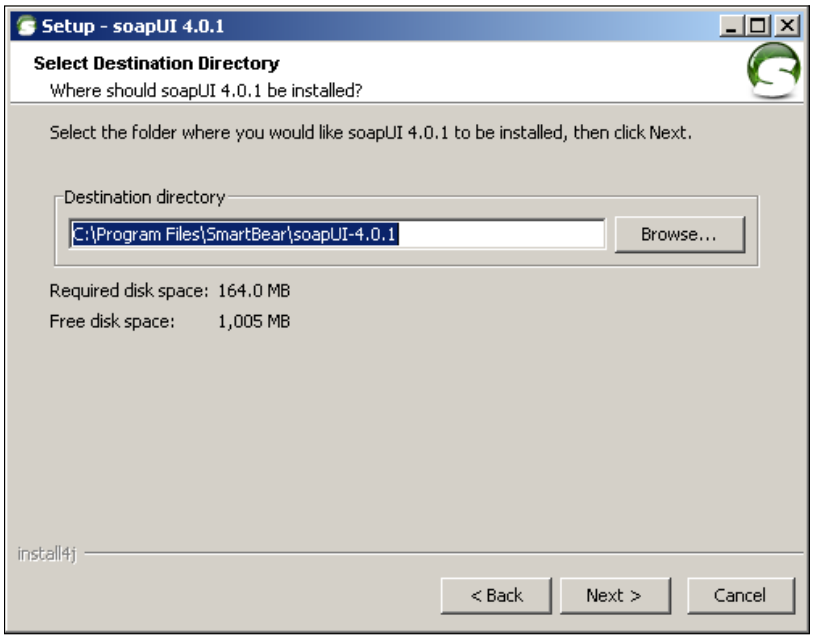
SoapUI is a third-party program we use for testing the services developed in the recipes. To install it, perform the following steps:

1. In a command window enter the following command:

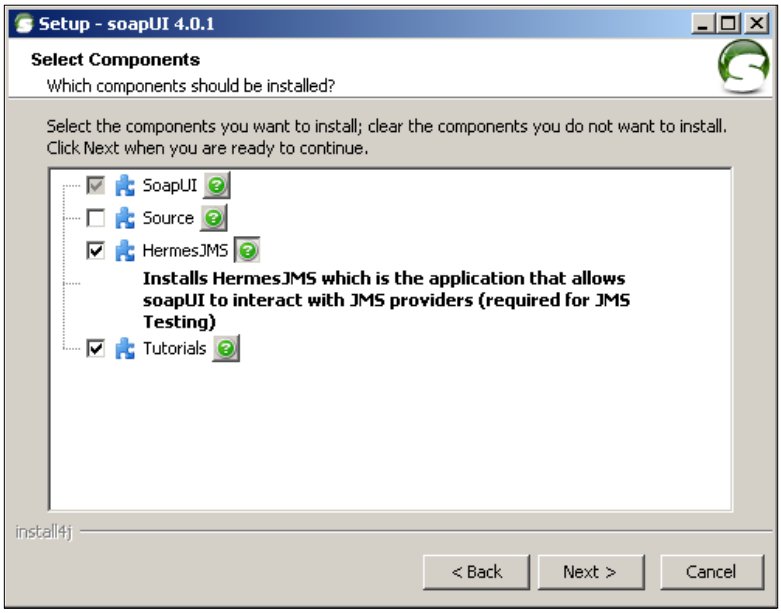
```
cd C:\stageSOA
soapUI-x32-4_0_1.exe
```

2. On the soapUI installation wizard, click **Next**.
3. Accept the license agreement and click **Next**.

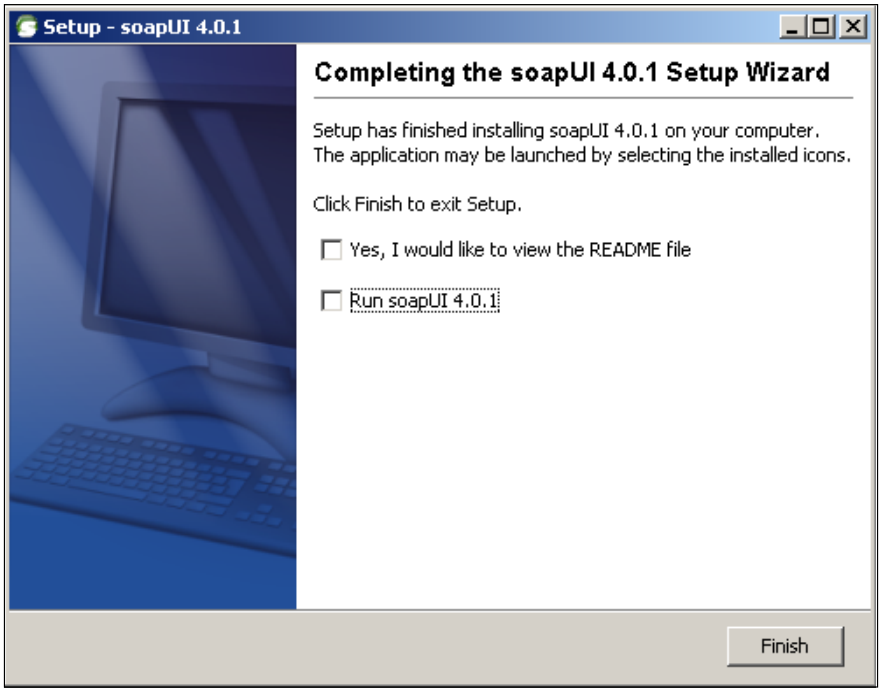
4. Accept the default Destination directory and click **Next**.



5. Select the **SoapUI**, **HermesJMS**, and **Tutorials** components, already selected by default, and click **Next**.



6. Accept the license agreement for **HermesJMS** and click **Next**.
7. Leave the tutorial location on the default value and select **Next**.
8. On the **Select Start Menu Folder** screen, leave the default values and click **Next**.
9. Select the **Create a desktop icon** option and click **Next**.
10. soapUI is being installed and after a short while a completion window is shown.
11. Un-check the **Yes, I would like to view the README file** and **Run soapUI 4.0.1** option and click **Finish**.



This finishes the installation of soapUI and a desktop icon should have been created.

Configure WebLogic Domain

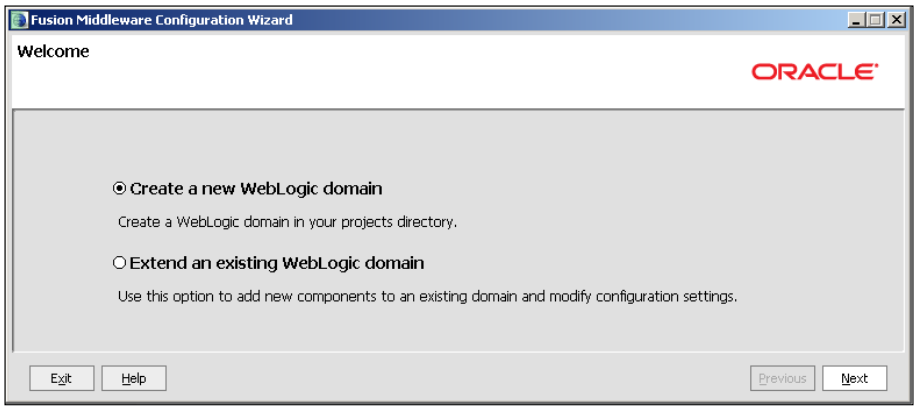
Now it's time to create a runable server, by creating a WebLogic Domain:

1. In a command window enter the following command:

```
cd C:\Oracle\Middleware\Oracle_OSB1\common\bin
config.cmd
```

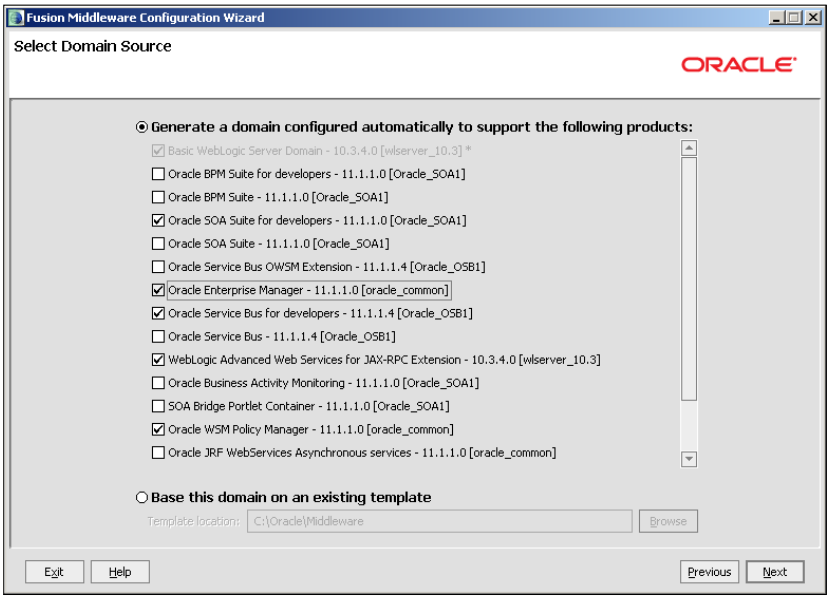
2. The **Configuration Wizard** is started.

3. On the **Welcome** screen, select the **Create a new WebLogic domain** option and click **Next**.

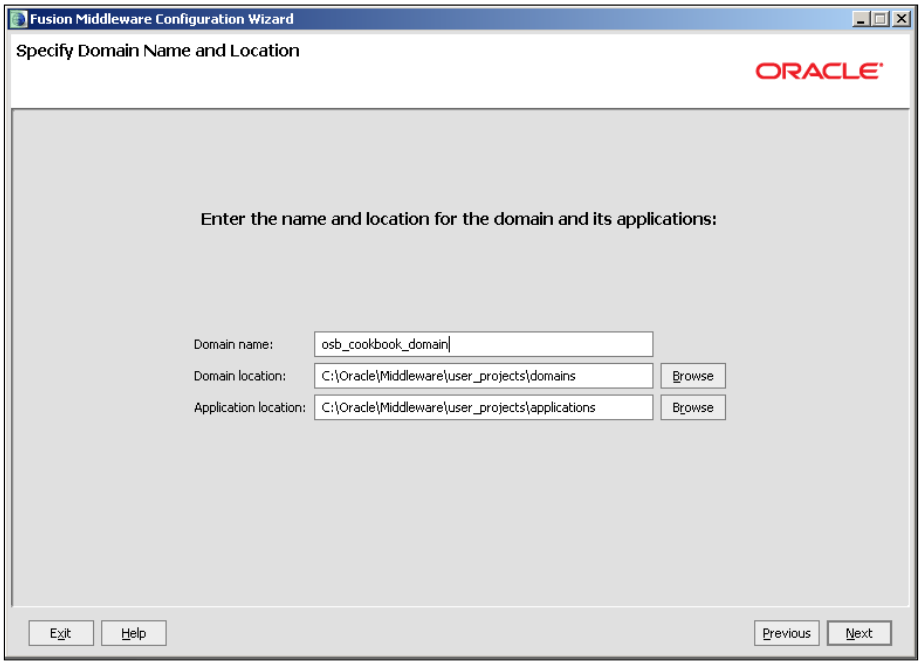


4. Select **Generate a domain configured automatically to support the following products** and select the following products (some dependent products are automatically selected as well):
   - **Oracle SOA Suite for developers – 11.1.1.0**
   - **Oracle Enterprise Manager – 11.1.1.0**
   - **Oracle Service Bus for developers -11.1.1.4**

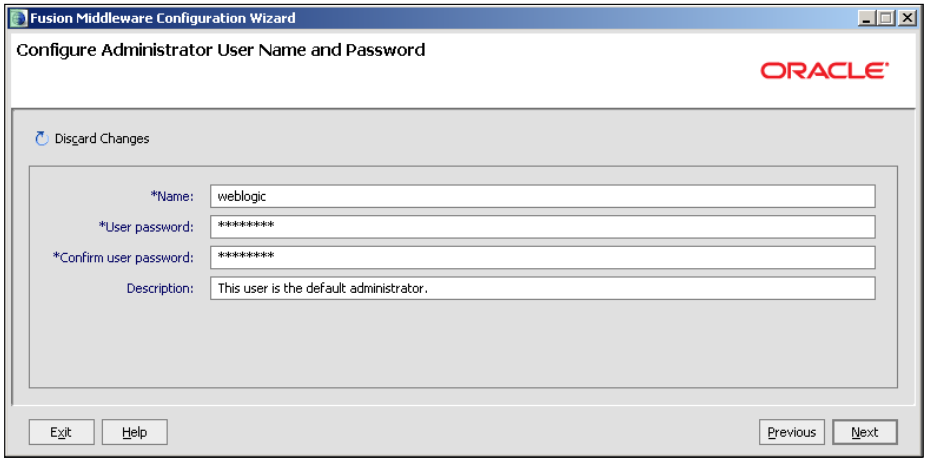
5. Click **Next**.



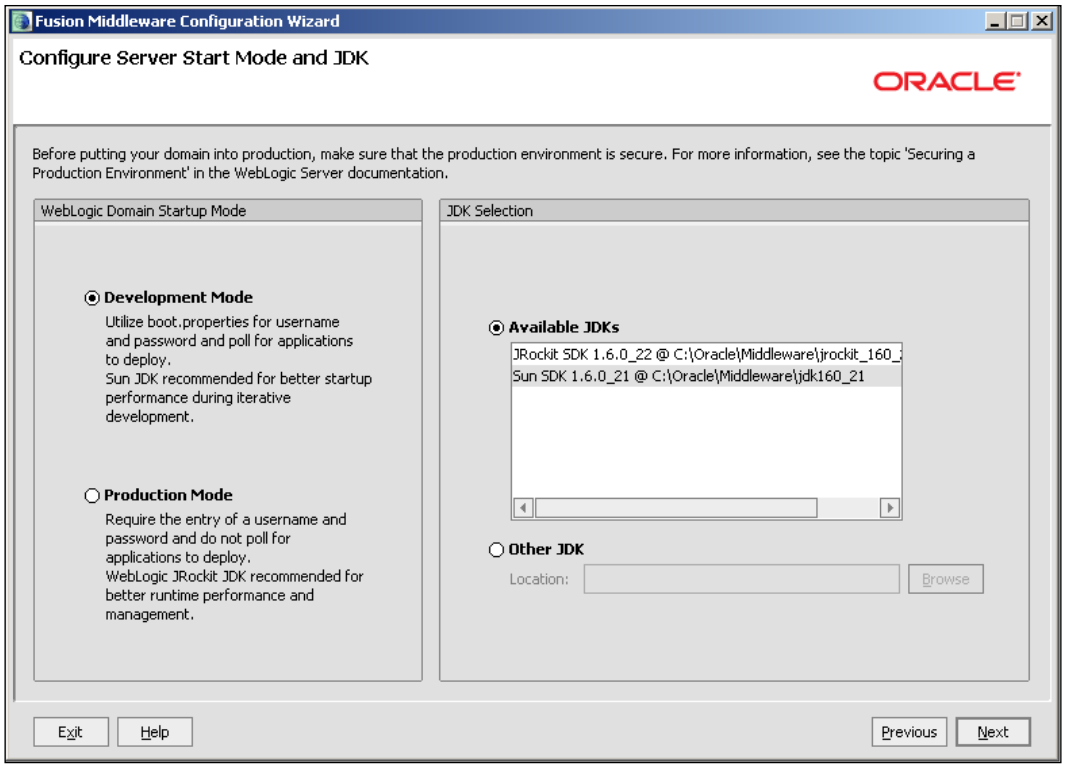
6. On the **Specify Domain Name and Location** screen, enter `osb_cookbook_domain` into the **Domain name** field.
7. Leave the **Domain location** and **Application location** set to the default values.
8. Click **Next**.



9. On the **Configure Administrator User Name and Password** screen, enter `welcome1` into the **User password** and **Confirm user password** field and click **Next**.

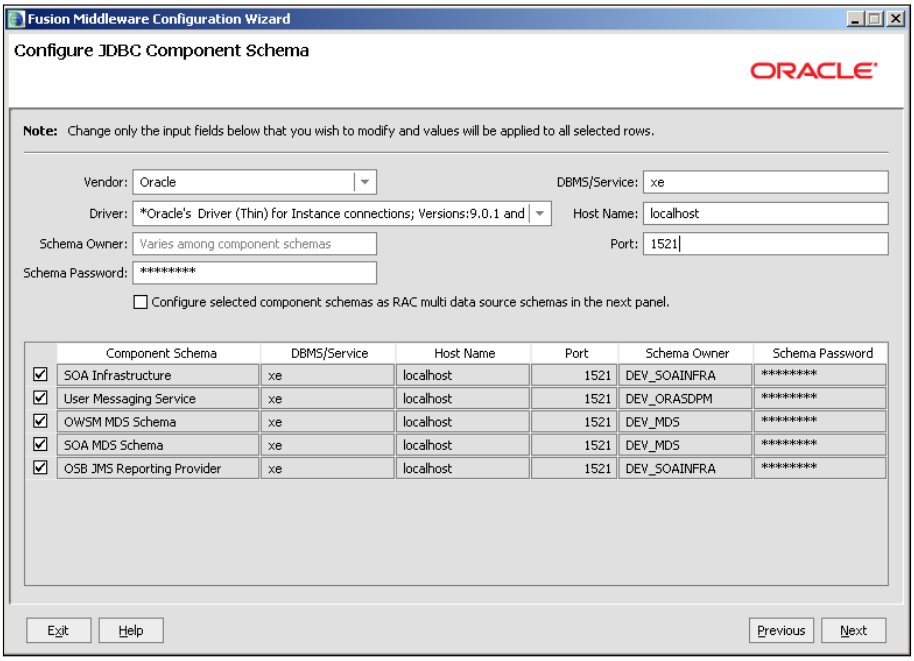


10. Select the **Sun JDK 1.6.0_21** and leave the **Development Mode** selected.
11. Click **Next**.

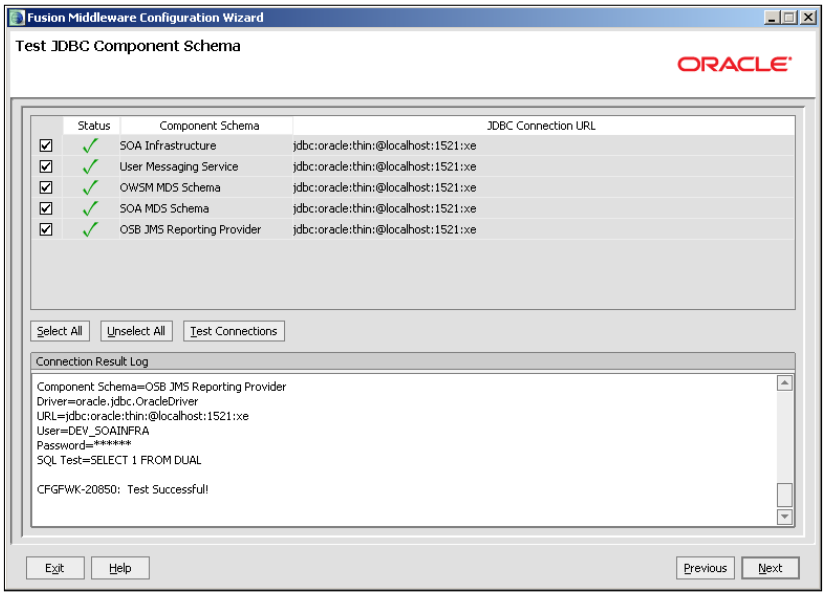


12. On the **Configure JDBC Component Schema** screen, first select all of the components by selecting the checkboxes in the list on the left and then enter `oracle` into the **Schema Password** field.
13. Select **Oracle** from the **Vendor** drop-down listbox; enter `xe` into the **DBMS/Service** field, `localhost` into the **Host Name** field, and `1521` into the **Port** field.

14. Click **Next**.



15. The data source connections are all tested. Review the confirmation dialog and make sure all are successful. Click **Next**.



16. On the **Select Optional Configuration** screen, leave all the checkboxes unchecked and click **Next**.
17. Review the **Configuration Summary** and click **Create**. The domain is created with one single Admin Server.
18. Wait for the domain creation to finish and then click **Done**.

We have created a *development-only* installation, where Oracle Service Bus and Oracle SOA Suite are both installed on the Admin Server. This is a setup which uses much less resources than a full-fledged installation with an Admin Sever and two Managed Servers, one for SOA Suite and one for Oracle Service Bus. *Do not use* such an installation for a production environment!

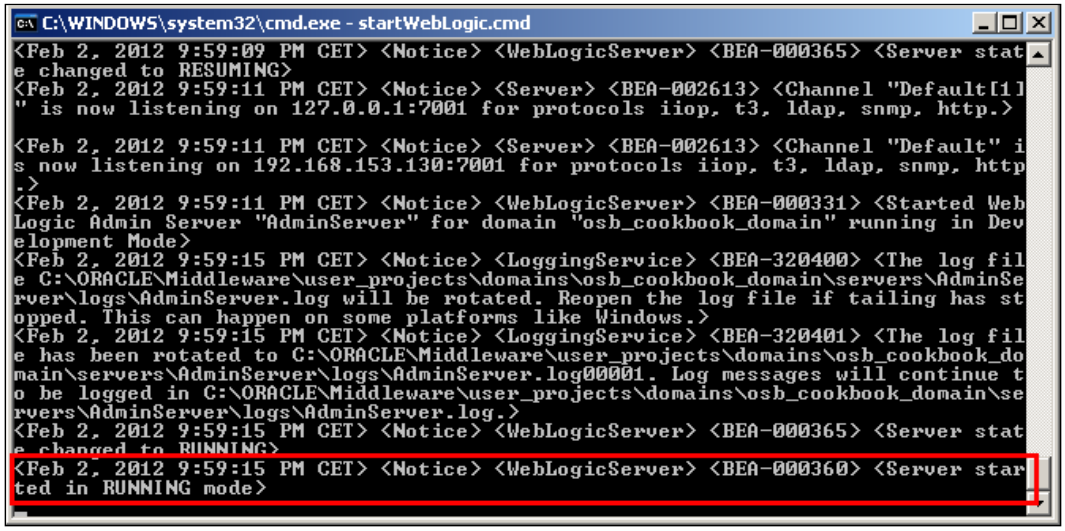
Starting the server

To start the server, perform the following steps:

1. Open a command line window and enter the following command:

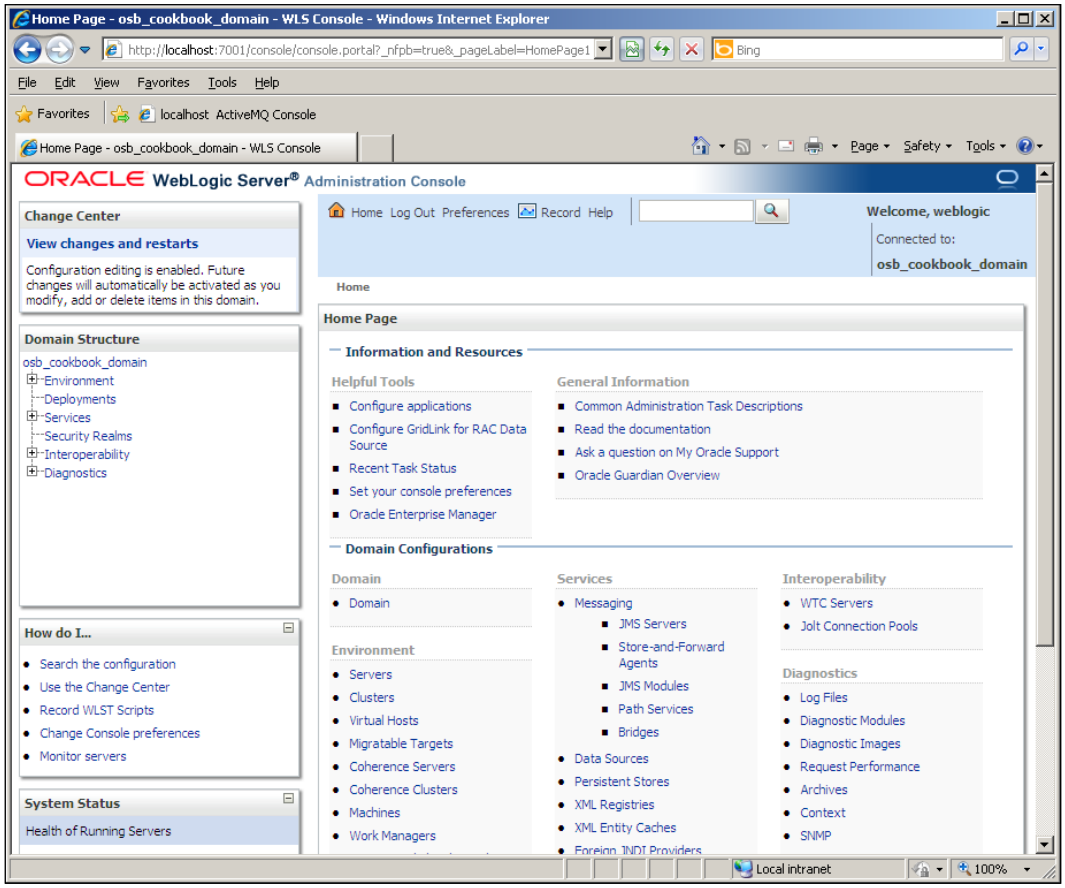
   ```
   cd C:\Oracle\Middleware\user_projects\domains\osb_cookbook_domain
   startWebLogic.cmd
   ```

2. Wait for the Admin Server to finish starting up. It takes a few minutes – definitely time for another coffee! ;-) Watch for the status **RUNNING** in log console window:



Now let's see if the **WebLogic Server Administration Console** is up and running. In a browser window, perform the following steps:

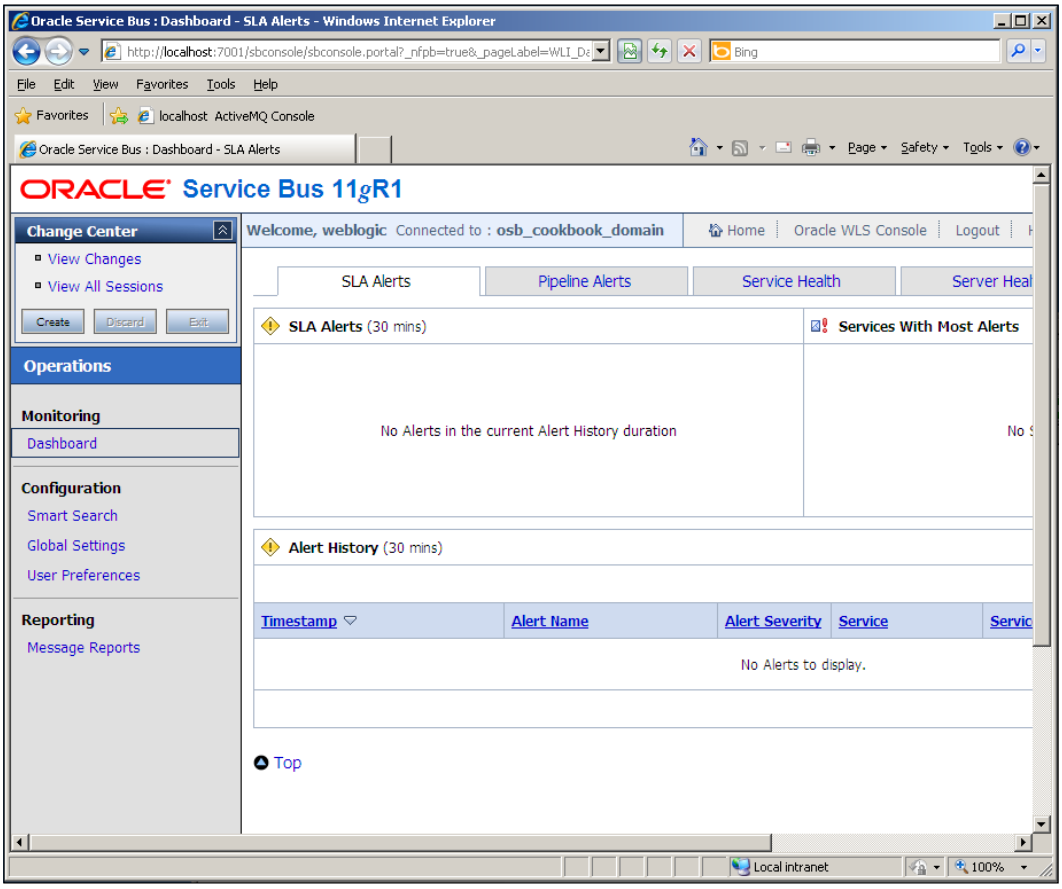
1. Navigate to the following URL: `http://localhost:7001/console`.
2. Enter `weblogic` into the **Username** field and `welcome1` into the **Password** field.
3. Click **Login**.
4. After a while the **WebLogic Server Administration Console Home Page** should be shown as follows:



Next, let's see whether the Oracle Service Bus Console is up and running. In a browser window, perform the following steps:

1. Navigate to the following URL: `http://localhost:7001/sbconsole`.
2. Enter `weblogic` into the **Username** field and `welcome1` into the **Password** field.

3. After a short while, the Oracle Service Bus Console should be shown as follows:



The server is successfully started and both consoles are available.

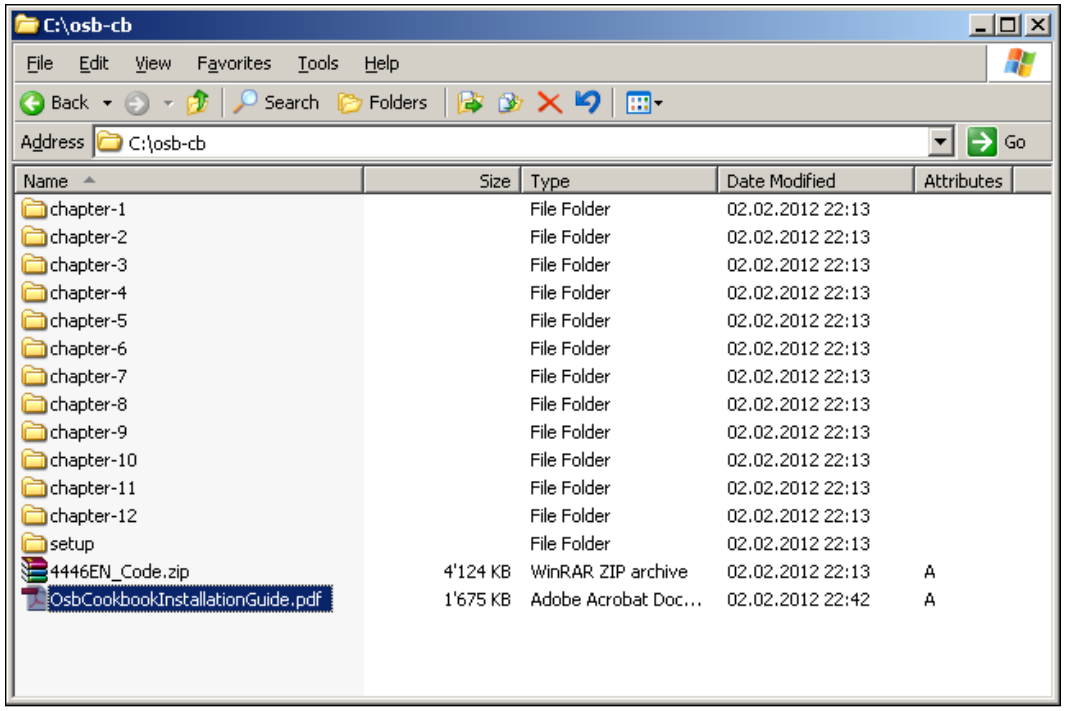
In the next section, we configure all the artifacts which are part of the OSB Cookbook standard environment.

Configure the OSB Cookbook standard environment

The OSB Cookbook standard environment is a set of artifacts, representing the environment that most of the recipe make use of. It consists of an Oracle database schema and some artifacts installed on WebLogic server.

Do install the files necessary for following the recipes in the book, perform the following steps:

1. Create a `c:\osb-cb` folder to hold all the code files used in the OSB Cookbook.
2. Get the **Oracle Service Bus 11g Development Cookbook Code Download** from the Packt website. You probably already downloaded it to get this document.
3. Unzip the `4446EN_Code.zip` file to `c:\osb-cb`.
4. In Windows Explorer navigate to `c:\osb-cb`. The following subfolders should exist as shown in the following screenshot:



There is one subfolder for each chapter inside the book (`chapter-1` to `chapter-12`). Each of these chapter folders holds two subfolders: `getting-ready` and `solution`. The `getting-ready` folder contains the artifacts necessary upfront, before starting a certain recipe and their usage is mentioned in the *Getting Ready* section of a given recipe. The `solution` folder holds the finished solution of a recipe.

The `setup` folder contains the setup scripts for the database and the WebLogic server environment.

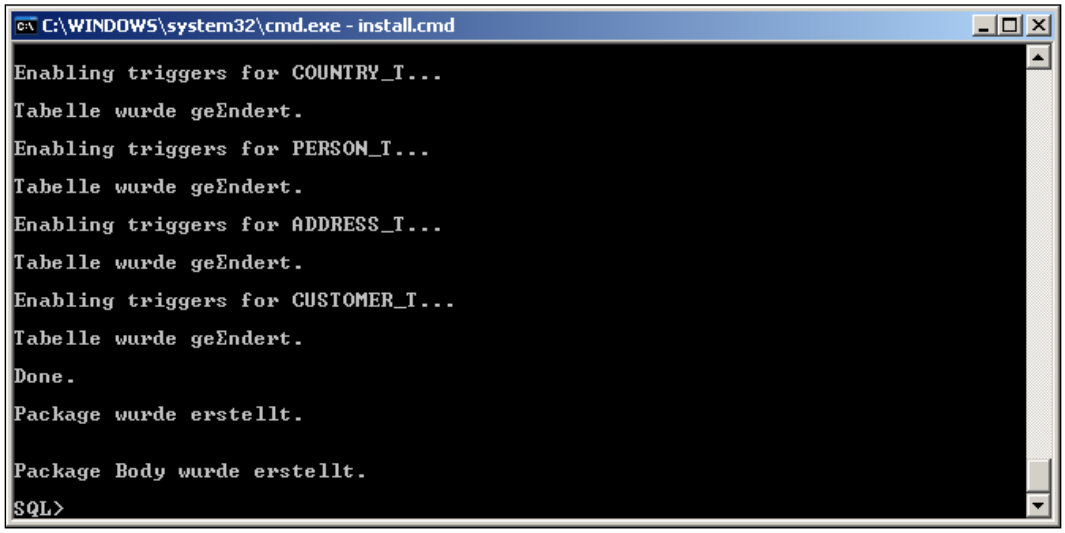
To create the database schema, perform the following steps:

1. Open a command line window and enter (you have to change the `install.cmd`, if you are not using the database installed in this document) the following command:

```
cd C:\osb-cb\setup\database
install.cmd
```

2. Review the SQL log window for errors and quit SQL Plus by entering the following command:

```
SQL> exit
```



The database schema `osb_cookbook` has been successfully created.

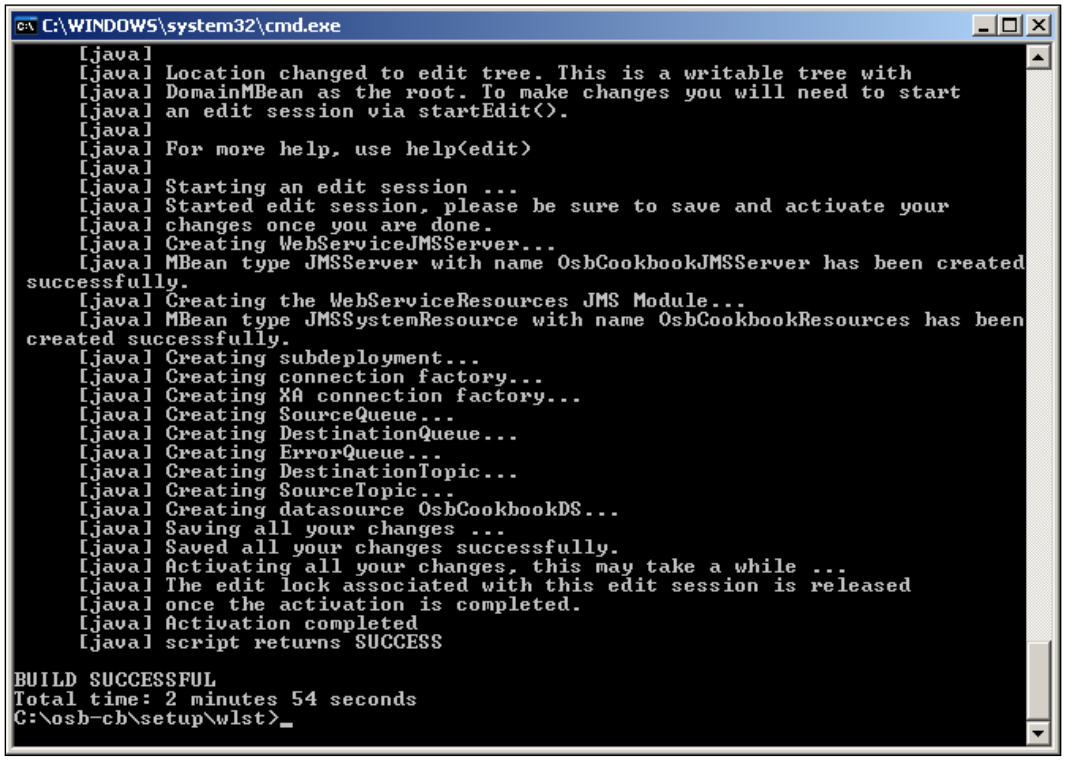
Now let's install the necessary artifacts, such as Data Sources, Connection Factories, and JMS objects into WebLogic server. This is done through a WLST script by performing the following steps (change the middleware home in the `wlst-build.properties` if needed):

1. Open a command line window and enter (you have to change the `install.cmd`, if you are not using the database installed in this document) the following command:

```
cd C:\Oracle\Middleware\user_projects\domains\
  osb_cookbook_domain\bin
setDomainEnv.cmd

cd C:\osb-cb\wlst
ant configureServerResources
```

2. Review the WLST log window for errors. Watch for the status script returns `SUCCESS` showing successful creation of the various artifacts.



This finishes the set up of the Oracle Service Bus Development Cookbook environment.

We have installed both the database and the WebLogic environment and we are all set to start using the recipes of the book.

Happy cooking! Hope you like it!

Guido Schmutz, *Edwin Biemond*, *Jan van Zoggel*, *Mischa Kölliker*, and *Eric Elzinga*