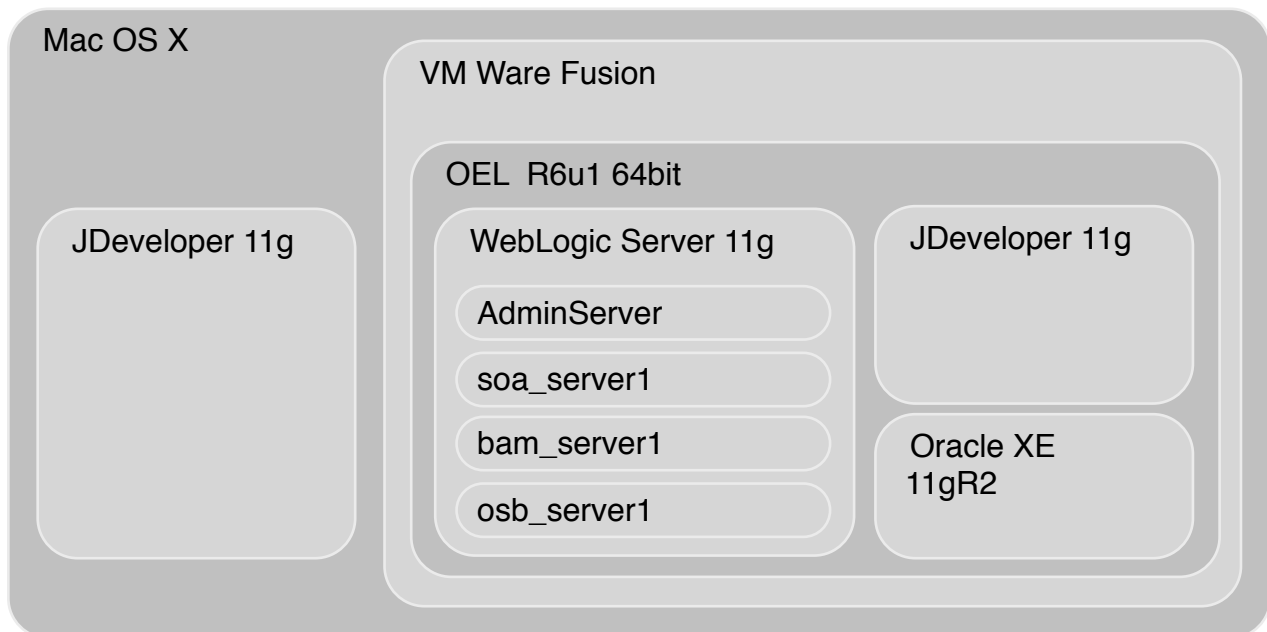


Introduction

When i started reading the books 'Getting Started with ORACLE SOA Suite 11g R1' (by Heidi Buelow et al.) and 'SOA Suite 11G Handbook' (by Lucas Jellema) i needed a running SOA Suite 11g environment to be able to do the exercises. As a Mac user i use VM Ware to virtualize my educational environments, preferably on a Linux operating system to minimize the cost of licenses and reduce the overhead of the guest operating system on my host operating system. Both books do contain installation guidelines, but are focussed on installation of the SOA Suite 11g on a Microsoft Windows operating system. Although the getting started handbook does give you some hints how to tune the environment, the performance, on a system with the suggested 3Gb RAM, is to low to consider it workable.

This document describes step-by-step how to get an up and running SOA Suite 11g R1 environment with a minimal environment. The definition of a minimal environment is relative. The installation is resource intensive, so the phrase 'less is more' is not applicable here. I got this VM running on a Macbook Pro with a 2.6 Ghz Core 2 Duo processor, 6GB RAM and a Corsair F240 hard disk. Although this document describes how to install Oracle SOA Suite on Oracle Enterprise Linux in a VM Ware Fusion virtual machine. It generally can be used on any virtual or bare-metal system running any supported Linux variant.

When completing the installation process, the environment will reassemble the schema below.



Preparation

Download the necessary software from the following Oracle websites;

<https://edelivery.oracle.com/linux>

Part Number	Name
V27570-01	Oracle Linux Release 5 Update 7 for x86_64 (64 Bit)

<https://edelivery.oracle.com/>

Part Number	Name
V26046-01	Oracle WebLogic Server 11gR1 (10.3.5) Generic and Coherence
V26017-01	Oracle Fusion Middleware Repository Creation Utility 11g (11.1.1.5.0) for Linux x86
V26005-01	Oracle SOA Suite 11g Patch Set 4 (11.1.1.5.0)
V26117-01	Oracle JDeveloper 11g and Oracle Application Development Framework 11g (11.1.1.5.0)
V24330-01	Oracle Complex Event Processing 11g (11.1.1.4.0) for Linux x86-64
V26006-01	Oracle Service Bus 11g (11.1.1.5.0)

<http://www.oracle.com/technetwork/database/express-edition/downloads/index.html>

Part Number	Name
	Oracle Database Express Edition 11g Release 2 for Linux x64

<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

Part Number	Name
Java SE 6 Update 21+	Download the Java SE 1.6.0 with build 21 or higher for Linux x64 from Oracle Technology Network . If you have the choice select the jdk-6u??-linux-x64-rpm.bin instead of the jdk-6u??-linux-x64.bin file.

<http://www.oracle.com/technetwork/middleware/weblogic/downloads/index.html>

Part Number	Name
wls1035_oepe111172_linux32.bin	Download the Oracle WebLogic Server 11gR1 (10.3.5) + Coherence + OEPE - Package Installer for Linux (32-bit JVM)

Expand the zip files in a folder labeled "Soa_Suite_Components". I chose to unzip each product to a sub-directory labeled with the partnumber, resulting in a directory-structure similar to the example below. The paths used in following instructions will be based on this directory structure.

```
.
|-- JDK
|   |-- jdk-6u23-linux-x64-rpm.bin
|-- V24330-01
|   |-- ofm_oepe_linux_11.1.1.4.0_64_disk1_1of1.bin
|-- V26005-01
|   |-- Disk1
|   |-- ....
|-- V26006-01
|   |-- Disk1
|   |-- Disk2
|-- V26017-01
|   |-- rcuHome
|-- V26046-01
|   |-- wls1035_generic.jar
|-- V26117-01
|   |-- extras
|   |-- install_guide
|   |-- jdev_extensions
|   |-- jdevstudio11115install.jar
|   |-- middleware_extensions
|   |-- readme.htm
`-- V26568-01
|   |-- OracleLinux-R5-U7-Server-x86_64-dvd.iso
|-- oracle-xe-11.2.0-1.0.x86_64
`-- wls1035_oepe111172_linux32
```

Create a Virtual Machine

VM Ware Fusion 3

Create in Fusion 3 a new Virtual Machine using the Virtual Machine Assistant. Use the following information as a guideline through the assistant steps.

Introduction	Continue without disc
Installation Media	Create a custom virtual machine
Operating System	Linux, Oracle Enterprise Linux 64-bit
Finish	Finish

Use the following information as a guideline finalizing your VMs configuration. You can change the configuration by selecting Virtual Machine->Settings... in the fusion menu-bar.

Sharing	Enable the option 'Share folders on your Mac' and add the previously created folder "Soa_Suite_Components" with "Read&Write" permissions.
Processor & RAM	Select "1 processor core" and at least 4096MB RAM
Advanced	Preferred virtualization <i>Intel VT-x</i> or <i>Intel VT-x with EPT</i> if supported by your processor (Xeon, i5, i7). Hard disk buffering <i>dis-abled</i>
Printers	Disabled
Network	NAT
Hard Disk	Replace the current harddisk definition by a SCSI harddisk of 50GB. Select the option "Pre-allocate disk space" and disable the option "Split into 2GB files".
Sound	Disabled
USB Devices	Disable "Enable USB 2.0 Support" and remove the USB Controller
Other Devices	Remove the Serial Port

Create a new Virtual Machine using the Virtual Machine Assistant. Use the following information as a guideline through the assistant steps.

Introduction	Continue without disc
Installation Media	Create a custom virtual machine
Operating System	Linux, Oracle Enterprise Linux 64-bit
Save As	SOA_SUITE_11G_OL_R5U7_64BIT

Use the following information as a guideline finalizing your VMs configuration. You can change the configuration by selecting Virtual Machine->Settings... in the fusion menu-bar.

Sharing	Enable the option 'Share folders on your Mac' and add the previously created folder "Soa_Suite_Components" with "Read&Write" permissions.
Processor & RAM	Select "1 processor core" and at least 4096MB RAM
Advanced	Preferred virtualization <i>Intel VT-x</i> or <i>Intel VT-x with EPT</i> if supported by your processor (Xeon, i5, i7). Hard disk buffering <i>dis-abled</i>

Printers	Disabled, serial port removed
Network	NAT
Hard Disk	Replace the current harddisk definition by a SCSI harddisk of 50GB. Select the option "Pre-allocate disk space" and disable the option "Split into 2GB files".
Sound	Disabled and removed
USB Devices	Disable "Enable USB 2.0 Support" and remove the USB Controller
Hardware version	8

Oracle Enterprise Unix installation

Configure the VMs CD/DVD device to use the Oracle Linux ISO file as a the disc image and boot the virtual machine. Use the information below when going through the installation steps.

Boot	Press <ENTER> to install in graphical mode
CD Found	Skip the media test
Welcome	Next
Install language	English (English)
Keyboard	U.S. English
Warning pop-up	Yes
Partitioning	Remove linux partitions on selected drives and create default layout
Warning pop-up	Yes
Network devices	IP4 Manual Configuration, Automatically obtain IP address settings with dhcp. Automatically obtain DNS information from provider. Disable the IPv6 support
Hostname	soasuite11gr1.localdomain
Misc. Settings	Set your Gateway and DNS if required. When leaving the fields blank select "Continue" in the "Error With Data" pop-up's.
Region	Select your region
Root password	Welcome1
Optional Software	Select "Software Development"

Reboot your VM and then configure OEL using the information below.

Welcome	Forward
License Agreement	Forward
Firewall	Disabled
SELinux	Disabled
Kdump	Forward
Date and Time	Forward
Create User	Username soaaadmin Password Welcome1
Sound Card	Forward
Additional CDs	Finish

Logon as soadmin open a new terminal session an install VM Ware tools as root by executing the instruction below. Select "Virtual Machine"->"Install VMware tools" from the VMware menu-toolbar. If it is the first time you install VMware tools on a linux VM, the tools will be downloaded. Select "Install" in the pop-up menu. Open a Terminal session(Applications->System Tools->Terminal) su as root and extract the VMware Tools tar file to /tmp. After starting the script a password is requested. Type here the password of root (Welcome1).

```
su - root
tar -xzf /media/VMware\ Tools/VMwareTools-8.7.0-390099.tar.gz -C /
tmp
```

Copy necessary modules by executing the following instruction in Terminal as root

```
cp /lib/modules/2.6.18-274.el5/kernel/drivers/usb/host/?hci-hcd.ko /lib/modules/2.6.32-200.13.1.el5uek/kernel/drivers/usb/host
```

Start the VMware tools installation by entering the instructions below in the terminal.

```
cd /tmp/vmware-tools-distrib  
./vmware-install.pl --default
```

Ad the hostname and ip address of the guest os to the hosts file by executing the instructions below in the terminal.

```
su - root  
echo `sbin/ifconfig eth0 | grep 'inet addr:' | cut -d: -f2 \  
| awk '{ print $1}'` `hostname` `hostname | cut -d. -f1` >> /etc/  
hosts
```

Disable unnecessary processes by executing the following instructions in Terminal.

```
chkconfig --levels 345 abrttd off  
chkconfig --levels 345 acpid off  
chkconfig --levels 345 atd off  
chkconfig --levels 345 auditd off  
chkconfig --levels 345 avahi-daemon off  
chkconfig --levels 345 bluetooth off  
chkconfig --levels 345 cpuspeed off  
chkconfig --levels 345 crond off  
chkconfig --levels 345 cups off  
chkconfig --levels 345 firstboot off  
chkconfig --levels 345 ip6tables off  
chkconfig --levels 345 kdump off  
chkconfig --levels 345 mdmonitor off  
chkconfig --levels 345 netfs off  
chkconfig --levels 345 nfslock off  
chkconfig --levels 345 postfix off  
chkconfig --levels 345 smartd off  
chkconfig --levels 345 rhnsd off  
chkconfig --levels 345 sshd off  
chkconfig --levels 345 sssd off  
chkconfig --levels 345 wpa_supplicant off  
chkconfig --levels 345 ypbind off  
chkconfig --levels 345 cups off
```

Finally reboot your VM to finalize the installation process.

Installation Java JDK

Log on as soadmin and start a Terminal-session. Execute the instructions below in the terminal, this will start the installation of the JDK. Follow the instructions on screen.

```
su - root
cd /tmp
cp /mnt/hgfs/Soa_Suite_Components/JDK/* /tmp
chmod u+x jdk-6u27-linux-x64-rpm.bin
./jdk-6u27-linux-x64-rpm.bin
```

Test if the JDK has been successfully installed by entering the instruction `java -version` in the terminal, it should report *java version "1.6.0_23"* or similar build higher than 21. Now make this installed java version the default version by executing the following instructions in the terminal.

```
cd /usr/java
mv default old
ln -s /usr/java/jdk1.6.0_27 default
update-alternatives --install "/usr/bin/java" "java" \
"/usr/java/jdk1.6.0_27/bin/java" 1
update-alternatives --set java \
/usr/java/jdk1.6.0_27/bin/java
```

Check if the installed JDK is the default java by executing `java -version` in the terminal.

Create directory structure and groups by executing the following instructions in Terminal.

```
su - root
mkdir /u01
/usr/sbin/groupadd fusion
/usr/sbin/groupadd oracle
/usr/sbin/usermod -g fusion soadmin
/usr/sbin/usermod -G oracle soadmin
mkdir /u01/app
chown soadmin:oracle /u01/app
```


Oracle XE Database 11gR2 installation

Log on as soadmin and start the Oracle XE installation by executing the instructions below in the Terminal session.

```
su - root
cd /mnt/hgfs/Soa_Suite_Components/oracle-xe-11.2.0-1.0.x86_64
rpm -ihv oracle-xe-11.2.0-1.0.x86_64.rpm
/etc/init.d/oracle-xe configure
usermod -G dba soadmin
```

Use the information in the table below to guide you through the installation process.

Option	Action
HTTP port	8080
database listener port	1521
Password	Welcome1
Start on boot	Yes

Executing the following instructions below in the Terminal session as soadmin to set the Oracle DB environment variables to the login and non-login shell.

```
cd ~
cat > XEenv << EOF
ORACLE_SID=XE;export ORACLE_SID
ORACLE_HOME=/u01/app/oracle/product/11.2.0/xe;export ORACLE_HOME
PATH=$ORACLE_HOME/bin:$PATH;export PATH
NLS_LANG=AMERICAN_AMERICA.AL32UTF8;export NLS_LANG
LD_LIBRARY_PATH=$ORACLE_HOME/lib:$LD_LIBRARY_PATH;export
LD_LIBRARY_PATH
EOF
echo . XEenv >> .bash_profile
echo . XEenv >> .bashrc
```

Alter the DB system parameters by executing the following instructions below in the Terminal session as soadmin.

```
. XEenv
cd /u01/app/oracle/product/11.2.0/xe/bin
./sqlplus SYS/Welcome1 as SYSDBA << EOF
alter system set processes=500 scope=spfile;
alter system set open_cursors=500 scope=spfile;
startup force;
EOF
```

OEPE for WLS 10.3.5

At the time of writing these instructions, Oracle WebLogic Server 11gR1 (10.3.5) + Coherence + OEPE - Package Installer was not available for 64-bit JVM support on linux. The Oracle Enterprise Pack for Eclipse 11g R1 (11.1.1.7.3) which should be compatible with OSB 11.1.1.5 is also not recognized by the OSB installer. The following instructions guide you through the installation process of Oracle WebLogic Server 11gR1 (10.3.5) + Coherence + OEPE - Package Installer for 32-bit JVM support on linux, safeguarding the installed OEPE and JRockit for later installation in the 64-bit JVM version of WLS.

Logon as soadmin to OEL and start a Terminal session. Start the Weblogic installer by executing the instructions below in the terminal.

```
cd /mnt/hgfs/Soa_Suite_Components/wls1035_oepe111172_linux32
chmod u+x wls1035_oepe111172_linux32.bin
./wls1035_oepe111172_linux32.bin
```

Use the information in the table below to guide you through the installation process.

Option	Action
Welcome	Next
Choose Middleware Home Directory	Middleware Home Type: Create a new Middleware Home Middleware Home Directory: /u01/app/Middleware
Register for Security Updates	Email: <leave empty> I wish to receive security updates via My Oracle Support: de-select Support Password: <leave empty>
Choose Install Type	Typical
JDK Selection	By default the previously installed JDK should be selected. Make sure <i>Sun SDK 1.6.0</i> with at least build 21 is selected in the <i>Local JDK</i> pane.
Choose Product Installation Directories	Weblogic Server: /u01/app/Middleware/wlserver_10.3 Oracle Coherence: /u01/app/Middleware/coherence_3.6 Oracle Enterprise Pack for Eclipse: /u01/app/Middleware/oepe_11gR1PS4
Installation Summary	Next

Option	Action
Installation Complete	Run Quickstart: de-select

Safeguard the installed OEPE and jRockit JVM by executing the instructions below in the terminal.

```
cd /u01/app/Middleware  
cp -r oepe_11gR1PS4 /mnt/hgfs/Soa_Suite_Components/oepe_11gR1PS4  
cp -r jrockit_160_24_D1.1.2-4 /mnt/hgfs/Soa_Suite_Components/  
jrockit_160_24_D1.1.2-4
```

```
cd /u01/app/Middleware/Utils/uninstall  
./uninstall.sh
```

Use the information in the table below to guide you through the uninstall process.

Option	Action
Welcome	Next
Choose Components	Next
Uninstallation Tasks	Done

Remove the remaining files by executing the following instruction as soadmin in Terminal.

```
rm -rf /u01/app/Middleware
```

WebLogic installation

Logon as soadmin to OEL and start a Terminal session. Start the Weblogic installer by executing the instructions below in the terminal.

```
cd /mnt/hgfs/Soa_Suite_Components/V26046-01
java -d64 -jar wls1035_generic.jar
```

Use the information in the table below to guide you through the installation process.

Option	Action
Welcome	Next
Choose Middleware Home Directory	Middleware Home Type: Create a new Middleware Home Middleware Home Directory: /u01/app/Middleware
Register for Security Updates	Email: <leave empty> I wish to receive security updates via My Oracle Support: de-select Support Password: <leave empty>
Choose Install Type	Typical
JDK Selection	By default the previously installed JDK should be selected. Make sure <i>Sun SDK 1.6.0</i> with at least build 21 is selected in the <i>Local JDK</i> pane.
Choose Product Installation Directories	Weblogic Server: /u01/app/Middleware/wlserver_10.3 Oracle Coherence: /u01/app/Middleware/coherence_3.6
Installation Summary	Next
Installation Complete	Run Quickstart: de-select

Now copy OEPE and the jRockit JVM into the Middleware home-directory by executing the following instructions as soadmin in Terminal.

```
cp -r /mnt/hgfs/Soa_Suite_Components/jrockit_160_24_D1.1.2-4 \
/u01/app/Middleware/jrockit_160_24_D1.1.2-4
cp -r /mnt/hgfs/Soa_Suite_Components/oepe_11gR1PS4 \
/u01/app/Middleware/oepe_11gR1PS4
```

Repository Creation

Make sure you are logged on as user *soadmin*. Open a new terminal session and execute the instructions below to start the Repository Creation Utility.

```
set RCU_JDBC_TRIM_BLOCKS=TRUE
cd /mnt/hgfs/Soa_Suite_Components/V26017-01/rcuHome/bin
./rcu
```

Use the information in the table below to guide you through the repository creation process.

Option	Action
Welcome	Select <i>Next</i>
Create Repository	Select <i>Create</i>
Database Connection Details	<p>Database Type : Oracle Database Host Name : localhost Port : 1521 Service Name : XE Username : sys Password : Welcome1 Role : SYSDBA</p> <p>Ignore the warnings.</p>
Select Components	<p>Select at least <i>SOA and BPM Infrastructure</i>, this will automatically select <i>Metadata Services</i> under <i>AS Common Schemas</i>.</p> <p>In the “Checking Prerequisites” pop-up window an overview is shown of the prerequisite test results. Validate that all prerequisites have been met, then press <i>OK</i></p>
Schema Passwords	Select <i>Use same passwords for all schemas</i> and use <i>Welcome1</i> as a password.
Map Tablespaces	<p>Select <i>Next</i></p> <p>Confirm the tablespace creation by selecting <i>OK</i> in the <i>Repository Creation Utility</i> pop-up window.</p>
Summary	Select <i>Create</i>

Option	Action																				
Completion Summary	<p>Verify that the status of each component is equal to success and select <i>close</i>.</p> <div style="border: 1px solid #ccc; padding: 5px; background-color: #f0f8ff;"> <p>Database details:</p> <p>Host Name: localhost Port: 1521 Service Name: ORCL Connected As: sys Operation: Create RCU Logfile: /data/app/oracle/product/11.2.0/logdir.2011-02-08_09-39/rcu.log Component Log Directory: /data/app/oracle/product/11.2.0/logdir.2011-02-08_09-39 Execution Time: 1 minute 20 seconds</p> <p>Prefix for (prefixable) Schema Owners:DEV</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Component</th> <th>Status</th> <th>Logfile</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>Metadata Services</td> <td>Success</td> <td>mds.log</td> <td>00:04.582(sec)</td> </tr> <tr> <td>SOA Infrastructure</td> <td>Success</td> <td>soainfra.log</td> <td>00:22.368(sec)</td> </tr> <tr> <td>Business Activity Monitoring</td> <td>Success</td> <td>bam.log</td> <td>00:10.317(sec)</td> </tr> <tr> <td>User Messaging Service</td> <td>Success</td> <td>orasdpn.log</td> <td>00:02.107(sec)</td> </tr> </tbody> </table> </div>	Component	Status	Logfile	Time	Metadata Services	Success	mds.log	00:04.582(sec)	SOA Infrastructure	Success	soainfra.log	00:22.368(sec)	Business Activity Monitoring	Success	bam.log	00:10.317(sec)	User Messaging Service	Success	orasdpn.log	00:02.107(sec)
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Business Activity Monitoring	Success	bam.log	00:10.317(sec)																		
User Messaging Service	Success	orasdpn.log	00:02.107(sec)																		

Install SOA Suite

SOA Suite requires that the kernel parameters for the soft and hard limit of open files are set to a minimum of 4096. Logon as root and start a terminal session. Run the script below in the terminal and shutdown and reboot the system.

```
su - root
cat >> /etc/security/limits.conf << EOF
soadmin soft nofile 4096
soadmin hard nofile 4096
EOF
```

Configure the VMs CD/DVD device to use the Oracle Linux ISO file as the disc image and make sure it is connected. Install additional required Linux packages by executing the instructions as root in Terminal below.

```
if [[ -e /media/OL5.7\ x86_64\ dvd\ 20110728/Server/ ]]
then
cd /media/OL5.7\ x86_64\ dvd\ 20110728/Server/
rpm -Uvh sysstat-* libaio-devel-*
cd /
eject /dev/cdrom
shutdown -t 0 -r now
else
echo Make sure the correct DVD is mounted
fi
```

Logon as soadmin to OEL and start a terminal session. Start the SOA Suite Installer by entering the following instructions on the terminal.

```
cd /mnt/hgfs/Soa_Suite_Components/V26005-01/Disk1
./runInstaller -jreLoc /usr/java/default/jre
```

Use the information in the table below to guide you through the installation process.

Option	Action
Inventory Directory	Inventory Directory: /u01/app/oralInventory Operating System Group Name: fusion Follow the instructions in the inventory location confirmation dialog by running /u01/app/oralInventory/createCentrallInventory.sh as root.
Welcome	Next
Install Software Updates	Skip Software Updates
Prerequisite Checks	All checks should be passed
Specify Installation Location	Oracle Middleware Home: /u01/app/Middleware Oracle Home Directory: Oracle_SOA1
Application Server	Weblogic Server
Installation Summary	Select <i>Install</i>
Installation Process	Select <i>Next</i>
Installation Complete	Select <i>Finish</i>

Installation OSB

Logon as soadmin to OEL and start a terminal session. Start the OSB Installer by entering the following instructions on the terminal.

```
cd /mnt/hgfs/Soa_Suite_Components/V26006-01/Disk1
./runInstaller -jreLoc /usr/java/default/jre
```

Use the information in the table below to guide you through the installation process.

Option	Action
Welcome	<i>Next</i>

Option	Action
Install Software Updates	Skip Software Updates
Installation Location	Oracle Middleware Home: /u01/app/Middleware Oracle Home Directory: Oracle_OSB1
Installation Type	Typical
Prerequisite Checks	All checks should be have a status passed
Product Home Location	Weblogic Server Location: /u01/app/Middleware/wlserver_10.3 OEPE Location: /u01/app/Middleware/oepe_11gR1PS4
Installation Summary	Select <i>Install</i>
Installation Progress	Next
Installation Completed	Finish

Configure SOA Suite

The SOA Suite software must be configured in WebLogic by creating a new Domain and configuring the SOA Suite software.

Logon as soadmin to OEL and start a terminal session. Start the Fusion Middleware Configuration Wizard by entering the following instructions on the terminal.

```
cd /u01/app/Middleware/Oracle_SOA1/common/bin
./config.sh
```

Use the information in the table below to guide you through the installation process.

Option	Action
Welcome	Create a new Weblogic domain
Select Domain Source	<p>Generate a domain configured automatically to support the following products:</p> <ul style="list-style-type: none"> * Oracle BPM Suite * Oracle SOA Suite * Oracle Service Bus OWSM Extension * Oracle Enterprise Manager * Oracle Service Bus * Weblogic Advanced Web Services for JAX-RPC Extension * Oracle Business Activity Monitoring * Oracle WSM Policy Manager * Oracle JRF WebServices Asynchronous services * Oracle JRF * Weblogic Advanced Web Services for JAX-WS Extension
Specify Domain Name and Location	<p>Domain name: soa_domain</p> <p>Domain location: /u01/app/Middleware/user_projects/domains</p> <p>Application location: /u01/app/Middleware/user_projects/applications</p>
Configure Administrator User Name and Password	<p>Name: weblogic</p> <p>User password: Welcome1</p> <p>Confirm user password: Welcome1</p> <p>Description: This user is the default administrator.</p>
Configure Server Start Mode and JDK	<p>Weblogic Domain Startup Mode: Development Mode</p> <p>Available JDKs: By default the previously installed JDK should be selected. Make sure <i>Sun SDK 1.6.0</i> with at least build 21 is selected in the <i>Local JDK</i> pane.</p>

Option	Action
Configure JDBC Component Schema	<p>Select the following Component Schemas</p> <ul style="list-style-type: none"> * BAM Schema * SOA Infrastructure * User Messaging Service * OWSM MDS Schema * SOA MDS Schema * OSB JMS Reporting Provider <p>Vendor: Oracle Driver: *Oracle;'s Driver (Thin) for Instance connections DMBS/Service: XE Host Name: localhost Schema Password: Welcome1</p>
Test JDBC Component Schema	All connections should be tested successfully.
Select Optional Configuration	Do not select any additional configurations and select <i>Next</i> .
Configuration Summary	Select <i>Create</i>
Creating Domain	Select <i>Done</i>

Eclipse shortcut

Create a shortcut to Eclipse by executing the following instructions in Terminal as user soadmin.

```
cat > ~/Desktop/Eclipse << EOF
[Desktop Entry]
Exec=/u01/app/Middleware/oepe_11gR1PS4/eclipse
Terminal=false
MultipleArgs=true
Type=Application
Categories=Applications;
Icon=/u01/app/Middleware/oepe_11gR1PS4/plugins/
org.eclipse.platform_3.6.2.v201102101200/eclipse32.png
Encoding=UTF-8
Name=Eclipse OEPE
EOF
```

Test the shortcut by double clicking on the Eclipse Indigo OEPE shortcut on the desktop. Select *Use this as the default default and do not ask again* and click *OK*.

When Eclipse is started successfully, update the OEPE by selecting *help->Check for Updates* from the menu bar. Select *Select All*, then *Next*. Select *Next* again and *I accept the terms of the license agreement*, finally select *Finish* to start the update process. Do not continue with the next step till the update process is completed. Press *Restart Now* to complete the update process.

JDeveloper installation

Logon as soadmin to OEL and start a terminal session. Start the Fusion Middleware Configuration Wizard by entering the following instructions on the terminal.

```
cd /mnt/hgfs/Soa_Suite_Components/V26117-01/  
java -jar ./jdevstudio11115install.jar
```

Use the information in the table below to guide you through the installation process.

Option	Action
Welcome	<i>Next</i>
Choose Middleware Home Directory	Middleware Home Type: Use an Existing Middleware Home Middleware Home Directory: /u01/app/Middleware
Choose Products and Components	Use default selection
JDK Selection	Verify that a local JDK with at least version 1.6.0 build 21 is selected.
Confirm Product Installation Directories	Select <i>Next</i>
Installation Summary	Select <i>Next</i>
Installation Complete	De-select <i>Run Quickstart</i>

Create a shortcut to JDeveloper by executing the following instructions in Terminal as user soadmin.

```
cat > ~/Desktop/JDeveloper << EOF  
[Desktop Entry]  
Exec=/u01/app/Middleware/jdeveloper/jdev/bin/jdev  
Terminal=false  
MultipleArgs=true  
Type=Application  
Categories=Applications;  
Icon=/u01/app/Middleware/jdeveloper/jdev/bin/coffee.png  
Encoding=UTF-8  
Name= JDeveloper  
EOF
```

Start JDeveloper and select *Default Role*, de-select *always prompt for role selection on startup*. De-select *Allow automated usage reporting to Oracle* in window *Oracle Usage Tracking* window.

Start the JDeveloper update wizard by selecting *Help->Check for Updates...* in the menu-bar. Use the information in the table below to guide you through the wizard.

Option	Action
Welcome	<i>Next</i>
Source	Install From Local File: /mnt/hgfs/Soa_Suite_Components/V26117-01/ middleware_extensions/soa-jdev-extension.zip Restart JDeveloper
Source	Install From Local File: /mnt/hgfs/Soa_Suite_Components/V26117-01/ middleware_extensions/bpm-jdev-extension.zip Restart JDeveloper

Server configuration and Startup

Starting up the Admin server and Managed servers can be done by opening a terminal session and executing the startWeblogic.sh or startManagedWeblogic.sh scripts. When stopping and starting the servers is a repetitive process, it would be convenient to have launchers (shortcuts) to the scripts. Follow the next steps to create the necessary launchers for the Admin server and Managed (soa_server1, bam_server1).

Logon as soadmin to OEL and start a terminal session. Create a shortcut to AdminServer by executing the following instructions in Terminal as user soadmin.

```
cat > ~/Desktop/AdminServer << EOF
[Desktop Entry]
Exec=gnome-terminal -e '/u01/app/Middleware/user_projects/domains/
soa_domain/startWebLogic.sh' -t AdminServer
Terminal=true
MultipleArgs=true
Type=Application
Categories=Applications;
Icon=/u01/app/Middleware/Oracle_OSB1/lib/sbconsoleEar/webapp/
images/sb/oracle_logo.png
Encoding=UTF-8
Name=Start AdminServer
EOF
```

Create a shortcut to start the soa_server1 by executing the following instructions in Terminal as user soadmin.

```
cat > ~/Desktop/soa_server1 << EOF
[Desktop Entry]
Exec=gnome-terminal -e '/u01/app/Middleware/user_projects/domains/
soa_domain/bin/startManagedWebLogic.sh soa_server1' -t soa_server1
Terminal=true
MultipleArgs=true
Type=Application
Categories=Applications;
Icon=/u01/app/Middleware/Oracle_OSB1/lib/sbconsoleEar/webapp/
images/sb/oracle_logo.png
Encoding=UTF-8
Name=Start soa_server1
EOF
```

Create a shortcut to start the bam_server1 by executing the following instructions in Terminal as user soadmin.

```
cat > ~/Desktop/bam_server1 << EOF
[Desktop Entry]
Exec=gnome-terminal -e '/u01/app/Middleware/user_projects/domains/
soa_domain/bin/startManagedWebLogic.sh bam_server1' -t bam_server1
Terminal=true
MultipleArgs=true
Type=Application
Categories=Applications;
Icon=/u01/app/Middleware/Oracle_OSB1/lib/sbconsoleEar/webapp/
images/sb/oracle_logo.png
Encoding=UTF-8
Name=Start bam_server1
EOF
```

Create a shortcut to start the osb_server1 by executing the following instructions in Terminal as user soadmin.

```
cat > ~/Desktop/osb_server1 << EOF
[Desktop Entry]
Exec=gnome-terminal -e '/u01/app/Middleware/user_projects/domains/
soa_domain/bin/startManagedWebLogic.sh osb_server1' -t osb_server1
Terminal=true
MultipleArgs=true
Type=Application
Categories=Applications;
Icon=/u01/app/Middleware/Oracle_OSB1/lib/sbconsoleEar/webapp/
images/sb/oracle_logo.png
Encoding=UTF-8
Name=Start osb_server1
EOF
```

Now start the *AdminServer* using the launcher and wait till the startup process is completed. The AdminServer startup process is completed when the message `Server started in RUNNING mode` is written to the terminal.

Continue starting the Managed Servers *soa_server1*, *osb_server1* and *bam_server1* one at a time using the launcher. The servers startup process is completed when the message `Server started in RUNNING mode` is written to the terminal. Stop the server by pressing *Control_C* in the terminal session, then start the next managed server. During the startup a username and password is requested to boot the Weblogic server. Use the username *weblogic* and password *Weblogic1* (admin credentials of the weblogic domain) here to log on. During the startup the directory structure for the servers is created under `/data/middleware/user_projects/domains/soa_domain/servers`.

To prevent the login-prompt shown during server startup of the Managed Server, the credentials necessary to boot the Weblogic server can be added to the `boot.properties` file. Do not continue if you not have started the servers once because the `boot.properties` file has to be created in the directory structure which is generated during the first startup of the Managed Server.

To create the `boot.properties` for the *soa_server1*, *osb_server1* and *bam_server1*, logon as *soadmin* to OEL and start a terminal session. Execute the following scripts in the Terminal.

```
mkdir /u01/app/Middleware/user_projects/domains/soa_domain/
servers/soa_server1/security
cat >> /u01/app/Middleware/user_projects/domains/soa_domain/
servers/soa_server1/security/boot.properties << EOF
username=weblogic
password=Welcome1
EOF
```

```
mkdir /u01/app/Middleware/user_projects/domains/soa_domain/
servers/bam_server1/security
cat >> /u01/app/Middleware/user_projects/domains/soa_domain/
servers/bam_server1/security/boot.properties << EOF
username=weblogic
password=Welcome1
EOF
```

```
mkdir /u01/app/Middleware/user_projects/domains/soa_domain/
servers/osb_server1/security
cat >> /u01/app/Middleware/user_projects/domains/soa_domain/
servers/osb_server1/security/boot.properties << EOF
username=weblogic
password=Welcome1
EOF
```

All Weblogic servers; AdminServer, *soa_server1*, *osb_server1* and *bam_server1* do run in the same domain. Therefore these servers share the same environment settings which are

set on startup. A part of these environment settings are the JVM memory settings. To set the JVM memory settings for each server individually, add the code below to the `setSOADomainEnv.sh`. Verify that you are logged on as *soaadmin* and open the file `setSOADomainEnv.sh` in directory `/u01/app/Middleware/user_projects/domains/soa_domain/bin`. Add the code right before the `setup LD_LIBRARY_PATH` if directory is present... comment line.

```
echo "Server Name:${SERVER_NAME}"
echo -ne "\033]0;"${SERVER_NAME}"\007"

GC_OPT=" -Xss256k -XX:+UseConcMarkSweepGC -XX:+UseParNewGC \
-XX:+CMSIncrementalMode -XX:+CMSIncrementalPacing"
#GC_OPT=" -XX:+UseSerialGC"
if [ "${SERVER_NAME}" = "soa_server1" ]; then
    echo "Setting USER_MEM_ARGS for soa_Server1"
    echo "| HEAP 640M | PermGen 390-512M |"
    echo "| SHORT (YOUNG) 224M : LONG 416M |"
    echo "| eden : s0 : s1 : |"
    echo "| 168 : 28M : 28M : |"
    PORT_MEM_ARGS="-Xms640m -Xmx640m -Xmn224m -XX:SurvivorRatio=8 \
-XX:PermSize=390m -XX:MaxPermSize=512m -d64 ${GC_OPT}"

elif [ "${SERVER_NAME}" = "osb_server1" ]; then
    echo "Setting USER_MEM_ARGS for bam_Server1"
    echo "| HEAP 224M | PermGen 224M |"
    echo "| SHORT (YOUNG) 32M : LONG 192M |"
    echo "| eden : s0 : s1 : |"
    echo "| 24M : 4M : 4M : |"
    PORT_MEM_ARGS="-Xms224m -Xmx224m -Xmn32m -XX:SurvivorRatio=8 \
-XX:PermSize=224m -XX:MaxPermSize=224m -d64 ${GC_OPT}"
elif [ "${SERVER_NAME}" = "bam_server1" ]; then
    echo "Setting USER_MEM_ARGS for bam_Server1"
    echo "| HEAP 224M | PermGen 250M |"
    echo "| SHORT (YOUNG) 64M : LONG 160M |"
    echo "| eden : s0 : s1 : |"
    echo "| 48M : 8M : 8M : |"
    PORT_MEM_ARGS="-Xms224m -Xmx224m -Xmn64m -XX:SurvivorRatio=8 \
-XX:PermSize=250m -XX:MaxPermSize=250m -d64 ${GC_OPT}"
elif [ "${SERVER_NAME}" = "AdminServer" ]; then
    echo "Setting USER_MEM_ARGS for AdminServer"
    echo "| HEAP 384M | PermGen 320-512M |"
    echo "| SHORT (YOUNG) 64M : LONG 288M |"
    echo "| eden : s0 : s1 : |"
    echo "| 64M : 2M : 2M : |"
    PORT_MEM_ARGS="-Xms384m -Xmx384m -Xmn64m -XX:SurvivorRatio=32 \
-XX:PermSize=320m -XX:MaxPermSize=512m -d64 ${GC_OPT}"

else
    echo "PORT_MEM_ARGS not set"
fi
```

The JDK can be optimized further by invoking the Java HotSpot Server instead of the HotSpot client to compile bytecode into machine optimized instructions. When invoking the HotSpot server initialization of the application will be slightly slower but due to further optimization of the bytecode it will run faster. To enable the HotSpot server in Weblogic servers, the environment variable `PRODUCTION_MODE` must be set to `true`.

Verify that you are logged on as *soaadmin* and open the file `commEnv.sh` in directory `/u01/app/Middleware/wlserver_10.3/common/bin`. Add the code below after the statement `JAVA_USE_64BIT=true` which will be approximately at line 143.

```
# Optimize Compiler  
PRODUCTION_MODE="true"
```

JDeveloper on Mac OS X

When using JDeveloper and a web browser on the host OS, you will experience a better performance than when running the client applications within the VM. Follow the instructions below to install JDeveloper on Mac OS X.

First verify that java SE 6 64 bit is the preferred JVM. Open the utilities folder by selecting \mathbb{F} \uparrow U in Finder and open Java Preferences. Select the tab *General* in Java Preferences and move the 64-bit Java SE 6 to the top of the list. Close the Java Preferences by selecting \mathbb{F} Q.

By default JDeveloper installer is not able to locate the JDK. Open Terminal in OS X by selecting \mathbb{F} \uparrow U in finder and starting Terminal. Execute the following instructions in Terminal. When a password is requested, type your OS X login account.

```
cd /System/Library/Frameworks/JavaVM.framework/Versions/1.6.0/Home  
sudo mkdir jre  
cd jre  
sudo mkdir lib  
cd lib  
sudo ln -s /System/Library/Frameworks/JavaVM.framework/  
/Versions/1.6.0/classes/classes.jar rt.jar
```

Start the JDeveloper installer by opening the *jdevstudio11114install.jar* which is in the *Soa_Suite_Components/V24372-01* folder. Use the information in the table below to guide you through the installation process.

Option	Action
Welcome	<i>Next</i>
Choose Middleware Home Directory	Middleware Home Type: Use an Existing Middleware Home Middleware Home Directory: Use default
Choose Products and Components	Use default selection
JDK Selection	Use default selection, verify that at least Apple JDK version 1.6 is selected.
Confirm Product Installation Directories	Select <i>Next</i>

Option	Action
Installation Summary	Select <i>Next</i>
Installation Complete	De-select <i>Run Quickstart</i>

JDeveloper will now be installed in subdirectory Oracle/middleware of your home directory. Drag the JDeveloper java application to your dock by dragging the JDeveloper to the dock. You can select ⌘⇧G in Finder to go to a folder. Then enter ~/Oracle/Middleware as the folder name. The JDeveloper application is in the opened folder.

Start the JDeveloper application and update wizard in JDeveloper by selecting *Help->Check for Updates...* in the menu-bar. Use the information in the table below to guide you through the wizard.

Option	Action
Welcome	<i>Next</i>
Source	Install From Local File: Soa_Suite_Components/V24372-01/ middleware_extensions/soa-jdev-extension.zip Restart JDeveloper
Source	Install From Local File: Soa_Suite_Components/V24372-01/ middleware_extensions/bpm-jdev-extension.zip Restart JDeveloper

Finishing up

When connecting from a browser outside you SOA Suite server, e.g. using Safari on your host OS, you need the ip-address of the server. You can retrieve the ip-address by opening a Terminal session on the server and entering the following instruction. The required password is *Welcome1*.

```
su - root -c " ifconfig eth0 | grep 'inet addr:' "
```

To access the SOA components by the hostname of the guest OS from your host OS, add the name of guest Operating System to the hosts file of your host OS. Open Terminal in OS X by selecting ⌘⇧U in finder and starting Terminal. Execute the following instructions in Terminal. When a password is requested, type your OS X login account. (Replace the shown ip-address by the address of the guest os)

```
sudo -s 'echo "172.16.243.132"          soasuite11g >> /etc/hosts'
```

The console URL for the applications installed are shown here. When accessing the applications using a browser outside the server, replace the `localhost` with the ip-address of the SOA Server.

Welcome to Fusion Middleware : <http://localhost:7001>
Weblogic Server Admin console : <http://localhost:7001/console>
EM Fusion Middleware Control : <http://localhost:7001/em>
SOA Composer : <http://localhost:8001/soa/composer>
BPM Worklist : <http://localhost:8001/integration/worklistapp>
BPM Composer : <http://localhost:8001/bpm/composer>
B2B console : <http://localhost:8001/b2b>
BAM : <http://localhost:9001/OracleBAM>
OSB Admin Console : <http://localhost:7001/sbconsole>

Oracle BAM requires internet explorer 7 or 8. I have made an attempt to access the application using Firefox 3.6.13 but it stalls on a missing plug-in. Which plug-in is missing is not reported. On Safari i am able to get the initial logon page when changing the default login agent to Internet Explorer 7 or 8. When making an attempt to logon, nothing happens after entering the credentials and selecting the go button.

Change history

Version	Changes / remarks
0.1	Initial draft
0.2	Initial public release
0.3	Added some application URLs Script setSOADomainEnv.sh modified Added soasuite11g as host in /etc/hosts References to localhost replaced by soasuite11g
0.5	Revised for SOA Suite Patch Set 4, 11g XE DB, OL 5u7 and OEPE on x86-64

Referenced documentation

[Installation of Oracle 11g Release 2 \(11.2.0.1.0\) on RedHat EL 5, \(Oracle\) Enterprise Linux 5 and Centos 5](#)

[How to Install Java JRE 1.6.0 \(Update x\) in Linux as the Default Java Runtime, including Firefox Browser Plugin](#)

[What are the Linux x64 RPM Java installation instructions ?](#)

[Installing JDeveloper 11g on Mac OS 10.5](#)