



# WebLogic Hackathon - WebLogic Server Installation and Automation

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## 1. Introduction

This lab will show you how to do a silent installation of WebLogic Server 12.1.2 and create a domain via WLST Offline.

We will use a CentOS 6.3 32-bit Linux server VM running in VirtualBox.

We have only tested this setup on Windows 7 64-bit, but it should work with other platforms as well. Mac and Linux people please ignore all the Windows stuff ☺

## 2. Documentation

Using the Oracle Universal Installer in Silent Mode:

<http://docs.oracle.com/middleware/1212/core/OUIRF/silent.htm#CIHHABGC>

Creating WebLogic Domains Using WLST Offline:

<http://docs.oracle.com/middleware/1212/wls/WLSTG/domains.htm#WLSTG405>

## 3. Prerequisites

You must download and install VirtualBox. Please make sure that it is version 4.3.2 or newer! (<https://www.virtualbox.org/wiki/Downloads>)

You must download these two files from OTN:

- jdk-7u45-linux-i586.tar.gz Linux x86 132.9 MB (<http://goo.gl/TfUlf>)
- wls\_121200.jar Generic 880 MB (<http://goo.gl/dlXjP>)

You need a ssh and sftp client on your laptop. You can for example use:

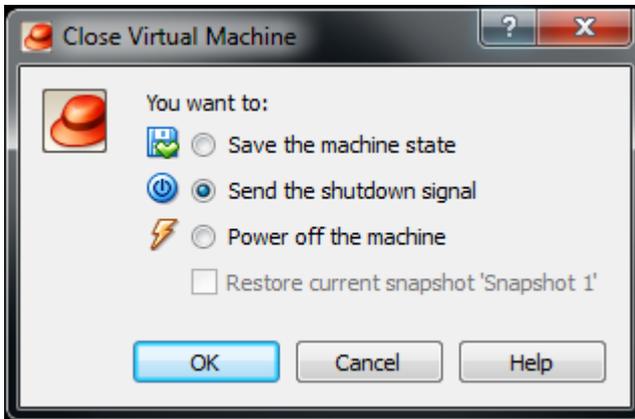
- PuTTY ssh client (<http://goo.gl/XbTF>)
- WinSCP sftp client (<http://winscp.net/eng/download.php>)

You also need a PDF Reader.

## 4. Hints

### 4.1 Shutdown the Linux server

When you have to stop the Linux server, you should click on the X in the top right corner of the VirtualBox VM Window and select "Send the shutdown signal".



If this does not work, you can use this command:

```
shutdown -h now
```

You must be root to do this. (su -)

### 4.2 Change Keyboard language

The default keyboard language for the Linux server is uk. If you want to change this you can use: loadkeys dk

This example will change the keyboard language to Danish. The setting is not persisted, so it will revert back next time you boot.

To change it permanent use:  
/etc/sysconfig/keyboard

### 4.3 Screen saver

If you do not use the VirtualBox VM window for a while, it will go blank. Just press a key and it will wake up again.

### 4.4 Error messages that can be ignored

When installing the WebLogic Server, you will see the below error. Just ignore it.  
"jni.so which might have disabled stack guard. The VM will try to fix the stack guard now.  
It's highly recommended that you fix the library with 'execstack -c <libfile>', or link it with '-z noexecstack'."

When creating the WebLogic domain, you will see the below error. Just ignore it.  
Checking swap space: must be greater than 512 MB. Actual 0 MB Failed <

### 4.5 VirtualBox and Vmware conflict

If you have installed Vmware software on your laptop, it can cause problems for VirtualBox.

If you experience network problems and have Vmware software installed, it could be the cause.

Make sure to disable any Vmware virtual network cards.

## 5. Miscellaneous information

The lab uses this file on the Linux server /software/superSunday.zip

When you are finished with the lab, you should have a running domain with these characteristics:

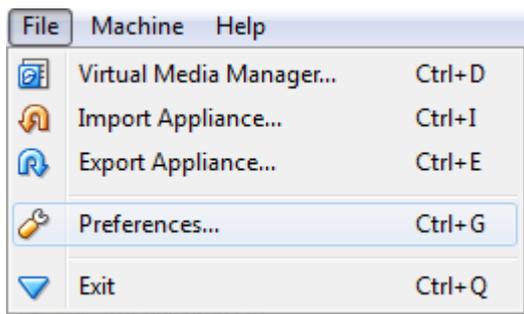
Java Home: /u01/app/oracle/product/jdk1.7.0\_45  
 Middleware Home: /u01/app/oracle/product/wls1212  
 Domain Home: /u01/app/oracle/domains/myDomain  
 AdminServer: Port 7001 (<http://YOUR-IP:7001/console>)  
 ms01 Managed Server: Port 8001  
 Node Manager: Port 5556  
 Test deployment: <http://YOUR-IP:8001/hello>  
 Linux user: oracle  
 Linux user: root  
 All passwords: welcome1

## 6. Install and configure VirtualBox

You can install VirtualBox by just pressing Next to all questions.

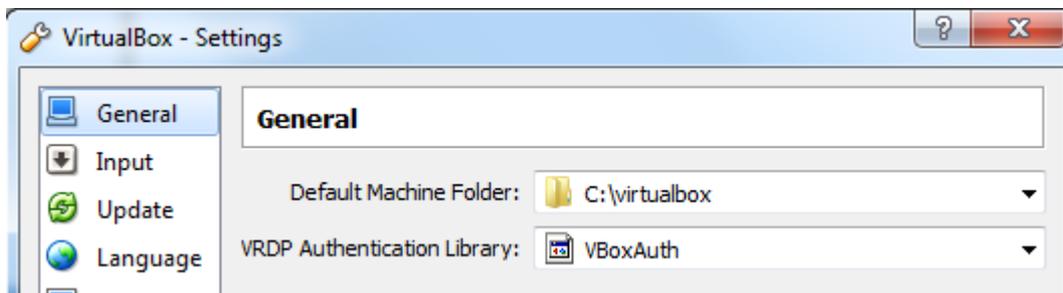
VirtualBox will default use the local language from your laptop. If you are not from the UK it is a good idea to change the language to English.

Go to File and then Preferences.



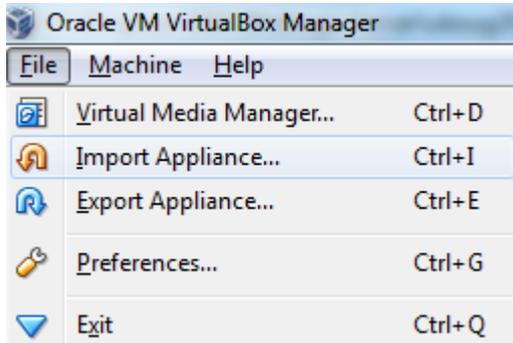
Choose Language and select English (Build-in).

If you want to control where VirtualBox stores the VMs. Go to Files and then Preferences. Under General, you can set Default Machine Folder.

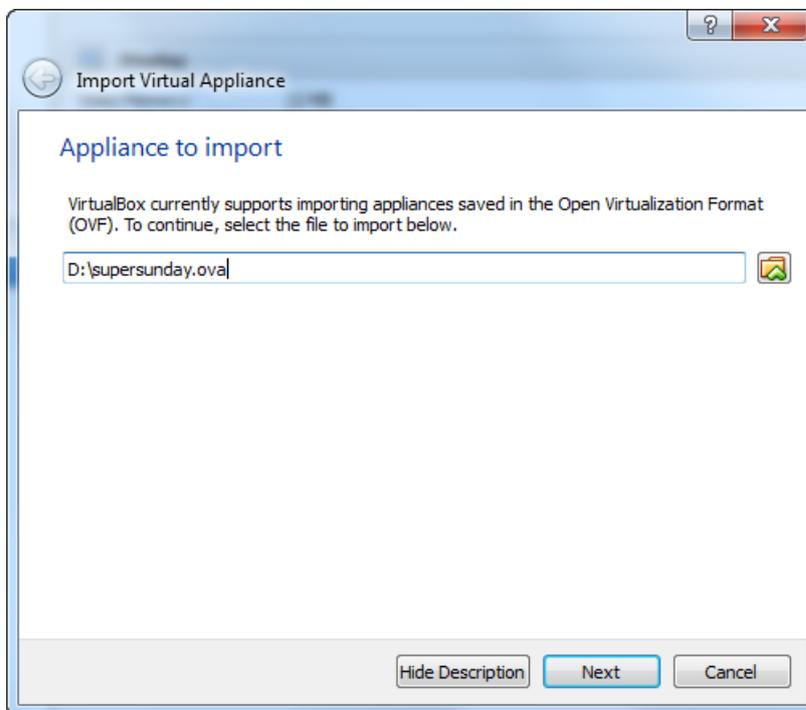


## 7. Centos Linux server

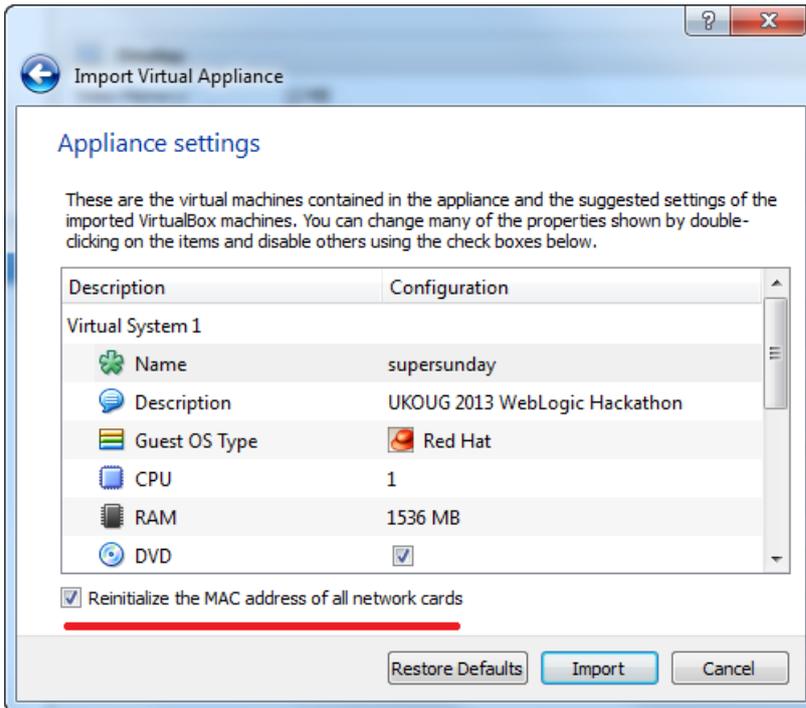
To get the Linux server running you must first import a VM image file. Start VirtualBox and select File => Import Appliance.



Input a path to the supersunday.ova file and press Next.



**Make sure that you put a check mark in "Reinitialize the MAC address of all network cards".** If you do not do this, we will end up with several machines with the same MAC address, which can mean that the network will not work.



Press Import.

If you did not check Reinitialize the MAC address, please delete the VM and import again.

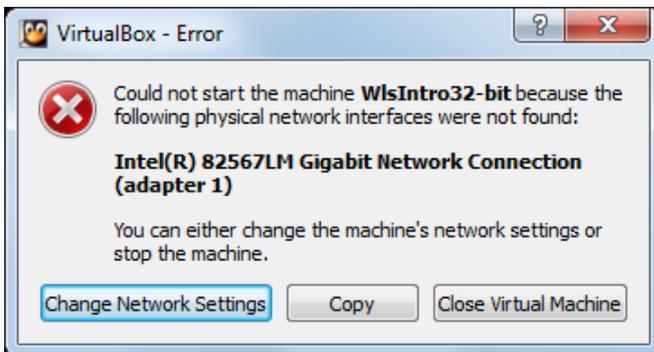
**Before you start the VM please make sure that a network cable is attached to you laptop and that the LED on you network card is flashing!**

We are using Bridged Adapter networking and have a DHCP server that should supply both your laptop and the VM with an IP address.

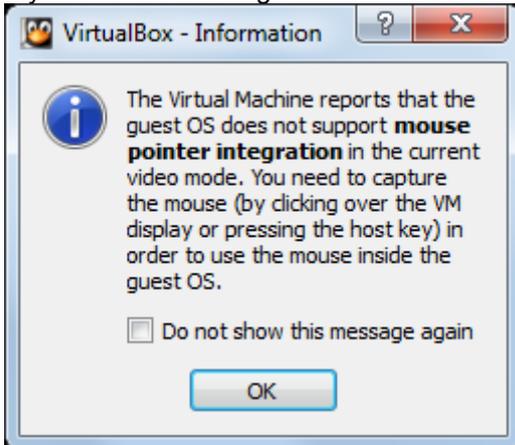
Click on Start.



If you see this warning please press "Change Network Settings" and OK on the next screen. The problem is that you have another network card than then one the VM was born with.



If you see this warning then check "Do not show this message again" and OK.



When the Linux server is running you will get a login prompt in the VirtualBox VM Window.

Working via the VirtualBox VM Window has its limits:

- You cannot use copy/past from you laptop
- You cannot maximize the VirtualBox VM Window
- You will have to press the right ctrl key every time you want to move the mouse out of the Window
- It uses an English keyboard layout ☺

Instead use an ssh client on your Laptop.

To be able to access the VM from you laptop you need to make sure that the networking is OK and find the IP address of Linux Server.

Login to the VirtualBox VM Window with root and welcome1.

Show IP addresses:

```
ip addr show
```

The output should look like this:

```
root@localhost ~]# ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP ql
en 1000
    link/ether 08:00:27:f8:a5:2c brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.130/24 brd 192.168.1.255 scope global eth0
    inet6 fe80::a00:27ff:fe8:a52c/64 scope link
        valid_lft forever preferred_lft forever
```

Two interfaces - lo and eth0. inet on eth0 will list the IP address.

If it does not look like this, make sure that your network cable is attached to you laptop and that the LED on you network card is flashing.

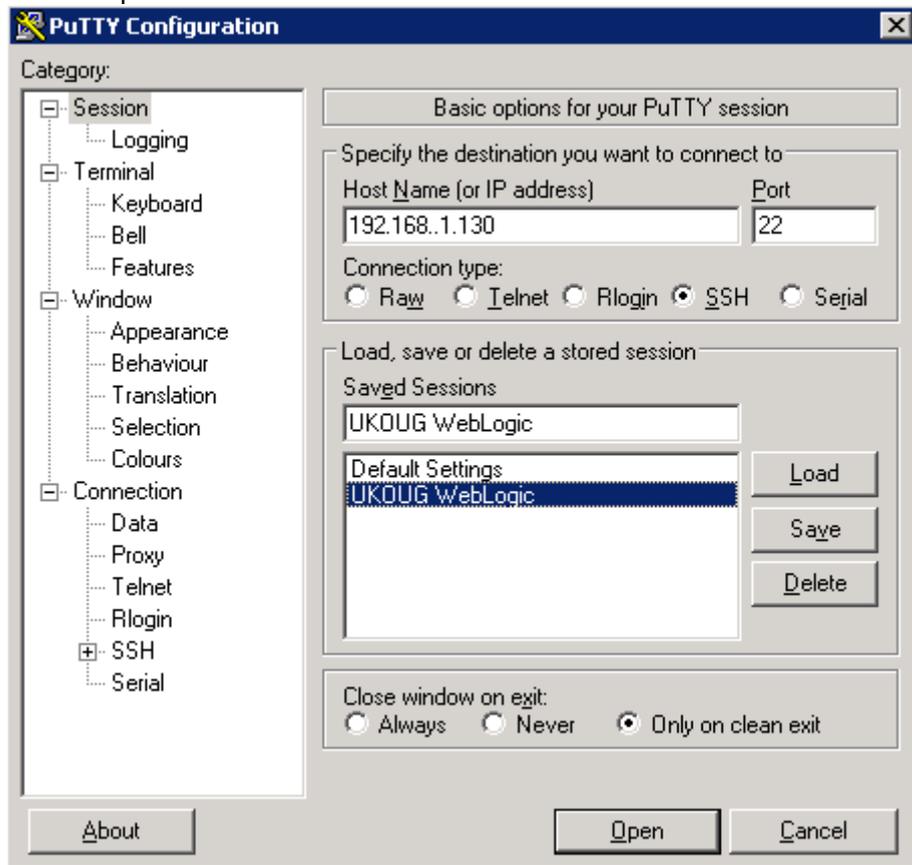
Then execute this:

```
/root/deleteUdevRules.sh
shutdown -r now
```

The VM will boot and when it is up again check, the IP addresses.

The Linux server should now have an IP address from our DHCP server and you should be able to connect to it via an ssh client on your laptop.

For example via PuTTY:



The first time you will get a Security Alert. Just press Yes and login with root and welcome1.

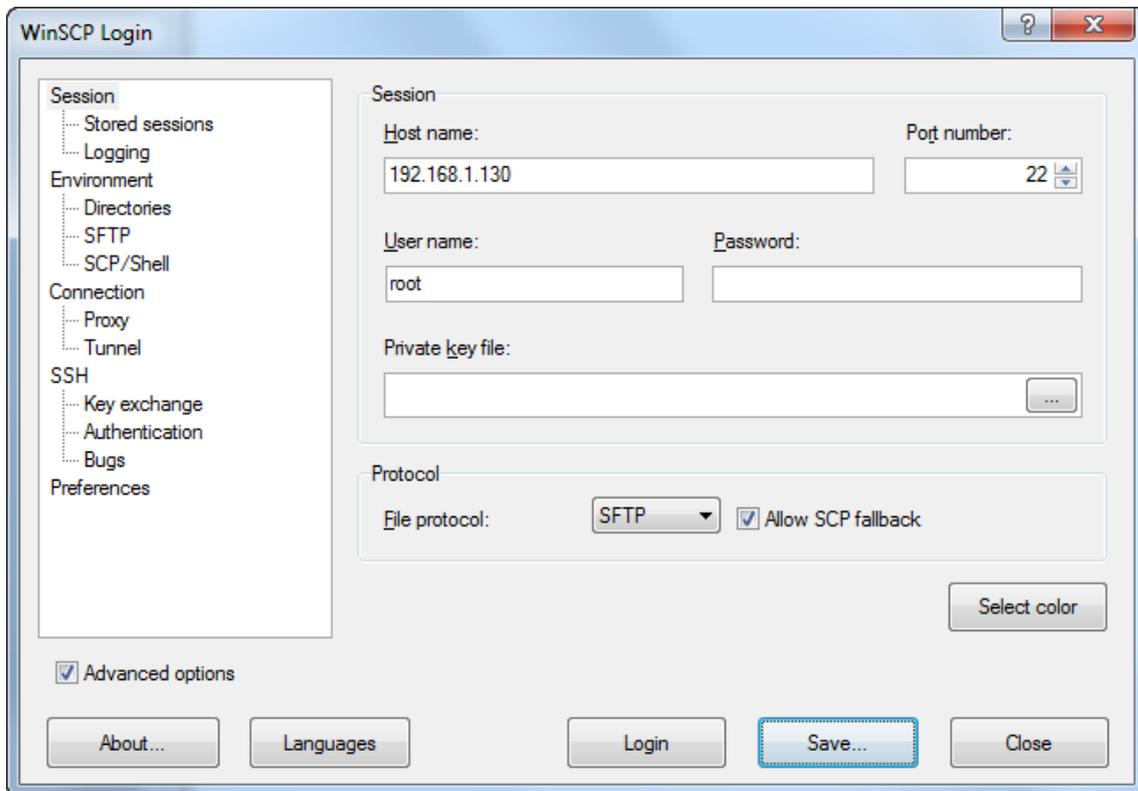


## 8. Copy files to the Linux server

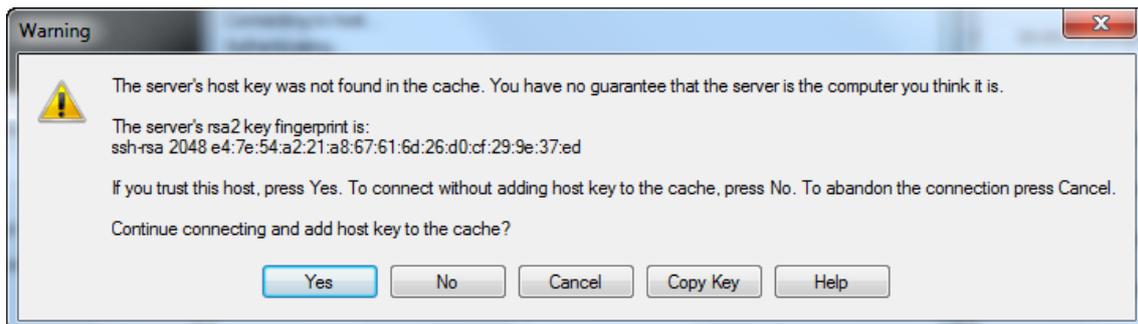
You must copy the downloaded files to the /software. The directory already exists:

- jdk-7u45-linux-i586.tar.gz
- wls\_121200.jar

For example via WinSCP. Press New.

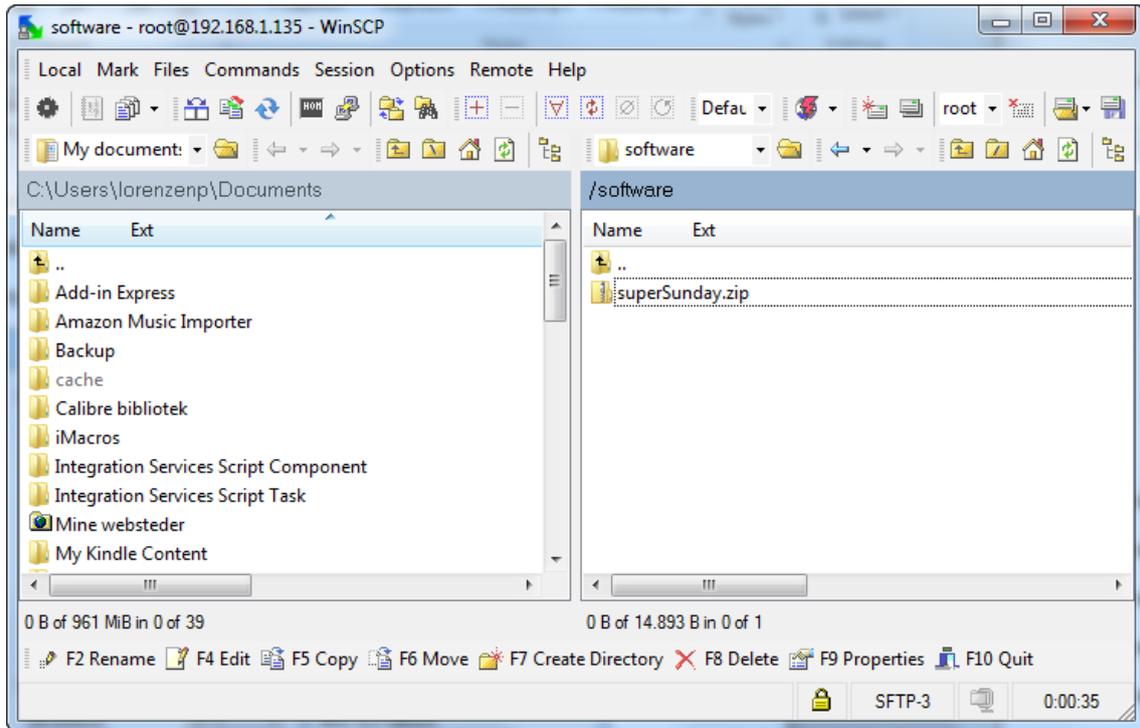


Press Save, OK and then Login. Press Yes to the Warning.



As password input welcome1.

In the right part of the screen navigate to /software. Locate the two files with your Windows Explorer and just drag the files to the directory in the right part of the screen.



## 9. Execute the scripts

While you go through the following steps make sure to have a look at the scripts. You can for example use the **less** command for this.

For each script, check the output for errors.

### 9.1 Unpack the zip file

```
cd /software
unzip superSunday.zip
chmod -R a=rwx /software
```

### 9.2 Create Oracle Inventory

```
cd /software/superSunday
./create-oraInst.loc.sh
```

### 9.3 Create directories

```
cd /software/superSunday
./createDirectories.sh
```

### 9.4 Install Java

You should run this with the oracle Linux user.

```
su - oracle
```

```
cd /software/superSunday
./installJava.sh
```

### 9.5 Install WebLogic

You should run this with the oracle Linux user.

```
su - oracle
```

```
cd /software/superSunday
./installWebLogic.sh
```

### 9.6 Create a domain

Have a look at the silent.rsp file.

You should run this with the oracle Linux user.

```
su - oracle
```

```
cd /software/superSunday
./createDomain.sh
```

### 9.7 Start the Node Manager

Have a look at the nodemanager.properties and nodemanager.domains files in: /u01/app/oracle/domains/myDomain/nodemanager

You should run this with the oracle Linux user.

```
su - oracle
```

```
cd /software/superSunday
./startNodeManager.sh
```

When the Node Manager is running, you should see this:

```
"<02-Nov-2013 17:34:28 o'clock CET> <INFO> <Plain socket listener
started on port 5556, host localhost>"
```

The Node Manager is here running in the foreground, so if you do close the Window or do a ctrl+c etc. you will stop it.

In a proper environment, it should be started as a service running in the background.

### 9.8 Start the Admin Server

The Admin Server lives here:

```
/u01/app/oracle/domains/myDomain/servers/AdminServer
```

Currently there is not much to see. Most files will be created first time the Admin Server is started.

Start another PuTTY session and login with the oracle Linux user.

Start the Admin Server via the Node Manager:

```
cd /software/superSunday
./startAdminServerViaNM.sh
```

When the Admin Server is running, you should see:

```
"Successfully started server AdminServer"
```

The Admin Server is started by the Node Manager and running in the background, so you are free to use the command line again.

You can now log in to the Admin Server Console via a browser:

<http://YOUR-IP:7001/console>

Use weblogic and welcome1.

### 9.9 Start the Managed Server

The Managed Server lives here:

```
/u01/app/oracle/domains/myDomain/servers/ms01
```

As for the Admin Server there is currently not much to see here.

We would like to start the Managed Server via the Node Manager just as we did for the Admin Server. However, to do this we need a boot.properties file that contains the encrypted user name and password e.g. weblogic and welcome1. The details are not important for this lab, but we have a script that starts the Node Manager the first time and another that can be used there after:

```
startManagedServerViaNMFirstTime.sh
startManagedServerViaNM.sh
```

```
cd /software/superSunday
./startManagedServerViaNMFirstTime.sh
```

You should see:

```
"Successfully started server ms01"
```

Next time you need to start the Managed Server you can use the startManagedServerViaNM.sh script.

### 9.10 Deploy test application

Make sure you are logged in as oracle.

```
cd /software/superSunday
./deployHelloApp.sh
```

The script will also try to call the application via cur. You should see something like this:

```
curl http://localhost:8001/hello/index.jsp

      IP: 127.0.0.1
Host: localhost.localdomain
WebLogic Server: ms01
```

Here the hello application is called from the command line via the curl command. You can also try calling the application from a browser.

### 9.11 Linux processes

To see which Linux processes are running try the below.

```
cd /software/superSunday
./listWebLogicServers.sh
```

This should list the Node Manager, Admin Server and Managed Server, with their process ids and ports.

Now try:

```
ps -ef | grep oracle
```

You should see 3 processes for the Node Manager and 2 for each of the Admin Server and the Managed Server.

The second column contains the process id and the third the parent process id, so you can see who started whom.

### 9.12 Clean up for the next lab

For the next lab, we will use the same Linux VM but we need to remove the WebLogic Server installation and the domain.

```
cd /software/superSunday  
./rollback.sh
```

It does not matter if you are logged in as root or oracle.

The script will also kill the WebLogic processes if they are still running.