

***Oracle Fusion Middleware - WebLogic
Server 14c (14.1.1.0.0) on SUSE Linux
Enterprise Server 12 (SP5) for x86-64***



Table of Contents

Introduction.....	3
System Requirements and Specifications.....	3
Hardware Requirements.....	3
Software Requirements.....	3
Testing machine information.....	3
Prerequisites.....	4
Installing SUSE Linux Enterprise Server 12 SP5.....	4
Installing Java.....	7
Oracle WebLogic Server 14c Installation.....	8
Installing Oracle WebLogic Server software.....	8
Creating and Configuring the WebLogic Domain.....	17
Starting the AdministrationServer and verifying the Configuration.....	25
Additional Comments	28

Introduction

This document provides details on installing Oracle WebLogic Server 14c on SUSE Linux Enterprise Server 12 SP5. Details are provided for Intel(x86-64) versions of both Oracle WebLogic Server 14c and SUSE Linux Enterprise Server 12 SP5. Similar steps apply to other platforms (x86, ia64, System z, etc.).

Official Oracle product documentation is available at: <http://docs.oracle.com/en/>

System Requirements and Specifications

Hardware Requirements

Requirement	Minimum
CPU	1-GHz CPU
Physical Memory	4 GB
Swap space	Approx. twice the size of RAM
Disk space in /tmp	2 GB
Disk space for software files	2 GB

Software Requirements

SUSE

- SUSE Linux Enterprise Server 12 SP5 (x86-64)
(<http://download.suse.de/install>)

Oracle

- WebLogic Server 14c (14.1.1.0.0) (fmw_14.1.1.0.0_wls_Disk1_1of1.zip)
(<https://www.oracle.com/middleware/technologies/fusionmiddleware-downloads.html>)
- Java SE Development Kit 8 (jdk-8u221-linux-x64.tar.gz)
(<https://www.oracle.com/technetwork/java/javase/downloads/index.html>)

Testing Machine Information

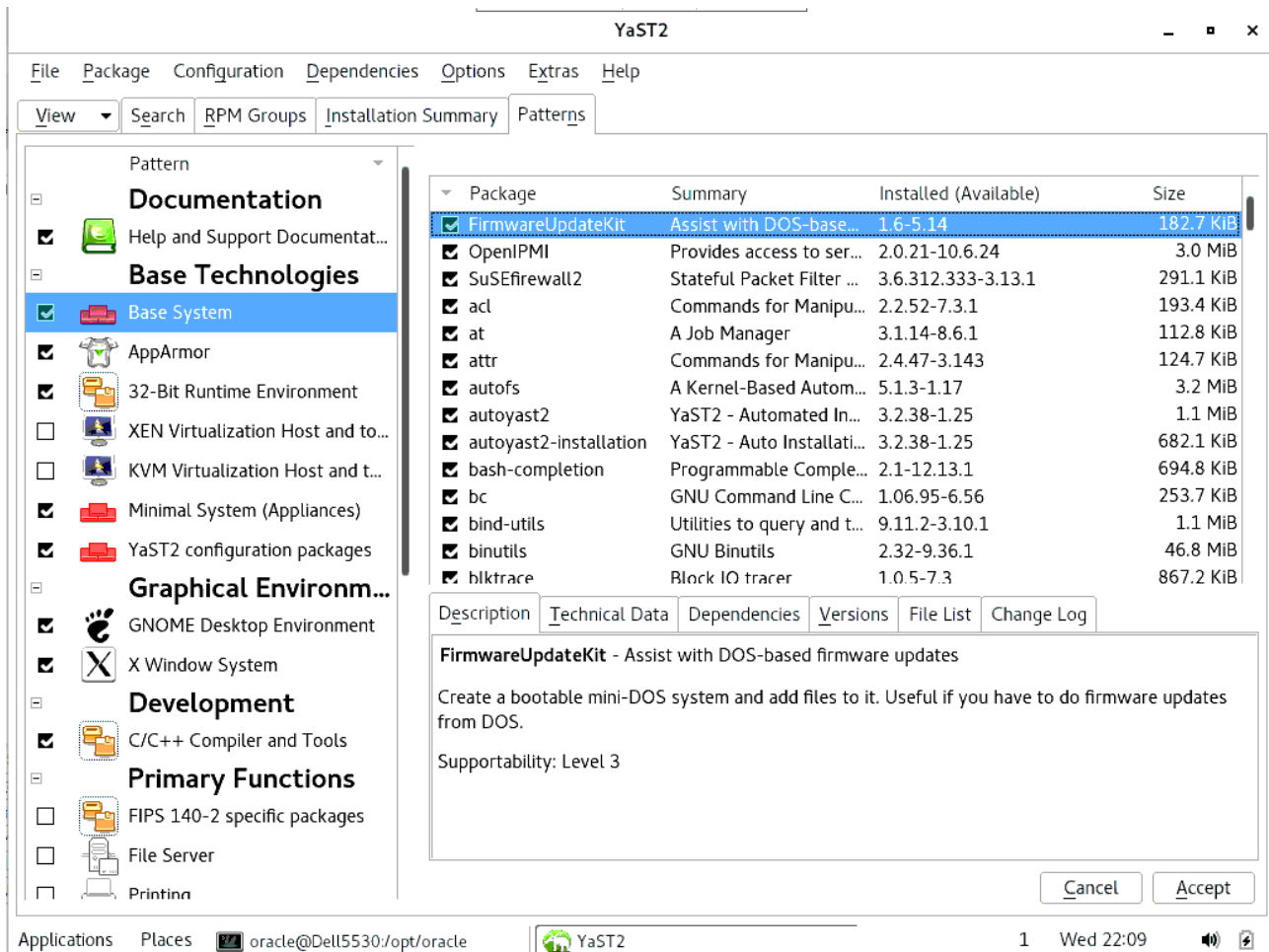
Dell Laptop Precision 5530
 CPU: 6 * Intel(R) Core(TM) i7-8850H CPU @ 2.60GHz
 RAM: 32 GB
 NIC: 2
 Local HDD: 1TB + 512GB
 OS: SUSE Linux Enterprise Server 12 SP5 (x86-64) - Kernel version: 4.12.14-120-default

Prerequisites

1. Installing SUSE Linux Enterprise Server 12 SP5

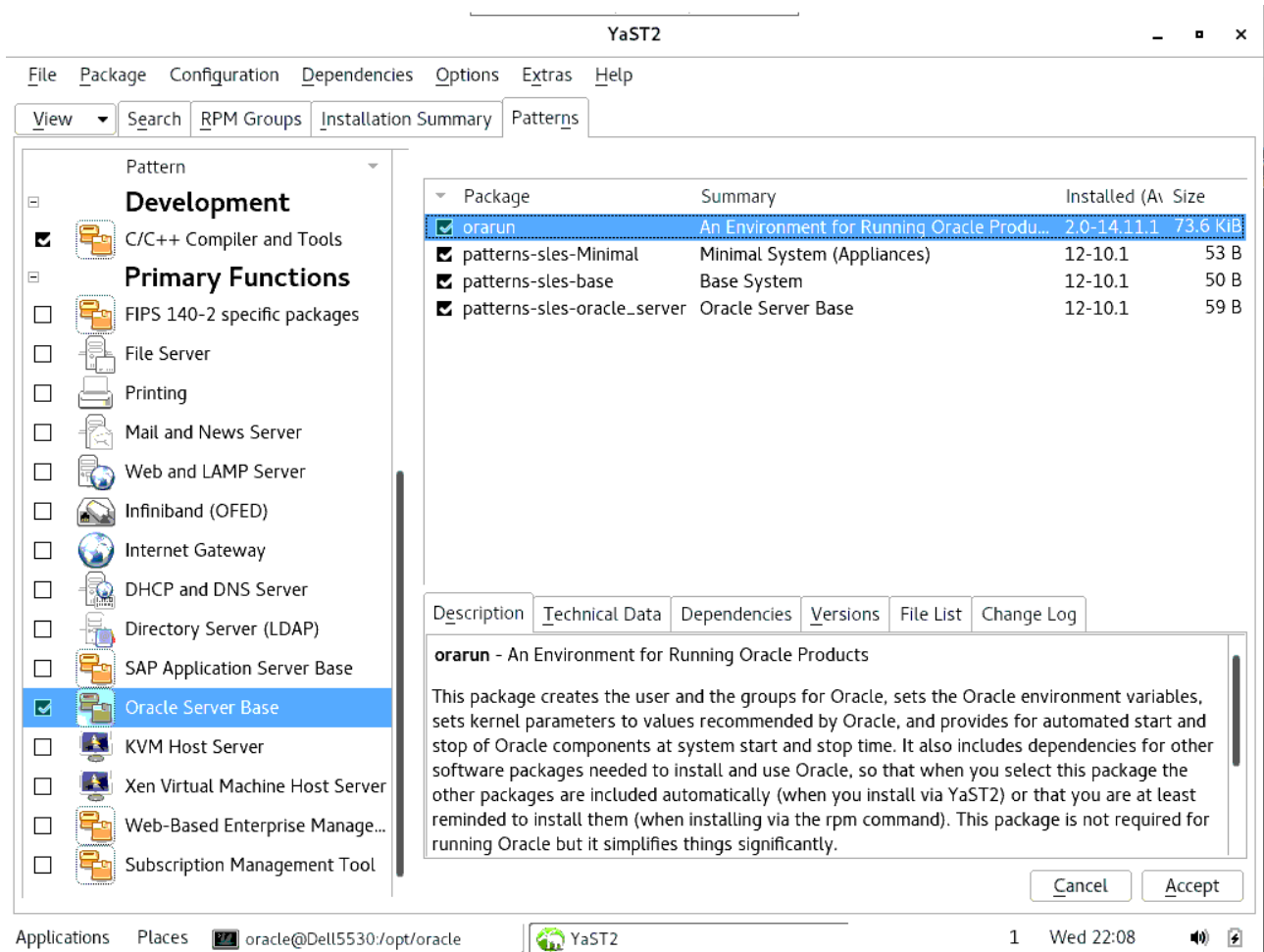
1-1. Install SUSE Linux Enterprise Server 12 SP5 on your testing machine. To do so, follow the instructions in the official SUSE Linux Enterprise Server documentation at <https://www.suse.com/documentation/>.

Figure 1-1 Software Installed as shown below



In YaST, select the patterns you need. Make sure you select the patterns and packages required to run Oracle products.

Figure 1-2 Software Installed as shown below



After the installation of SUSE Linux Enterprise Server, the following information about the operating system and the kernel version is displayed.

Figure 1-3 OS release information and kernel version

```
oracle@Dell5530:~> more /etc/os-release
NAME="SLES"
VERSION="12-SP5"
VERSION_ID="12.5"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP5"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp5"
oracle@Dell5530:~> uname -a
Linux Dell5530 4.12.14-120-default #1 SMP Thu Nov 7 16:39:09 UTC 2019 (fd9dc36) x86_64 x86_64 x86_64 GNU/Linux
oracle@Dell5530:~>
```

1-2. Special Startup Requirements.

1). To set the SHMMAX kernel parameter.

Change the value of SHMMAX to 4294967295 by including the following line in `/etc/sysctl.conf`:

```
kernel.shmmax = 4294967295
```

Activate the new SHMMAX setting by running the command:

```
/sbin/sysctl -p
```

2). Checking the Open File Limit and Maximum Stack Size.

```
ulimit -a
```

To change the open file limits, login as root and edit the `/etc/security/limits.conf` file. Look for the following lines:

```
* soft nfile 4096
* hard nfile 65536
* soft nproc 2047
* hard nproc 16384
```

To change the maximum stack size, login as root and edit the `/etc/security/limits.conf` file. Add the following line:

```
oracle soft stack 10240
```

then reboot the machine.

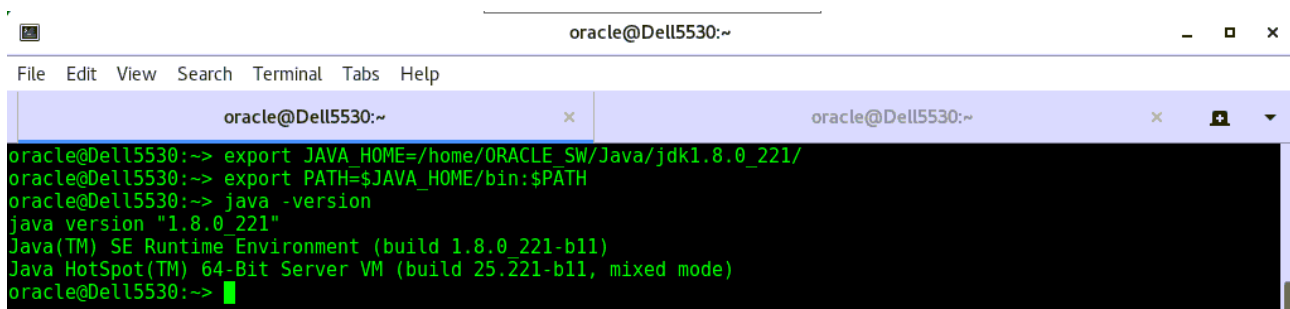
2. Installing Java

2-1. Log in to the target system (SUSE Linux Enterprise Server 12 SP5 64-bit OS) as a non-admin user. Download Java SE Development Kit 8 (jdk-8u221-linux-x64.tar.gz) from <https://www.oracle.com/technetwork/java/javase/downloads/index.html>.

(Note: The classes in com.oracle.weblogic.management.tools.migration.jar are built with JDK8 and must be run with JDK8. For 14c(14.1.1.0.0), the certified JDK was jdk1.8.0_191 and later.)

2-2. Set environment variables JAVA_HOME and PATH to ensure the proper JDK version is installed and ready for use.

Figure 2-1 Java information



```
oracle@Dell5530:~  
File Edit View Search Terminal Tabs Help  
oracle@Dell5530:~ x oracle@Dell5530:~ x  
oracle@Dell5530:~> export JAVA_HOME=/home/ORACLE_SW/Java/jdk1.8.0_221/  
oracle@Dell5530:~> export PATH=$JAVA_HOME/bin:$PATH  
oracle@Dell5530:~> java -version  
java version "1.8.0_221"  
Java(TM) SE Runtime Environment (build 1.8.0_221-b11)  
Java HotSpot(TM) 64-Bit Server VM (build 25.221-b11, mixed mode)  
oracle@Dell5530:~> █
```

Oracle WebLogic Server 14c Installation

1. Installing Oracle WebLogic Server software

1-1. Log in to the target system (SUSE Linux Enterprise Server 12 SP5 64-bit OS) as a non-admin user. Download the Oracle WebLogic Server 14c (14.1.1.0.0) from <https://www.oracle.com/middleware/technologies/fusionmiddleware-downloads.html>.

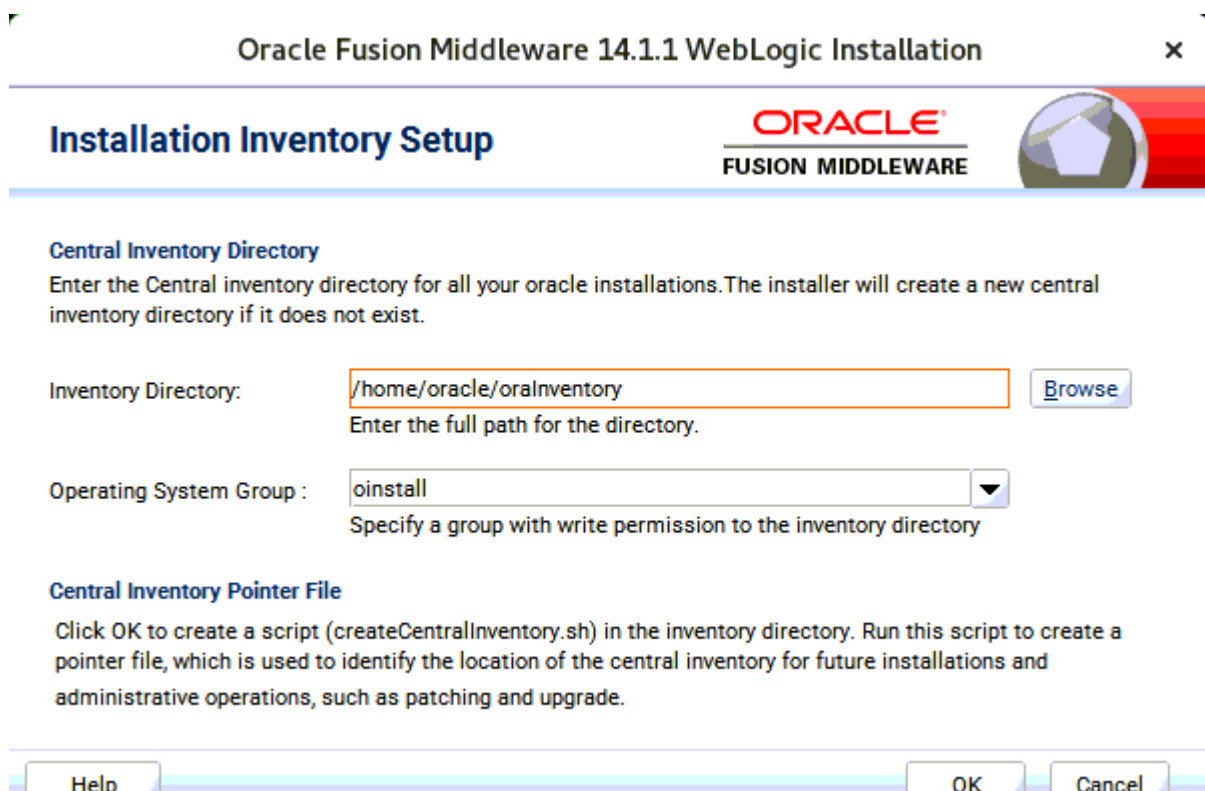
(**Note:** Please ensure the installation user has the proper permissions to install and configure the software.)

1-2. Go to the directory where you downloaded the installation program. Extract the contents of this .zip (fmw_14.1.1.0.0_wls_Disk1_1of1.zip) file and launch the installation program by running **'java -jar fmw_14.1.1.0.0_wls.jar'**

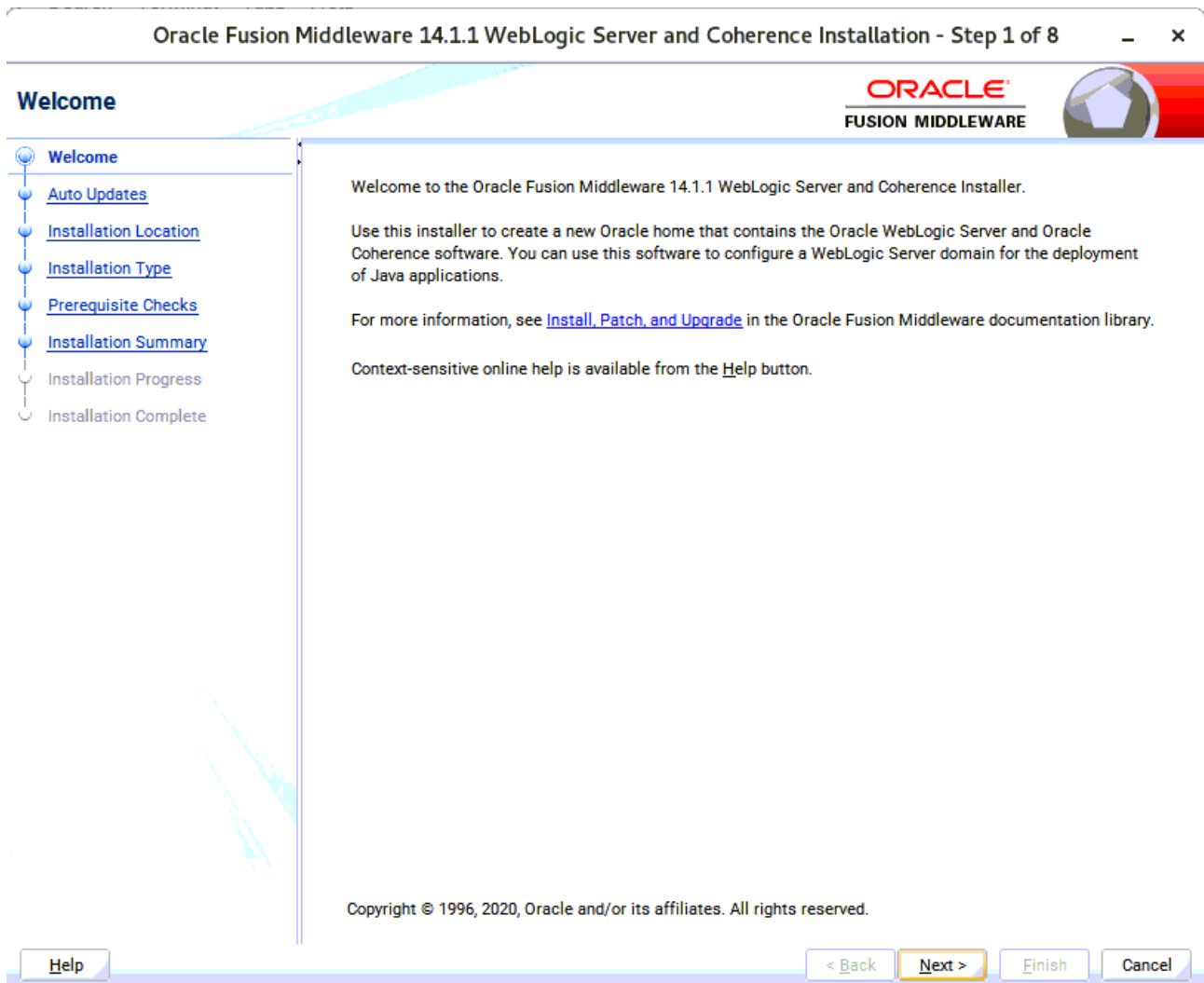
Install Flow:

1). Installation Inventory Setup.

If this is your first Oracle installation on a host that is running SLES, please use this screen to specify the location of the Oracle central inventory directory and Operating System Group Name, then click **OK** to continue.

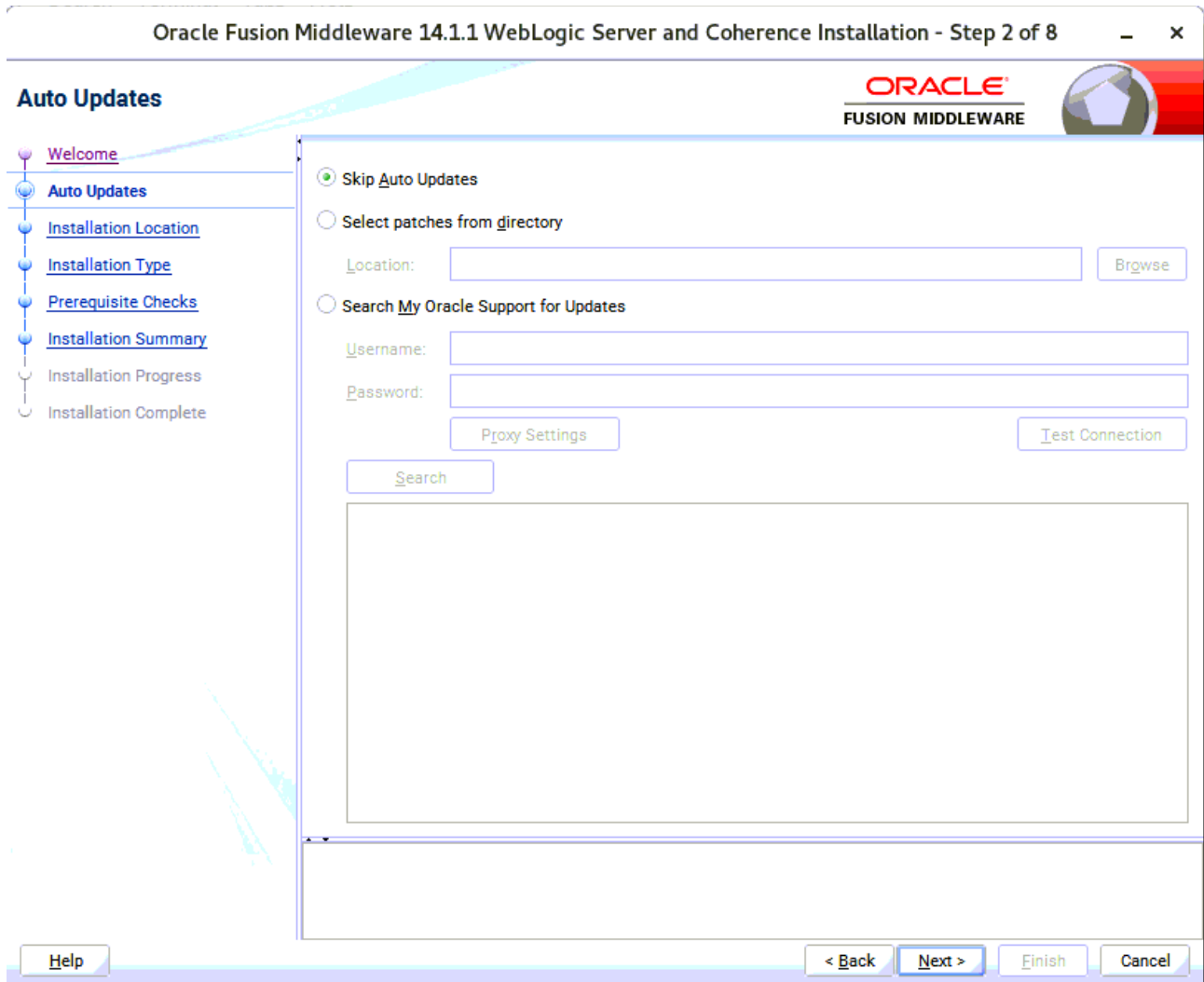


2). Welcome.



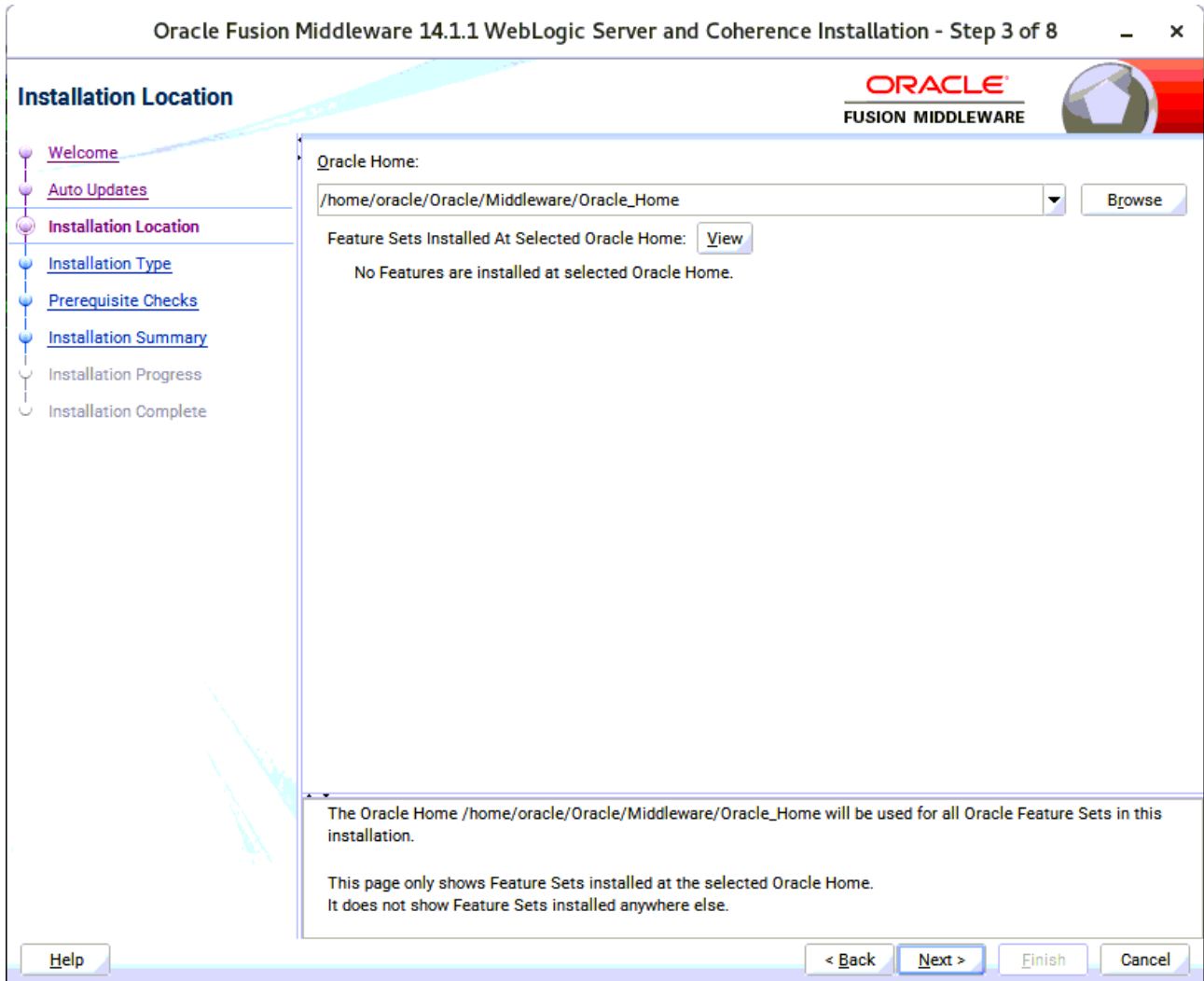
Review the information on this screen carefully to be sure you have performed all the necessary prerequisites, then click **Next** to continue.

3). Auto Updates.



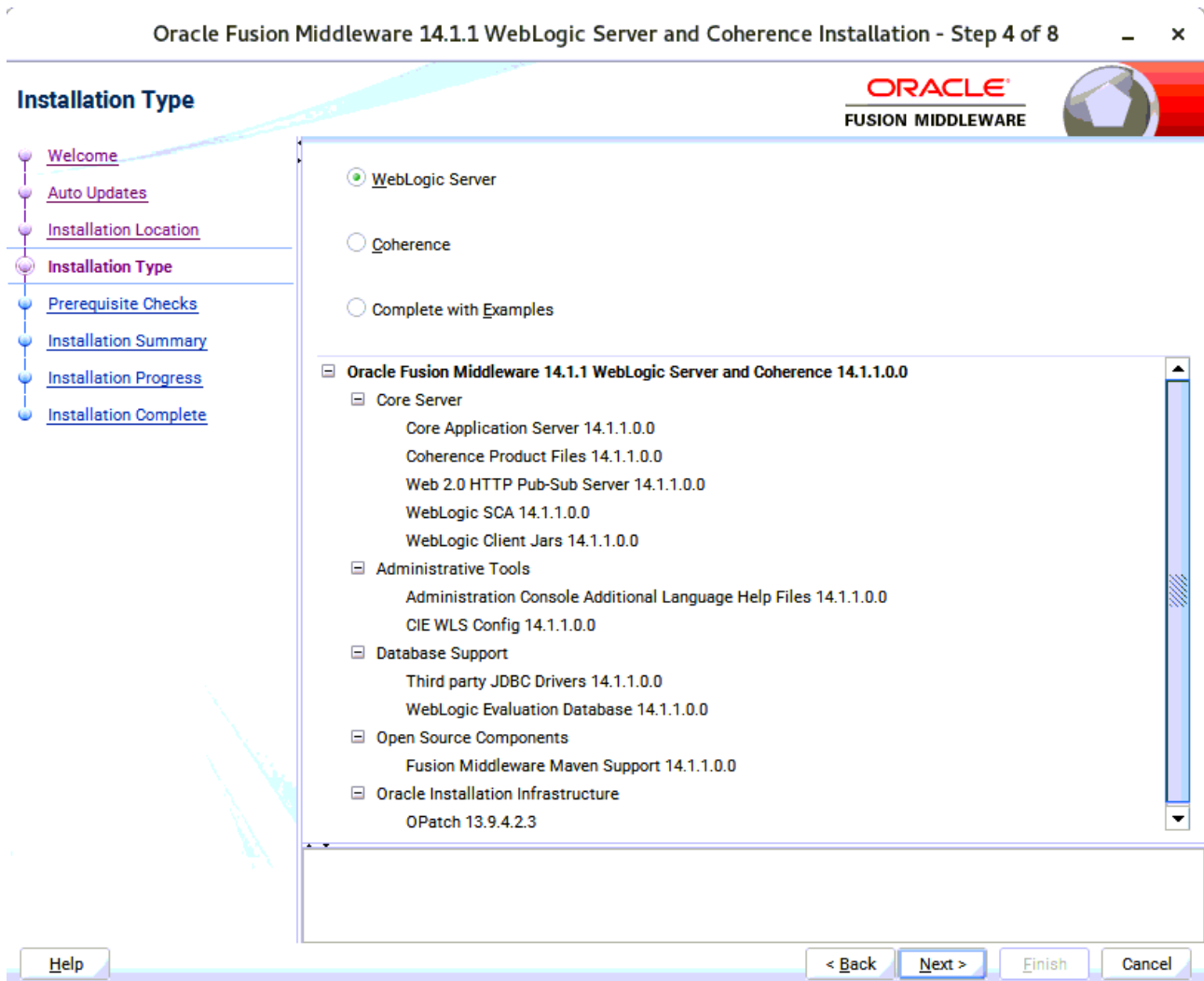
Select option "Skip Auto Updates" to skip this screen, then click **Next** to continue.

4). Installation Location.



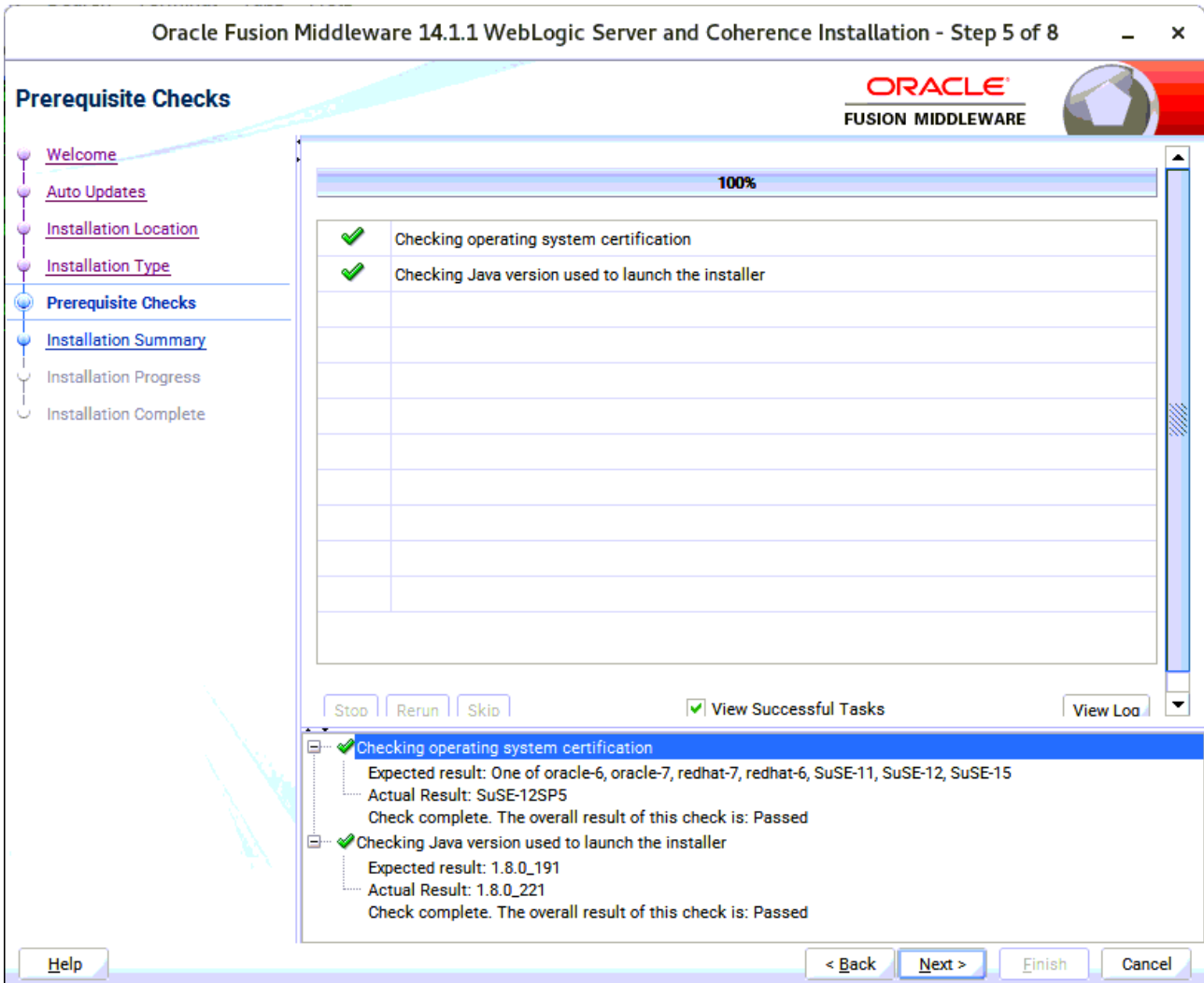
Type the full path of the directory in the Oracle Home field, then click **Next** to continue.

5). Installation Type.



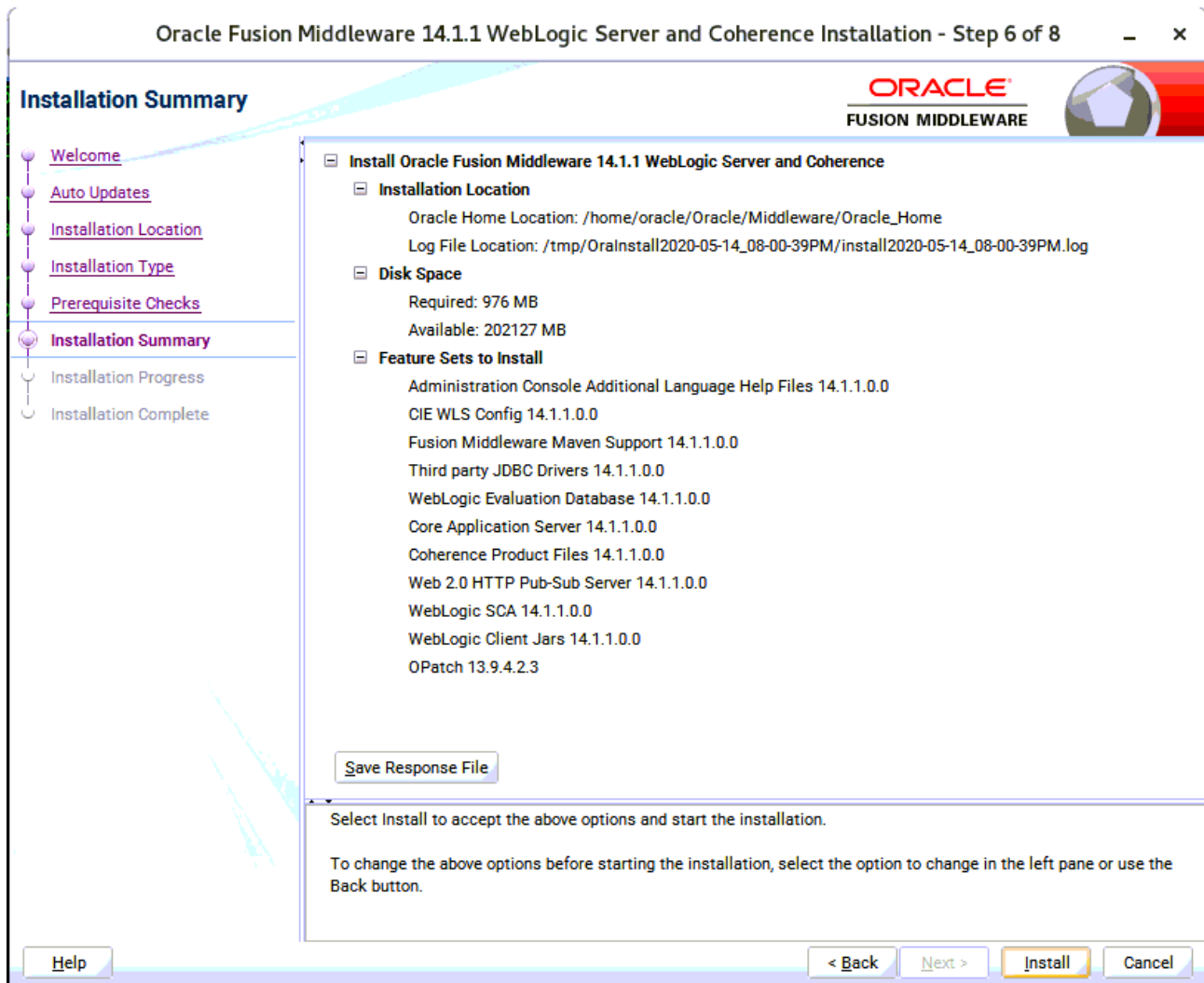
Use this screen to determine the type of installation you want to perform, then click **Next** to continue.

6). Prerequisite Checks.



Prerequisite Checks results will be shown as above, Oracle Fusion Middleware 14c is certified on SLES 12 SP5, click **Next** to continue.

7). Installation Summary.



This screen contains a list of the feature sets you selected for installation, along with the approximate amount of disk space to be used by the feature sets once installation is complete. Check the information, then click **Install** to continue.

8). Installation Progress.

Oracle Fusion Middleware 14.1.1 WebLogic Server and Coherence Installation - Step 7 of 8

Installation Progress

ORACLE
FUSION MIDDLEWARE

100%

✓	Prepare
✓	Copy
✓	Generating Libraries
✓	Performing String Substitutions
✓	Linking
✓	Setup
✓	Saving the inventory
✓	Post install scripts

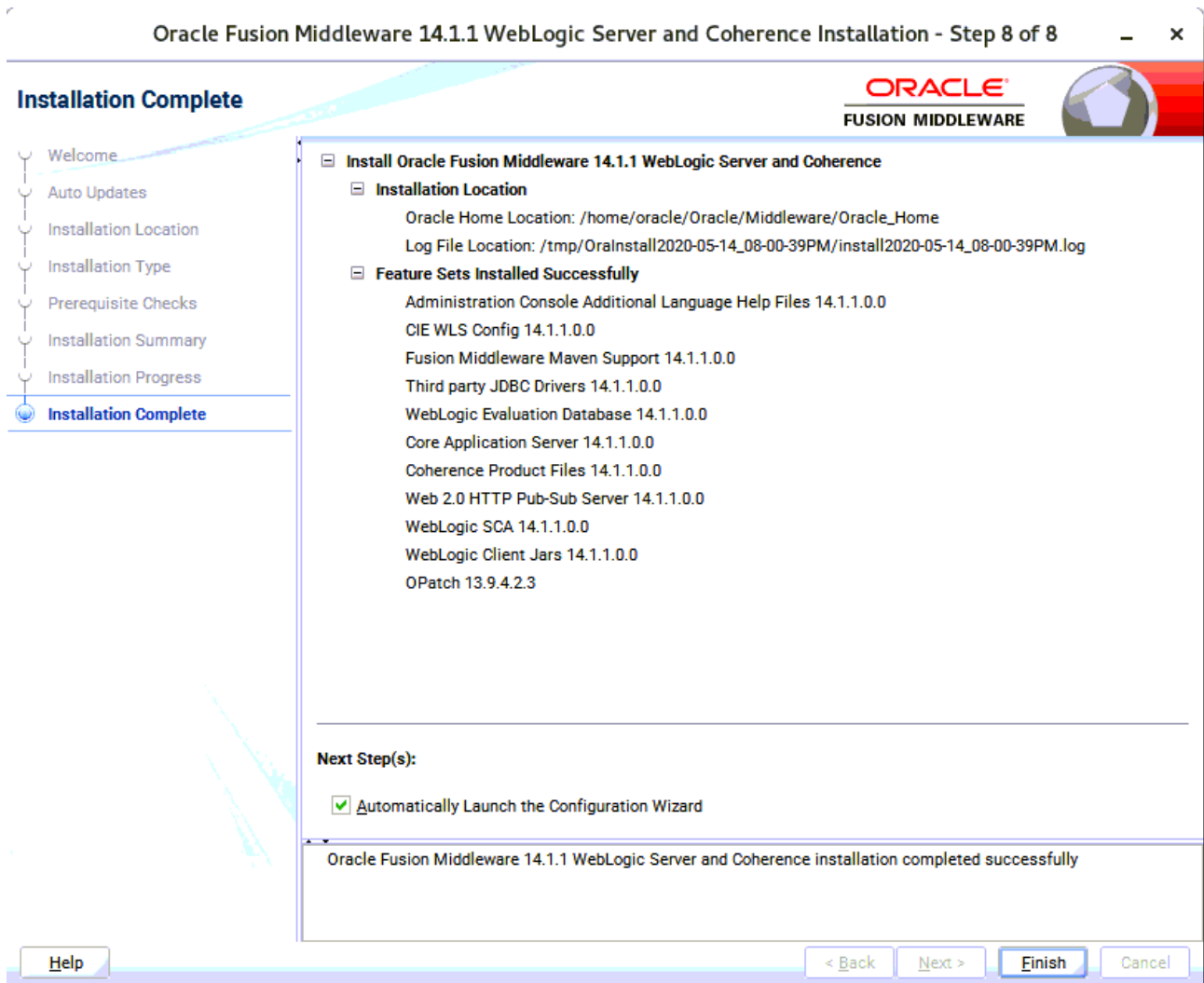
View Messages View Successful Tasks View Log

Hardware and Software
Engineered to Work Together

Help < Back Next > Finish Cancel

This screen shows the progress of the installation. When the progress bar reaches 100%, the installation is complete. Click **Finish** to continue.

9). Installation Complete.



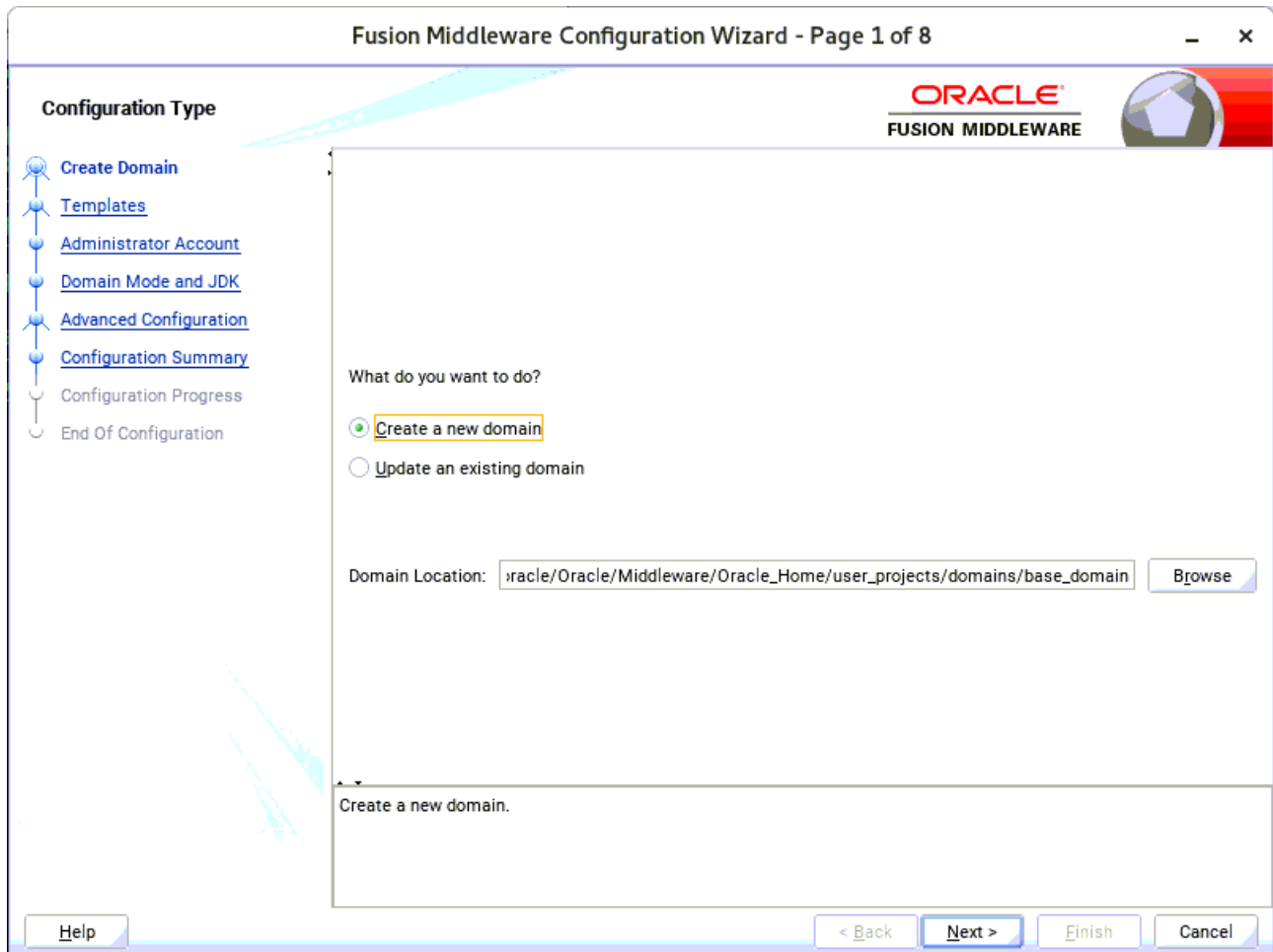
This screen appears at the conclusion of the installation. Select option "**Automatically Launch the Configuration Wizard**", then click **Finish** to dismiss the installer.

2. Creating and Configuring the WebLogic Domain

2-1. To begin domain configuration, you can automatically launch the Configuration Wizard through the option "**Automatically Launch the Configuration Wizard**" on the last Installation complete screen. You can also navigate to the '**ORACLE_HOME/oracle_common/common/bin**' directory and start the WebLogic Server Configuration Wizard by running: '**./config.sh**'.

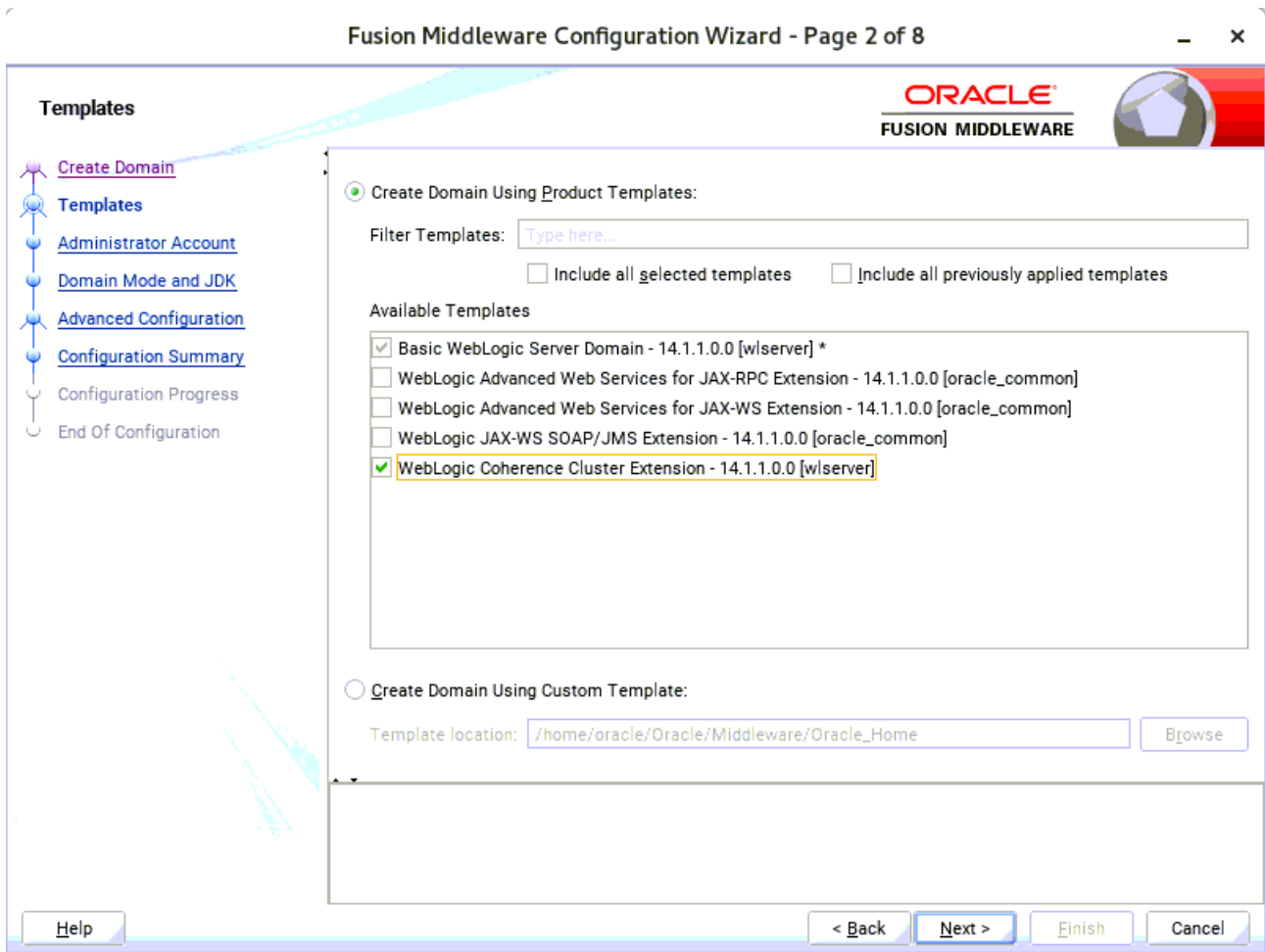
Starting configuration:

1). Configuration Type.



Select option "**Create a New Domain**" and specify the Domain home directory in the "**Domain Location**" field, then click **Next** to continue.

2). Templates.



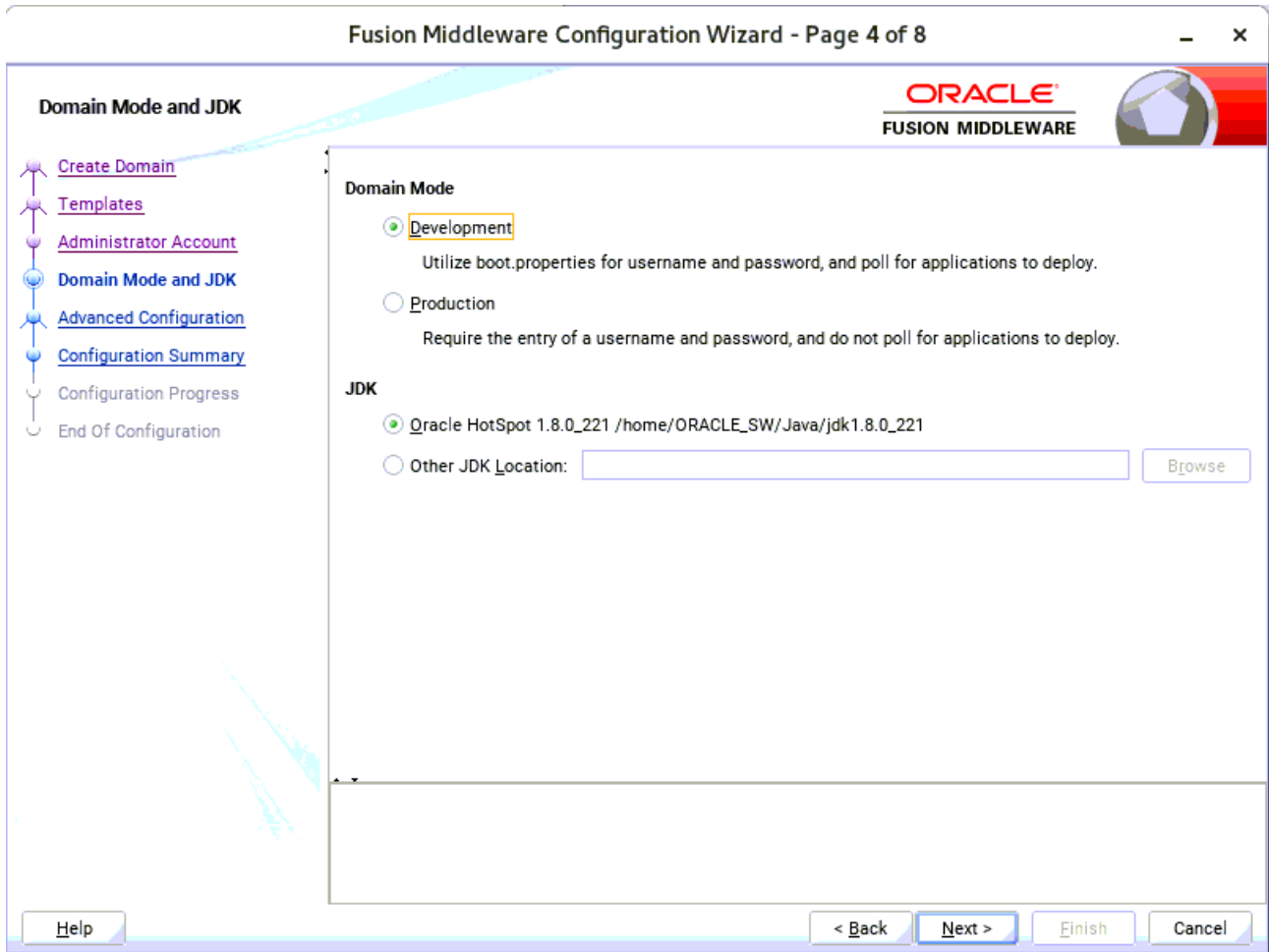
On the Templates screen select "**Basic WebLogic Server Domain (selected by default)**" and "**WebLogic Coherence Cluster Extension**" for configuration, then click **Next** to continue.

3). Administrator Account.

The screenshot shows the 'Administrator Account' configuration step in the Fusion Middleware Configuration Wizard. The window title is 'Fusion Middleware Configuration Wizard - Page 3 of 8'. The Oracle logo and 'FUSION MIDDLEWARE' text are visible in the top right corner. A navigation pane on the left lists the following steps: 'Create Domain', 'Templates', 'Administrator Account' (highlighted), 'Domain Mode and JDK', 'Advanced Configuration', 'Configuration Summary', 'Configuration Progress', and 'End Of Configuration'. The main area contains three input fields: 'Name' with the value 'weblogic', 'Password' with masked characters '.....', and 'Confirm Password' with masked characters '.....'. Below the fields is a validation message: 'Must be the same as the password. Password must contain at least 8 alphanumeric characters with at least one number or special character.' At the bottom, there are buttons for 'Help', '< Back', 'Next >', 'Finish', and 'Cancel'.

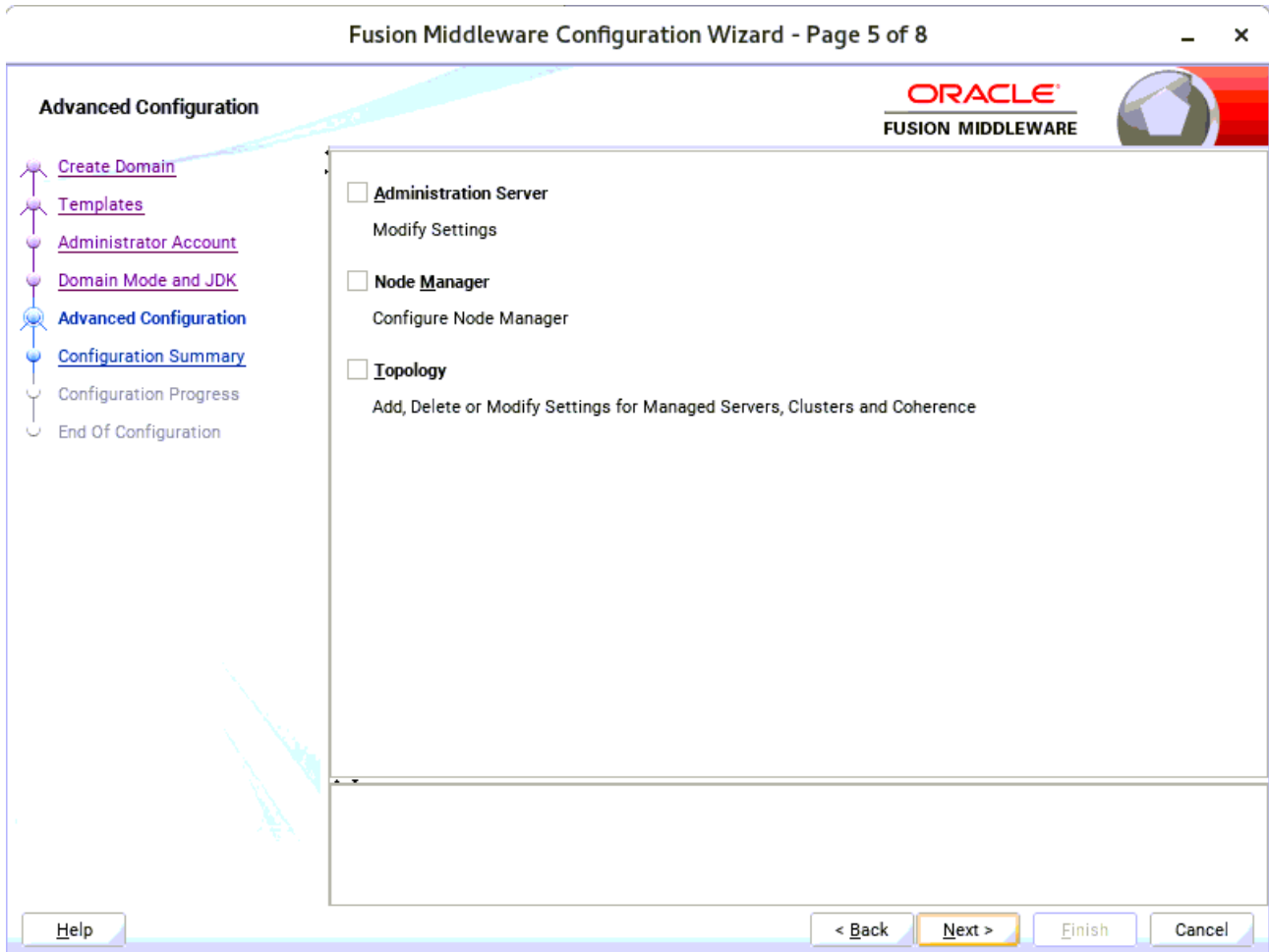
Specify the user name and password for the default WebLogic Administrator account for the domain, then click **Next** to continue.

4). Domain Mode and JDK.



Select "**Development**" in the Domain Mode field, select the "**Oracle HotSpot**" in the JDK field. Then click **Next** to continue.

5). Advanced Configuration.



According to your requirements, select the desired options on the Advanced Configuration screen. Then click **Next** to continue.

6). Configuration Summary.

Fusion Middleware Configuration Wizard - Page 6 of 8

Configuration Summary

- [Create Domain](#)
- [Templates](#)
- [Administrator Account](#)
- [Domain Mode and JDK](#)
- [Advanced Configuration](#)
- [Configuration Summary](#)
- [Configuration Progress](#)
- [End Of Configuration](#)

View: Deployment

- base_domain (/home/oracle/Oracle/Middleware/Oracle)
 - AdminServer
 - AdminServer

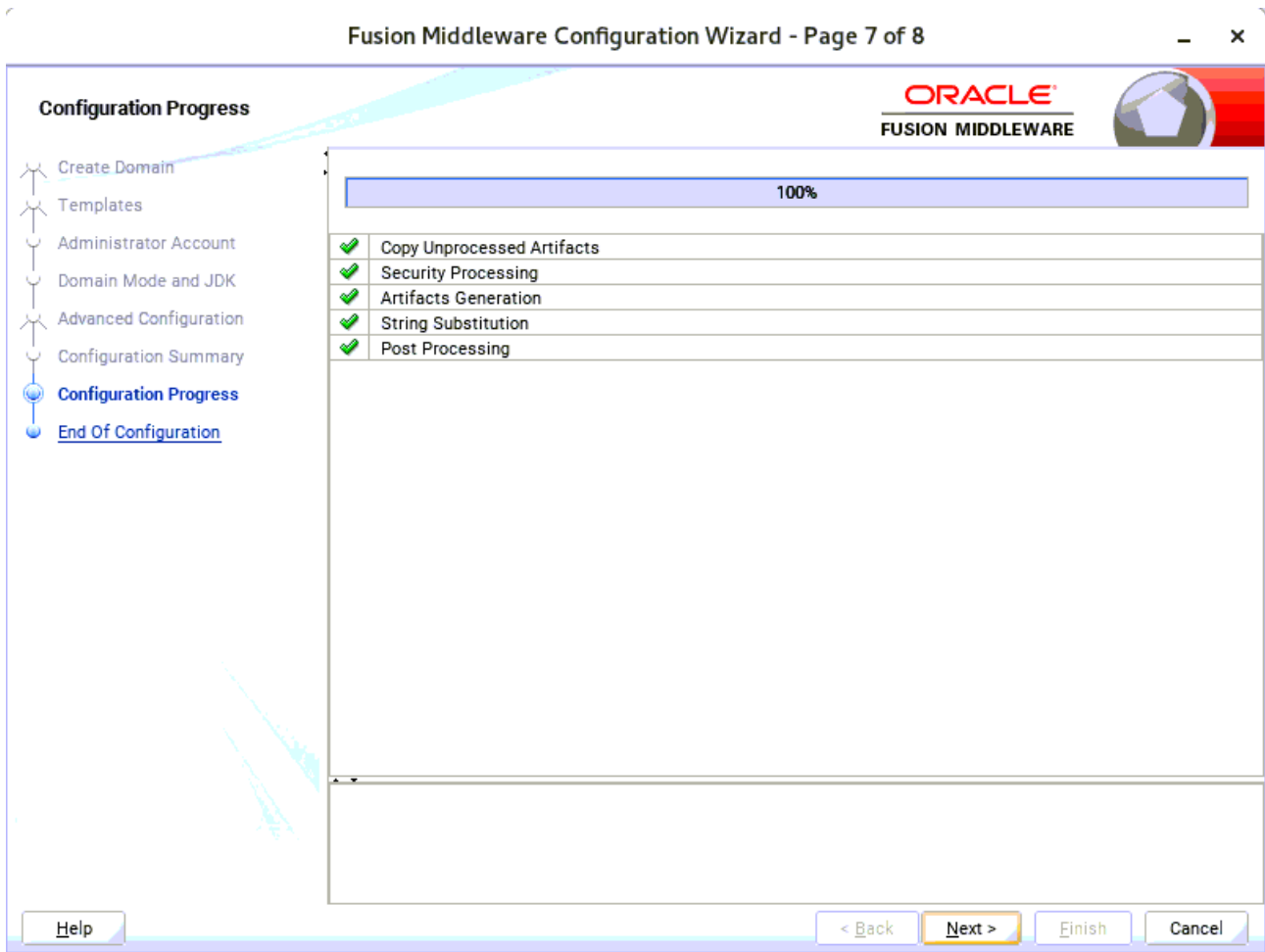
Name	Basic WebLogic Server Domain
Description	Create a basic WebLogic Server domain
Author	Oracle Corporation
Location	/home/oracle/Oracle/Middleware/Oracle
Name	WebLogic Coherence Cluster Extension
Description	Extend an existing WebLogic Server domain
Author	Oracle Corporation
Location	/home/oracle/Oracle/Middleware/Oracle

Select **Create** to accept the above options and start creating and configuring a new domain. To change the above configuration before starting Domain Creation, go back to the relevant page by selecting its name in the left pane, or by using the **Back** button.

Help
< Back
Next >
Create
Cancel

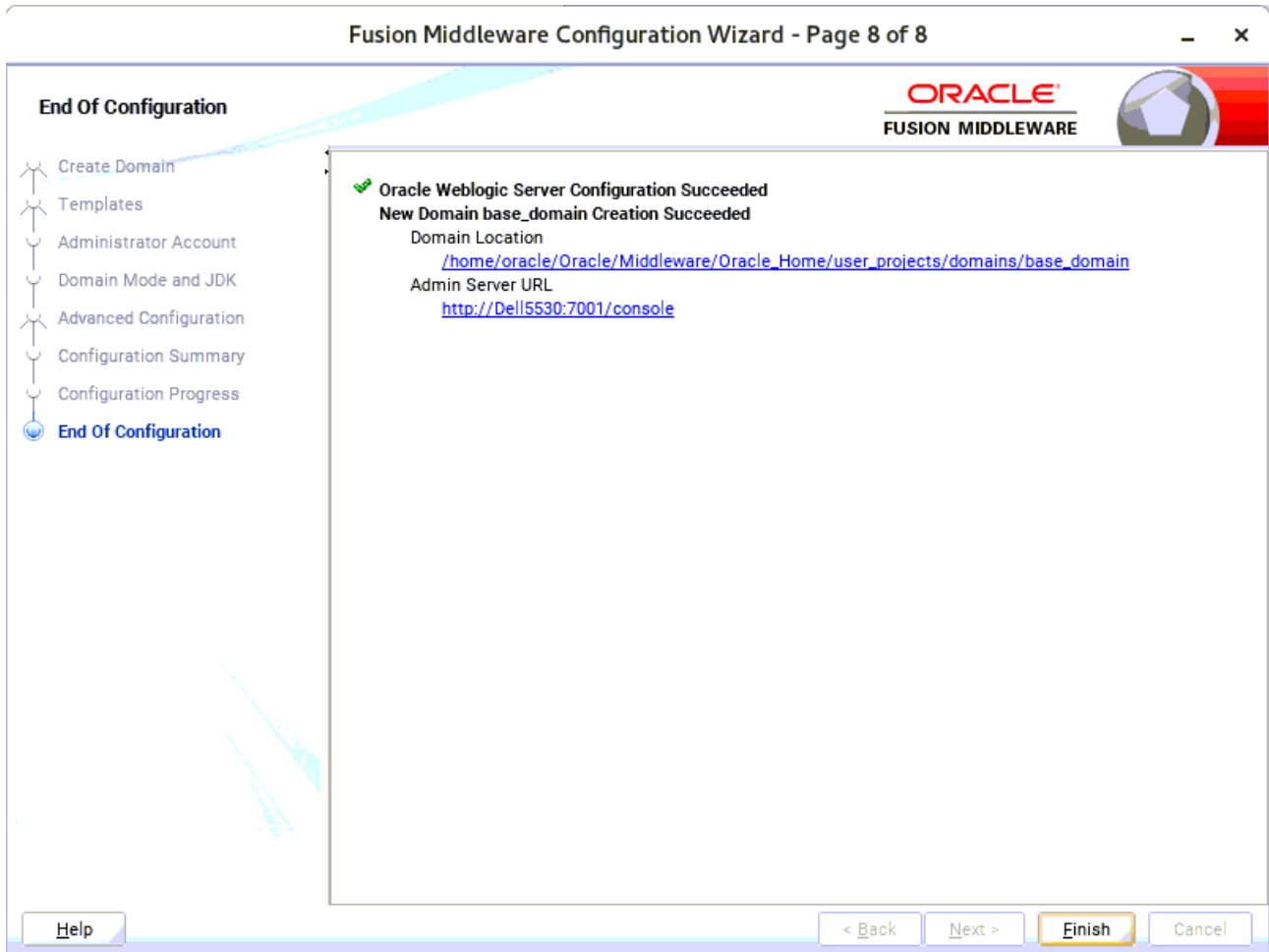
Review this screen to verify the information is correct, then click **Create** to continue.

7). Configuration Progress.



The Configuration Progress screen as shown above, once you see: "Domain Created successfully", click **Next** to continue.

8). End Of Configuration.



Once you see: "Oracle Weblogic Server Configuration Succeeded", record the "**Domain Location**" and "**Admin Server URL**", then click **Finish** to dismiss the Configuration Wizard.

3. Starting the Administration Server and verifying the Configuration

3-1. To start the Administration Server through a terminal, go to the DOMAIN_HOME/bin directory and run the command `./startWebLogic.sh`.

Figure 3-1-1 Starting the Administration Server through a terminal

```

oracle@Dell5530:/home/oracle/Oracle/Middleware/Oracle_Home/user_projects/domains/base_domain/bin
File Edit View Search Terminal Tabs Help
oracle@Dell5530:/home/ORACLE_SW/WebLogic/14.1.1.0 x oracle@Dell5530:/home/oracle/Oracle/Middleware/Oracl... x
timer has started to check for logged message counts every 30 seconds.>
<May 14, 2020 8:10:11,376 PM GMT+08:00> <Notice> <Log Management> <BEA-170027> <The server has successfully established a connection with the Domain level Diagnostic Service.>
<May 14, 2020 8:10:14,554 PM GMT+08:00> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to ADMIN.>
<May 14, 2020 8:10:14,602 PM GMT+08:00> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RESUMING.>
<May 14, 2020 8:10:14,635 PM GMT+08:00> <Warning> <Server> <BEA-002611> <The hostname "localhost", maps to multiple IP addresses: 127.0.0.1, 0:0:0:0:0:0:1.>
<May 14, 2020 8:10:14,636 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default[4]" is now listening on 127.0.0.1:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:14,840 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default[2]" is now listening on 2408:8207:c54:6ed0:915d:c254:2c83:2c67%eth0:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,040 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default[1]" is now listening on 2408:8207:c54:6ed0:e6b9:7aff:fe86:7164%eth0:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,041 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default[3]" is now listening on 0:0:0:0:0:0:1%lo:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,041 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 192.168.1.7:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,041 PM GMT+08:00> <Notice> <WebLogicServer> <BEA-000331> <Started the WebLogic Server Administration Server "AdminServer" for domain "base domain" running in development mode.>
<May 14, 2020 8:10:15,041 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default[4]" is now listening on 127.0.0.1:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,041 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default[2]" is now listening on 2408:8207:c54:6ed0:915d:c254:2c83:2c67%eth0:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,041 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default[1]" is now listening on 2408:8207:c54:6ed0:e6b9:7aff:fe86:7164%eth0:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,042 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default[3]" is now listening on 0:0:0:0:0:0:1%lo:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,042 PM GMT+08:00> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 192.168.1.7:7001 for protocols iiop, t3, ldap, snmp, http.>
<May 14, 2020 8:10:15,043 PM GMT+08:00> <Notice> <WebLogicServer> <BEA-000360> <The server started in RUNNING mode.>
<May 14, 2020 8:10:15,051 PM GMT+08:00> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RUNNING.>

```

Figure 3-1-2 Checking the listening port(7001)

```

Dell5530:/opt/oracle # netstat -tupln | grep 7001
tcp        0      0 192.168.1.7:7001      :::*           LISTEN     28348/java
tcp        0      0 :::1:7001             :::*           LISTEN     28348/java
tcp        0      0 2408:8207:c54:6ed0:7001 :::*           LISTEN     28348/java
tcp        0      0 2408:8207:c54:6ed0:7001 :::*           LISTEN     28348/java
tcp        0      0 127.0.0.1:7001       :::*           LISTEN     28348/java
Dell5530:/opt/oracle #

```

3-2. Access to Oracle WebLogic Server Administration Console.

Figure 3-2-1 Access to WebLogic Server Admin Console - Login page

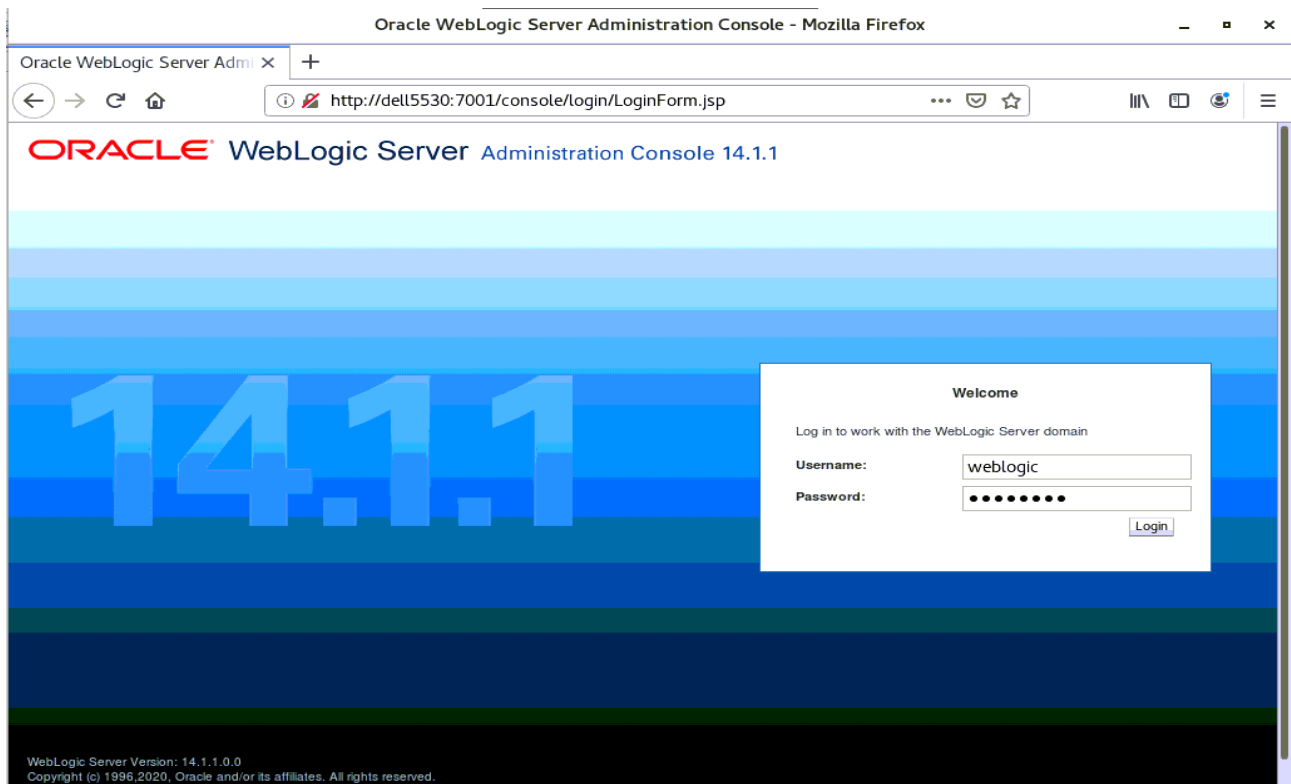


Figure 3-2-2 Viewing WebLogic Server Admin Console - Home page

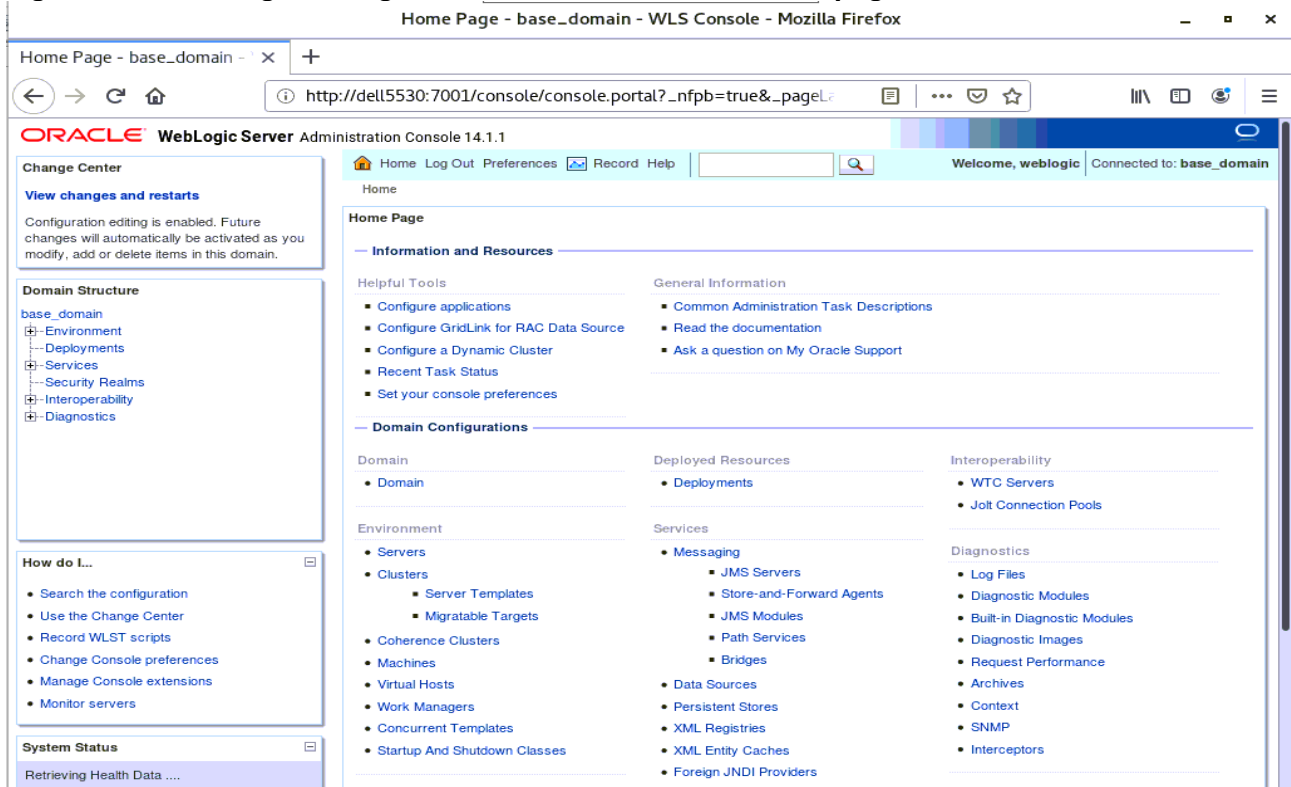


Figure 3-2-3 Viewing WebLogic Server Admin Console - Summary of Servers

The screenshot shows the Oracle WebLogic Server Administration Console interface. The main content area is titled "Summary of Servers" and includes a "Configuration" tab. Below the tab, there is a table listing the servers in the domain. The table has columns for Name, Type, Cluster, Machine, State, Health, and Listen Port. One server is listed: AdminServer(admin), which is Configured, in a RUNNING state, with a Health of OK and a Listen Port of 7001.

Name	Type	Cluster	Machine	State	Health	Listen Port
AdminServer(admin)	Configured			RUNNING	OK	7001

Additional Comments

This document shows how to create a standard installation topology for Oracle WebLogic Server. You can extend this topology to make it highly available and secure so it is suitable for a production system.

Thank you !
SUSE ISV Engineering Team
May 15th, 2020
<https://www.suse.com>