

Oracle Fusion Middleware – WebLogic Server 14c (14.1.2.0.0) on SUSE Linux Enterprise Server 15 (SP7) for x86-64

SUSE ISV Engineering Team

Wu Chen

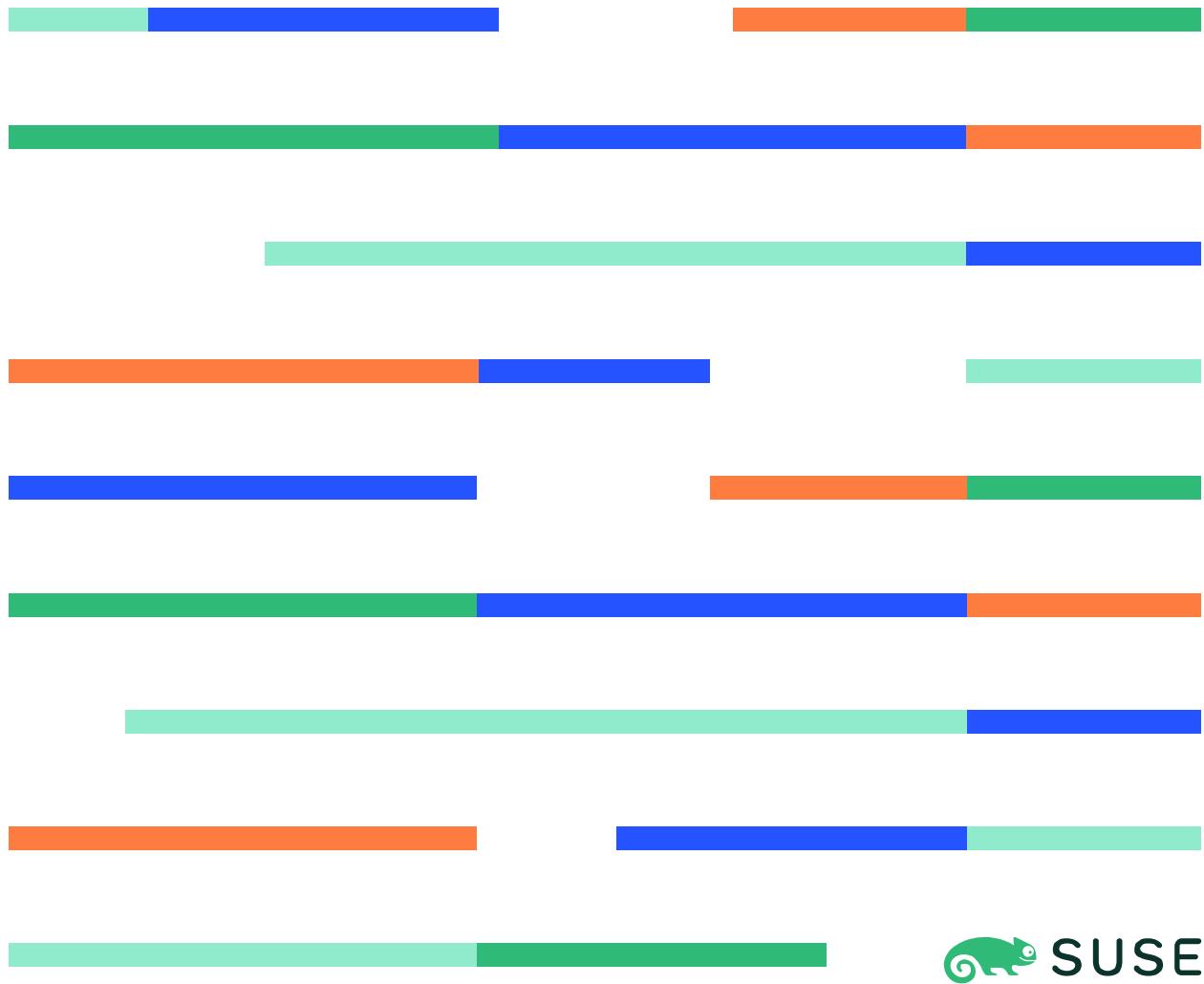


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Introduction

This document provides details on installing Oracle WebLogic Server 14c on SUSE Linux Enterprise Server 15 SP7. Details are provided for Intel(x86-64) versions of both Oracle WebLogic Server 14c and SUSE Linux Enterprise Server 15 SP7. 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 15 SP7 GM (x86-64)
(<https://www.suse.com/download/sles/>)

Oracle

- WebLogic Server 14c (14.1.2.0.0) (V1045131-01.zip)
(<https://www.oracle.com/downloads/#category-middleware>)
- Java SE Development Kit 17 (jdk-17.0.13_linux-x64_bin.tar.gz)
(<https://www.oracle.com/downloads/#category-java>)

Testing Machine Information

Dell PowerEdge R750

CPU: 2 * Intel Xeon Gold 5318Y 2.1G, 24C/48T

RAM: 128GB GB

NIC: 2 * Intel Ethernet Converged Network Adapter X710-DA2 (10GbE SFP+, Dual Port)

Local HDD: 2 * SSD (1TB, NVMe)

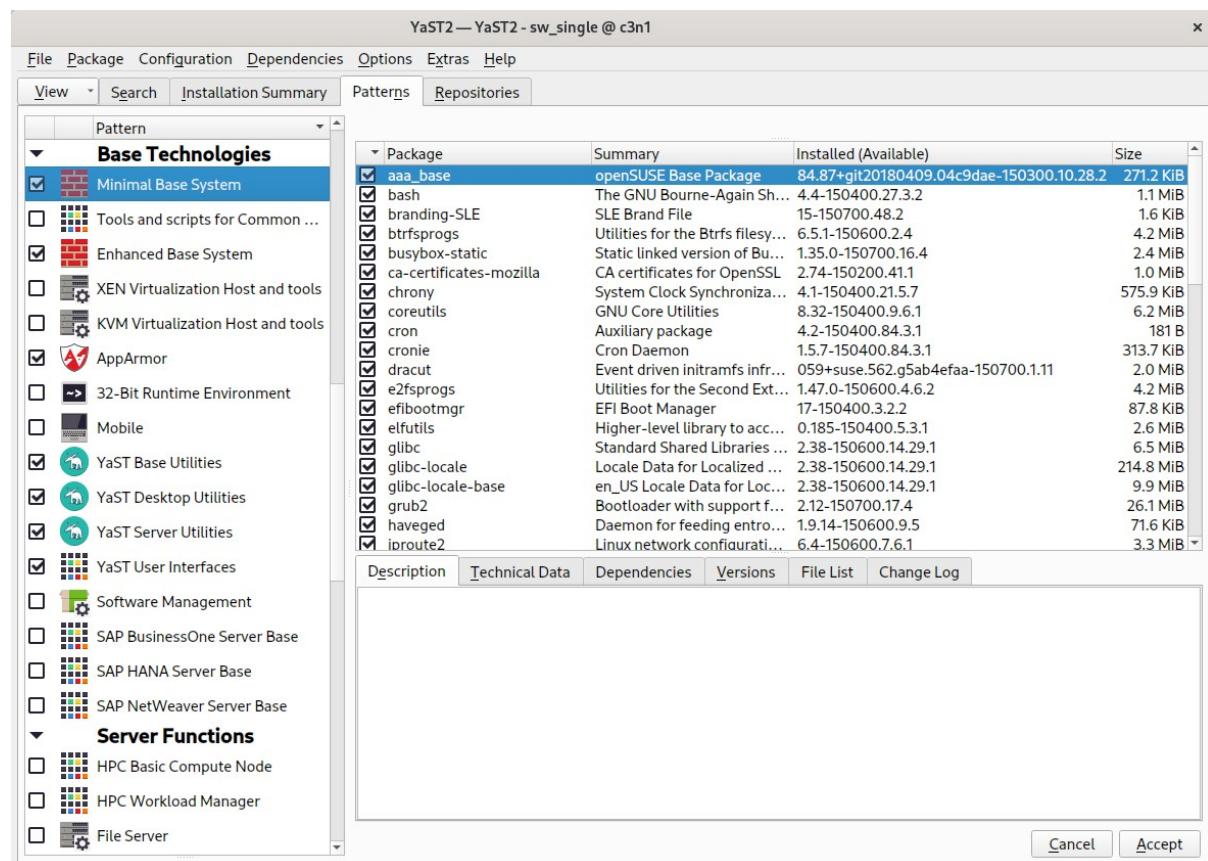
OS: SUSE Linux Enterprise Server 15 SP7 GM (x86-64) - Kernel version: 6.4.0-150700.51-default

Prerequisites

1. Installing SUSE Linux Enterprise Server 15 SP7

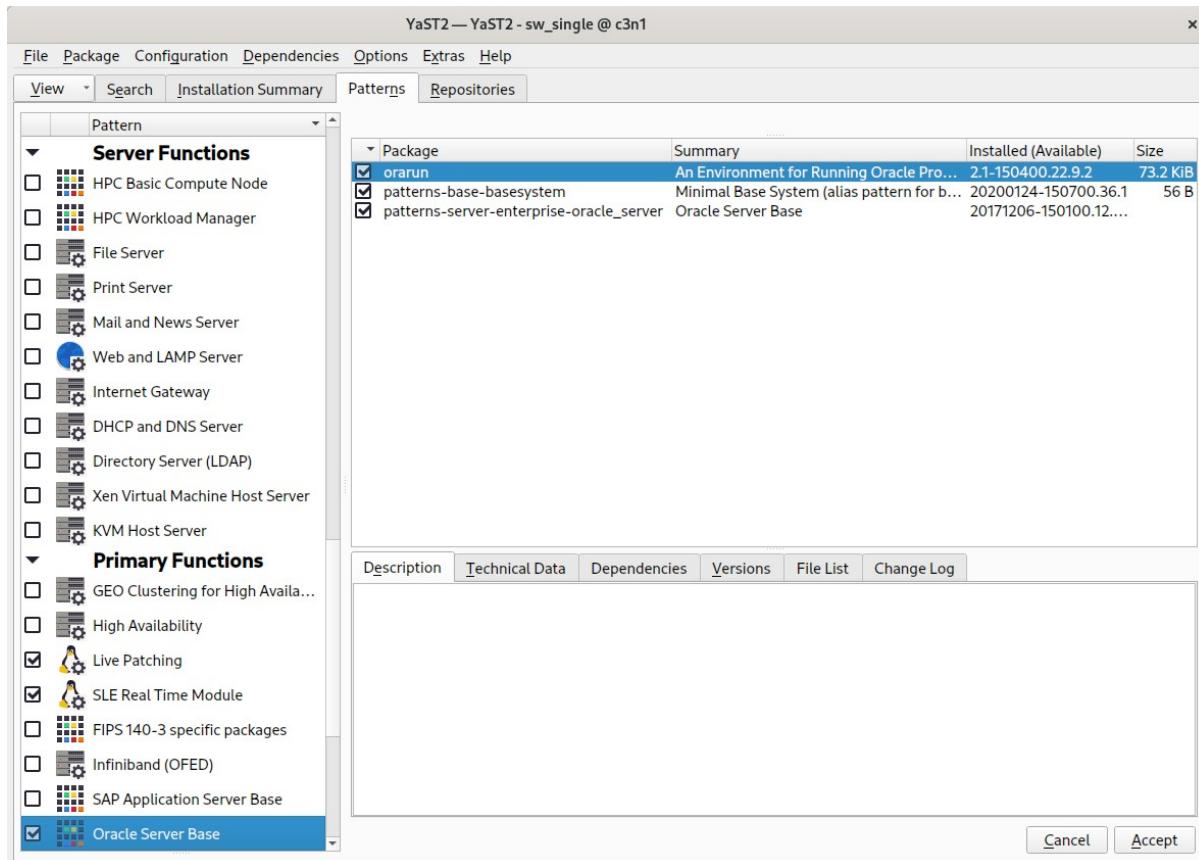
1-1. Install SUSE Linux Enterprise Server 15 SP7 on your testing machine. To do so, follow the instructions in the official SUSE Linux Enterprise Server documentation at <https://www.suse.com/documentation/>.

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@c3n1:~> more /etc/os-release
NAME="SLES"
VERSION="15-SP7"
VERSION_ID="15.7"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP7"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp7"
DOCUMENTATION_URL="https://documentation.suse.com/"
oracle@c3n1:~> uname -a
Linux c3n1 6.4.0-150700.51-default #1 SMP PREEMPT_DYNAMIC Wed Apr 30 21:35:43 UTC 2025 (6930611/lp) x86_64 x86_64 x86_64 GNU/Linux
oracle@c3n1:~> [ ]
```

1-2. Special Startup Requirements.

1). To set the SHMMAX kernel parameter.

Change the value of SHMMAX to 16531791872 by including the following line in /etc/sysctl.conf:

```
kernel.shmmax = 16531791872
```

Change the value of shmall to 9272480 by including the following line in '/etc/sysctl.conf'

```
kernel.shmall = 9272480
```

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 nofile 4096
* hard nofile 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.

3). Remove '/etc/profile.d/oracle.sh' and '/etc/profile.d/alljava.sh' as root.

```
#mv /etc/profile.d/oracle.sh /etc/profile.d/oracle.sh.bak
#mv /etc/profile.d/alljava.sh /etc/profile.d/alljava.sh.bak
```

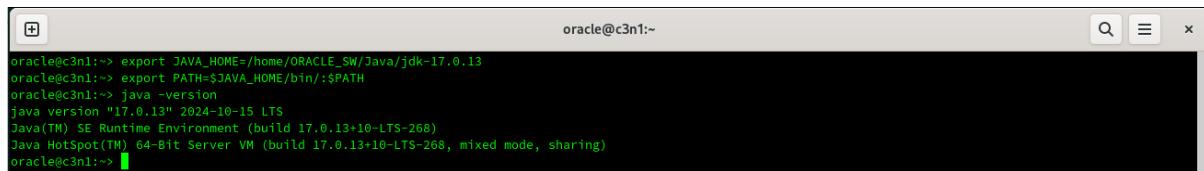
2. Installing Java

2-1. Log in to the target system (SUSE Linux Enterprise Server 15 SP7 64-bit OS) as a non-admin user. Download Java SE Development Kit 17 (jdk-17.0.13_linux-x64_bin.tar.gz) from <https://www.oracle.com/downloads/#category-java>.

(Note: For 14c (14.1.2.0.0), the certified JDK is 17.0.12 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@c3n1:~> export JAVA_HOME=/home/ORACLE_SW/Java/jdk-17.0.13
oracle@c3n1:~> export PATH=$JAVA_HOME/bin/:$PATH
oracle@c3n1:~> java -version
java version "17.0.13" 2024-10-15 LTS
Java(TM) SE Runtime Environment (build 17.0.13+10-LTS-268)
Java HotSpot(TM) 64-Bit Server VM (build 17.0.13+10-LTS-268, mixed mode, sharing)
oracle@c3n1:~> 
```

Oracle WebLogic Server 14c Installation

1. Installing Oracle WebLogic Server software

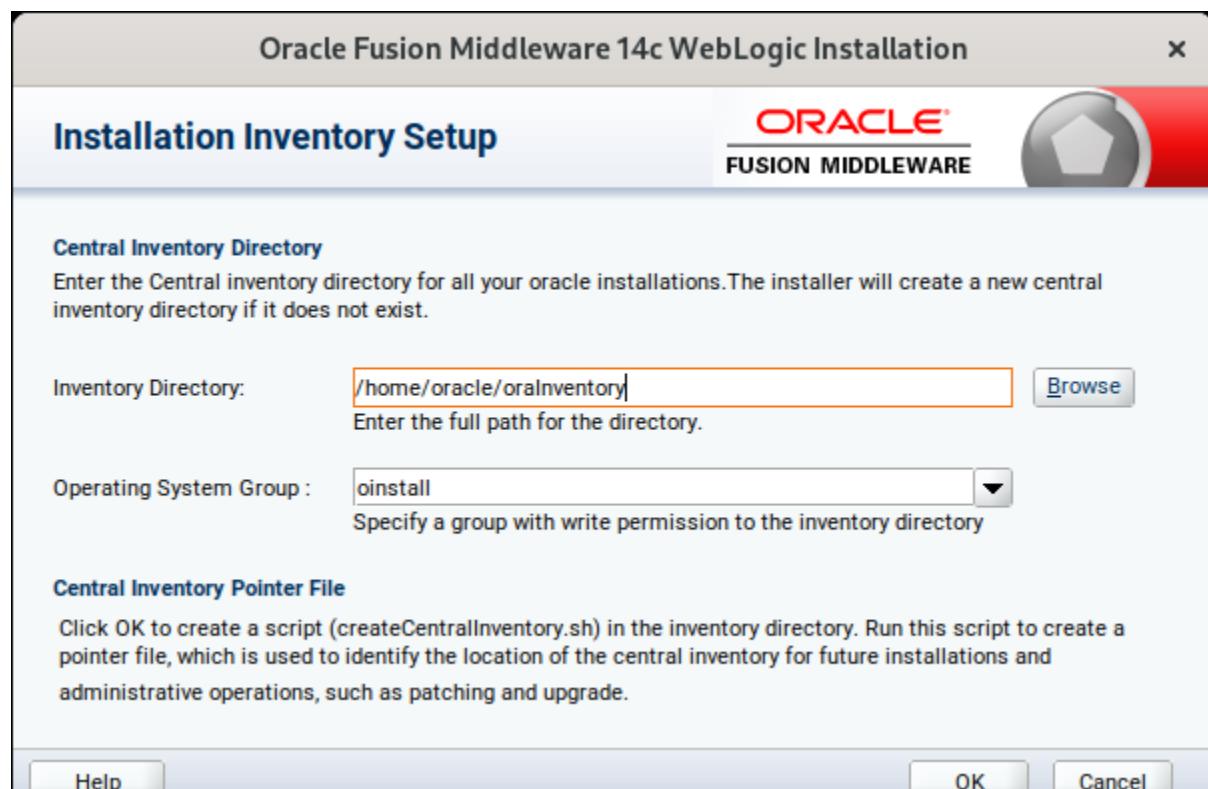
1-1. Log in to the target system (SUSE Linux Enterprise Server 15 SP7 64-bit OS) as a non-admin user. Download the Oracle WebLogic Server 14c (14.1.2.0.0) from <https://www.oracle.com/downloads/#category-middleware>.

(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 (V1045131-01.zip) file and launch the installation program by running '**java -jar fmw_14.1.2.0.0_wls.jar**'

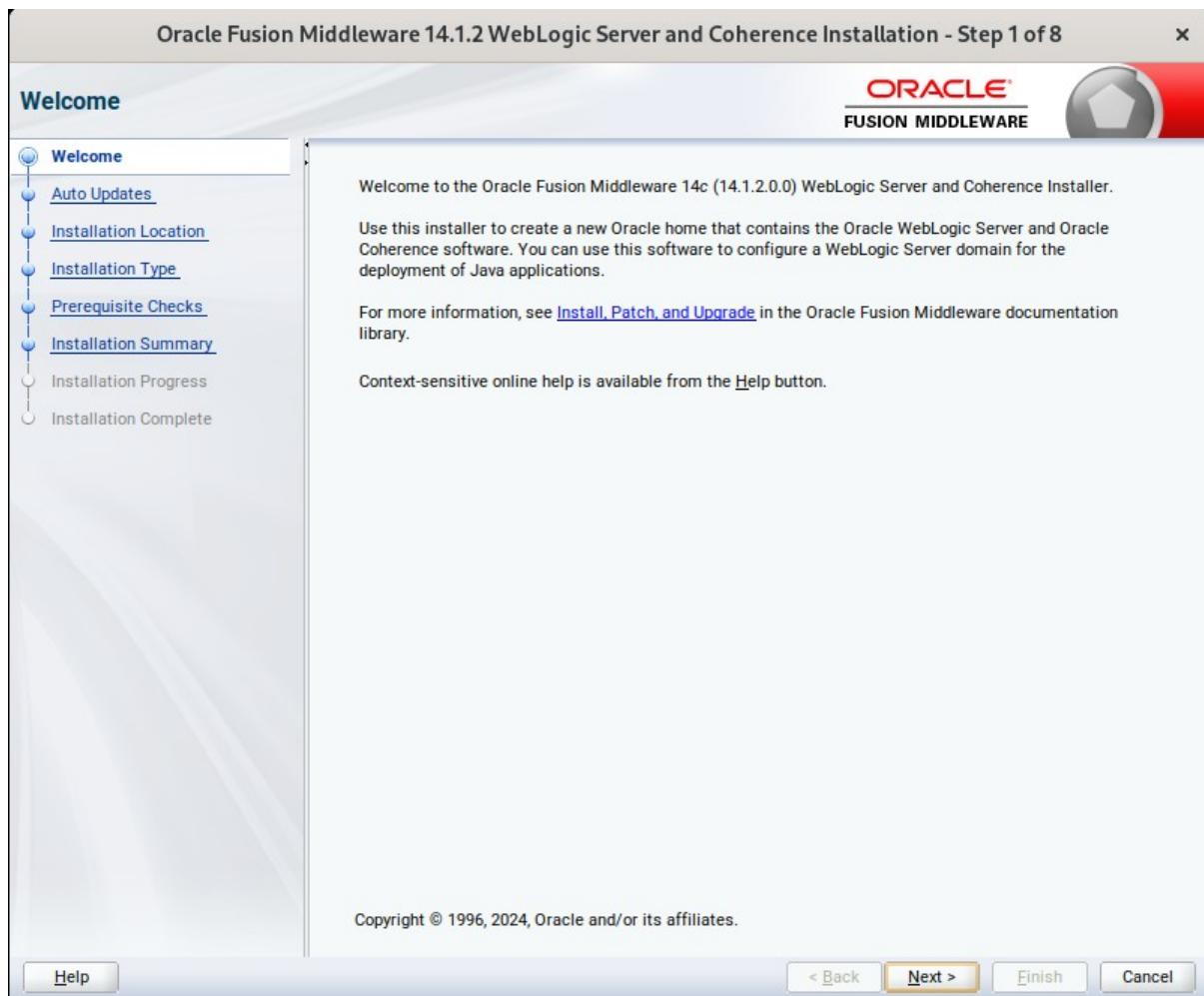
Install Flow:

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.

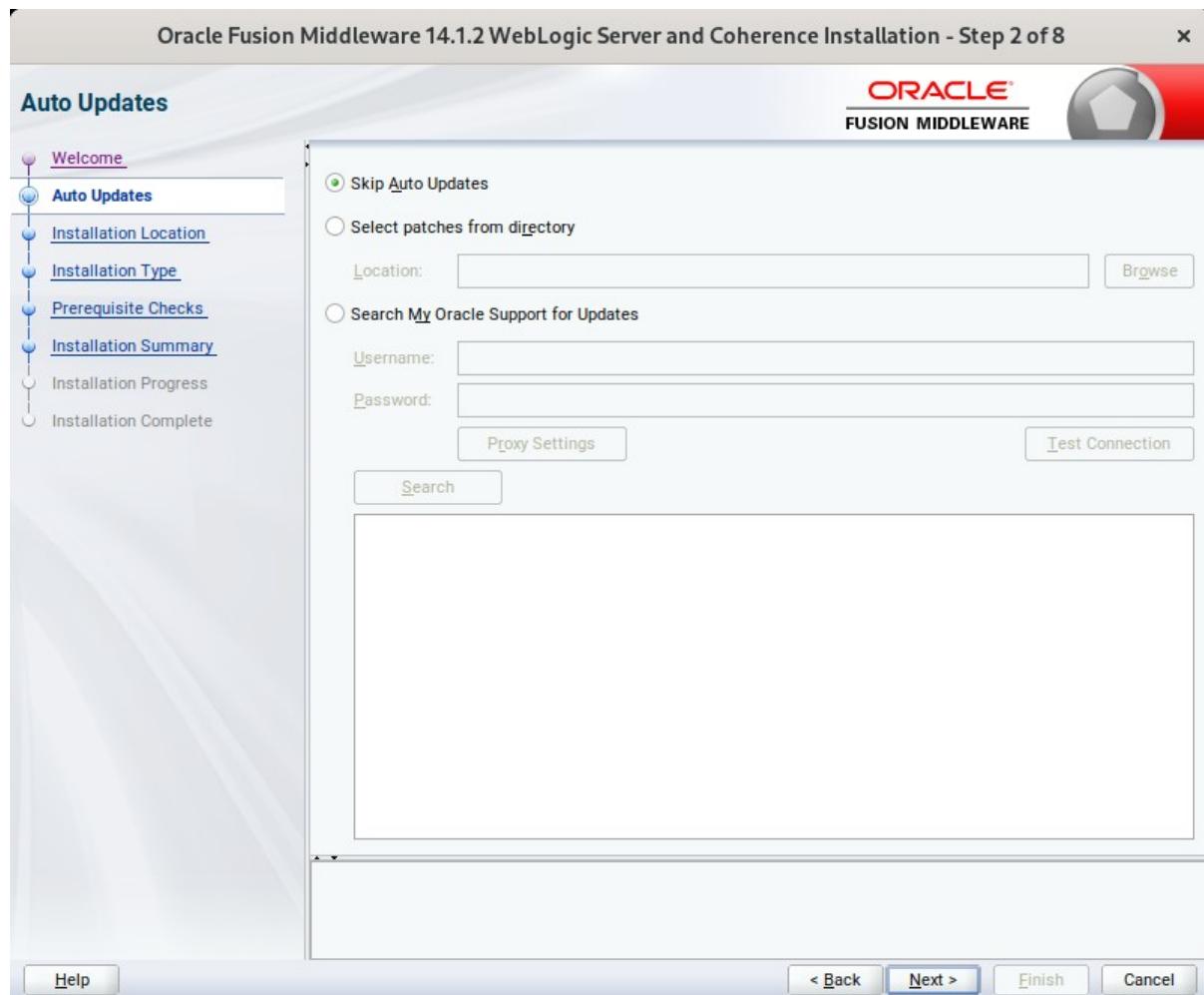
2). Welcome.



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

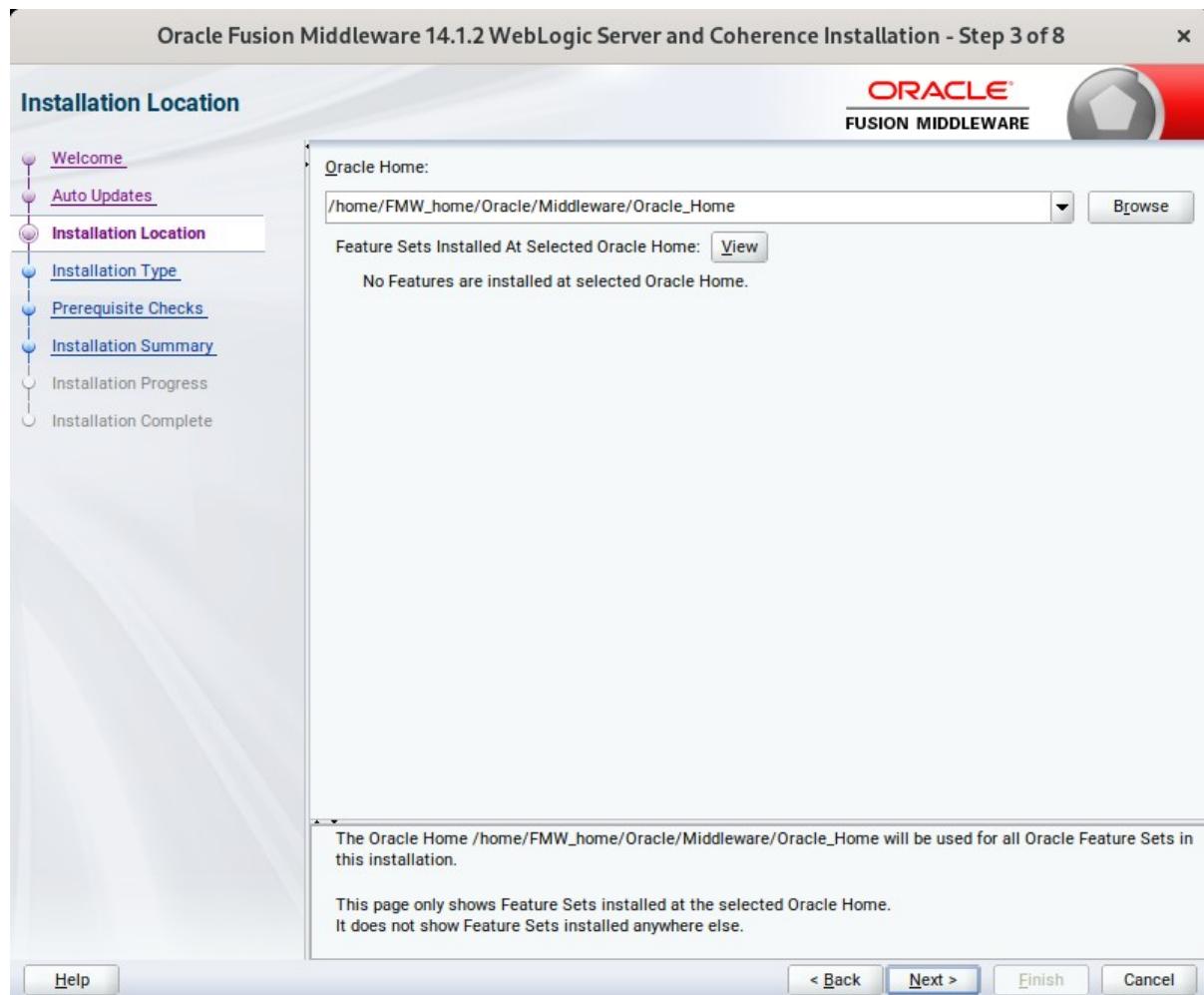


3). Auto Updates.



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

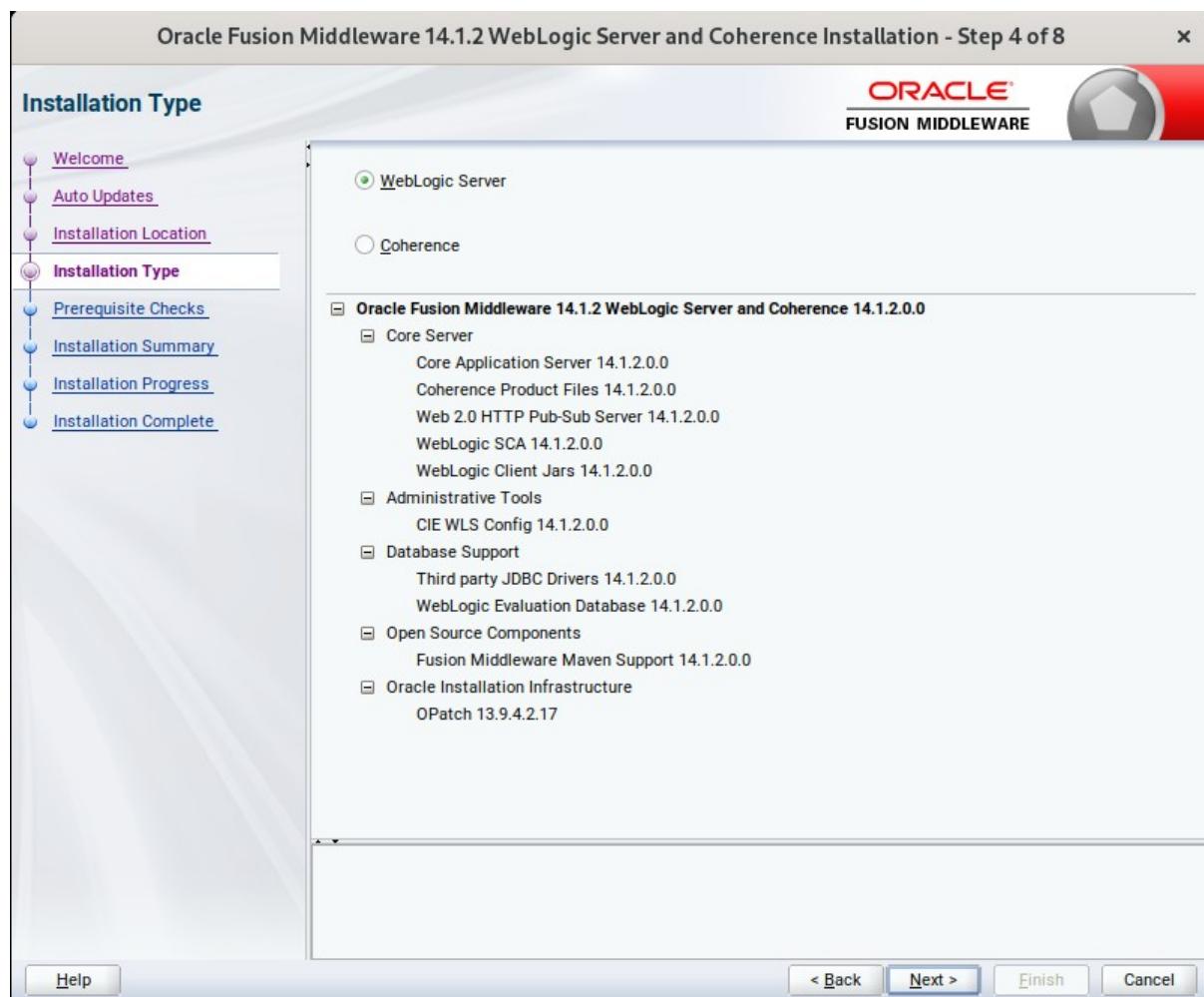
4). Installation Location.



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

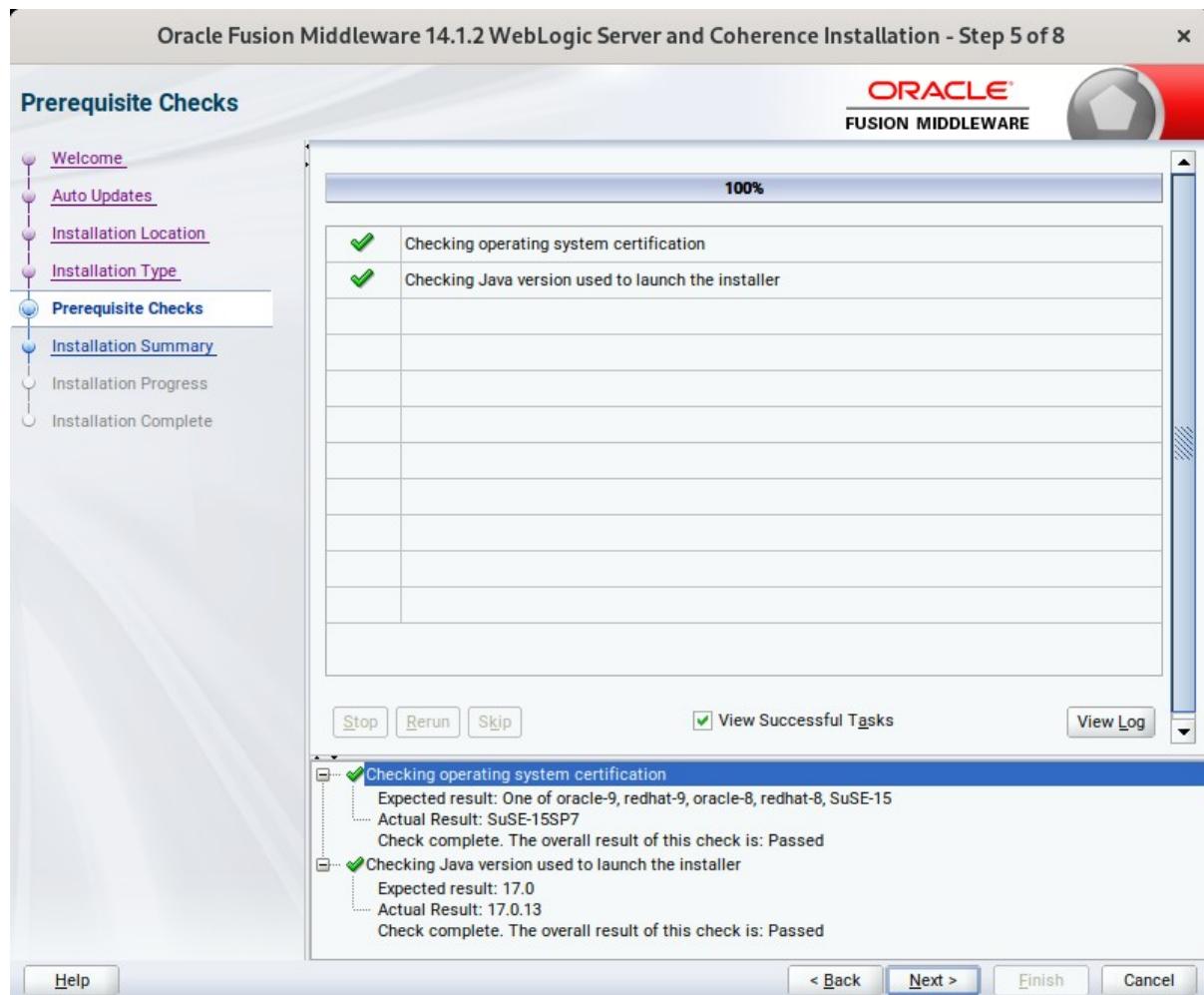


5). Installation Type.



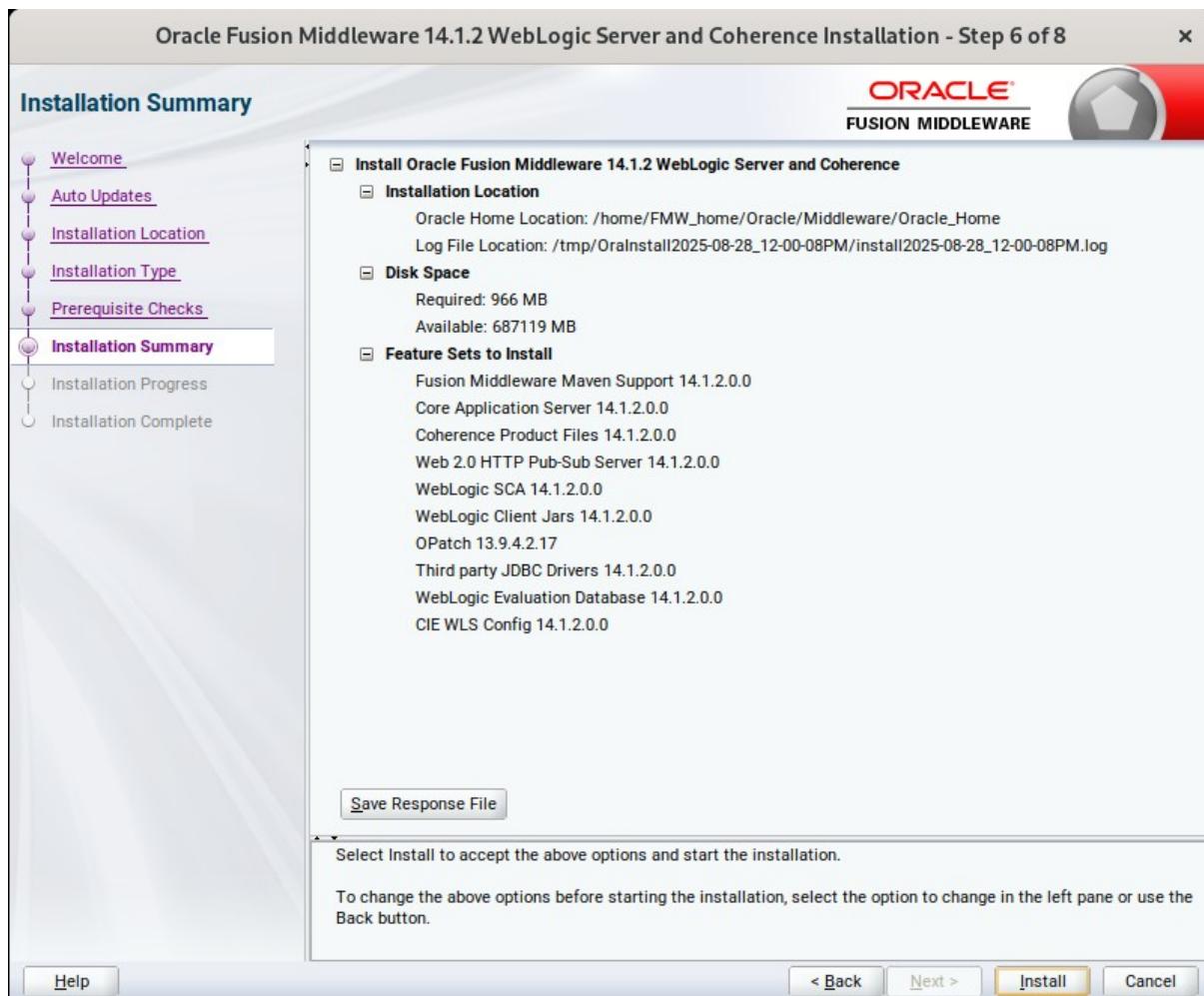
Use this screen to determine the type of installation you want to perform, then click **Next** to continue.

6). Prerequisite Checks.

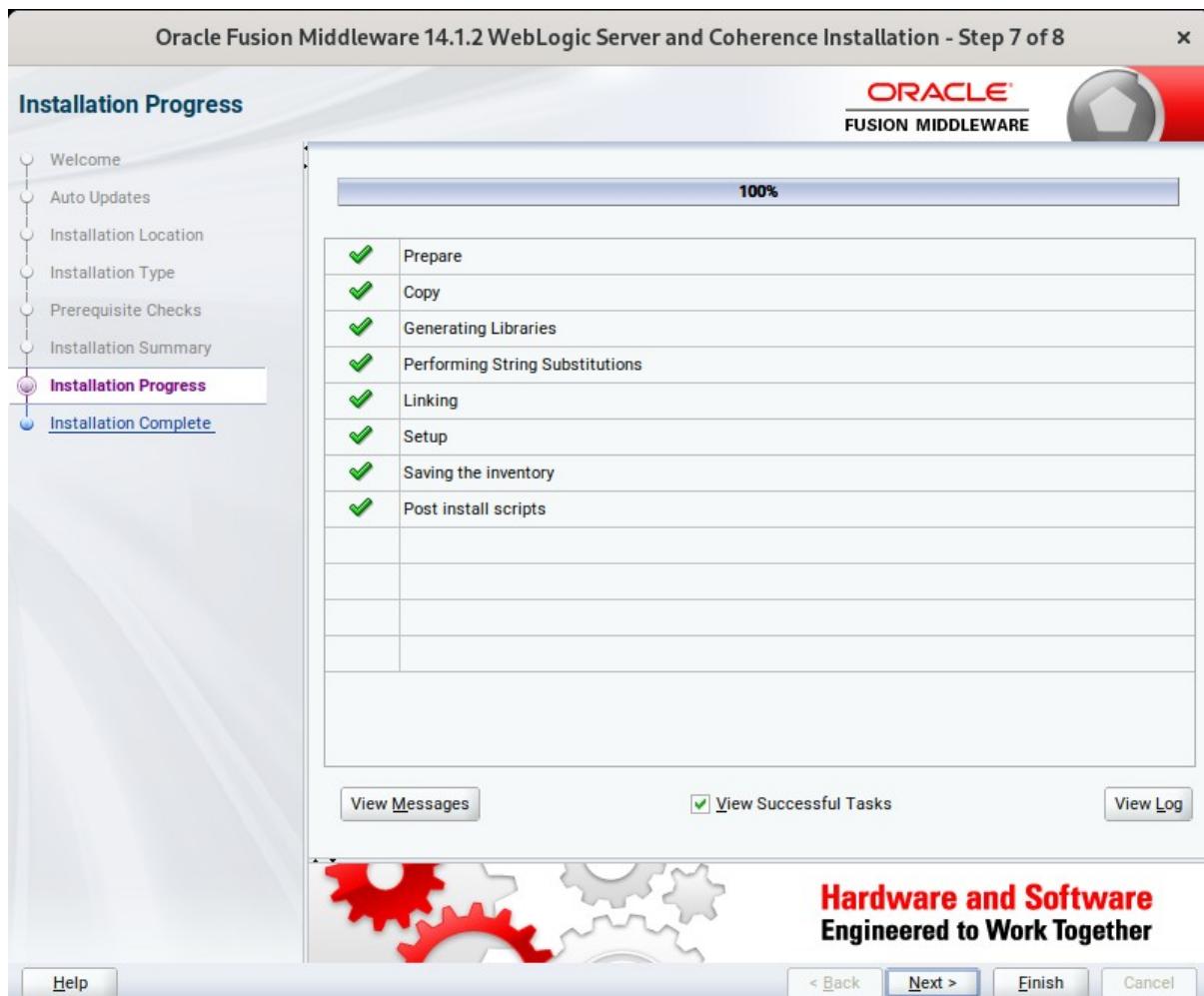


Prerequisite Checks results will be shown as above, click **Next** to continue.

7). Installation Summary.

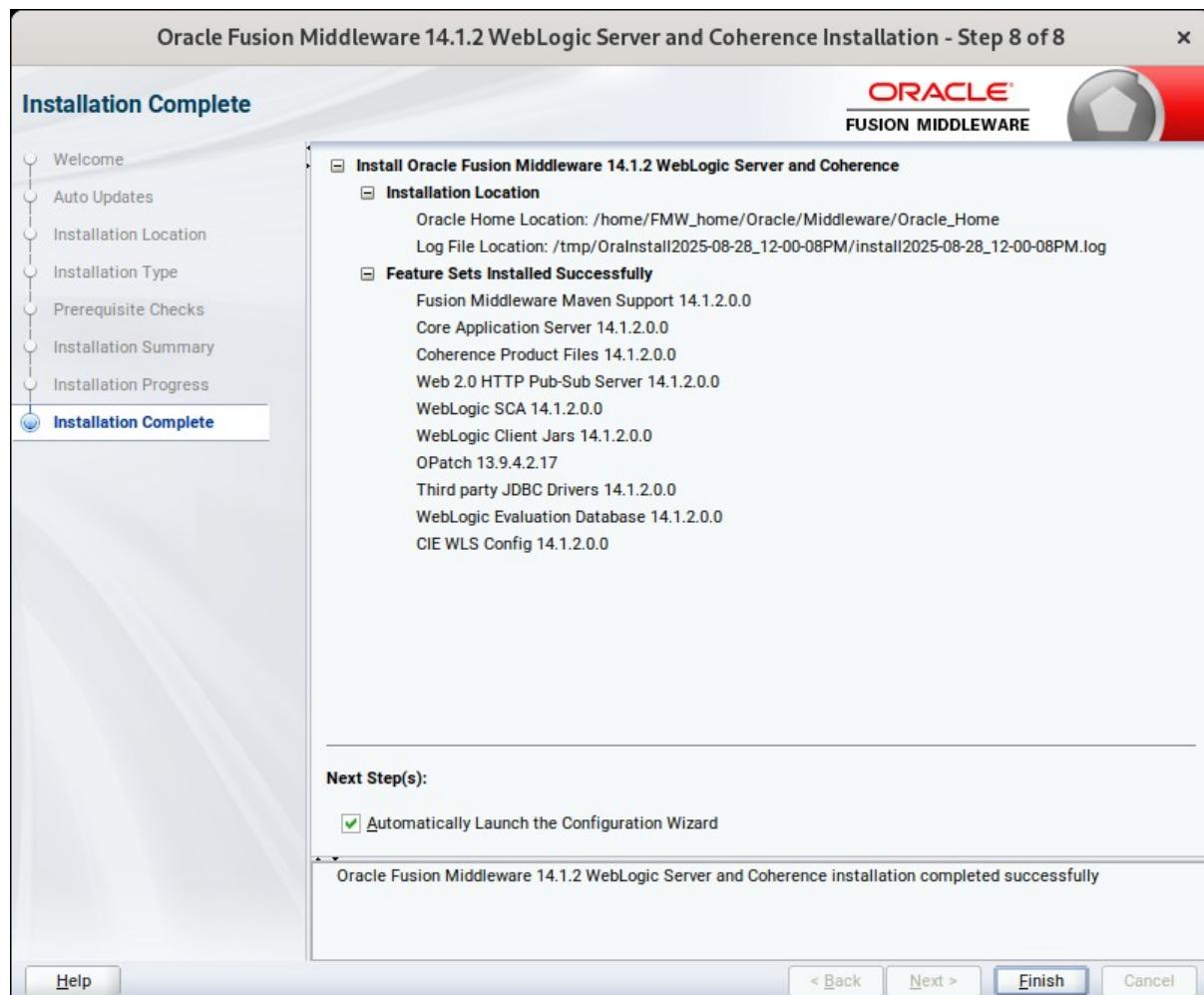


8). Installation Progress.



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.



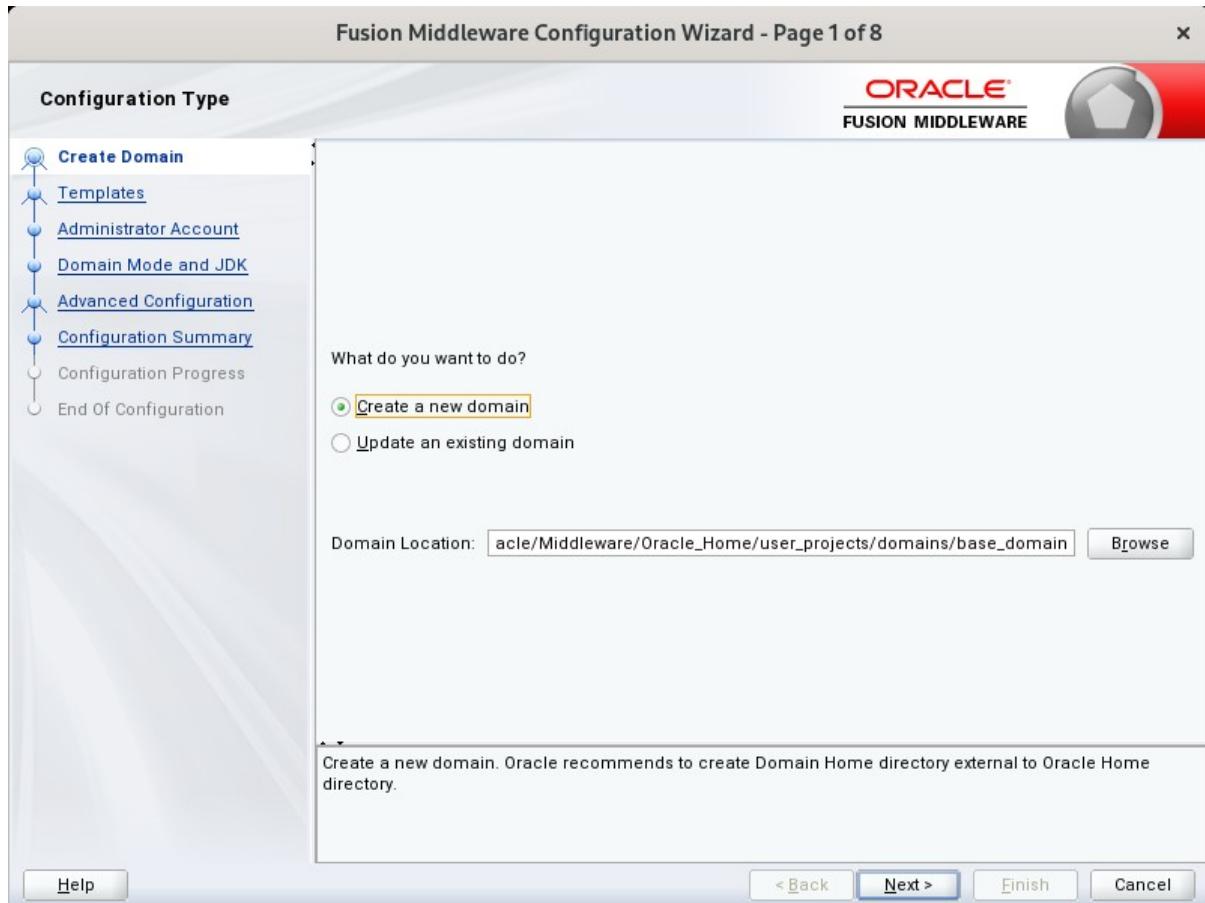
2. Creating and Configuring the WebLogic Domain

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**'.

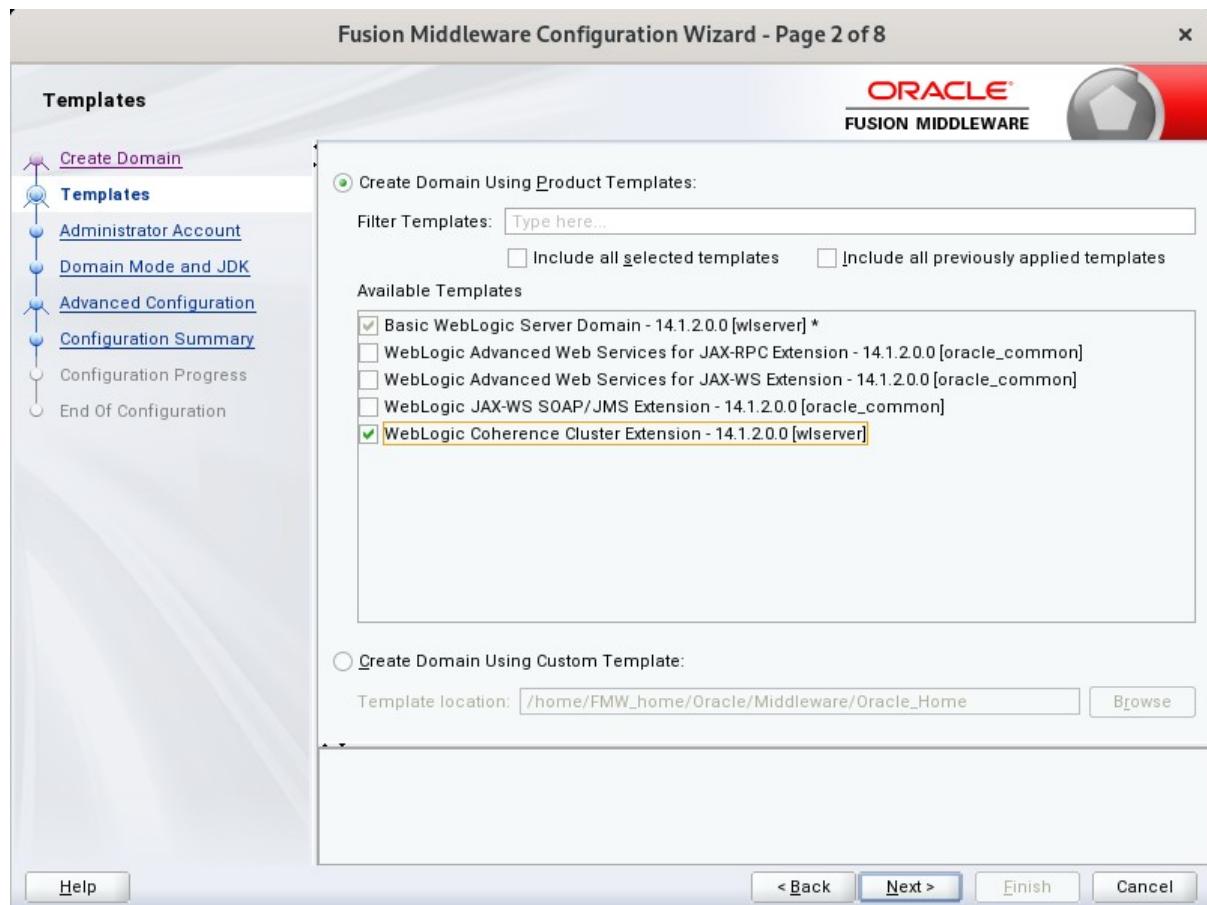
Starting configuration:

1). Configuration Type.



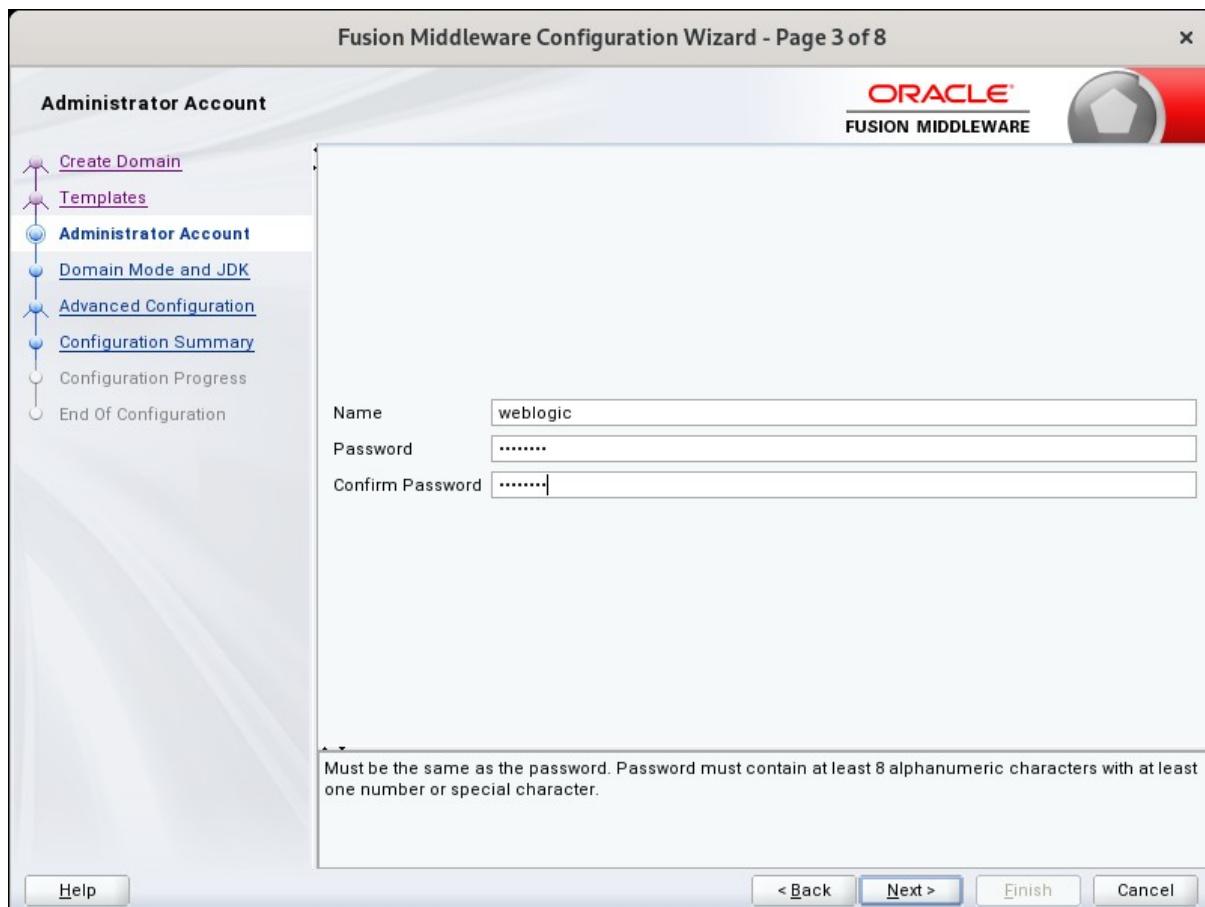
Select option "**Create a New Domain**" and specify the Domain home directory in the "**Domain Location**" field, then click **Next** to continue.

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.

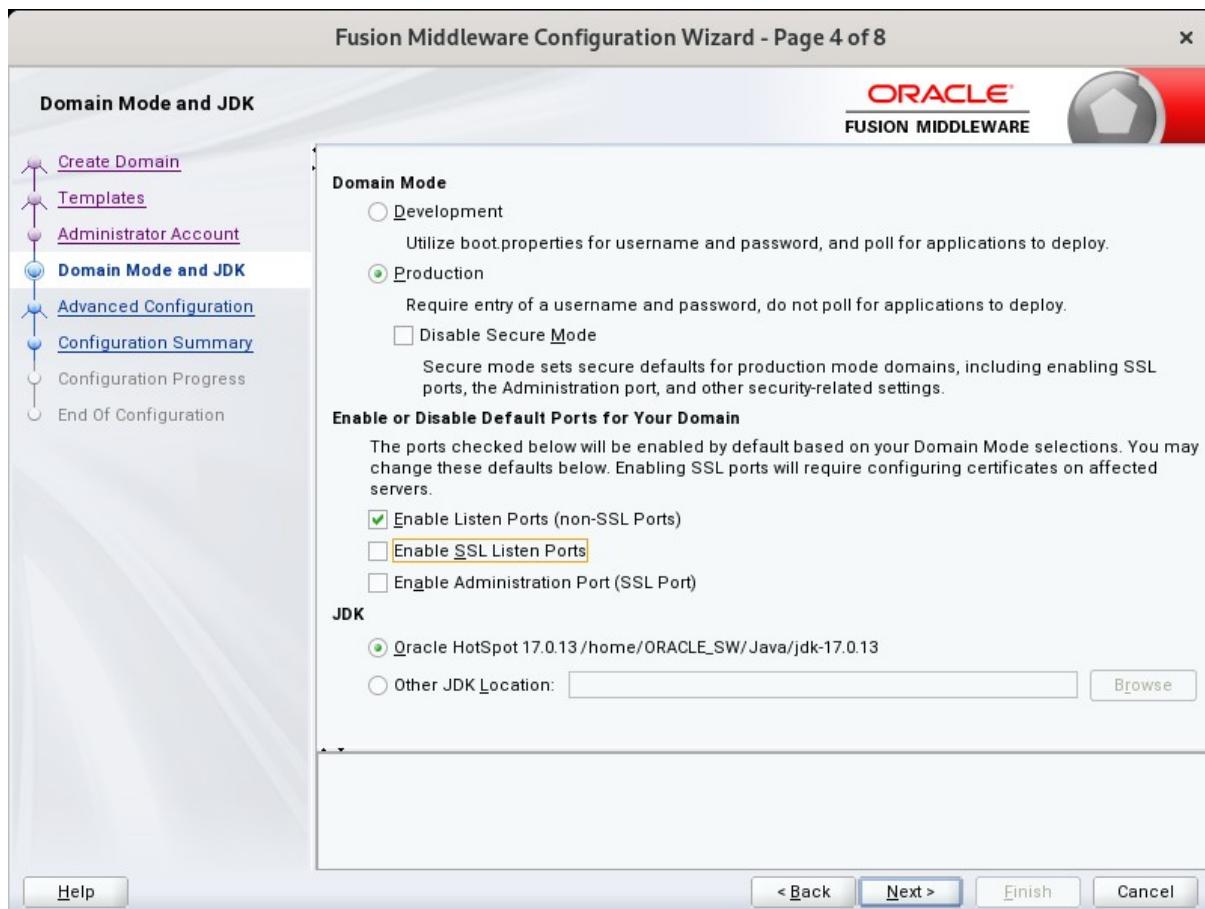
3). Administrator Account.



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

(Note: Select **Production** Mode to give your environment a higher degree of security. You need to enter a user name and password to deploy applications and to start the Administration Server.

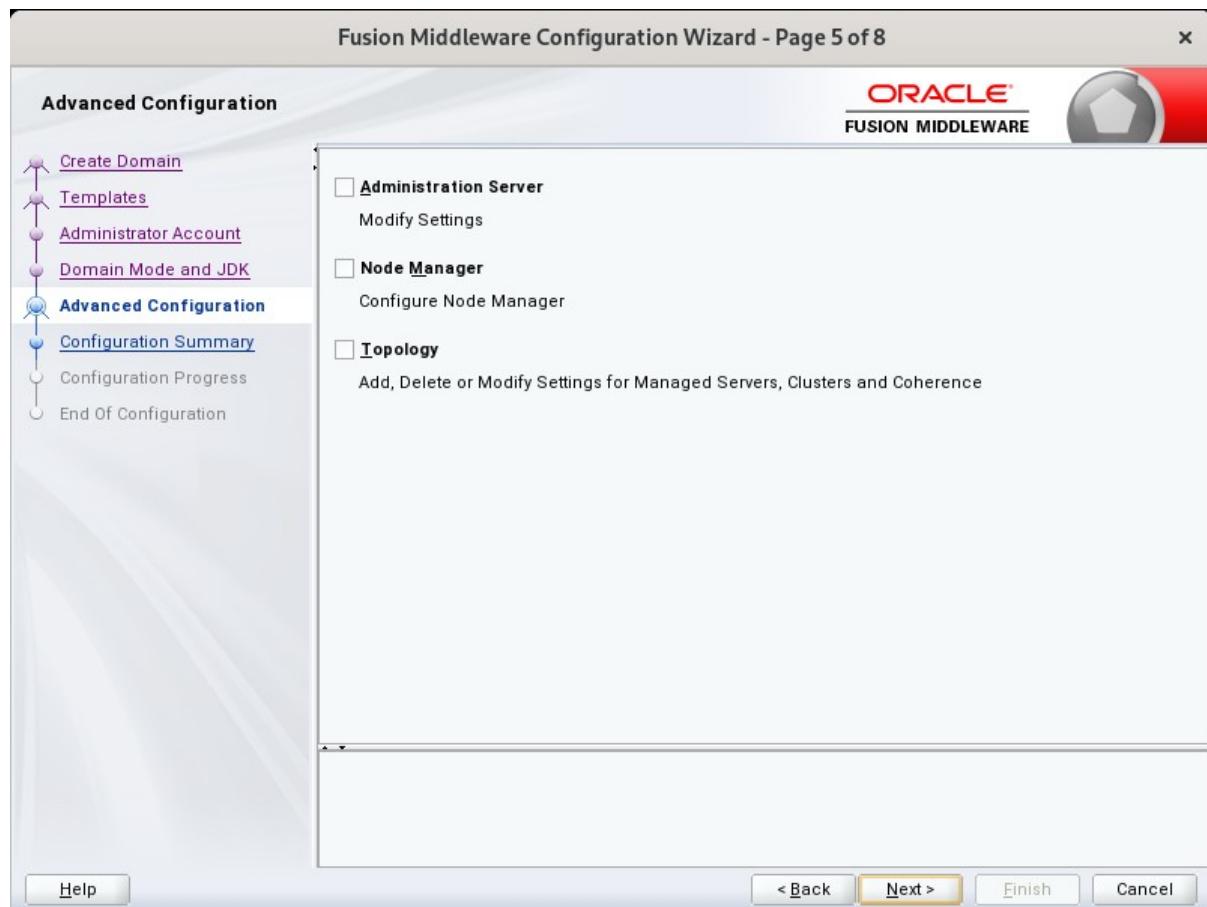
As of WebLogic Server 14.1.2.0.0, when you select **Production** mode, WebLogic Server automatically sets some of the security configurations of **Secured Production** to more secure values. However, there are certain security configurations (such as SSL/TLS) that require manual configuration. If you want to disable the more secure default settings, then you may select **Disable Secure Mode**. This will enable the non-SSL listen ports.

If you want to retain the more secure default settings of **Secured Production** mode in general, but want to change which ports (listen ports, SSL listen ports, or administration ports) will be enabled by default in your domain, then you may:

- Leave **Disable Secure Mode** unselected, and
- Change the default port selections under **Enable or Disable Default Ports for Your Domain**.

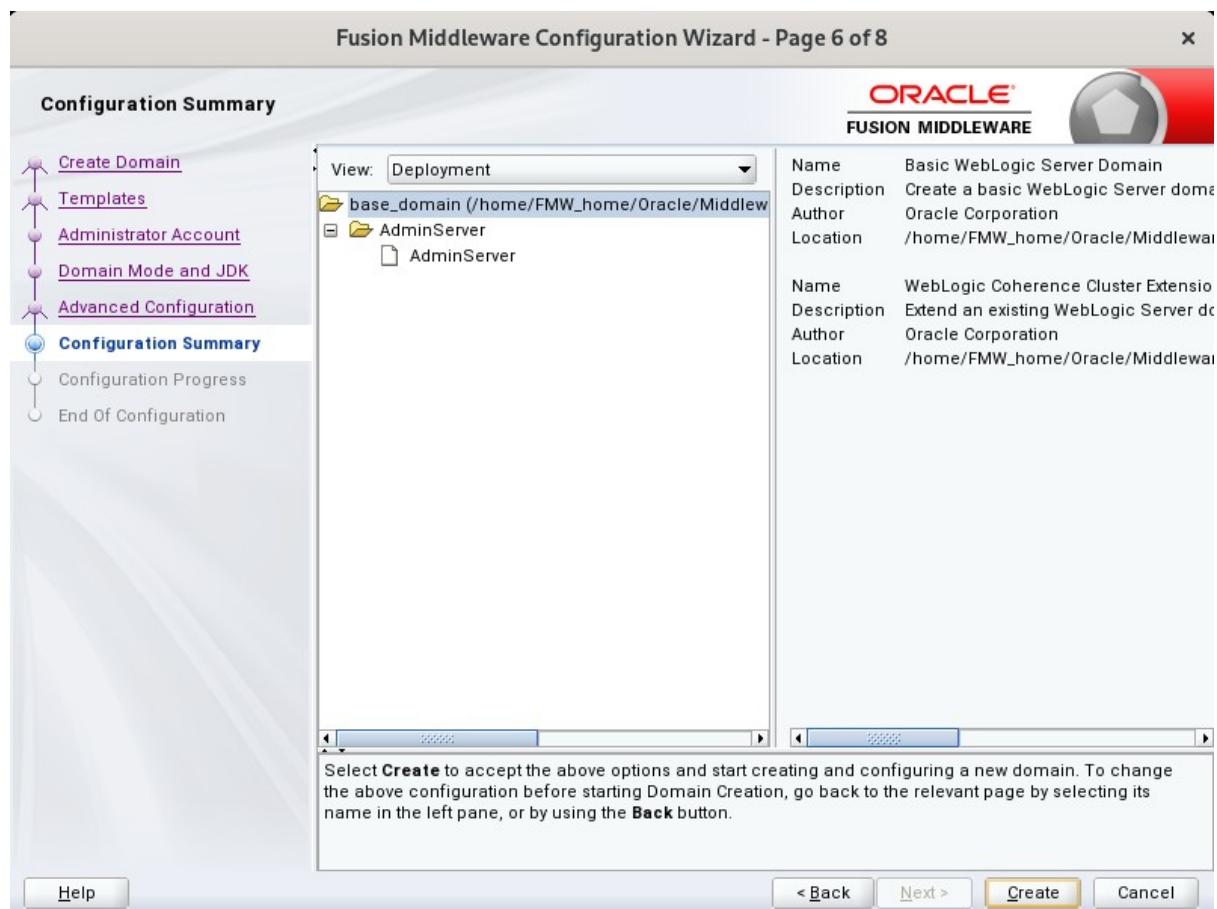
)

5). Advanced Configuration.



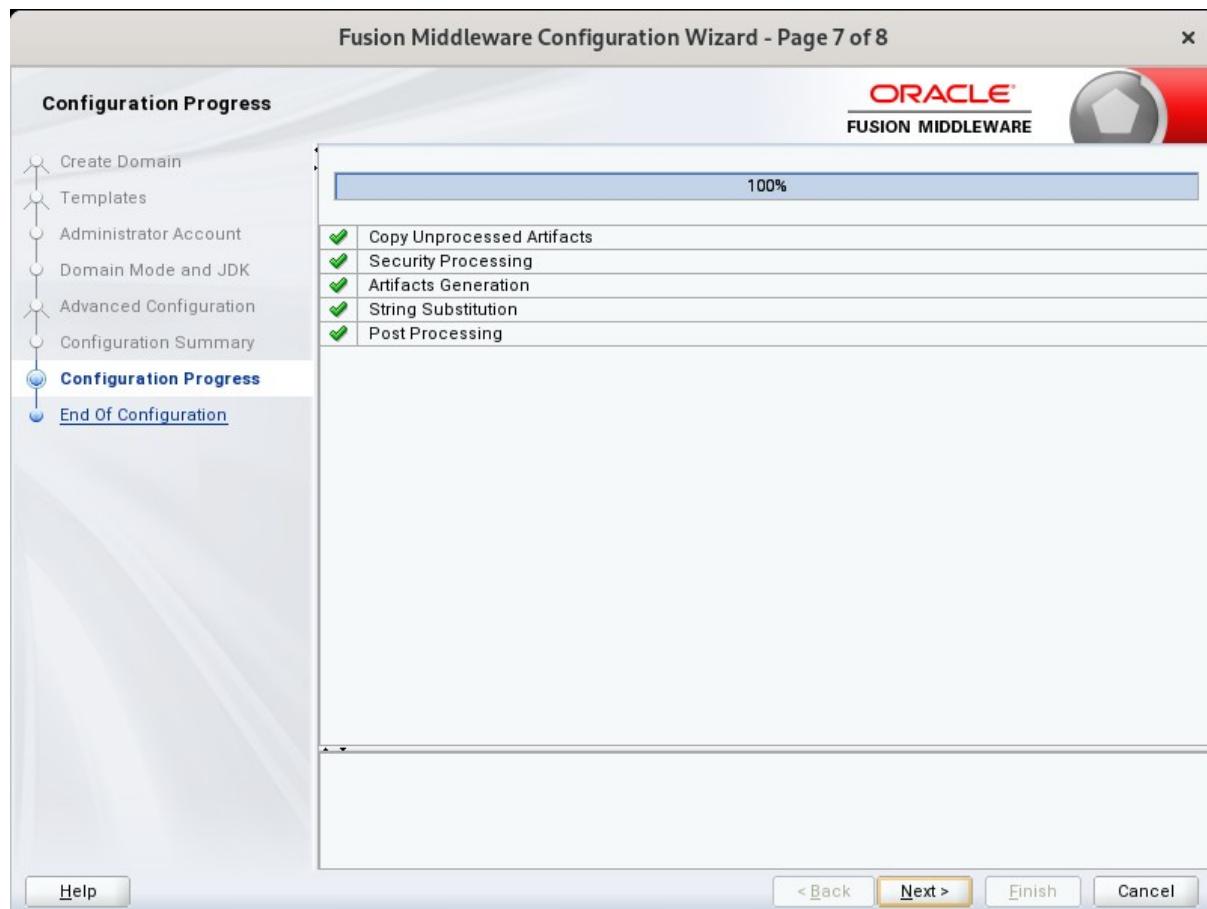
According to your requirements, select the desired options on the Advanced Configuration screen. Then click **Next** to continue.

6). Configuration Summary.



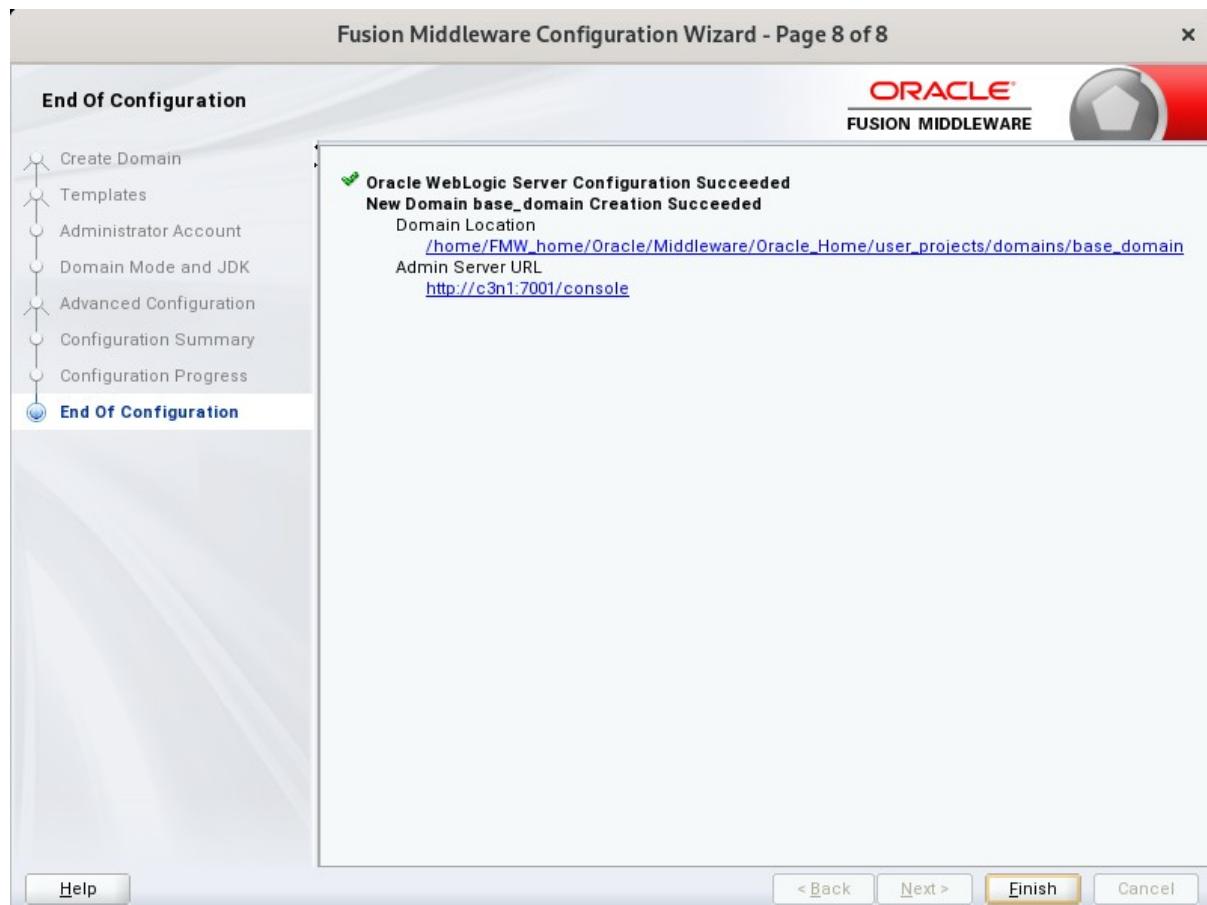
Review this screen to verify the information is correct, then click **Create** to continue.

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@c3n1:~/ns/base_domain/bin
oracle@c3n1:~/home/FMW_home/Oracle/Middleware/Oracle_Home/user_projects/domains/base_domain/bin> ls
generateArchive.sh restartComponent.sh setDomainEnv.sh startComponent.sh startRSDaemon.sh stopManagedWebLogic.sh stopWebLogic.sh
nodemanager server_migration setDomainJavaHome.sh startManagedWebLogic.sh startWebLogic.sh stopNodeManager.sh
patching service_migration setStartupScriptEnv.sh startNodeManager.sh stopComponent.sh stopRSDaemon.sh
oracle@c3n1:~/home/FMW_home/Oracle/Middleware/Oracle_Home/user_projects/domains/base_domain/bin> ./startWeblogic.sh

.

JAVA Memory arguments: -Xms256m -Xmx512m

CLASSPATH=/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/server/lib/weblogic.jar:/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/.../oracle_common/m
odules/thirdparty/antlr-contrib-1.0b3.jar:/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/modules/features/oracle.wls.common.nodemanager.jar::/home/FMW_home/
Oracle/Middleware/Oracle_Home/wlserver/common/derby/lib/derbynet.jar:/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/common/derby/lib/derbytools.jar:/home/
FMW_home/Oracle/Middleware/Oracle_Home/wlserver/common/derby/lib/derbyclient.jar:/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/common/derby/lib/derby.jar
:/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/common/derby/lib/derbyshared.jar:/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/common/derby/lib/de
rbyoptionaltools.jar
.

PATH=/home/FMW_home/Oracle/Middleware/Oracle_Home/user_projects/domains/base_domain/bin:/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/server/bin:/home/FM
W_home/Oracle/Middleware/Oracle_Home/wlserver/.../oracle_common/modules/thirdparty/org.apache.ant/apache-ant/bin:/home/ORACLE_SW/Java/jdk-17.0.13/bin:/home/ORACLE
_SW/Java/jdk-17.0.13/bin:/usr/local/bin:/usr/bin/bin
.

*****
* To start WebLogic Server, use a username and *
* password assigned to an admin-level user. For *
* server administration, use the Weblogic Server *
* console at http://hostname:port/console *
*****
*****Starting WLS with line:
/home/ORACLE_SW/Java/jdk-17.0.13/bin/java -server -Xms256m -Xmx512m -cp /home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/server/lib/weblogic-launcher.jar
-Dlaunch.use.env.classpath=true -Dweblogic.Name=AdminServer -Djava.security.policy=/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/server/lib/weblogic.pol
icy -Dweblogic.ProductionModeEnabled=true -Djava.system.class.loader=com.oracle.classloader.weblogic.LaunchClassLoader -javaagent:/home/FMW_home/Oracle/Middle
ware/Oracle_Home/wlserver/server/lib/debugagent.jar -da -Dwlshome=/home/FMW_home/Oracle/Middleware/Oracle_Home/wlserver/server -Dweblogic.home=/home/FMW_h
ome/Oracle/Middleware/Oracle_Home/wlserver/server weblogic.Server
Java HotSpot(TM) 64-Bit Server VM warning: Archived non-system classes are disabled because the java.system.class.loader property is specified (value = "com.orac
le.classloader.weblogic.LaunchClassLoader"). To use archived non-system classes, this property must not be set
<Aug 28, 2025, 12:11:17 PM China Standard Time> <Info> <Default> <BEA-000000> <IceConfig is unknown>
<Aug 28, 2025, 12:11:17 PM China Standard Time> <Info> <Default> <BEA-000000> <FIPS compliant operation not available for configuration type OTHER>
<Aug 28, 2025, 12:11:17 PM China Standard Time> <Info> <Default> <BEA-000000> <IceConfig is in non-FIPS mode>
<Aug 28, 2025, 12:11:17 PM China Standard Time> <Info> <WebLogicServer> <BEA-000377> <Starting WebLogic Server with Java HotSpot(TM) 64-Bit Server VM Version 17.
0.13+0-LTS-268 from Oracle Corporation>
<Aug 28, 2025, 12:11:17 PM China Standard Time> <Info> <Management> <BEA-141107> <Version: WebLogic Server 14.1.2.0.0 Tue Nov 26 02:40:45 GMT 2024 2171472>
<Aug 28, 2025, 12:11:18 PM China Standard Time> <Info> <Security> <BEA-090065> <Getting boot identity from user>
Enter username to boot WebLogic server:weblogic
Enter password to boot WebLogic server:
```

```
oracle@c3n1:~/ns/base_domain/bin
2025-08-28 12:12:02.702/46,049 Oracle Coherence 14.1.2.0.0 <Info> (thread=[STANDBY] ExecuteThread: '2' for queue: 'weblogic.kernel.Default (self-tuning)', member=n/a): Optional configuration override 'cache-factory-builder-config.xml' is not specified
2025-08-28 12:12:02.703/46,050 Oracle Coherence 14.1.2.0.0 <Info> (thread=[STANDBY] ExecuteThread: '2' for queue: 'weblogic.kernel.Default (self-tuning)', member=n/a): Optional configuration override 'custom-mbeans.xml' is not specified

Oracle Coherence Version 14.1.2.0.0 Build 112309
Grid Edition: Production mode
Copyright (c) 2000, 2024, Oracle and/or its affiliates. All rights reserved.

2025-08-28 12:12:02.864/46,212 Oracle Coherence GE 14.1.2.0.0 <Warning> (thread=[STANDBY] ExecuteThread: '2' for queue: 'weblogic.kernel.Default (self-tuning)', member=n/a): The cluster name has not been configured, a value of "oracle's cluster" will be automatically generated
Logger configured with destination 'jdk', severity level '5' and a character limit of '1048576'.
<Aug 28, 2025, 12:12:03,582 PM China Standard Time> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to STANDBY.>
<Aug 28, 2025, 12:12:03,583 PM China Standard Time> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to STARTING.>
<Aug 28, 2025, 12:12:03,615 PM China Standard Time> <Notice> <Log Management> <BEA-170036> <The Logging monitoring service timer has started to check for logged message counts every 30 seconds.>
<Aug 28, 2025, 12:12:03,676 PM China Standard Time> <Notice> <Security> <BEA-000171> <Loading the identity certificate and private key stored under the alias DemIdentity from the pkcs12 keystore file /home/FWHome/Oracle/Hardware/Oracle_Home/user_projects/domains/base_domain/security/DemoIdentity.p12.>
<Aug 28, 2025, 12:12:03,964 PM China Standard Time> <Notice> <Log Management> <BEA-170027> <The server has successfully established a connection with the Domain level Diagnostic Service.>
<Aug 28, 2025, 12:12:06,741 PM China Standard Time> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to ADMIN.>
<Aug 28, 2025, 12:12:06,809 PM China Standard Time> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RESUMING.>
<Aug 28, 2025, 12:12:06,891 PM China Standard Time> <Warning> <Server> <BEA-002611> <The hostname "localhost", maps to multiple IP addresses: 127.0.0.1, 0:0:0:0:0:0:0:1.>
<Aug 28, 2025, 12:12:06,892 PM China Standard Time> <Notice> <Server> <BEA-002613> <Channel "Default[4]" is now listening on 127.0.0.1:7001 for protocols iiop, t3, ldap, snmp, http.>
<Aug 28, 2025, 12:12:06,893 PM China Standard Time> <Notice> <Server> <BEA-002613> <Channel "Default[1]" is now listening on 192.168.3.1:7001 for protocols iiop, t3, ldap, snmp, http.>
<Aug 28, 2025, 12:12:06,894 PM China Standard Time> <Notice> <Server> <BEA-002613> <Channel "Default[2]" is now listening on 10.200.176.15:7001 for protocols iiop, t3, ldap, snmp, http.>
<Aug 28, 2025, 12:12:06,895 PM China Standard Time> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on 10.200.176.11:7001 for protocols iiop, t3, ldap, snmp, http.>
<Aug 28, 2025, 12:12:06,895 PM China Standard Time> <Notice> <Server> <BEA-002613> <Channel "Default[3]" is now listening on 0:0:0:0:0:0:0:1:7001 for protocol iiop, t3, ldap, snmp, http.>
<Aug 28, 2025, 12:12:06,896 PM China Standard Time> <Notice> <WebLogicServer> <BEA-000398> <Secure mode enabled for WebLogic Server "AdminServer".>
<Aug 28, 2025, 12:12:06,897 PM China Standard Time> <Notice> <WebLogicServer> <BEA-000329> <Started the WebLogic Server Administration Server "AdminServer" for domain "basedomain" running in production mode.>
<Aug 28, 2025, 12:12:06,946 PM China Standard Time> <Warning> <Security> <BEA-009983> <Secure Mode is enabled but the administration port is not enabled. SOLUTION: Oracle recommends creating a network channel for only HTTPS traffic for externally available applications. Configure your firewall so that the network channel is available externally, and that the default network channel and other customer internal channels are only accessible "internally".>
<Aug 28, 2025, 12:12:07,017 PM China Standard Time> <Warning> <Security> <BEA-001003> <Secure Mode requires that users in the Administrators group do not have obvious user names. SOLUTION: Change the user name "weblogic" so it is not a commonly used administrator name.>
<Aug 28, 2025, 12:12:07,071 PM China Standard Time> <Notice> <WebLogicServer> <BEA-000360> <The server started in RUNNING mode.>
<Aug 28, 2025, 12:12:07,080 PM China Standard Time> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RUNNING.>
```

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

```
oracle@c3n1:/etc> ss -tupln | grep 7001
tcp  LISTEN  0      300          [::ffff:127.0.0.1]:7001      *:*      users:(("java",pid=57611,fd=703))
tcp  LISTEN  0      300          [::1]:7001      *:*      users:(("java",pid=57611,fd=707))
tcp  LISTEN  0      300          [::ffff:192.168.3.1]:7001      *:*      users:(("java",pid=57611,fd=704))
tcp  LISTEN  0      300          [::ffff:10.200.176.11]:7001      *:*      users:(("java",pid=57611,fd=705))
tcp  LISTEN  0      300          [::ffff:10.200.176.15]:7001      *:*      users:(("java",pid=57611,fd=706))
oracle@c3n1:/etc> 
```

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

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

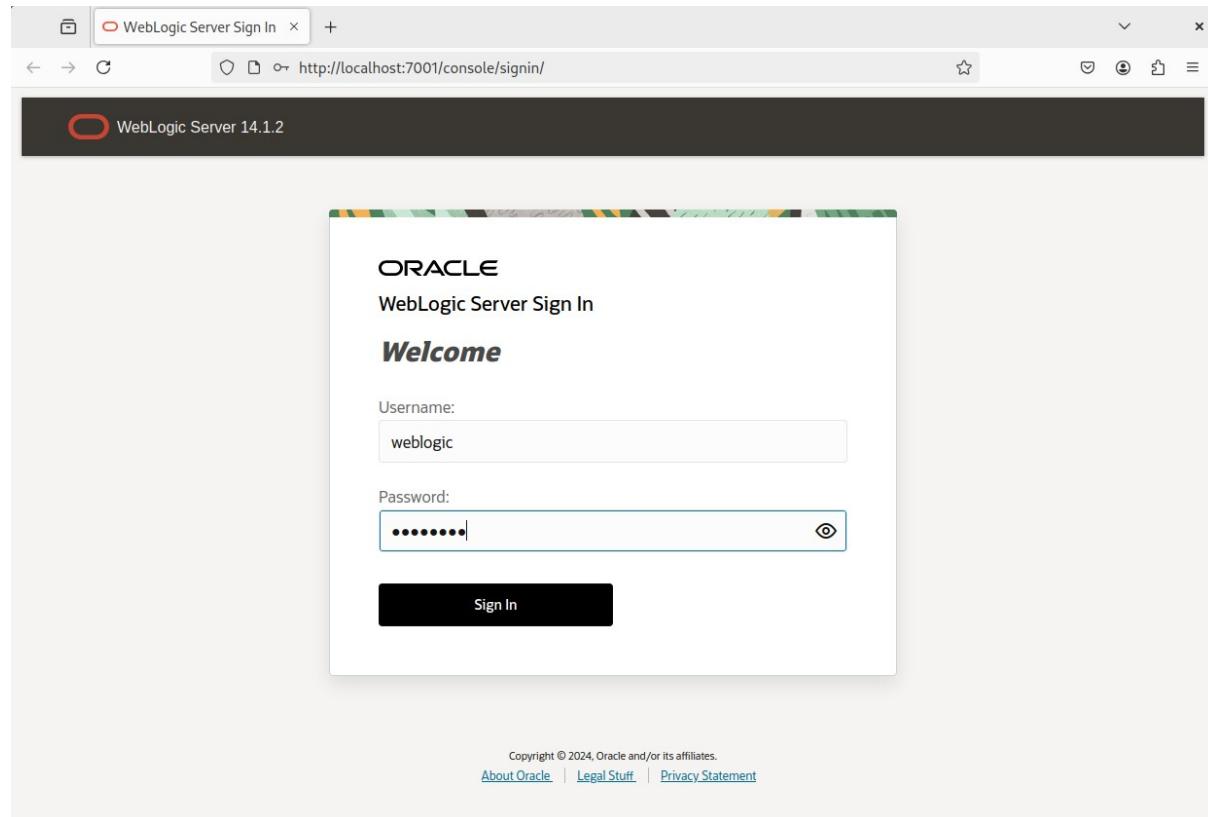


Figure 3-2-2 Viewing WebLogic Server Admin Console - Home page

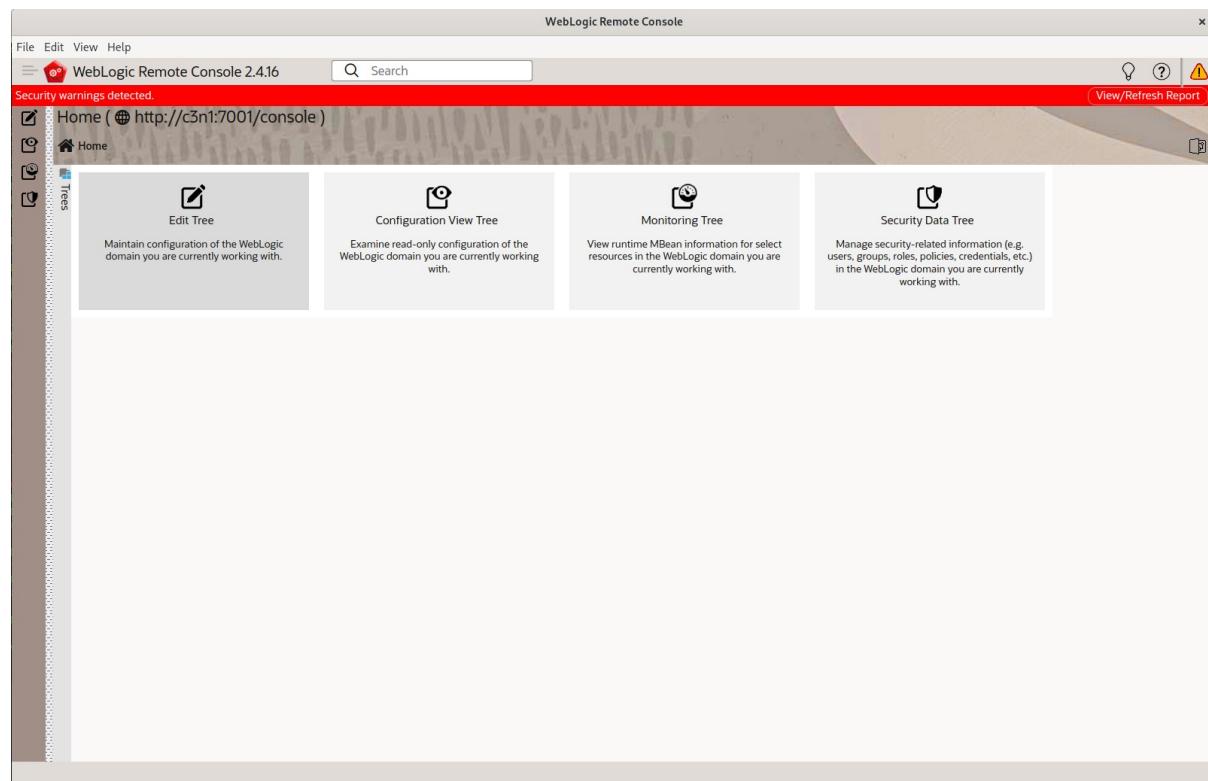


Figure 3-2-3 Viewing WebLogic Server Admin Console - Server States

Monitoring Tree (<http://c3n1:7001/console>)

Server States

Server	Server Life Cycle State	State	Health	Overall Health State
AdminServer	Running	Running	Okay	Okay

Total Rows: 1

Figure 3-2-4 Viewing WebLogic Server Admin Console - AdminServer Configuration

Edit Tree (<http://c3n1:7001/console>)

AdminServer

General

Name*	AdminServer	Machine	None
Cluster	None	Listen Address	
Listen Port Enabled	Enabled	Listen Port	7001
SSL Listen Port Enabled	Disabled	SSL Listen Port	7002
Administration Port Enabled	false	Local Administration Port Override	9002
Client Cert Proxy Enabled	Disabled	Java Compiler	javac
Template	None	Diagnostic Volume	Low
Default Datasource			

Appendix

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.

*Thanks for selecting **SUSE Linux Enterprise Server** as your Linux platform of choice!*