

SOA Suite Setup for BPEL Process Flow
Oracle FLEXCUBE Universal Banking
Release 14.4.0.0.0
[May] [2020]



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1. Preface

1.1 Background

This document provides an overview of configuring SOA suite for Oracle FLEXCUBE Universal Banking BPEL process deployment.

Refer Oracle documentation for HA ([FCUBS Switch Interface Gateway High Availability Configuration.pdf](#)) and other configuration patterns.

1.2 Audience

The audience for this document will be the development groups of BPEL/BPM process flows FLEXCUBE Universal Banking.

1.3 Organization

This manual is organized as follows:

- The document helps in download and installation of Oracle SOA 12c.

1.4 Acronyms and Abbreviations

Acronym/Abbreviation	Description
BPEL	Business Process Execution Language
HA	High Availability

2. Installing the JDK, WebLogic, RCU, SOA and domain Creation

2.1 Introduction

The download of software can be done from the below oracle edelivery portal
<https://edelivery.oracle.com>

Refer to the Oracle certification matrix for qualified databases.

2.2 List of downloaded files

Search: Oracle JDK Latest JDK 1.8 Update 144 for Linux x86-64Search:
[Oracle Fusion Middleware 12c Infrastructure 12.2.1.2.0](#)

V779122-01.zip - Oracle Fusion Middleware 12c Infrastructure 12.2.1.2.0

Search: [Oracle Business Process Management 12.2.1.2.0](#)

V789369-01.zip - Oracle Fusion Middleware 12c (12.2.1.2.0) SOA Suite and Business Process Management

List of platform which can be selected based on the installation platform

NOTE (Doc ID 1904280.1): As part of the new Release of SOA 12c, you need to get WebLogic 12c through the Oracle Fusion Middleware Infrastructure installation, which contains all required components for SOA. The standard WebLogic 12.2.1.0.0 Installer i.e. fmw_12.2.1.0.0_wls.jar, does not have the required JRF templates.

2.3 Install JDK

Login to WebLogic server host upload and install JDK package. Refer to the release certificate for the version of java JDK.

2.4 Installing WebLogic Server software

Installation of the software can be done from local machine or from the app server

1. Installation from the app server location:

a) Login to the app server host and connect through putty

b) Copy the zipped file into the app server in the location /scratch/app/<[app_name]>

eg: /scratch/app/bpm12212

c) Unzip the file with the command "unzip V779122-01.zip"

d) Once it is unzipped, fmw_12.2.1.2.0_soa.jar and fmw_12212_readme.htm will be extracted into the same path

e) execute the jar file to launch the installer for 12c SOA installation with the below command

“java -jar fmw_12.2.1.2.0_infrastructure.jar”

```
[oracle@wls12c-node1 ~]$ cd /scratch/app/fmwTemp1221/
[oracle@wls12c-node1 fmwTemp1221]$ unzip V779122-01.zip
Archive:  V779122-01.zip
inflating: fmw_12.2.1.2.0_infrastructure.jar
[oracle@wls12c-node1 fmwTemp1221]$ java -jar fmw_12.2.1.2.0_infrastructure.jar
```

2. Installation from the local path:

a) Open the command prompt in “Run as Administrator” mode and move to the location where the zip file is available using the command “cd” followed by the path

eg: C:\Users\pribalac\Downloads

b) Unzip the file with the command “unzip V779122-01.zip”

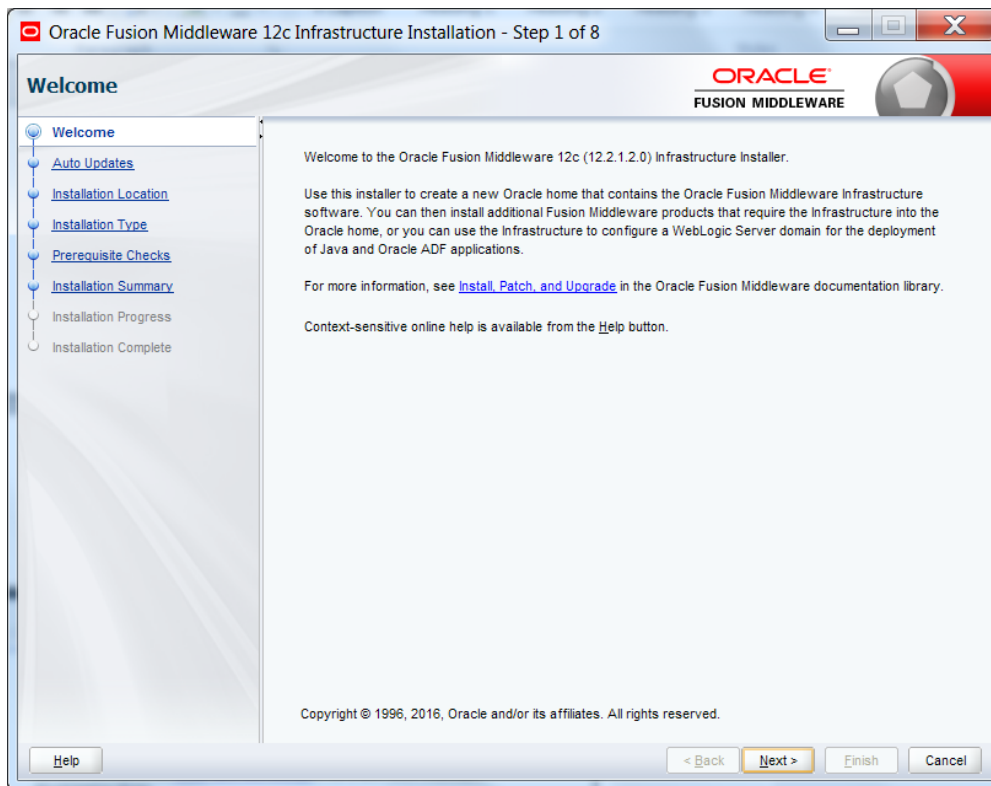
c) Once it is unzipped, fmw_12.2.1.2.0_soa.jar and fmw_12212_readme.htm will be extracted into the same path

d) execute the jar file to launch the installer for 12c SOA installation with the below command

“java -jar fmw_12.2.1.2.0_soa.jar”

```
[C:\Users\pribalac\ ~]$ cd C:\Users\pribalac\Downloads\V779122-01
[C:\Users\pribalac\Downloads\V779122-01]$ unzip V779122-01.zip
Archive:  V779122-01.zip
inflating: fmw_12.2.1.2.0_infrastructure.jar
[C:\Users\pribalac\Downloads\V779122-01]$ "C:\Program Files\Java\jdk1.8.0_144\bin\java" -jar
fmw_12.2.1.2.0_infrastructure.jar
```

Step 1:

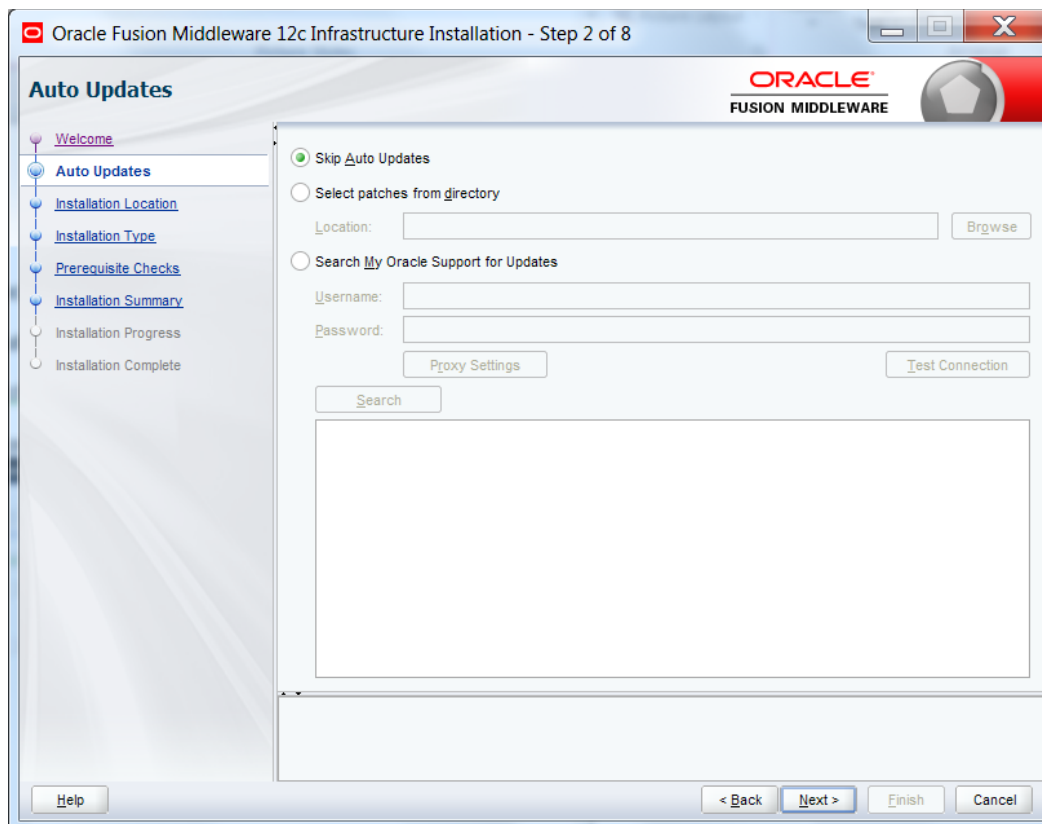


Step 2:

Select the option based on the requirement:

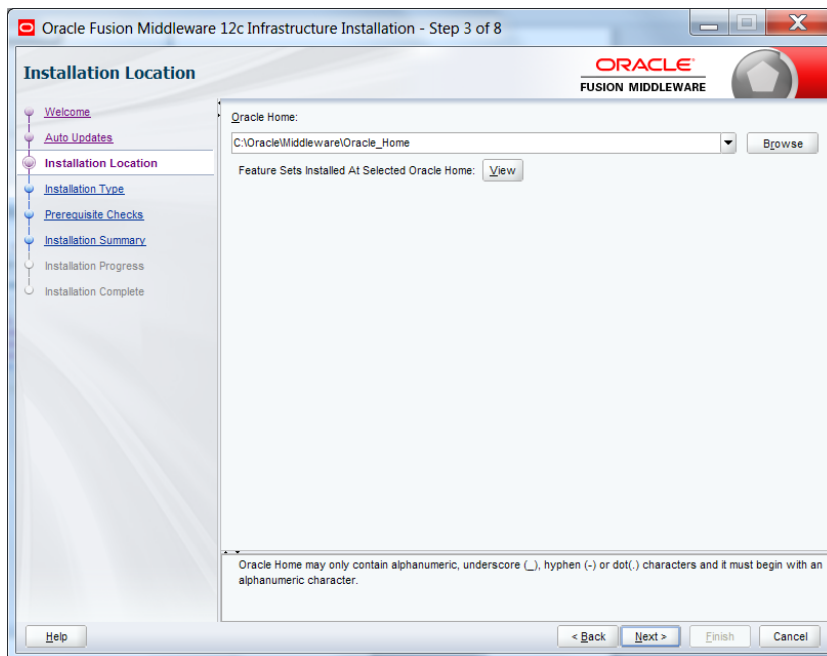
If you do not want the auto updates, select the first option.

If you are applying patches, select the second option.



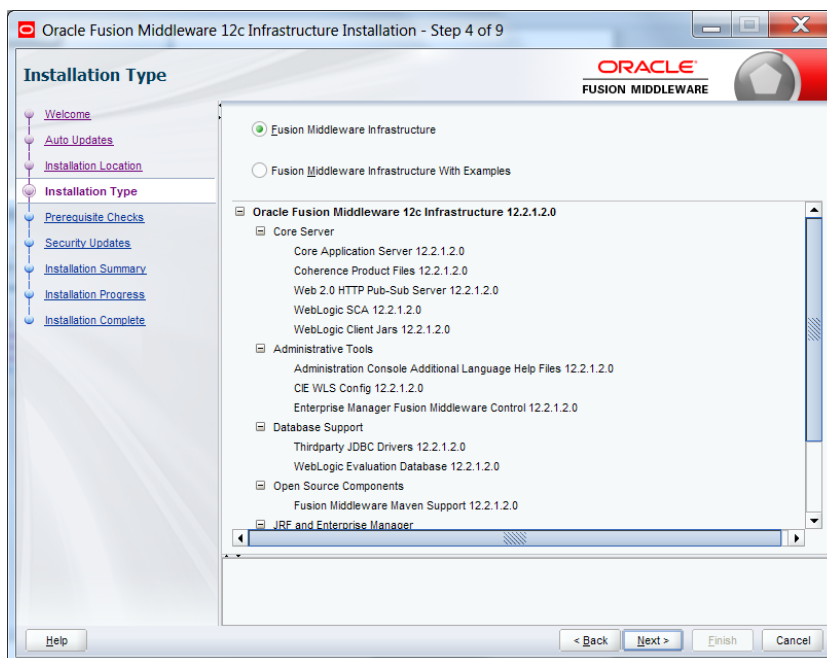
Step 3:

Define the oracle home path

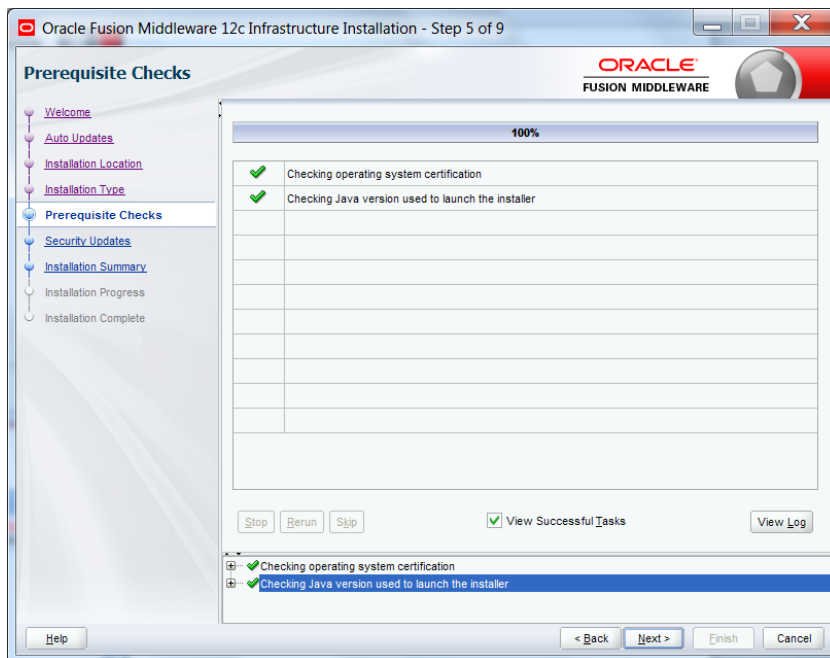


Step 4:

Select fusion middleware infrastructure

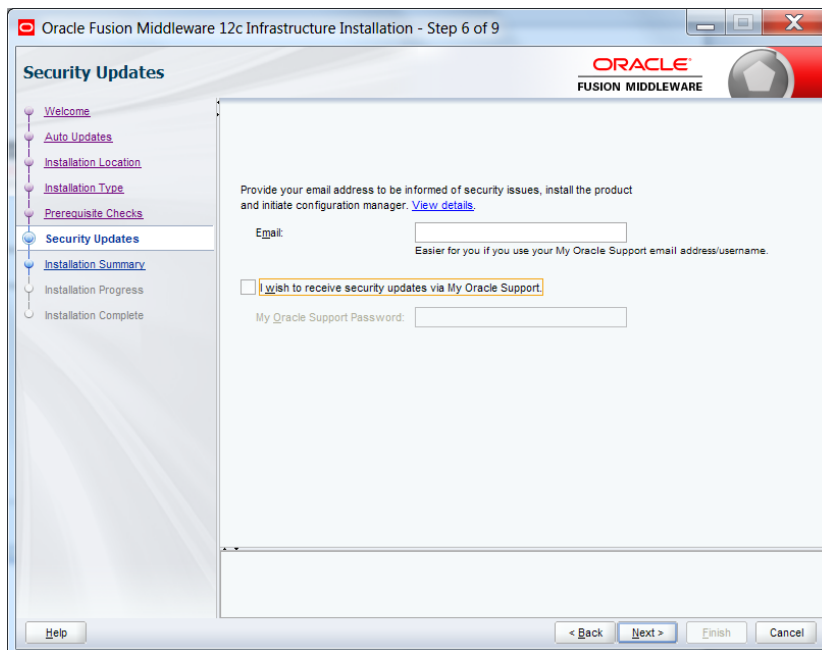


Step 5:

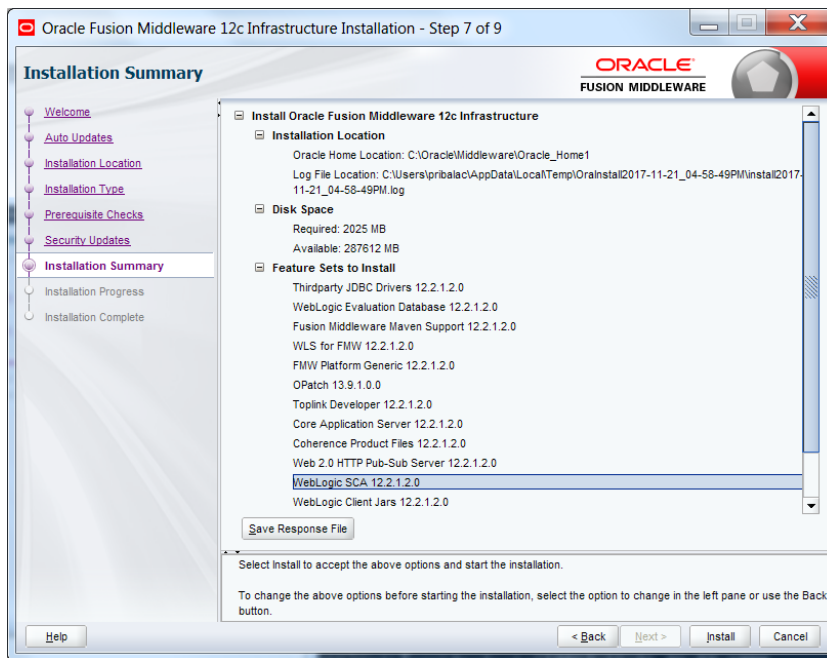


Step 6:

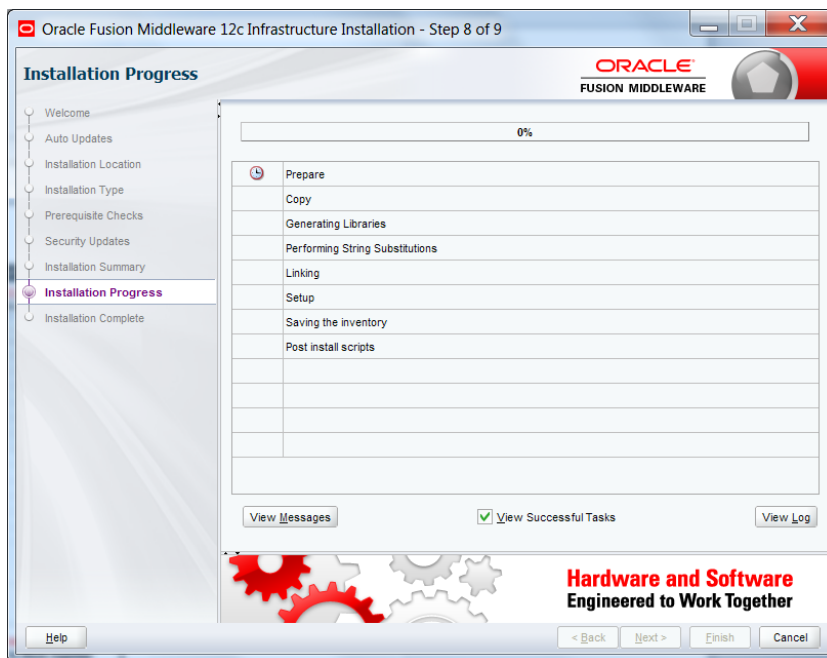
Optional based on installation requirement



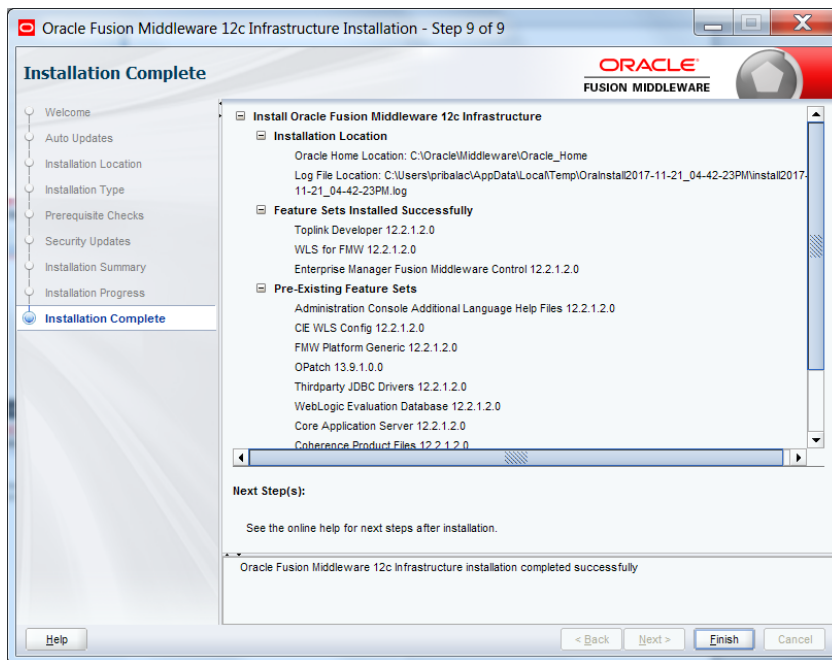
Step 7:



Step 8:



Step 9:



2.5 Installing Oracle Fusion Middleware 12c software.

Installation of the software can be done from local machine or from the app server

1. Installation from the app server location:

a) Login to the app server host and connect through putty

b) Copy the zipped file into the app server in the location /scratch/app/<[app_name]>

eg: /scratch/app/bpm12212

c) Unzip the file with the command “unzip V789369-01.zip”

d) Once it is unzipped, fmw_12.2.1.2.0_soa.jar and fmw_12212_readme.htm will be extracted into the same path

e) execute the jar file to launch the installer for 12c SOA installation with the below command
“java -jar fmw_12.2.1.2.0_soa.jar”

```
[bpm12212@whf00anl:~]$ cd /scratch/app/bpm12212/
[bpm12212@whf00anl:/scratch/app/bpm12212]$ unzip V789369-01.zip
Archive:  V789369-01.zip
  inflating: fmw_12.2.1.2.0_soa.jar
[bpm12212@whf00anl:/scratch/app/bpm12212]$ java -jar fmw_12.2.1.2.0_soa.jar
```

2. 1) Installation from the local path:

a) Open the command prompt in “Run as Administrator” mode and move to the location where the zip file is available using the command “cd” followed by the path

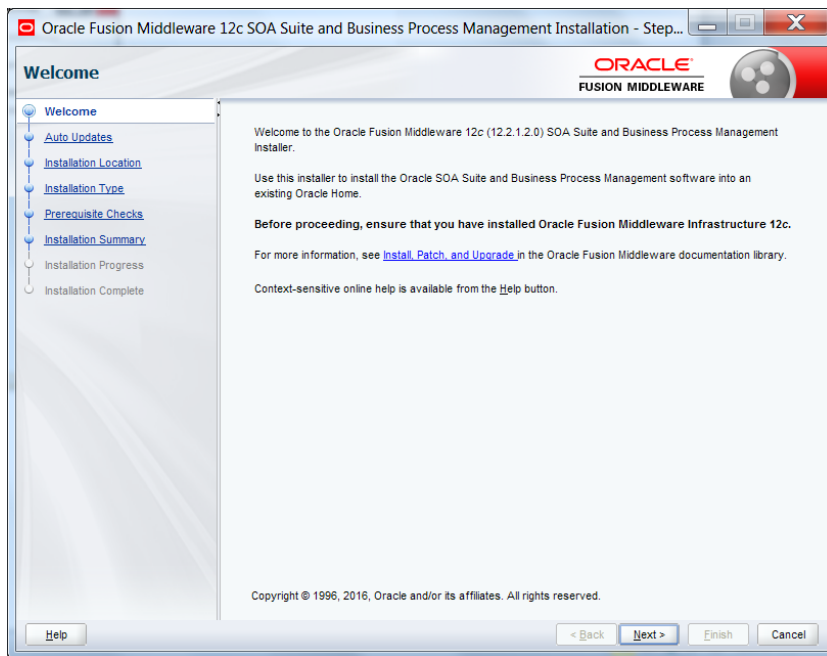
eg: C:\Users\pribalac\Downloads

b) Unzip the file with the command “unzip V789369-01.zip”

c) Once it is unzipped, fmw_12.2.1.2.0_soa.jar and fmw_12212_readme.htm will be extracted into the same path

d) execute the jar file to launch the installer for 12c SOA installation with the below command java
-jar fmw_12.2.1.2.0_soa.jar”

Step 1



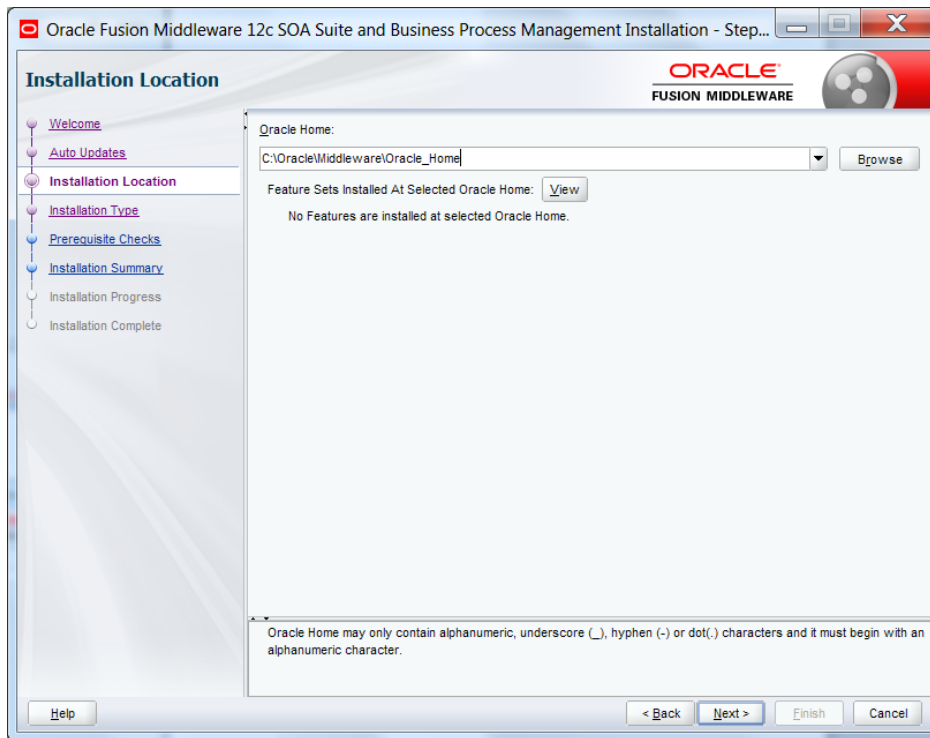
Step 2:

Option need to be selected based on the requirement :

- If you don't want the auto updates, select the first option.
- If you are applying patches , select the second option .

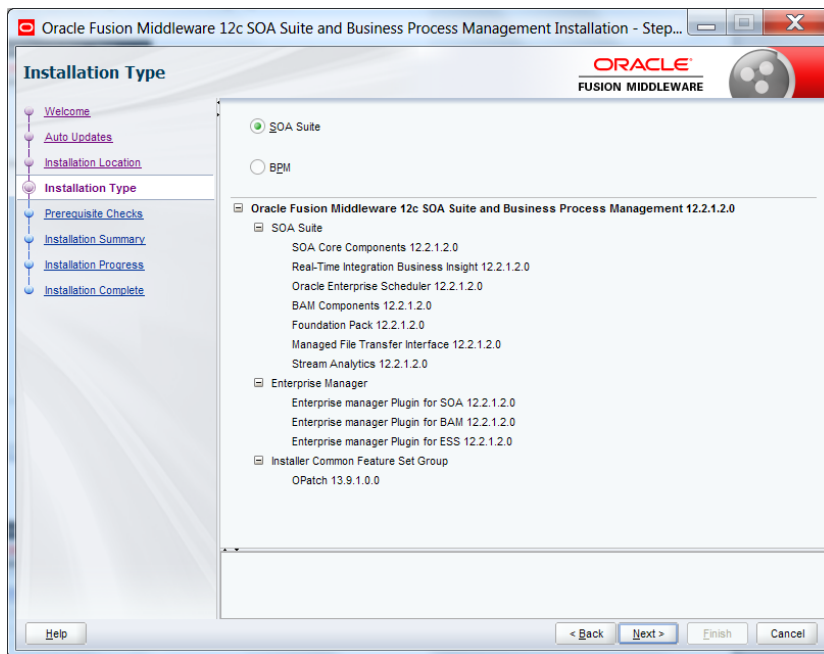
Please select the below option based on the requirement:

Step 3:

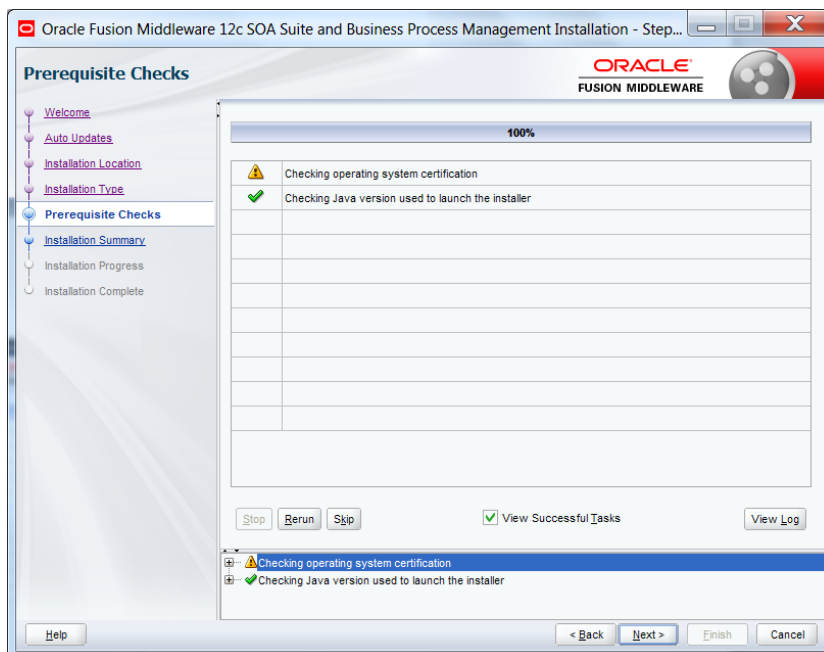


Step 4:

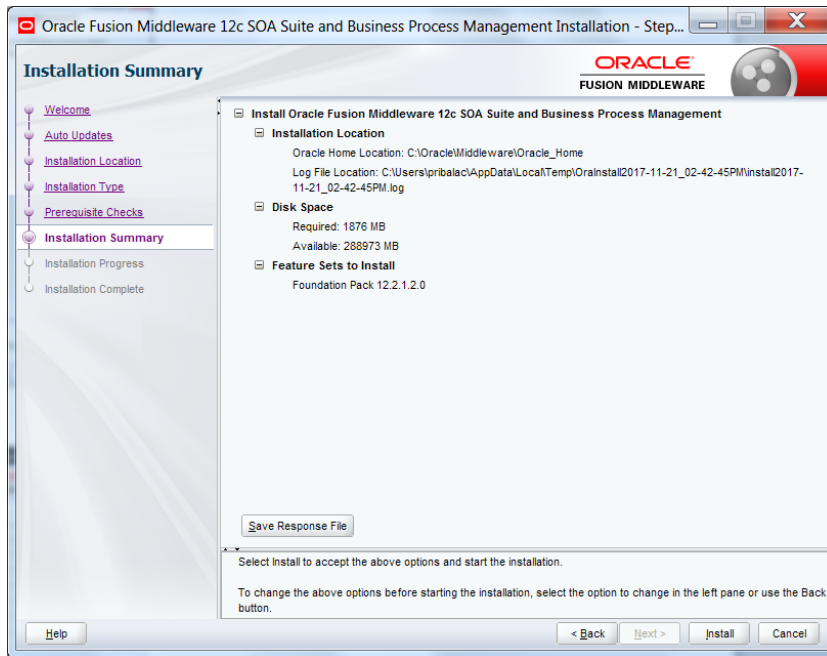
Select BPM if the environment requires BPM process flow deployment



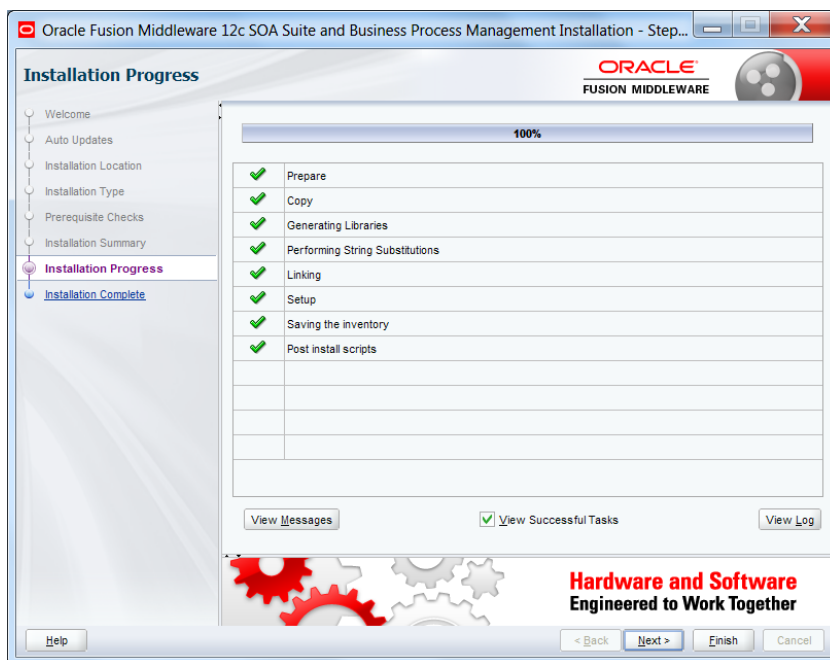
Step 5:



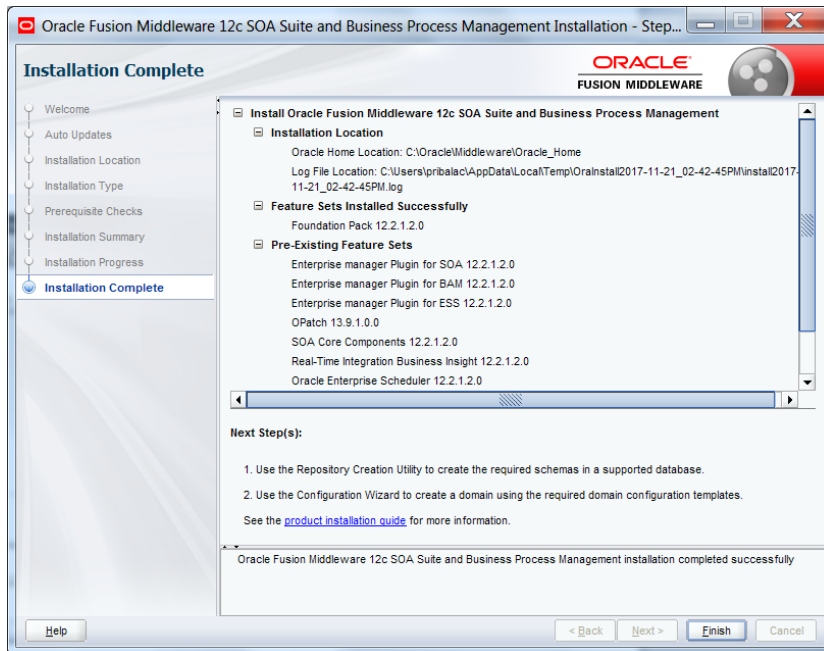
Step 6:



Step 7:



Step 8:



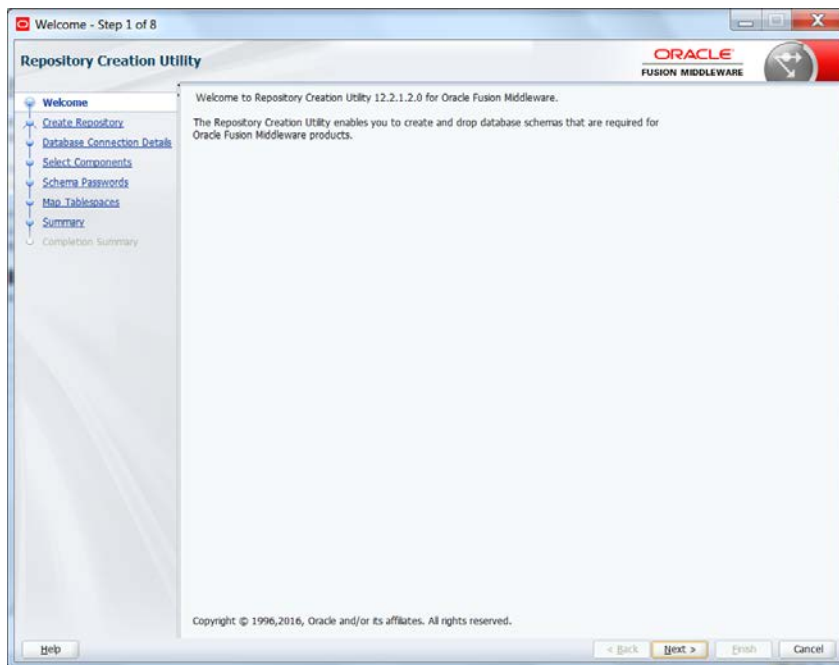
2.6 Creating product schemas in Oracle database

The Repository Creation Utility (RCU) is the tool used to create schemas in a database. This tool is available once we've installed the Oracle Fusion Middleware Infrastructure software (Point 2).

Refer to [Oracle Fusion Middleware Creating Schemas with the Repository Creation Utility](#) for more information about the Repository Creation Utility.

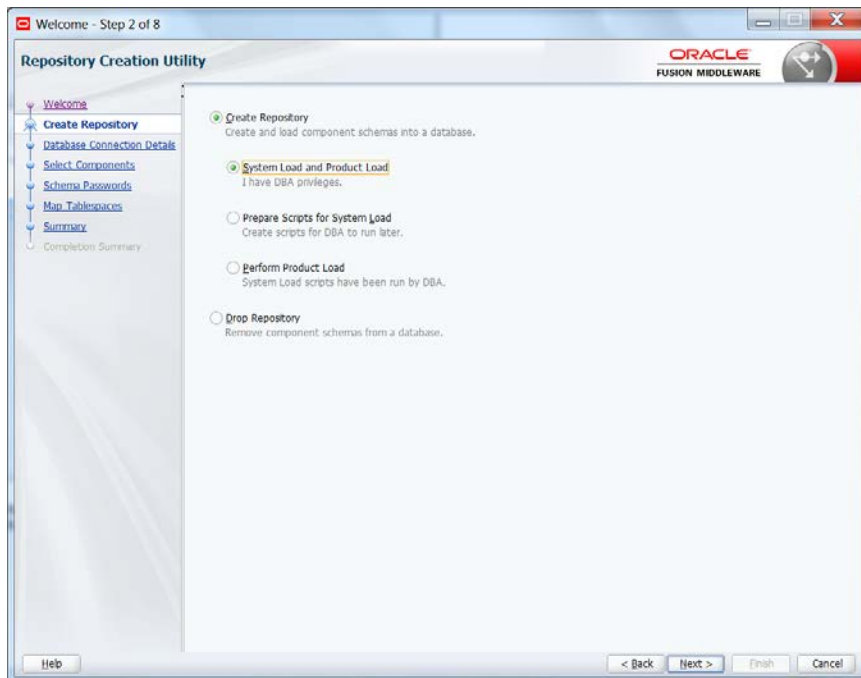
- [oracle@wls12c-node1 fmwTemp1221]\$ cd /scratch/app/fmwTemp1221/Oracle/Middleware/Oracle_Home/bin/
- [oracle@wls12c-node1 bin]\$./rcu

Step 1:



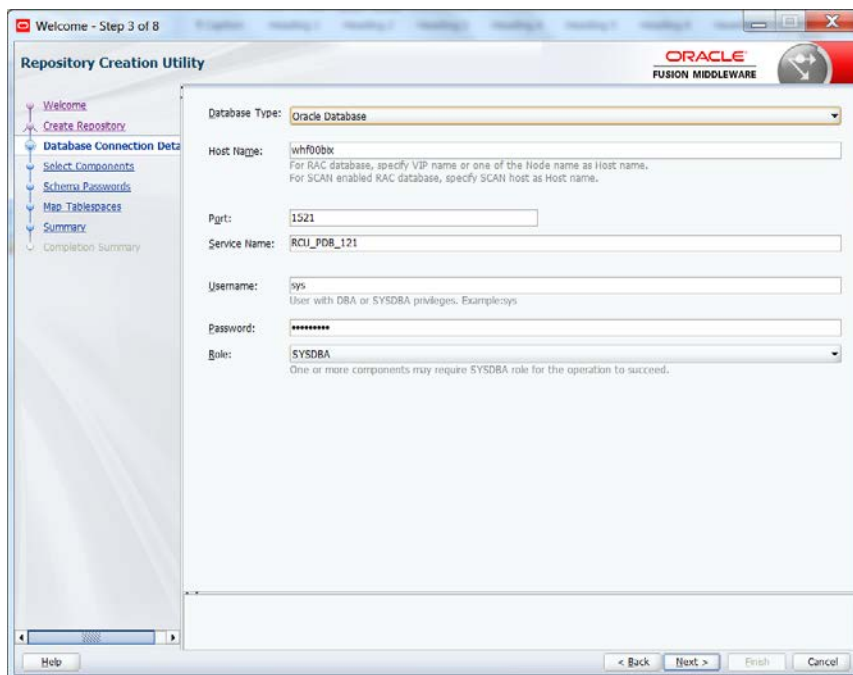
Step 2:

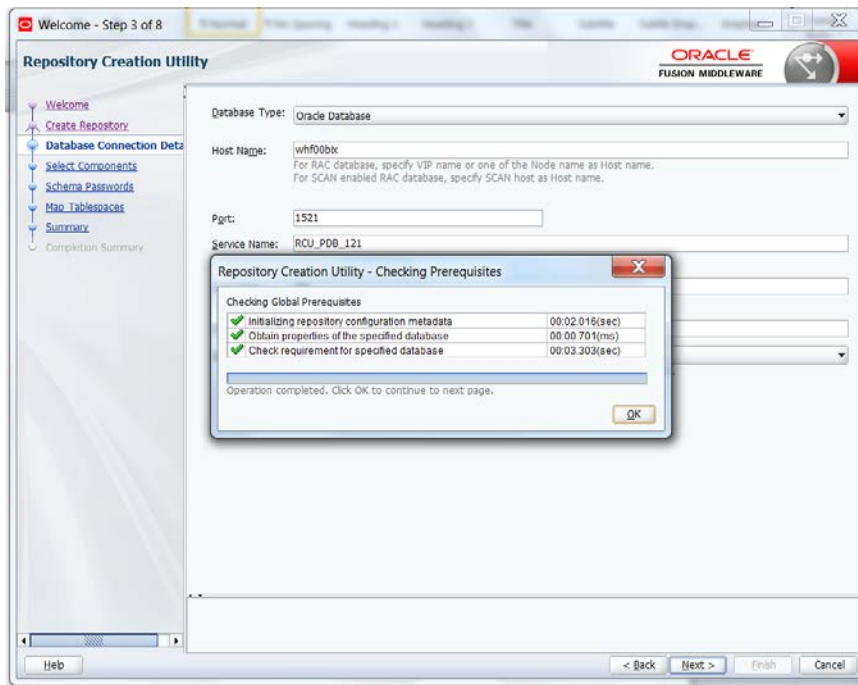
Select the option as System Load and Product Load and click on Next



Step 3:

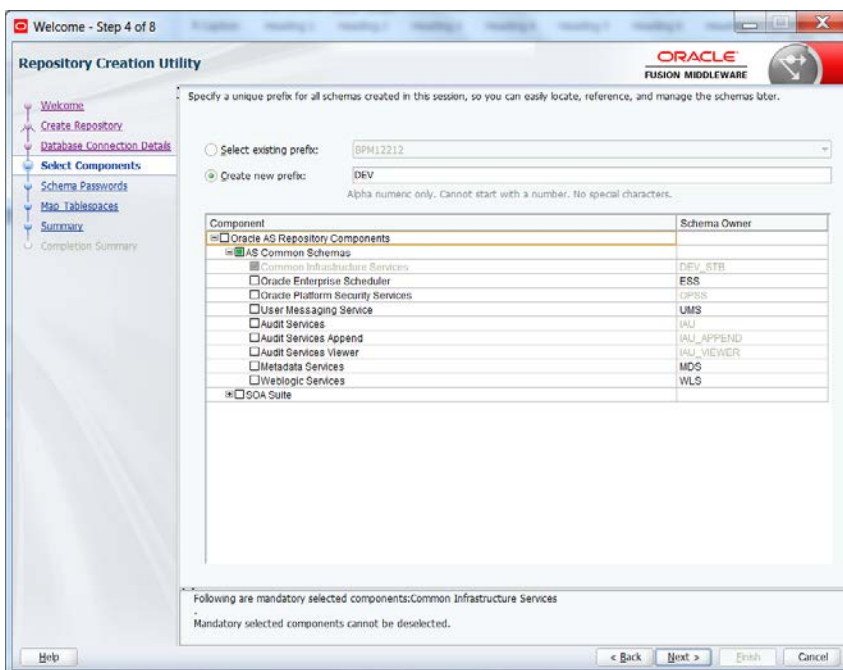
Define the host name port username and password for creating the RCU schemas in the database. The sys user required to create the rcu schemas.

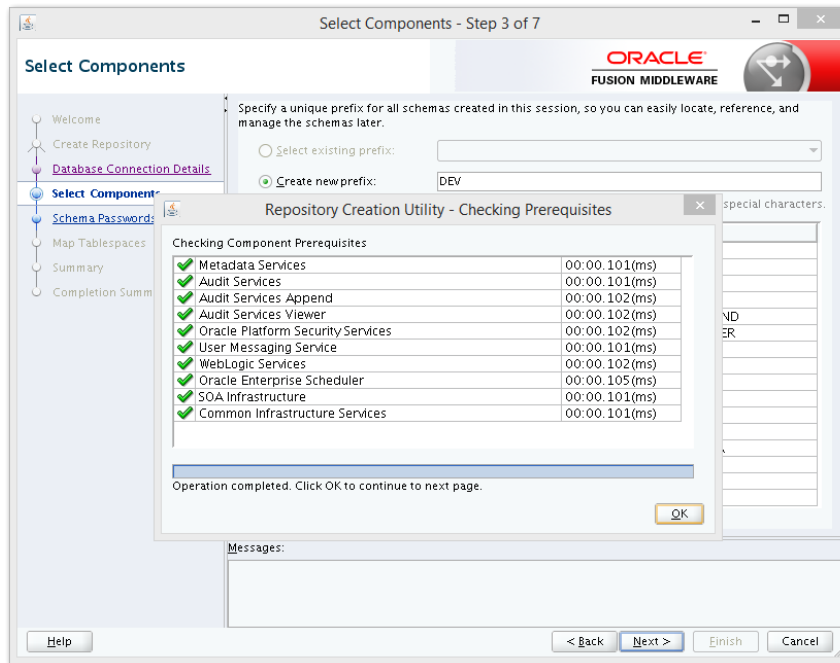




Step 4:

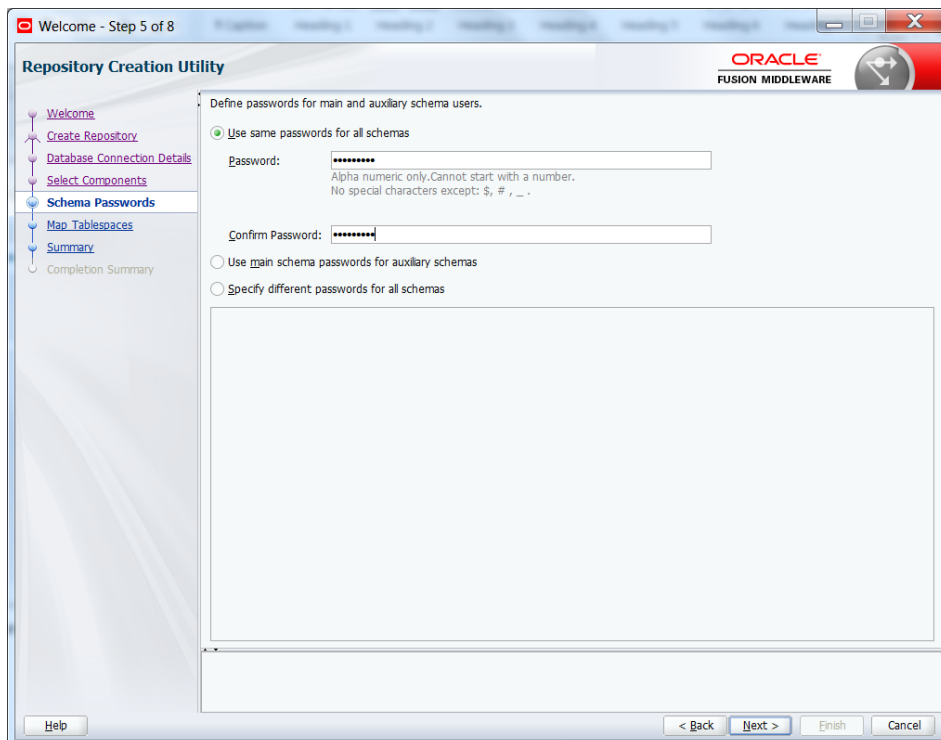
Define the prefix to be used for the schemas





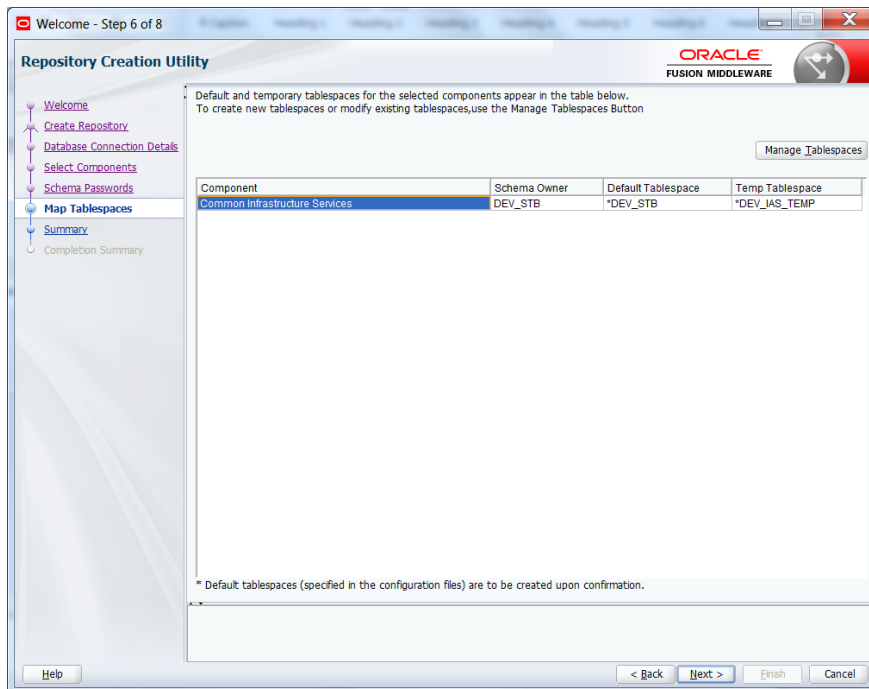
Step 5:

Define the password for the schemas.

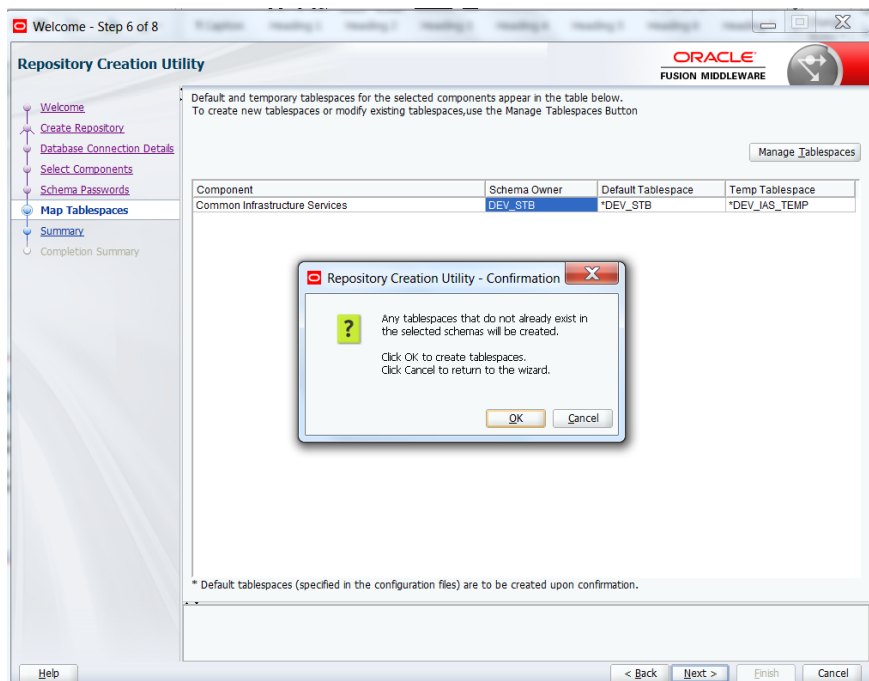


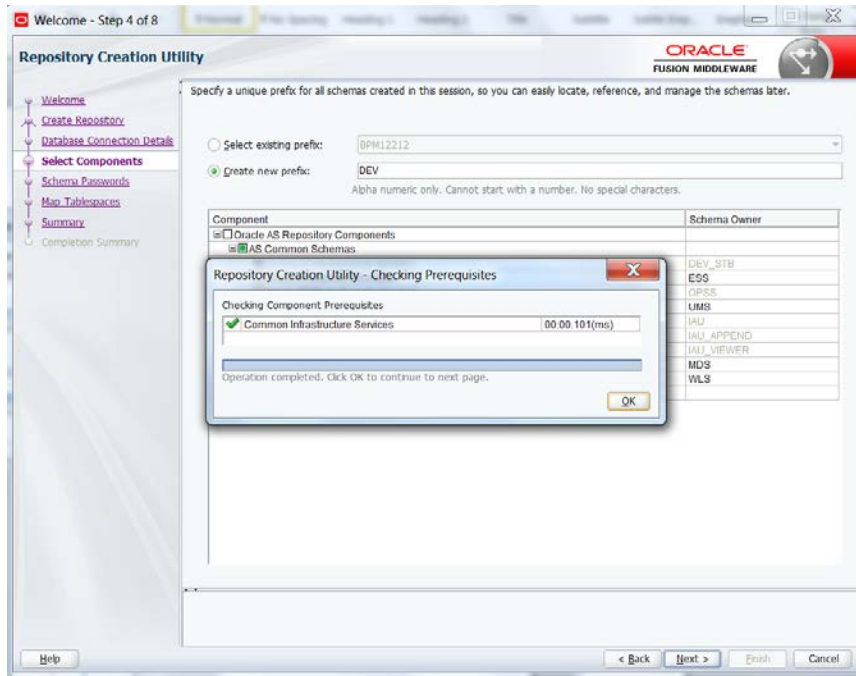
Note: It is important to remember the password or passwords that you enter during the process.

Step 6:

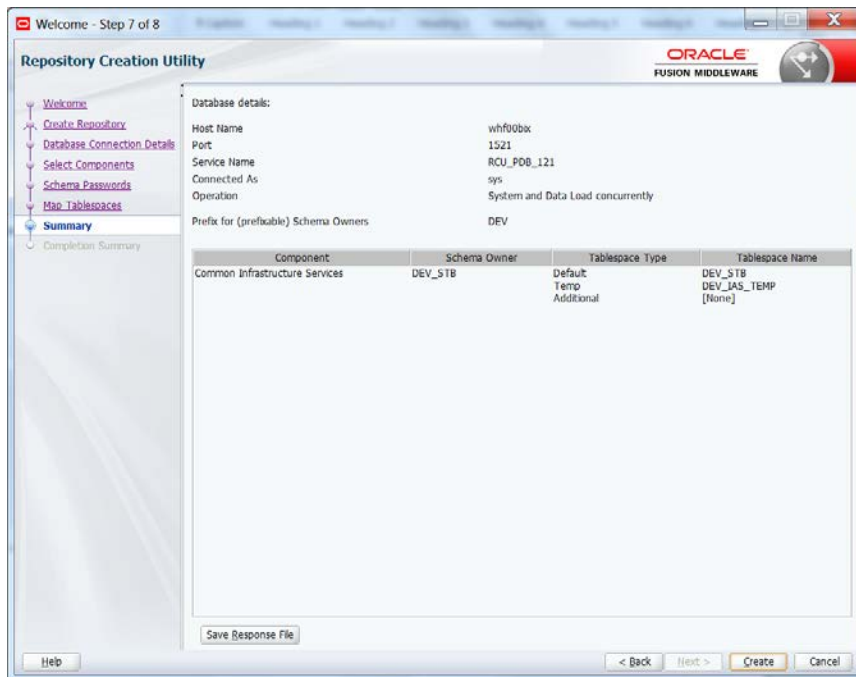


Step 7:



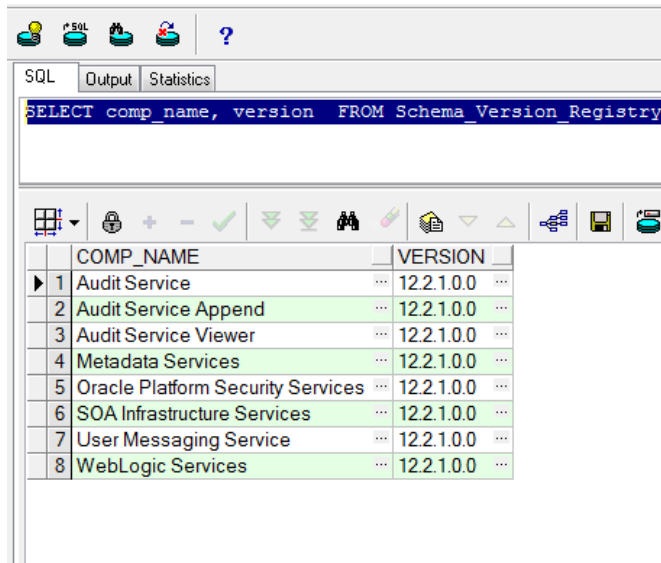


Step 7:



Note: Verifying Schema Version Numbers in the database where RCU is executed

```
SQL> select comp_name, version from schema_version_registry;
```

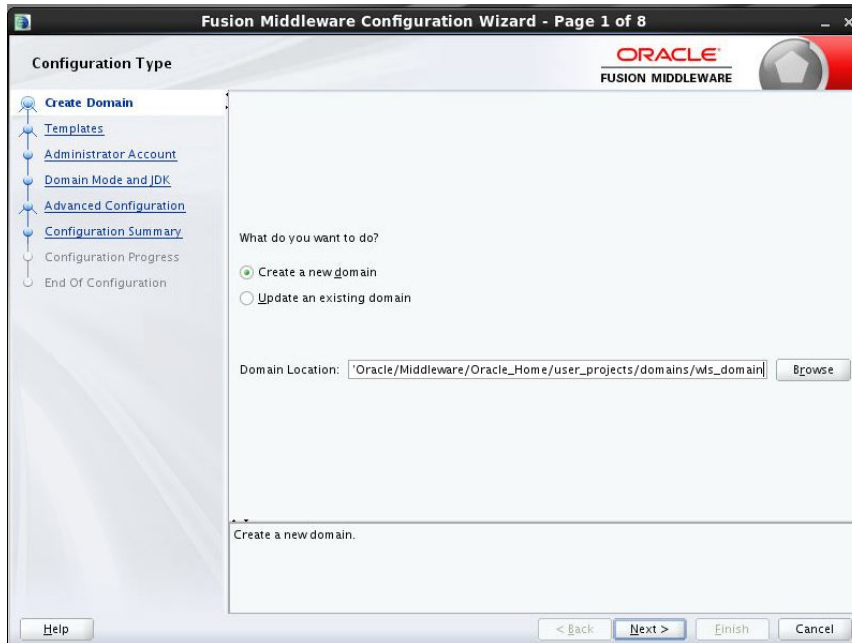


The screenshot shows the SQL Developer interface. The top toolbar includes icons for user, SQL, schema, and help. Below the toolbar are tabs for SQL, Output, and Statistics. The SQL tab is active, displaying the query: `SELECT comp_name, version FROM Schema_Version_Registry`. Below the query is a toolbar with various icons for table operations. The results pane shows a table with two columns: `COMP_NAME` and `VERSION`. The table contains eight rows of data, all with version `12.2.1.0.0`.

	COMP_NAME	VERSION
1	Audit Service	12.2.1.0.0
2	Audit Service Append	12.2.1.0.0
3	Audit Service Viewer	12.2.1.0.0
4	Metadata Services	12.2.1.0.0
5	Oracle Platform Security Services	12.2.1.0.0
6	SOA Infrastructure Services	12.2.1.0.0
7	User Messaging Service	12.2.1.0.0
8	WebLogic Services	12.2.1.0.0

2.7 WebLogic Server Domain Configuration

Step 1:



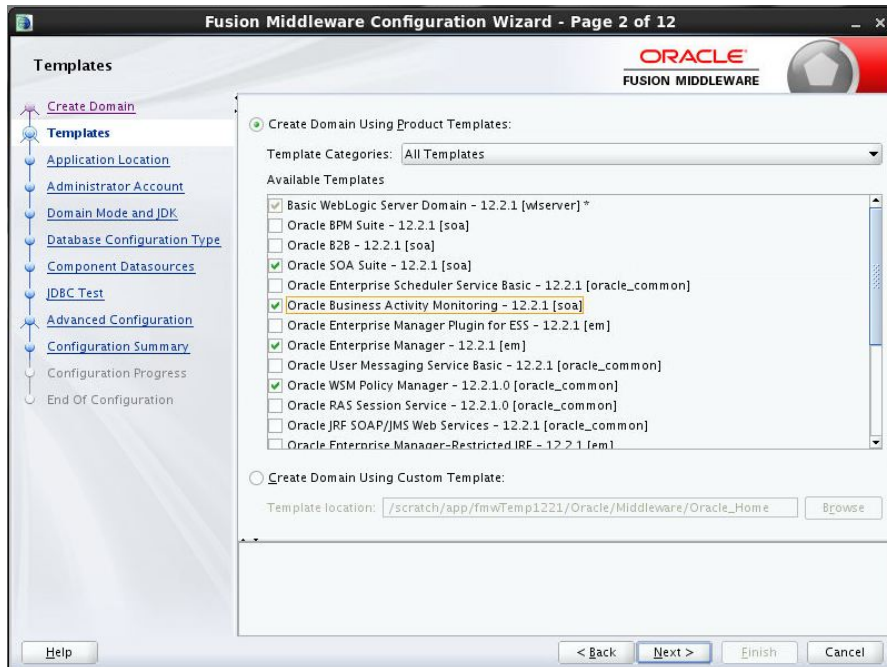
Step 2:

Domain creation template

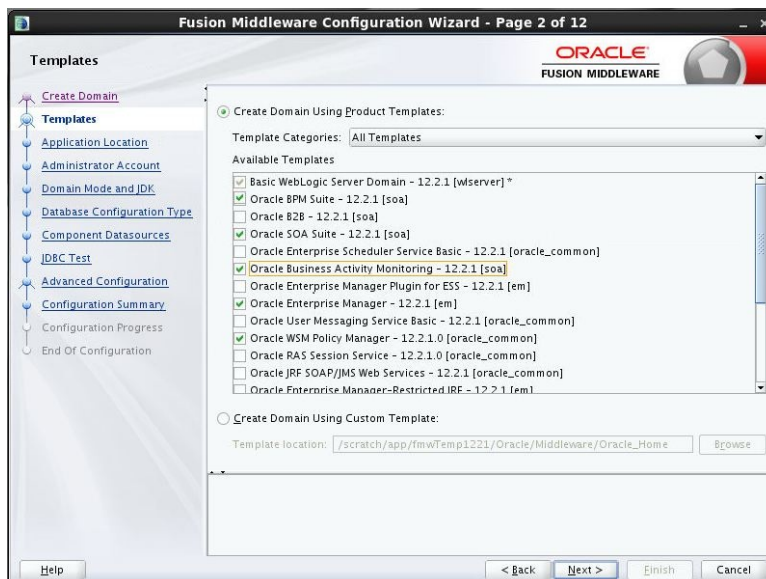
For BPEL only domain



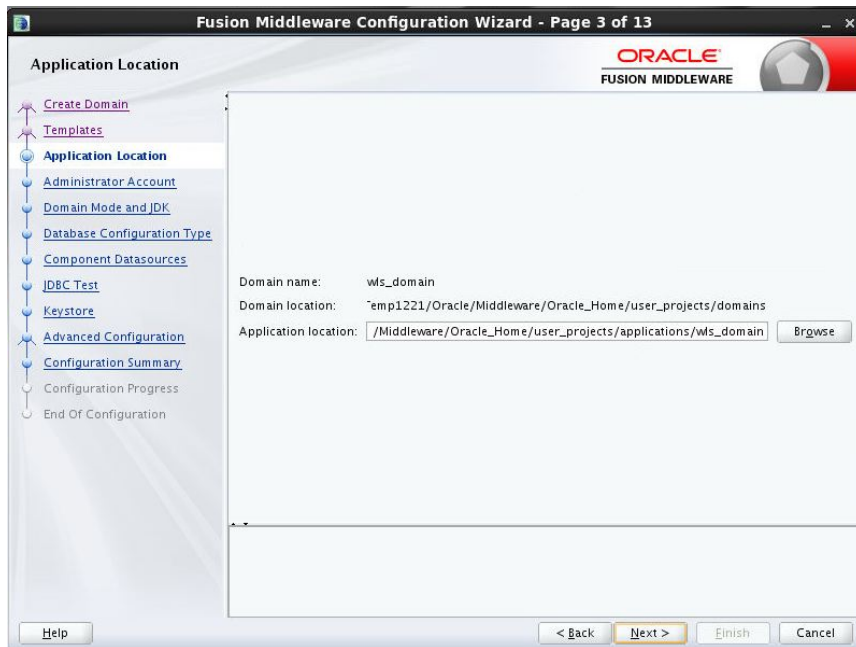
Based on the requirement select the Oracle Business Activity Monitoring (BAM) check box.



For BPM enabled domain (_If BPM process flows deployment is required then we have to select the Oracle BPM Suite – 12.2.1)



Step 3:



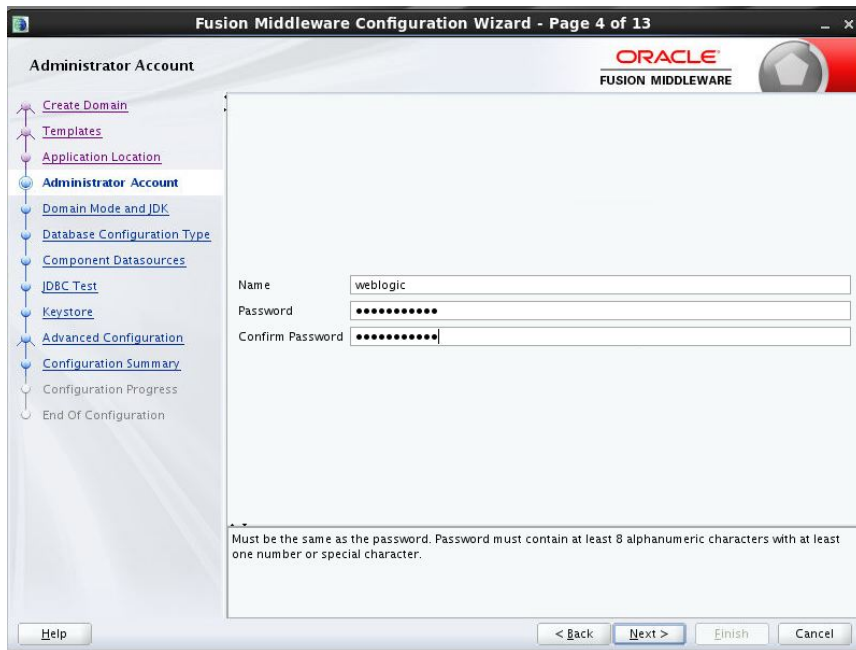
The screenshot shows the 'Application Location' step of the Fusion Middleware Configuration Wizard. The left sidebar contains a tree view with the following items: 'Create Domain' (selected), 'Templates', 'Application Location', 'Administrator Account', 'Domain Mode and JDK', 'Database Configuration Type', 'Component Datasources', 'JDBC Test', 'Keystore', 'Advanced Configuration', 'Configuration Summary', 'Configuration Progress', and 'End Of Configuration'. The main area displays the following configuration details:

- Domain name: ws_domain
- Domain location: temp1221/Oracle/Middleware/Oracle_Home/user_projects/domains
- Application location: /Middleware/Oracle_Home/user_projects/applications/ws_domain (with a 'Browse' button)

At the bottom, there are navigation buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. A 'Help' button is located at the bottom left.

Step 4:

Defining the domain user name and password



The screenshot shows the 'Administrator Account' step of the Fusion Middleware Configuration Wizard. The left sidebar contains a tree view with the following items: 'Create Domain', 'Templates', 'Application Location', 'Administrator Account' (selected), 'Domain Mode and JDK', 'Database Configuration Type', 'Component Datasources', 'JDBC Test', 'Keystore', 'Advanced Configuration', 'Configuration Summary', 'Configuration Progress', and 'End Of Configuration'. The main area displays the following configuration details:

- Name: weblogic
- Password: (masked with dots)
- Confirm Password: (masked with dots)

At the bottom, there are navigation buttons: '< Back', 'Next >', 'Finish', and 'Cancel'. A 'Help' button is located at the bottom left.

Below the input fields, a note states: 'Must be the same as the password. Password must contain at least 8 alphanumeric characters with at least one number or special character.'

Step 5:



Domain mode needs to be production for all installations.

The screenshot shows the 'Domain Mode and JDK' configuration page. The left sidebar lists the configuration steps, with 'Domain Mode and JDK' currently selected. The main area is titled 'Domain Mode' and has two radio buttons: 'Development' (selected) and 'Production'. Below this, the 'JDK' section has a radio button for 'Oracle HotSpot 1.8.0_65 / scratch/app/jdk1.8.0_65' (selected) and a text field for 'Other JDK Location' with a 'Browse' button. At the bottom, there are navigation buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

Step 6:

Define the RCU schema details and the TNS connection details

The screenshot shows the 'Database Configuration Type' page. The left sidebar lists the configuration steps, with 'Database Configuration Type' currently selected. The main area is titled 'Specify AutoConfiguration Options Using:' and has two radio buttons: 'RCU Data' (selected) and 'Manual Configuration'. Below this, there is a text box explaining that the wizard uses the Repository Creation Utility service table (STB) schema credentials. The 'Vendor' is set to 'Oracle' and the 'Driver' is 'Oracle's Driver (Thin) for Service connections; Versi...'. The 'DBMS/Service' is empty, 'Host Name' is empty, and 'Port' is '1522'. The 'Schema Owner' is 'DEV_STB' and the 'Schema Password' is masked with dots. There is a yellow 'Get RCU Configuration' button and a 'Cancel' button. Below this, the 'Connection Result Log' shows the following text: 'Connecting to the database server...OK', 'Retrieving schema data from database server...OK', 'Binding local schema components with retrieved data...OK', and 'Successfully Done.'. At the bottom, there is a text box that says 'Click "Next" button to continue.' and navigation buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

Step 7:

Fusion Middleware Configuration Wizard - Page 7 of 12

JDBC Component Schema

Vendor: Driver:

DBMS/Service: Host Name: Port:

Schema Owner: Schema Password:

Oracle RAC configuration for component schemas:

☐ Convert to GridLink ☐ Convert to RAC multi data source ☐ Don't convert

Edits to the data above will affect all checked rows in the table below:

<input type="checkbox"/> Component Schema	DBMS/Service	Host Name	Port	Schema Owner	Schema Password
<input type="checkbox"/> BAM Schema	ORFC12C	ofss220337	1522	DEV_SOAINFR	*****
<input type="checkbox"/> BAM Job Sched Schema	ORFC12C	ofss220337	1522	DEV_WLS	*****
<input type="checkbox"/> SOA EDN (XA)	ORFC12C	ofss220337	1522	DEV_SOAINFR	*****
<input type="checkbox"/> SOA EDN (Local)	ORFC12C	ofss220337	1522	DEV_SOAINFR	*****
<input type="checkbox"/> LocalSvcTbl Schema	ORFC12C	ofss220337	1522	DEV_STB	*****
<input type="checkbox"/> User Messaging Service	ORFC12C	ofss220337	1522	DEV_UMS	*****
<input type="checkbox"/> SOA (XA)	ORFC12C	ofss220337	1522	DEV_SOAINFR	*****
<input type="checkbox"/> SOA (Local)	ORFC12C	ofss220337	1522	DEV_SOAINFR	*****
<input type="checkbox"/> BAM MDS Schema	ORFC12C	ofss220337	1522	DEV_MDS	*****
<input type="checkbox"/> OWSM MDS Schema	ORFC12C	ofss220337	1522	DEV_MDS	*****

Help < Back Next > Finish Cancel

Step 8:

Fusion Middleware Configuration Wizard - Page 8 of 12

JDBC Component Schema Test

Test Selected Connections Cancel Testing

Connection Result Log

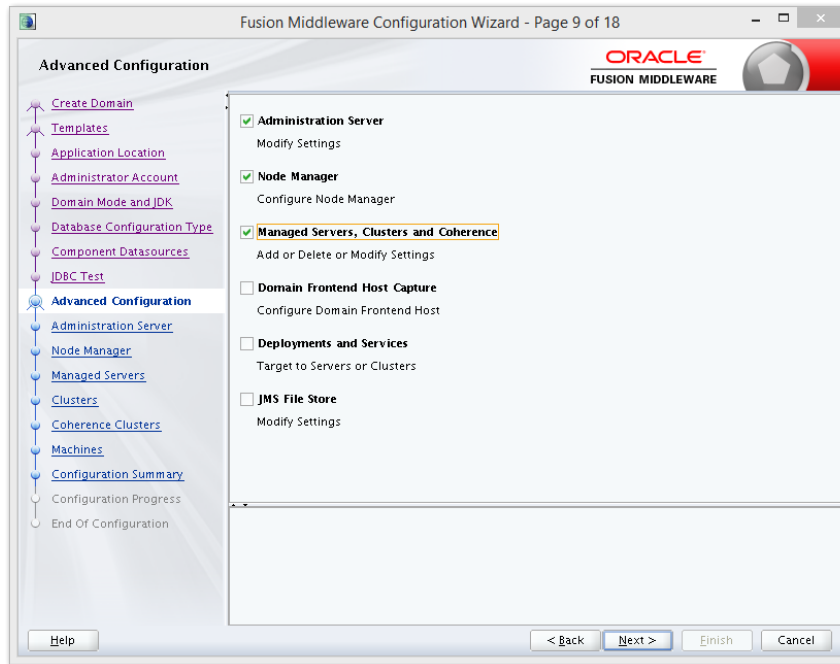
Component Schema=BAM Schema
 Driver=oracle.jdbc.xa.client.OracleXADataSource
 URL=jdbc:oracle:thin:@//zeus.zion.local:1522/PDB01.ZION.LOCAL
 User=DEV_SOAINFR
 Password=*****
 SQL Test=select 1 from schema_version_registry where owner=(select user from dual) and mr_type='SOA'

CFGFWK-64213: Test Successful
 CFGFWK-64213: JDBC connection test was successful

Help < Back Next > Finish Cancel

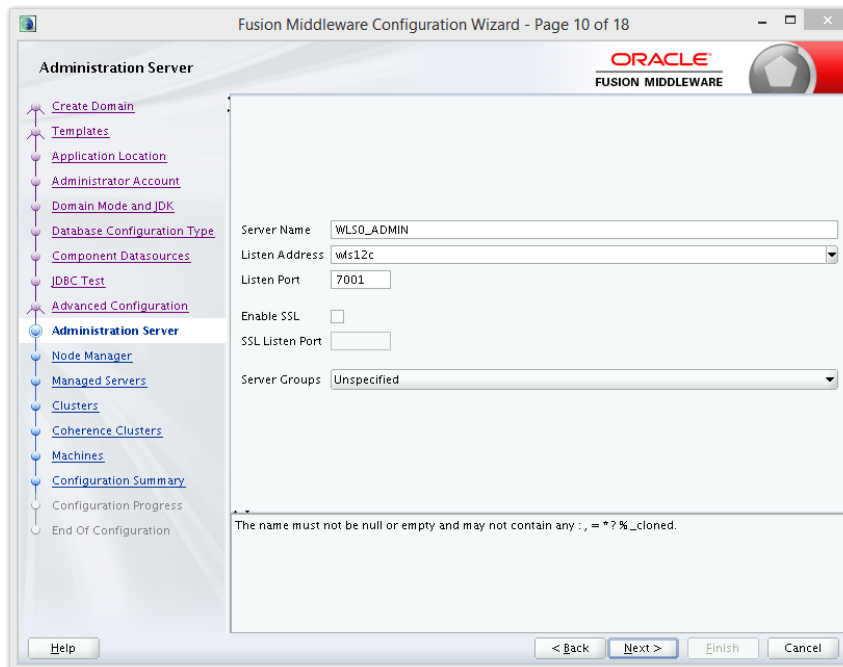
Step 9:

Select the admin server, node manager and managed servers.



Step 10:

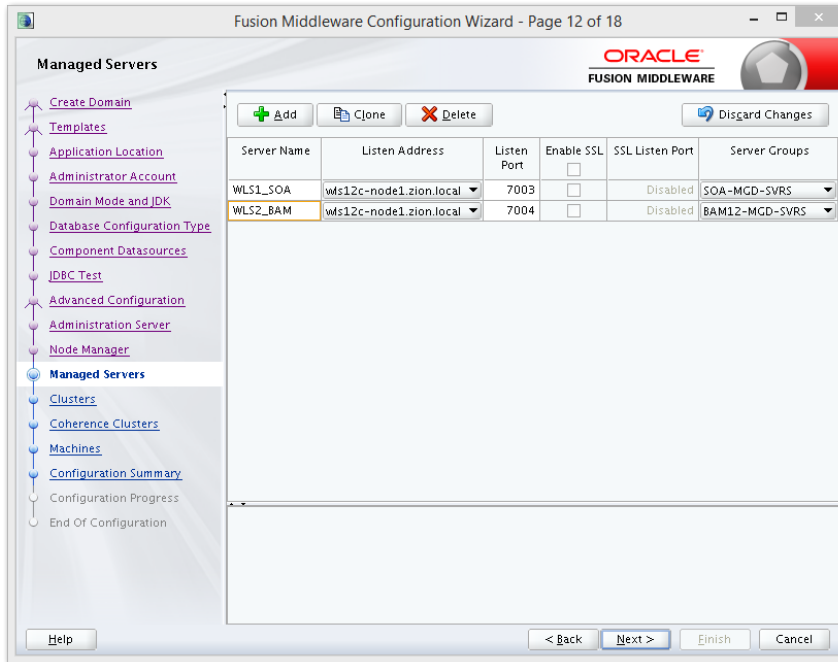
Specify the server name as AdminServer and listener address as hostname. Based on the installation requirement SSL need to be enabled.



Step 11:

Specify the server name as soa_server1 and bam_server1 for the managed servers.

Based on the installation requirement SSL need to be enabled for managed servers

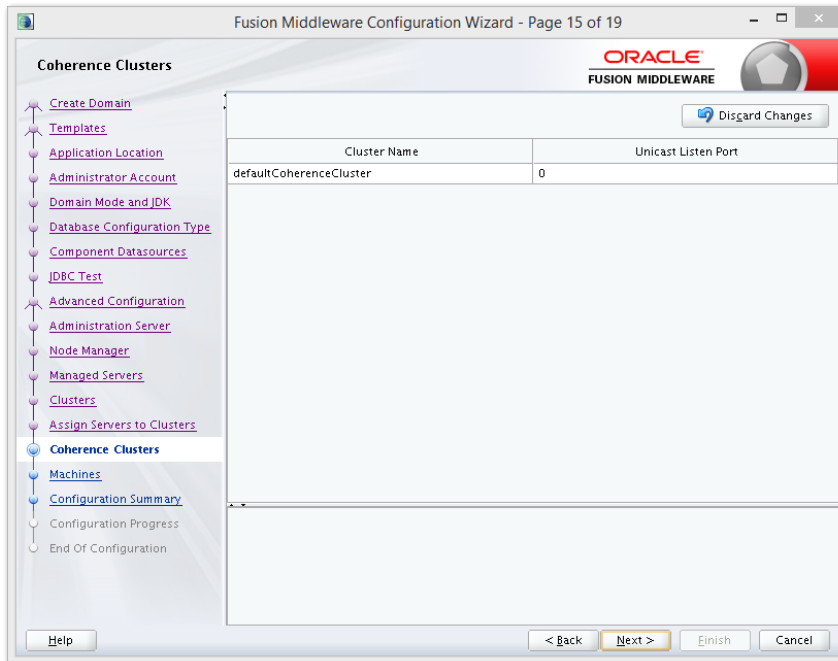


The screenshot shows the 'Managed Servers' page of the Fusion Middleware Configuration Wizard. The left sidebar contains a tree view with the following items: Create Domain, Templates, Application Location, Administrator Account, Domain Mode and JDK, Database Configuration Type, Component Datasources, JDBC Test, Advanced Configuration, Administration Server, Node Manager, Managed Servers (selected), Clusters, Coherence Clusters, Machines, Configuration Summary, Configuration Progress, and End Of Configuration. The main area displays a table with the following data:

Server Name	Listen Address	Listen Port	Enable SSL	SSL Listen Port	Server Groups
WLS1_SOA	wls12c-node1.zion.local	7003	<input type="checkbox"/>	Disabled	SOA-MCD-SVRS
WLS2_BAM	wls12c-node1.zion.local	7004	<input type="checkbox"/>	Disabled	BAM12-MCD-SVRS

Buttons at the top include Add, Clone, Delete, and Disregard Changes. Navigation buttons at the bottom include < Back, Next >, Finish, and Cancel.

Step 12:

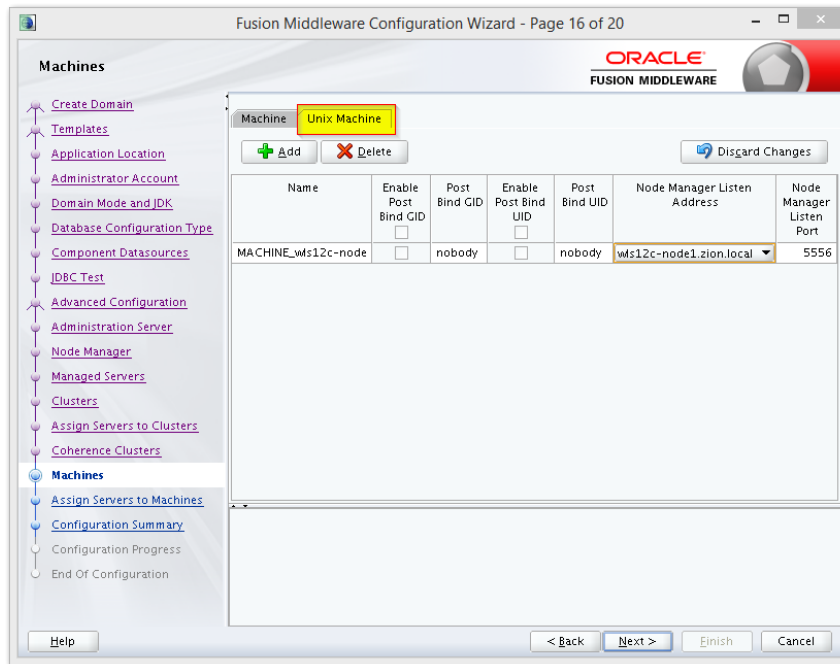


The screenshot shows the 'Coherence Clusters' page of the Fusion Middleware Configuration Wizard. The left sidebar contains the same tree view as in Step 11, with 'Coherence Clusters' selected. The main area displays a table with the following data:

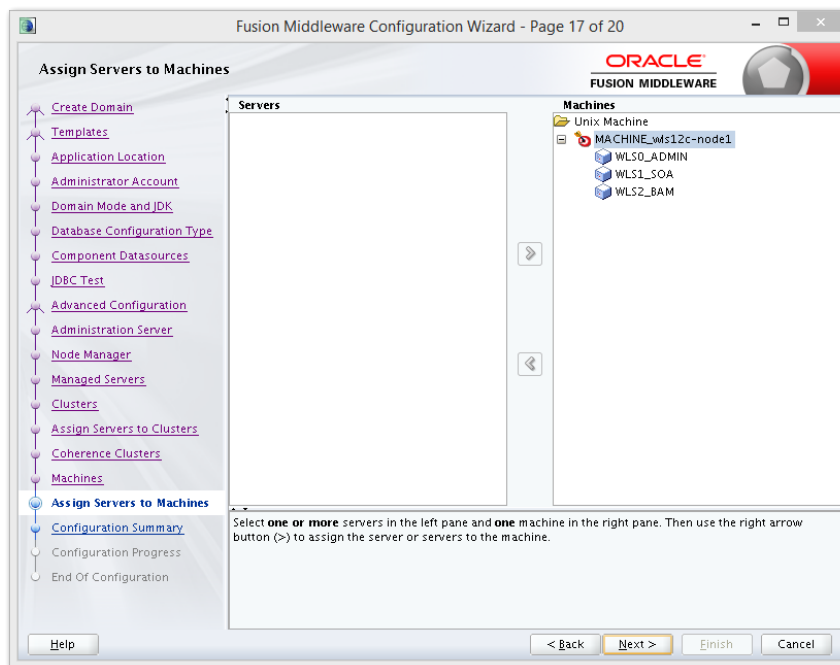
Cluster Name	Unicast Listen Port
defaultCoherenceCluster	0

Buttons at the top include Disregard Changes. Navigation buttons at the bottom include < Back, Next >, Finish, and Cancel.

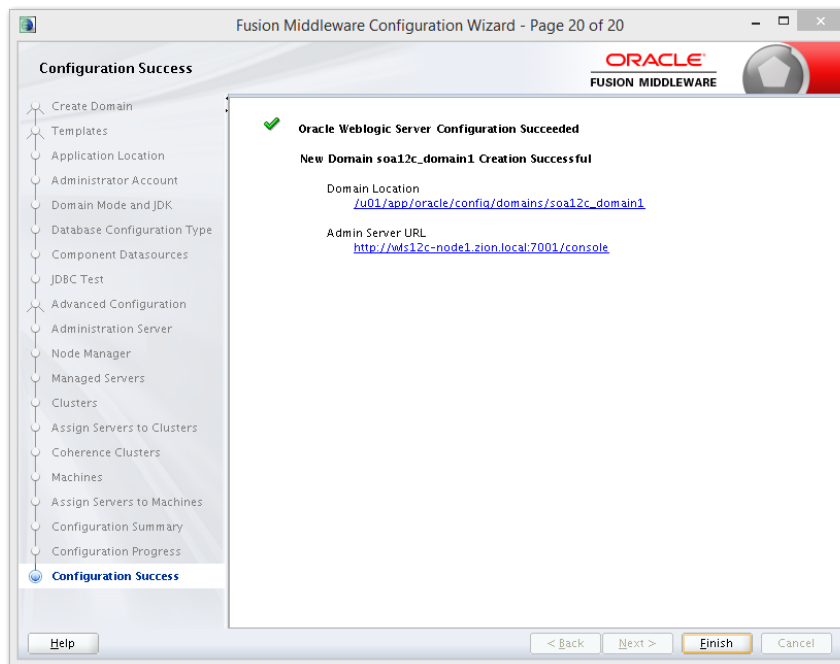
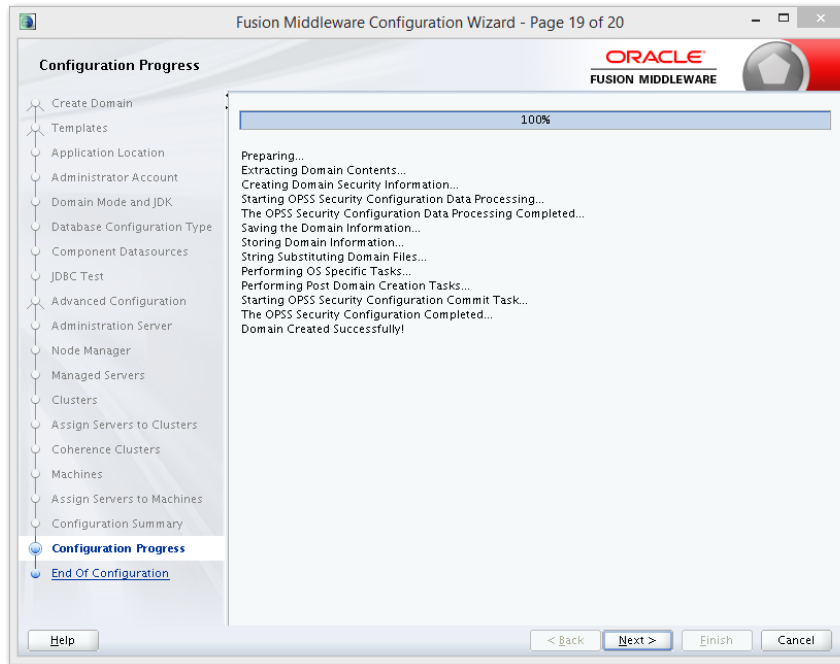
Step 13:



Step 14:



Step 15:



2.8 Remote Setup Configuration:

Remote setup means SOA is installed in different machine and EAR is running in different machine.

Configuring Flexcube Application to point to remote BPEL instances.

1. Following Jars has to be copied to <Weblogic_home>\<domain>\lib

Jar to be copied	Path where the jar is available in SOA Middleware
bpm-services.jar	%Middleware Home%/soa/soa/modules/oracle.soa.workflow_11.1.1
fabric-runtime.jar	%Middleware Home%/soa/soa/modules/oracle.soa.fabric_11.1.1
tracking-fabric.jar	
tracking-api.jar	
jrf-api.jar	%Middleware Home%/oracle_common/modules/oracle.jrf
orabpel-common.jar	%Middleware Home%/soa/soa/modules/oracle.soa.bpel_11.1.1
orabpel-thirdparty.jar	
orabpel.jar	
soa-infra-mgmt.jar	%Middleware Home%/soa/soa/modules/oracle.soa.mgmt_11.1.1
xml.jar	%Middleware Home%/oracle_common/modules/oracle.xdk
xmlparserv2.jar	
mdsrt.jar	%Middleware Home%/oracle_common/modules/oracle.mds
com.oracle.webservices.fmw.wsclient-rt-impl.jar	%Middleware Home%/oracle_common/modules

2. Additionally if BPMN enabled

Jar to be copied	Path where the jar is available in SOA Middleware
oracle.bpm.bpm-services.client.jar	%Middleware Home%/soa/soa/modules/oracle.bpm.client_11.1.1
oracle.bpm.bpm-services.interface.jar	
oracle.bpm.project.draw.jar	%Middleware Home%/soa/soa/modules/oracle.bpm.project_11.1.1
oracle.bpm.project.model.jar	
oracle.bpm.core.jar	%Middleware Home%/soa/soa/modules/oracle.bpm.runtime_11.1.1

oracle.bpm.ui.jar	%Middleware Home%/soa/soa/modules/oracle.bpm.workspace_11.1.1
oracle.bpm.casemgmt.interface.jar	%Middleware Home%/soa/soa/modules/oracle.bpm.runtime_11.1.1

3. The jars copied have to be from same soa-suite version where BPEL processflows deployed. Ie, We cannot have jars from soa12.1.3.0.0 and BPEL deployed in soa12.2.1.0.0. It should be consistent.
4. The properties file **fcubs.properties** should read as below
WORKFLOW_CLIENT_TYPE =REMOTE
java.naming.provider.url=t3://10.184.74.143:8001/?partitionName=DOMAIN (Remote soa server provider url)
java.naming.security.principal =weblogic (Remote bpel server userid)
java.naming.security.credentials=RF2MRTP/MG8TB1T5QG6lnQ== (Remote soa server password)
dedicated.connection=true
domain.name=default (Remote soa server partition)
domain.pwd=RF2MRTP/MG8TB1T5QG6lnQ== (Remote soa server password)
5. Configure domain password same as for both fcj ear domain and remote BPEL domain and DowngradeUntrusted Principals has to be checked



SOA Suite Setup for BPEL Process Flow
[May] [2020]
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