

SOA Suite Setup for BPEL Process Flow  
Oracle FLEXCUBE Investor Servicing  
Release 14.6.0.0.0  
[May] [2022]



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# 1. Preface

## 1.1 Background

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

Refer to the Oracle documentation for HA and other configuration patterns.

## 1.2 Audience

The audience for this document will be the development groups of BPEL/BPM process flows Oracle FLEXCUBE Investor Servicing.

## 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

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## 2. Installing the JDK, WebLogic, RCU, SOA and Domain Creation

### 2.1 Introduction

The download of software can be done from the oracle edelivery portal

<https://edelivery.oracle.com>

Refer to the Oracle certification matrix for qualified databases.

### 2.2 List of downloaded files

Latest Oracle JDK 8 Update for Linux x86-64

Search: Oracle Fusion Middleware 12c Infrastructure 12.2.1.2.0 (**WebLogic Installation**)

V78156-01.zip– Oracle Fusion Middleware 12c (12.2.1.2.0) Infrastructure

Search: Oracle Business Process Management 12.2.1.0.0 (**BPM/BPEL**)

V78169-01.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

<input type="checkbox"/>	HP-UX Itanium
<input type="checkbox"/>	IBM AIX on POWER Systems (64-bit)
<input type="checkbox"/>	IBM z/OS on System z
<input type="checkbox"/>	IBM: Linux on System z
<input type="checkbox"/>	Linux x86-64
<input type="checkbox"/>	Microsoft Windows (32-bit)
<input type="checkbox"/>	Microsoft Windows x64 (64-bit)
<input type="checkbox"/>	Oracle Solaris on SPARC (32-bit)
<input type="checkbox"/>	Oracle Solaris on SPARC (64-bit)
<input type="checkbox"/>	Oracle Solaris on x86-64 (64-bit)
<input type="button" value="Select"/> <input type="button" value="Cancel"/>	

Search by

Download Queue <input type="button" value="Continue"/>	
Selected Item	Platform
Release: Oracle SOA Suite 12.2.1.0.0	Linux x86-64
Release: Oracle Business Process Management 12.2.1.0.0	Linux x86-64

**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.

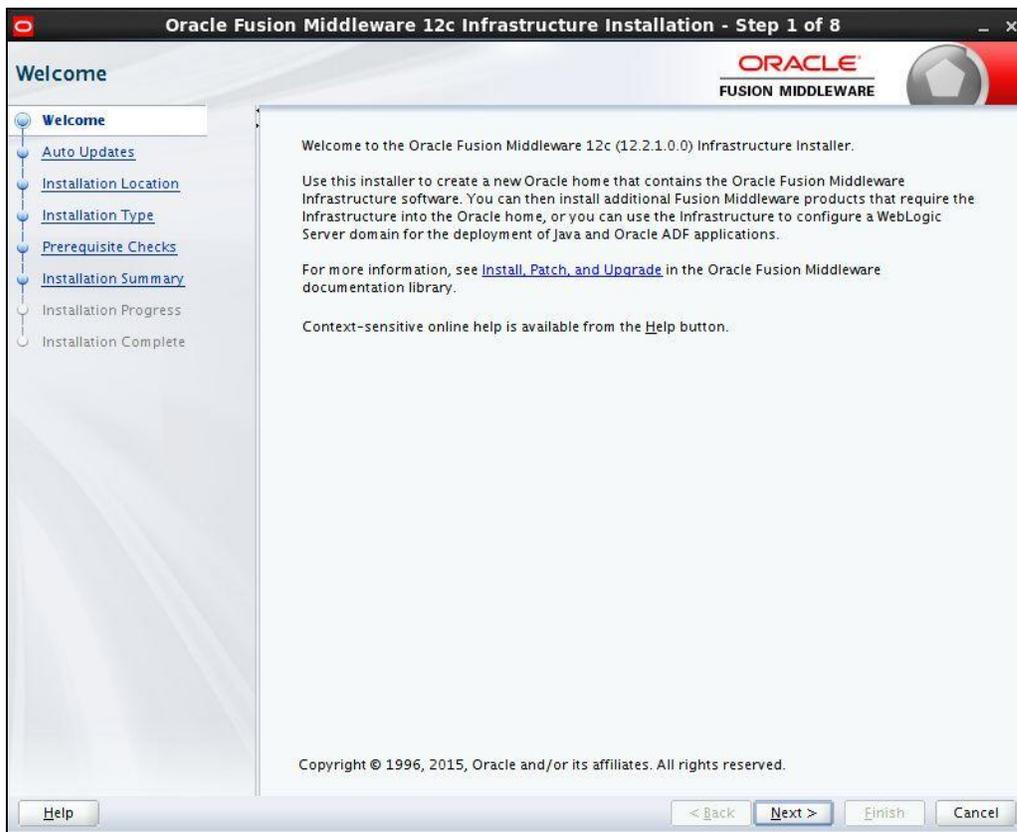
## 2.3 Install JDK

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

```
[oracle@wls12c-node1 ~]$ cd /scratch/app/fmwTemp1221/  
[oracle@wls12c-node1 fmwTemp1221]$ unzip V78156-01.zip  
Archive: V78156-01.zip  
inflating: fmw_12.2.1_infrastructure.jar  
[oracle@wls12c-node1 fmwTemp1221]$ java -jar fmw_12.2.1 _infrastructure.jar
```

Step 1:



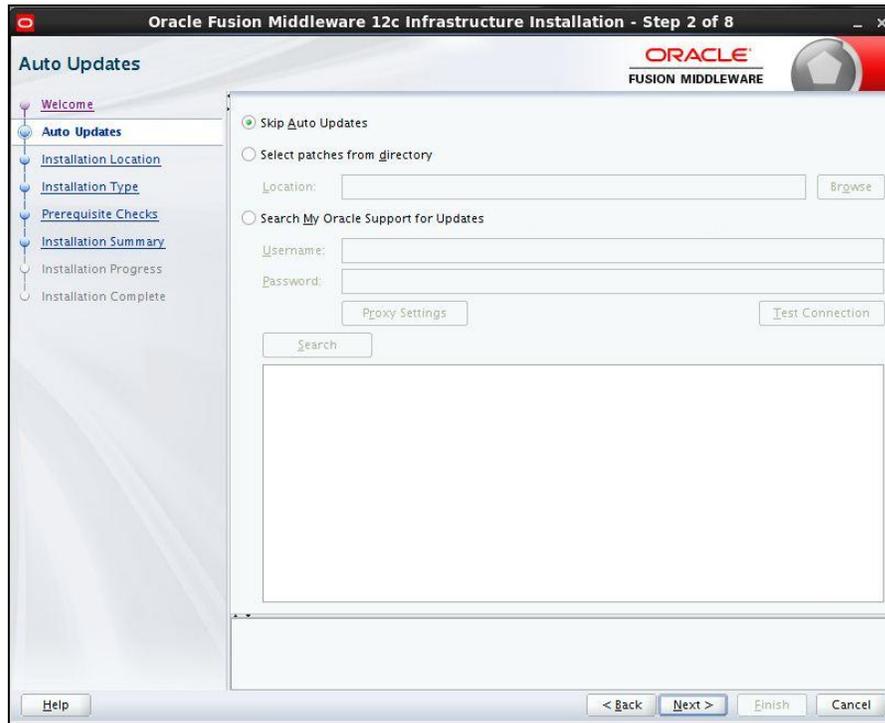
Step 2:

Option need to be selected based on the requirement:

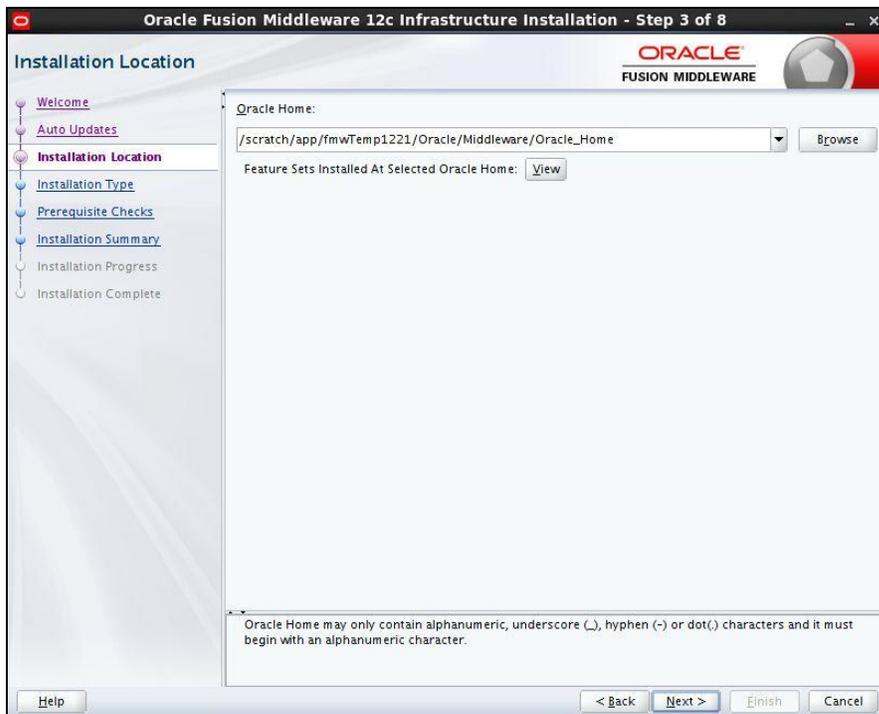
If you don't want the auto updates, select the first option.

If you are applying patches, select the second option.

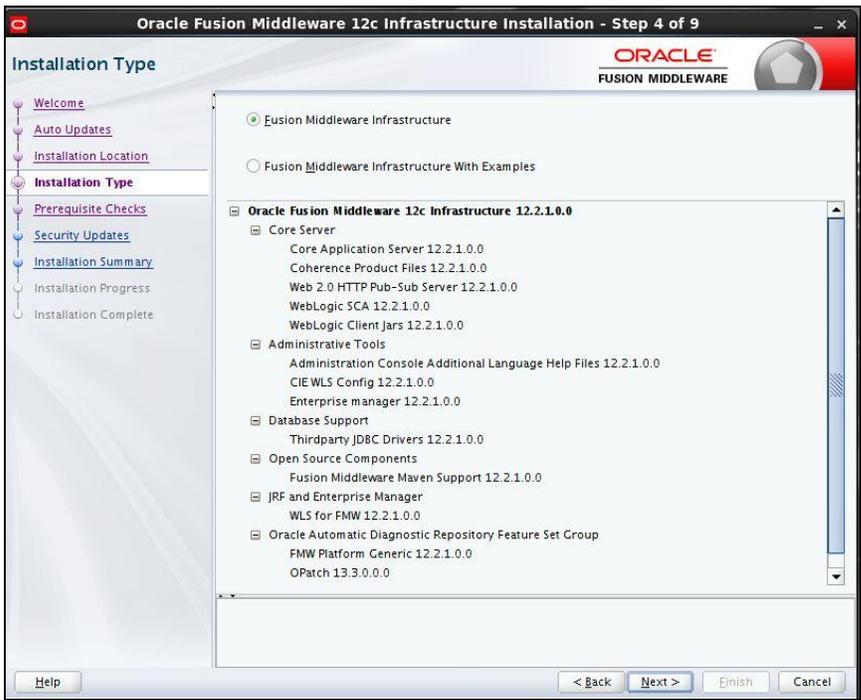
Please select the option based on the requirement:



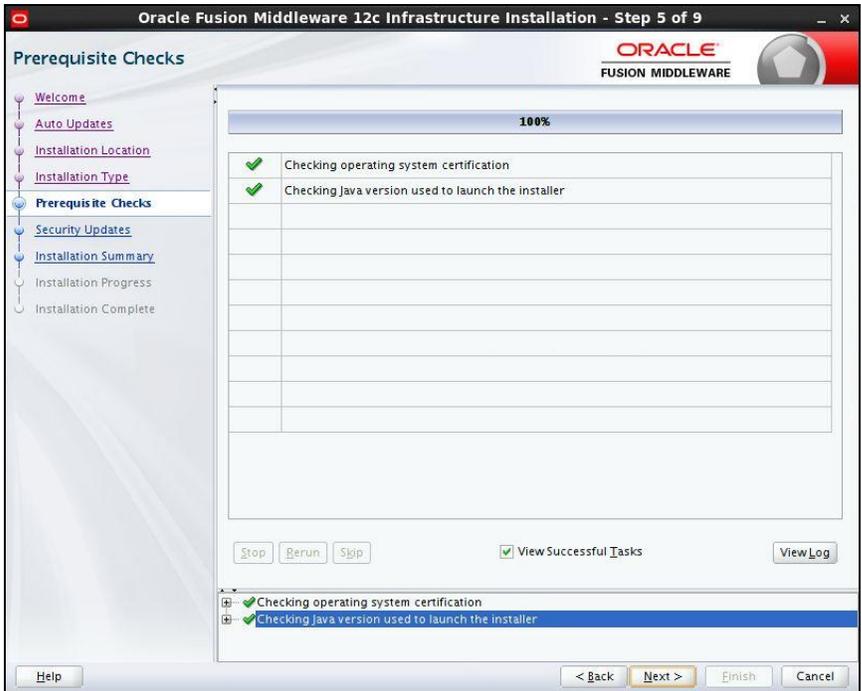
Step 3: Define the oracle home path



#### Step 4: Select fusion middleware infrastructure



#### Step 5:



## Step 6: Optional based on installation requirement

The screenshot shows the 'Security Updates' step of the Oracle Fusion Middleware 12c Infrastructure installation. The window title is 'Oracle Fusion Middleware 12c Infrastructure Installation - Step 6 of 9'. The Oracle logo and 'FUSION MIDDLEWARE' text are in the top right. A left-hand navigation pane lists steps: Welcome, Auto Updates, Installation Location, Installation Type, Prerequisite Checks, Security Updates (selected), Installation Summary, Installation Progress, and Installation Complete. The main content area contains the following text: 'Provide your email address to be informed of security issues, install the product and initiate configuration manager. [View details.](#)' Below this is an 'Email:' label followed by a text input field. A note says 'Easier for you if you use your My Oracle Support email address/username.' There is a checkbox labeled 'I wish to receive security updates via My Oracle Support.' followed by another text input field for 'My Oracle Support Password:'. At the bottom, there are buttons for '< Back', 'Next >', 'Finish', and 'Cancel'. A 'Help' button is in the bottom left corner.

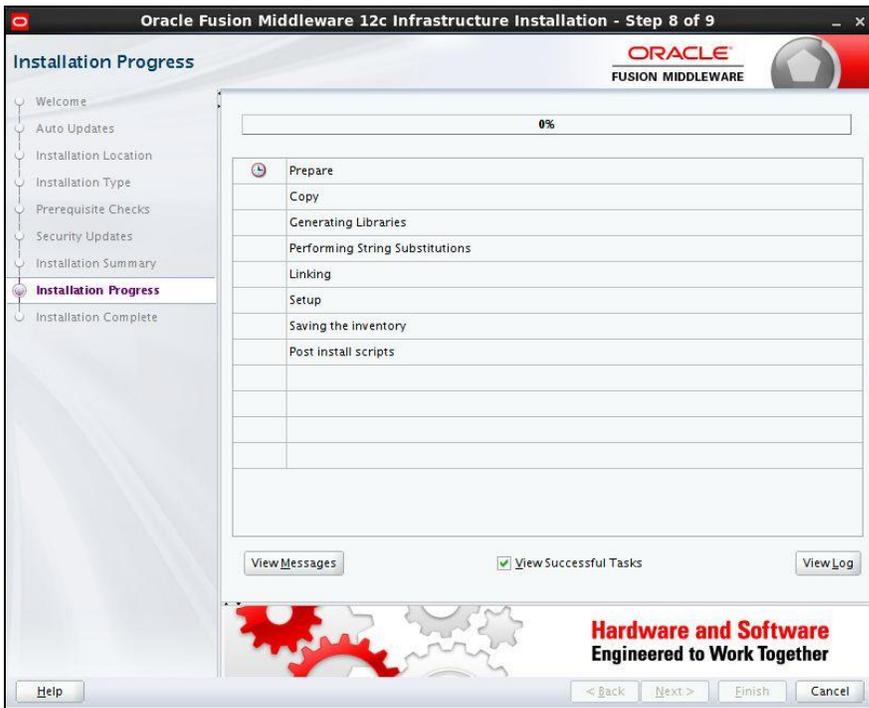
## Step 7:

The screenshot shows the 'Installation Summary' step of the Oracle Fusion Middleware 12c Infrastructure installation. The window title is 'Oracle Fusion Middleware 12c Infrastructure Installation - Step 7 of 9'. The Oracle logo and 'FUSION MIDDLEWARE' text are in the top right. The left-hand navigation pane lists steps: Welcome, Auto Updates, Installation Location, Installation Type, Prerequisite Checks, Security Updates, Installation Summary (selected), Installation Progress, and Installation Complete. The main content area displays a summary of the installation configuration:

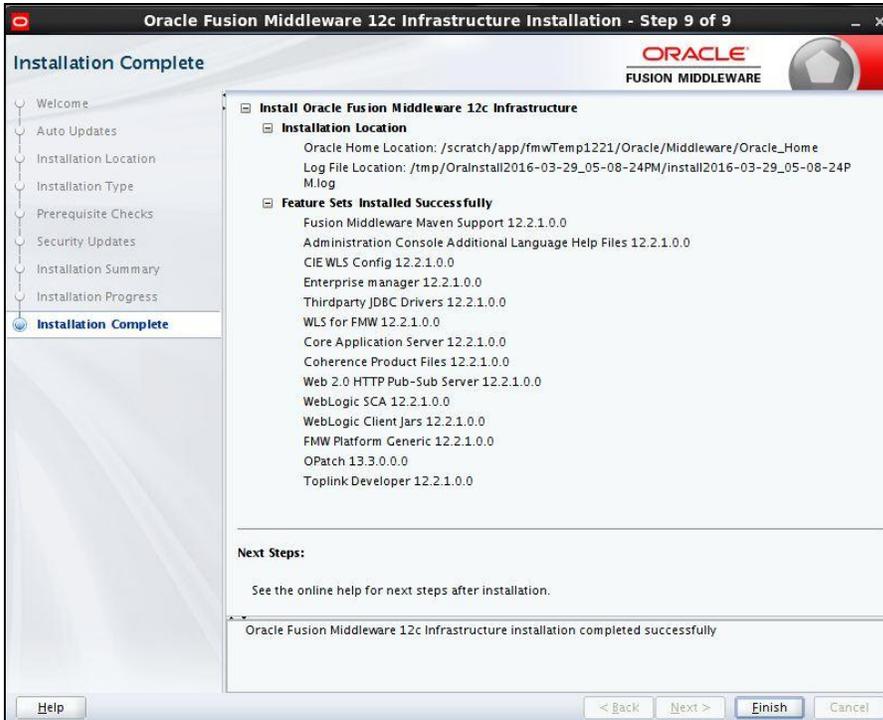
- Install Oracle Fusion Middleware 12c Infrastructure**
  - Installation Location**
    - Oracle Home Location: /scratch/app/fmwTemp1221/Oracle/Middleware/Oracle\_Home
    - Log File Location: /tmp/OraInstall2016-03-29\_05-08-24PM/install2016-03-29\_05-08-24P M.log
  - Disk Space**
    - Required: 1962 MB
    - Available: 116609 MB
  - Feature Sets to Install**
    - Fusion Middleware Maven Support 12.2.1.0.0
    - Administration Console Additional Language Help Files 12.2.1.0.0
    - CIE WLS Config 12.2.1.0.0
    - Enterprise manager 12.2.1.0.0
    - Thirdparty JDBC Drivers 12.2.1.0.0
    - WLS for FMW 12.2.1.0.0
    - Core Application Server 12.2.1.0.0
    - Coherence Product Files 12.2.1.0.0
    - Web 2.0 HTTP Pub-Sub Server 12.2.1.0.0
    - WebLogic SCA 12.2.1.0.0
    - WebLogic Client Jars 12.2.1.0.0
    - FMW Platform Generic 12.2.1.0.0
    - OPatch 13.3.0.0.0
    - Toplink Developer 12.2.1.0.0

Below the summary is a 'Save Response File' button. A message box at the bottom states: 'Select Install to accept the above options and start the installation. To change the above options before starting the installation, select the option to change in the left pane or use the Back button.' At the bottom, there are buttons for '< Back', 'Next >', 'Install', and 'Cancel'. A 'Help' button is in the bottom left corner.

Step 8:



Step 9:

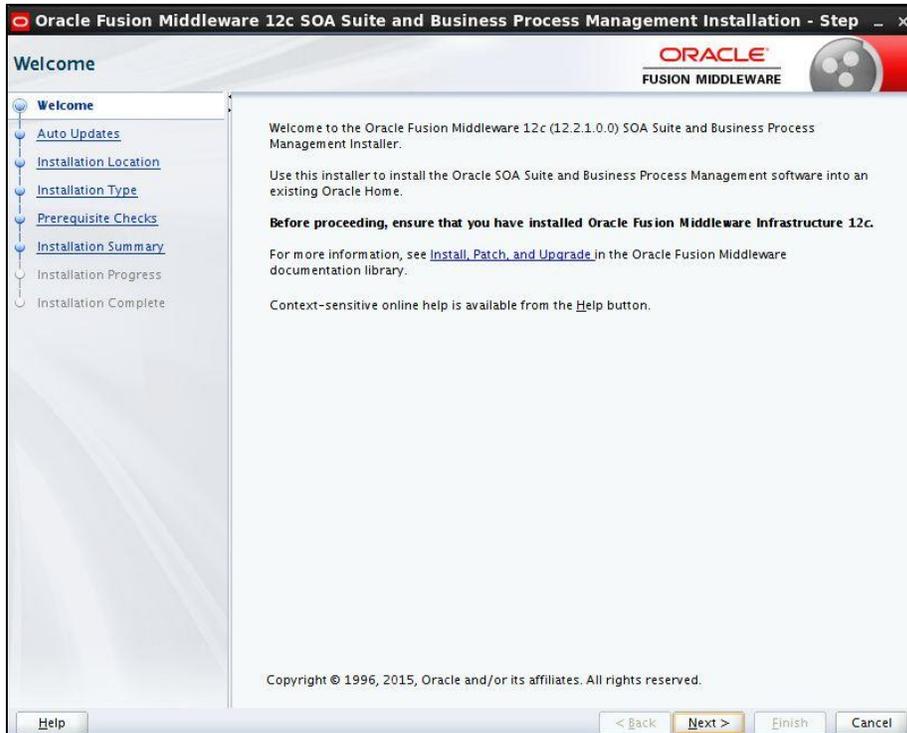


## 2.5 Installing Oracle Fusion Middleware 12c Software

```
[oracle@wls12c-node1 ~]$ cd /scratch/app/fmwTemp1221/
[oracle@wls12c-node1 fmwTemp1221]$ unzip V78169-01.zip
Archive: V78169-01.zip
  inflating: fmw_12.2.1.0.0 _soa.jar

[oracle@wls12c-node1 fmwTemp1221]$ java -jar fmw_12.2.1 _soa.jar
```

Step 1:

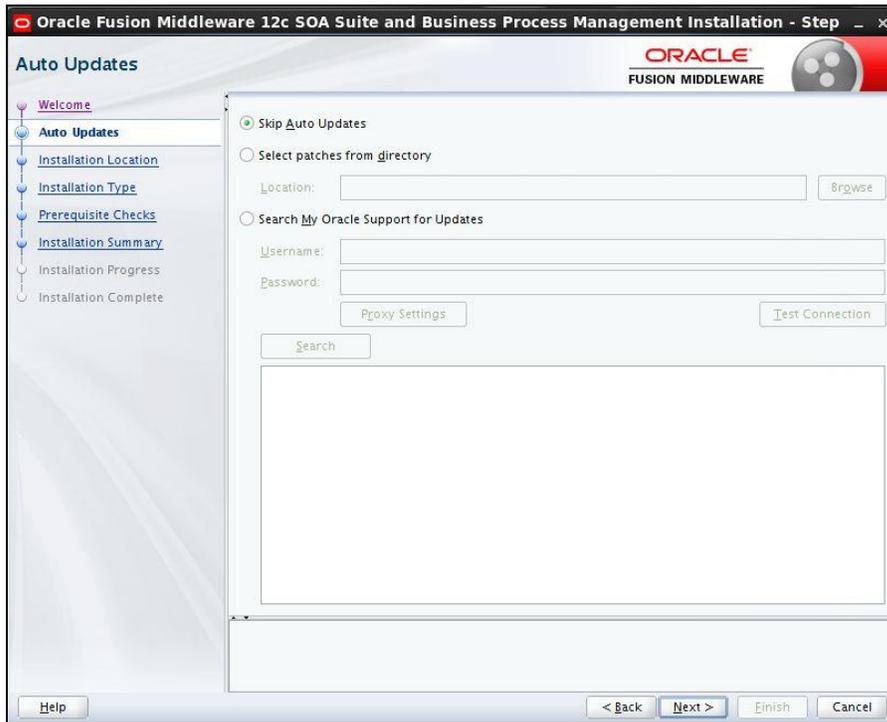


Step 2:

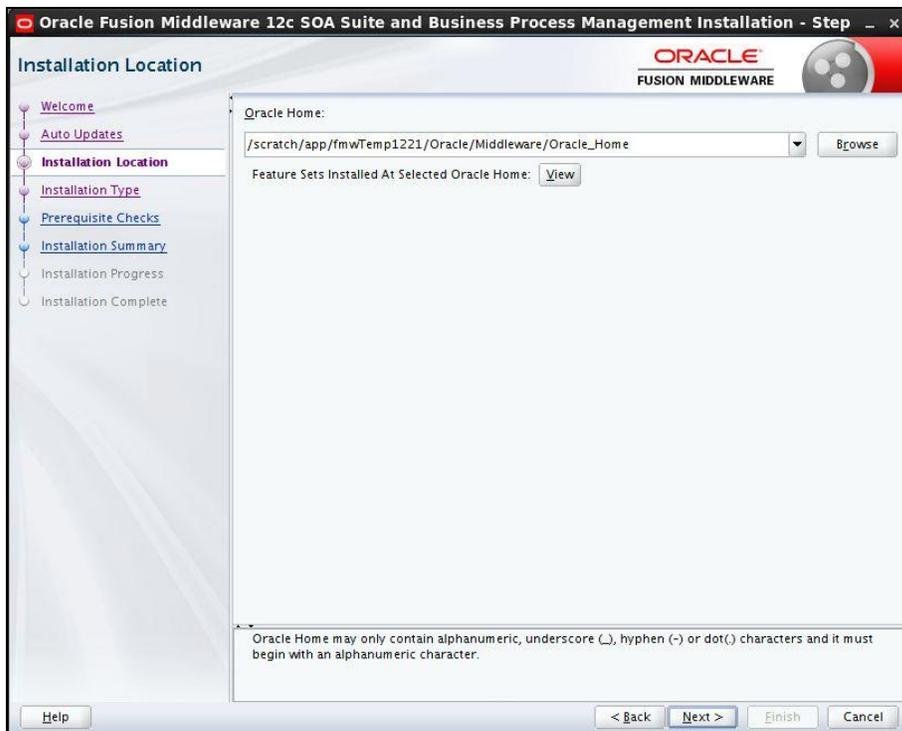
Option need to be selected based on the requirement:

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

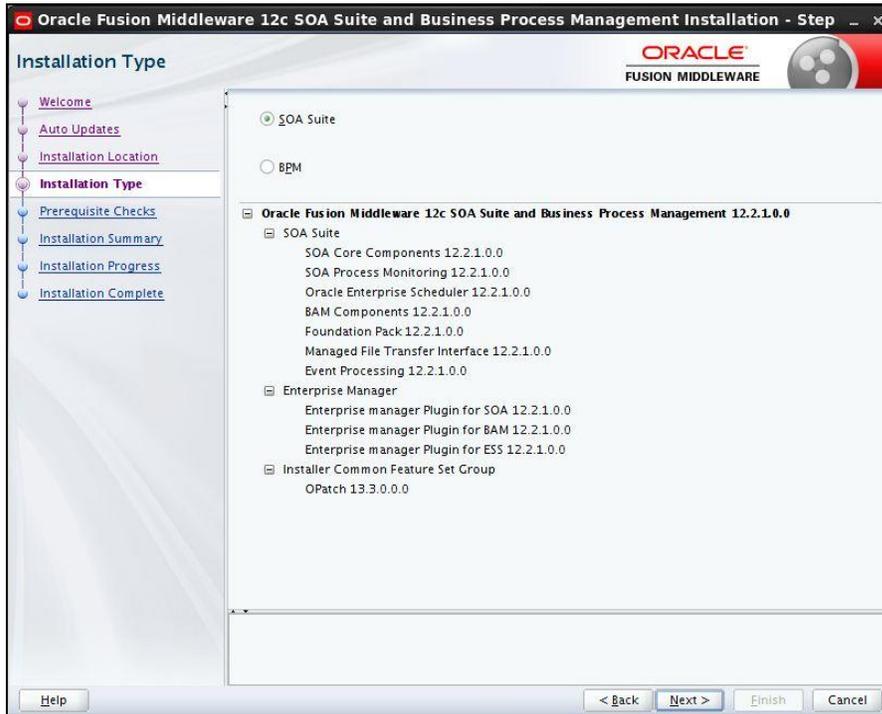
Please select the below option based on the requirement:



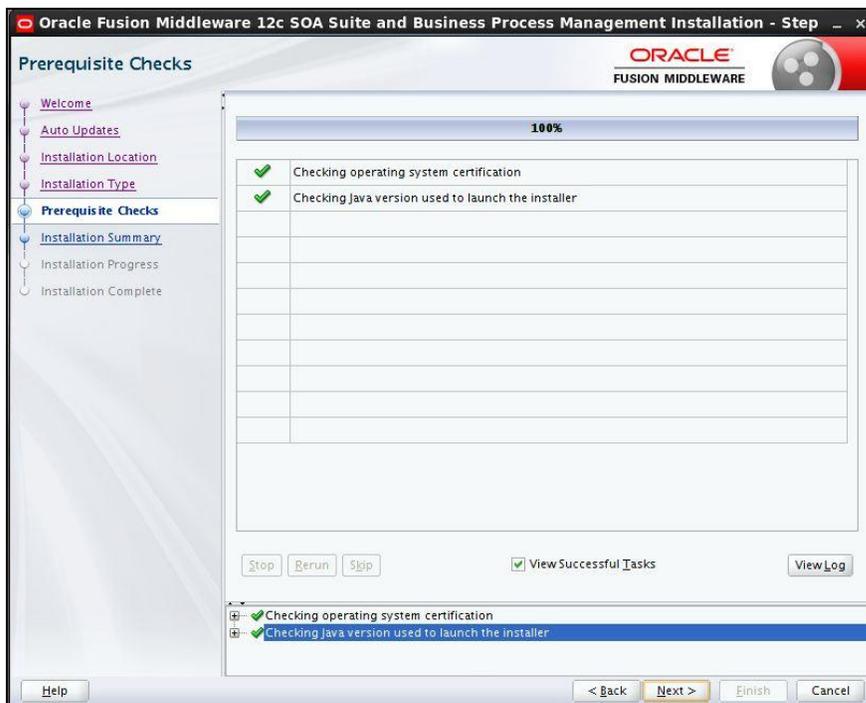
Step 3:



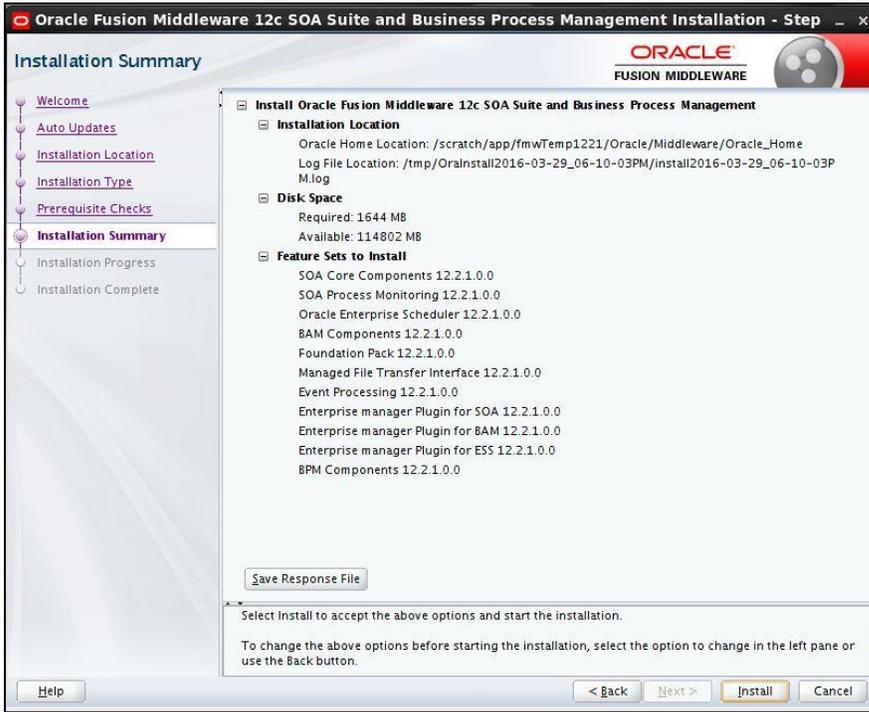
Step 4:  Please select BPM if the environment requires BPM process flow deployment



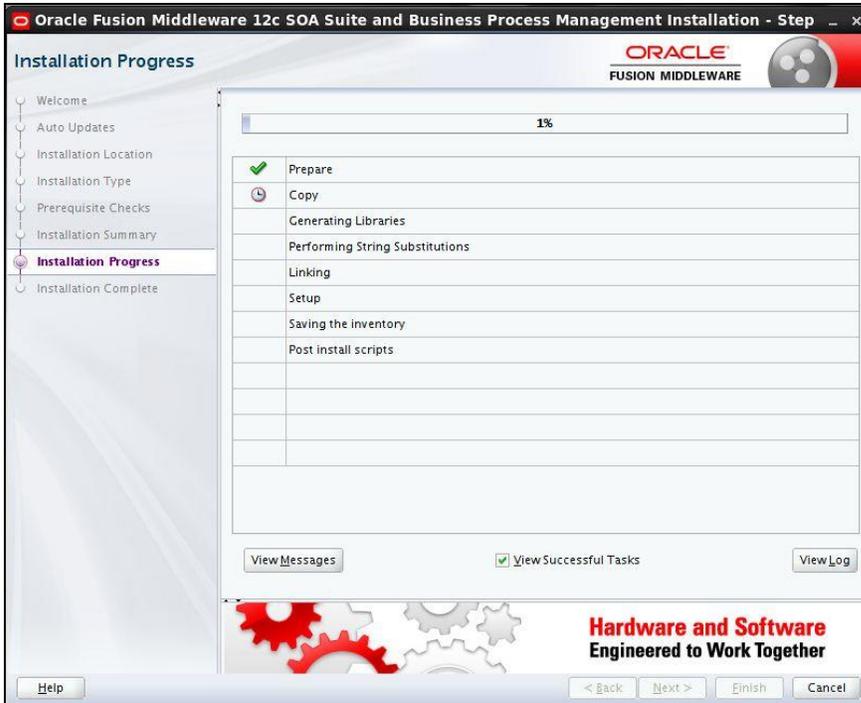
Step 5:



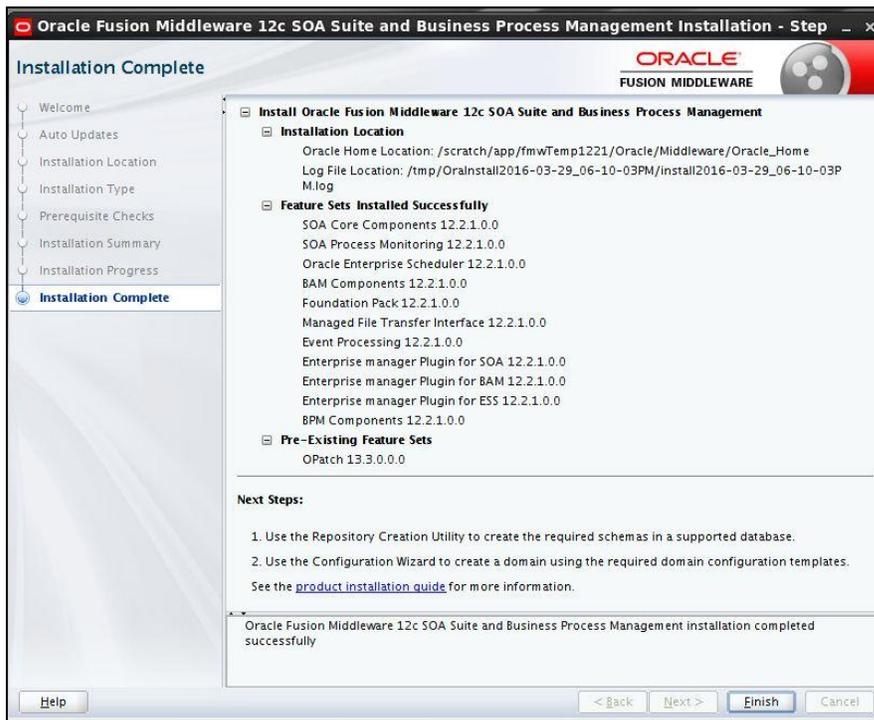
Step 6:



Step 7:



Step 8:



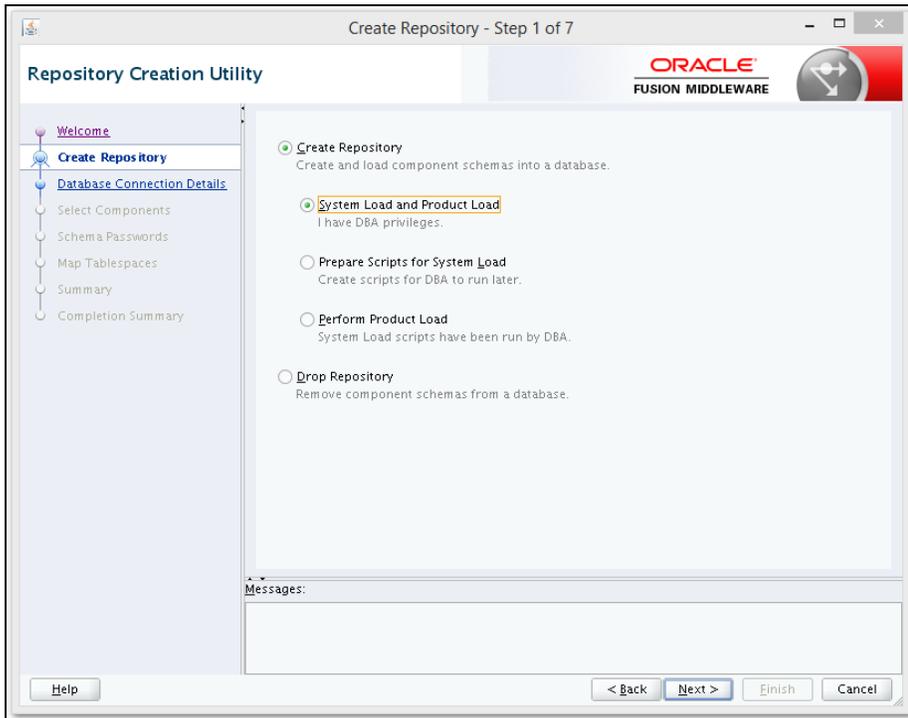
## 2.6 Creating Product Schemas in Oracle Database

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: 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.

Database Connection Details - Step 2 of 7

Repository Creation Utility

ORACLE FUSION MIDDLEWARE

Database Type: Oracle Database

Host Name:

Port: 1522

Service Name: ORDB23C

Username: sys  
User with DBA or SYSDBA privileges. Example: sys

Password:

Role: SYSDBA  
One or more components may require SYSDBA role for the operation to succeed.

Messages:

Help < Back Next > Finish Cancel

Database Connection Details - Step 2 of 7

Repository Creation Utility

ORACLE FUSION MIDDLEWARE

Database Type: Oracle Database

Host Name:

Port: 1522

Service Name:

Username:

Password:

Role:

Messages:

Help < Back Next > Finish Cancel

Repository Creation Utility - Checking Prerequisites

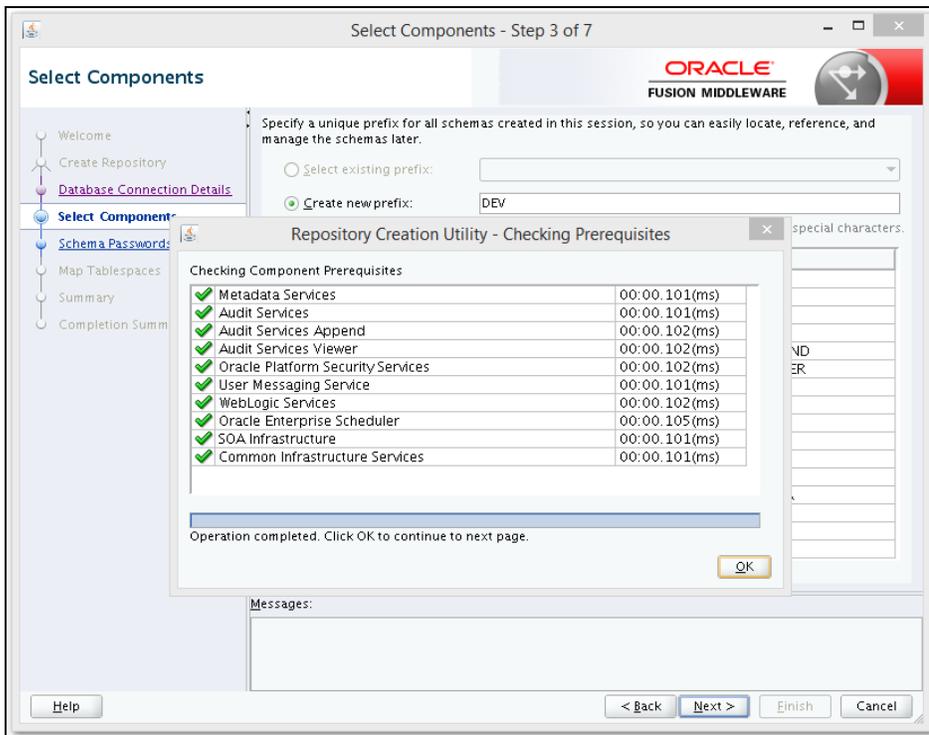
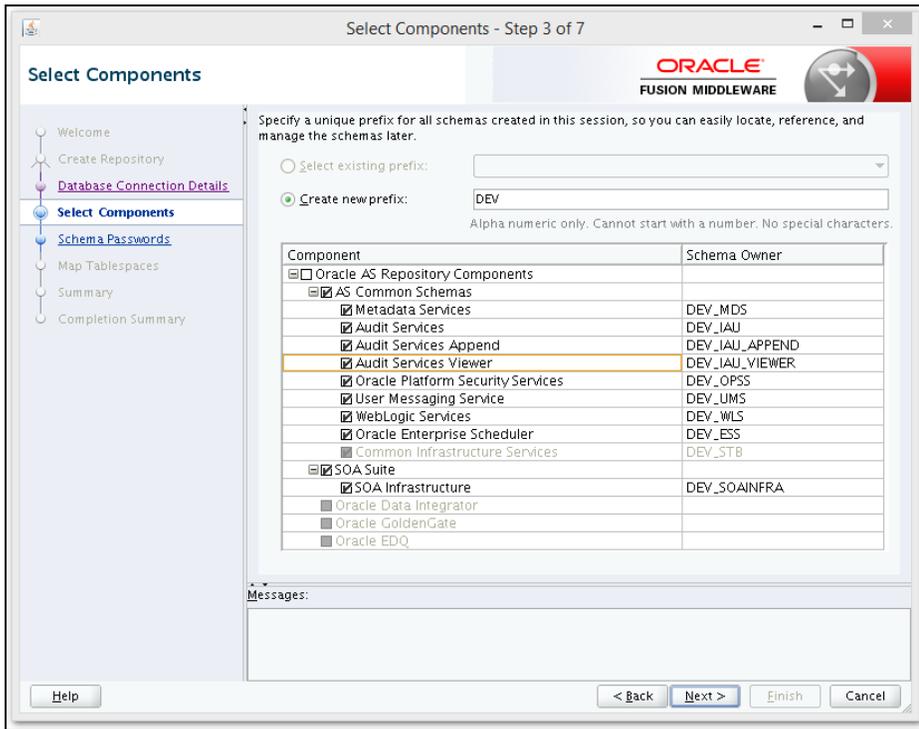
Checking Global Prerequisites:

✓ Initializing repository configuration metadata	00:01.215(sec)
✓ Obtain properties of the specified database	00:00.102(msec)
✓ Check requirement for specified database	00:01.625(sec)

Operation completed. Click OK to continue to next page.

OK

### Step 3: Define the prefix to be used for the schemas



Step 4: Define the password for the schemas.

Schema Passwords - Step 4 of 8

Repository Creation Utility

ORACLE  
FUSION MIDDLEWARE

Define passwords for main and auxiliary schema users.

Use same passwords for all schemas

Password:

Alpha numeric only. Cannot start with a number.  
No special characters except: \$, #, \_

Confirm Password:

Use main schema passwords for auxiliary schemas

Specify different passwords for all schemas

Messages:

Help < Back Next > Finish Cancel

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

Step 5:  Please select the database profile based on requirement (SMALL/MED/LARGE)

Custom Variables - Step 5 of 8

Repository Creation Utility

ORACLE  
FUSION MIDDLEWARE

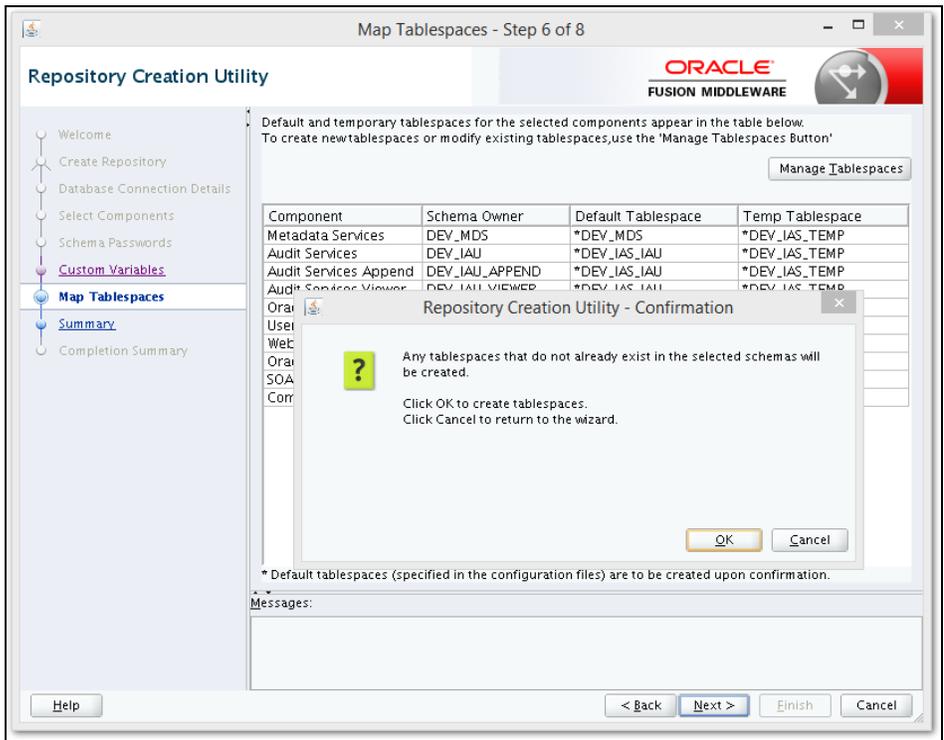
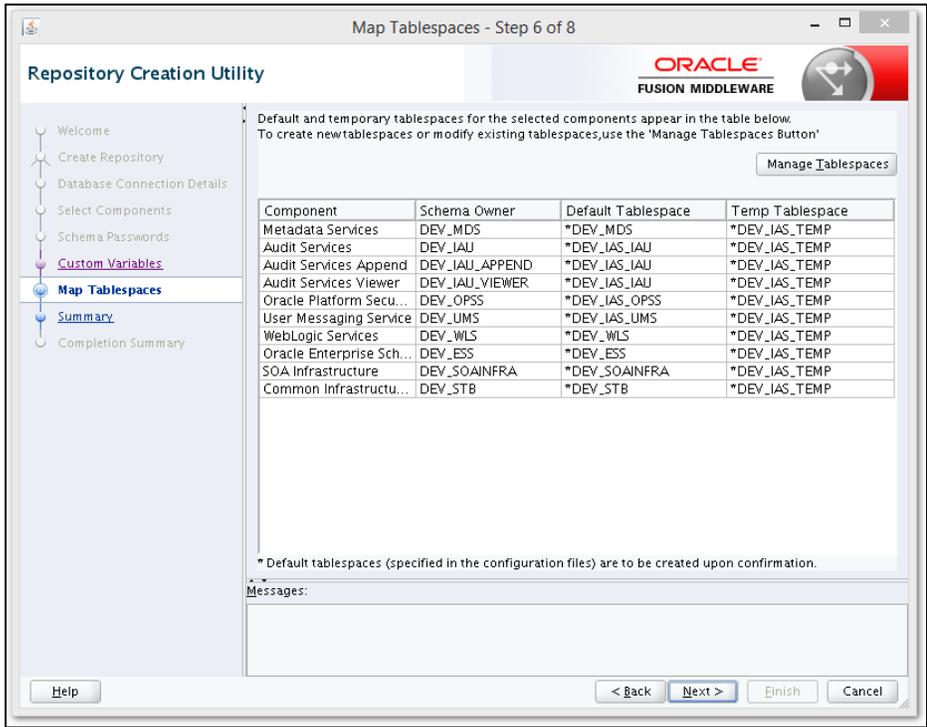
Enter value for the following custom variables.

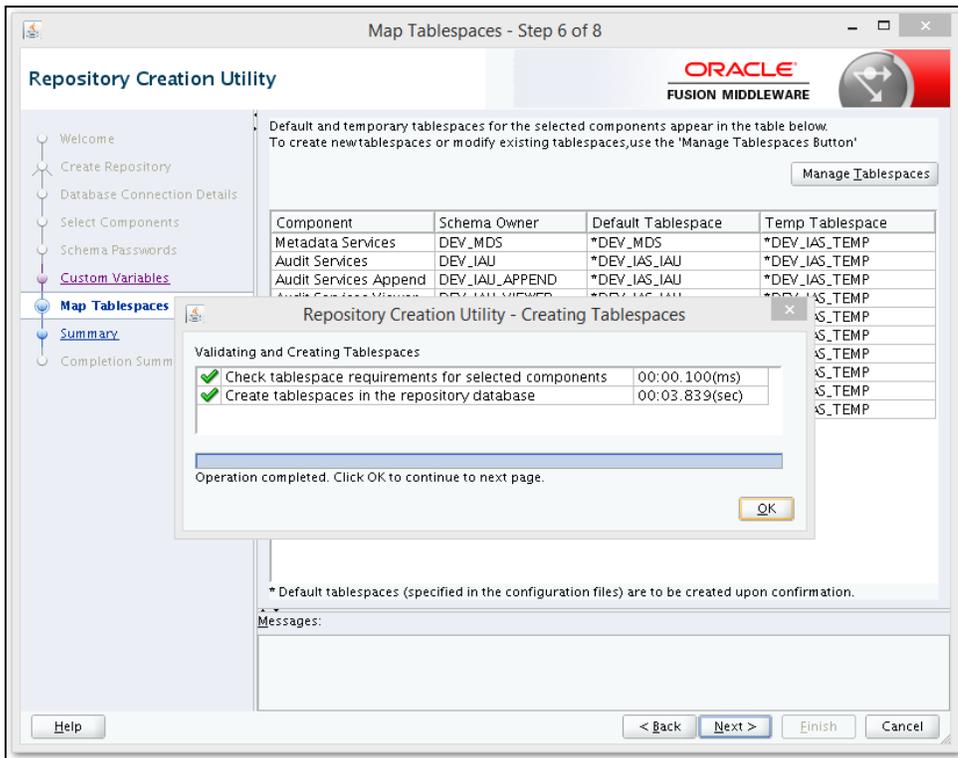
Component	Custom Variable	Value
SOA Infrastructure	Database Profile (SMALL/MED/LARGE)	SMALL
	Healthcare Integration(YES/NO)	NO

Messages:

Help < Back Next > Finish Cancel

Step 6:





Step 7:

Completion Summary - Step 8 of 8

**Repository Creation Utility**



- Welcome
- Create Repository
- Database Connection Details
- Select Components
- Schema Passwords
- Custom Variables
- Map Tablespaces
- Summary
- Completion Summary**

**Database details:**

Host Name: zeus.zion.local  
 Port: 1522  
 Service Name: PD801.ZION.LOCAL  
 Connected As: sys  
 Operation: System and Data Load concurrently  
 RCU Logfile: /u01/app/oracle/logdir.2014-07-17\_22-48/rcu.log  
 Component Log Directory: /u01/app/oracle/logdir.2014-07-17\_22-48  
 Execution Time: 2 minutes 55 seconds  
 View Log: [rcu.log](#)

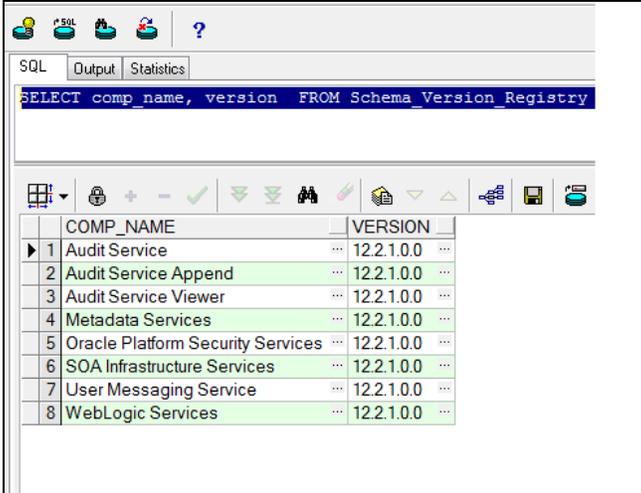
Prefix for (prefixable) Schema Owners:DEV

Component	Status	Time	Logfile(Click to view)
Metadata Services	Success	00:11.435(sec)	<a href="#">mds.log</a>
Audit Services	Success	00:11.217(sec)	<a href="#">iau.log</a>
Audit Services Append	Success	00:09.193(sec)	<a href="#">iau_append.log</a>
Audit Services Viewer	Success	00:09.148(sec)	<a href="#">iau_viewer.log</a>
Oracle Platform Security Services	Success	00:15.581(sec)	<a href="#">opss.log</a>
User Messaging Service	Success	00:13.453(sec)	<a href="#">ucsums.log</a>
WebLogic Services	Success	00:10.039(sec)	<a href="#">wls.log</a>
Oracle Enterprise Scheduler	Success	00:13.767(sec)	<a href="#">ess.log</a>
SOA Infrastructure	Success	00:59.186(sec)	<a href="#">soainfra.log</a>
Common Infrastructure Services	Success	00:09.259(sec)	<a href="#">stb.log</a>

[Help](#)
[< Back](#)
[Next >](#)
[Create](#)
[Close](#)

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

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

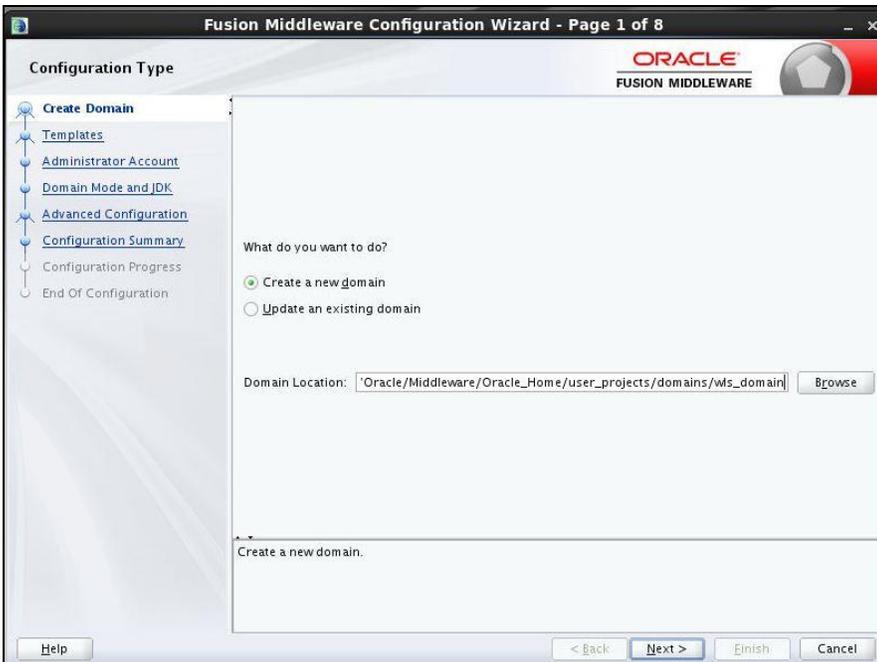


The screenshot shows the SQL Developer interface with a query window displaying the following SQL statement: `SELECT comp_name, version FROM Schema_Version_Registry`. Below the query window, a table of results is shown with two columns: `COMP_NAME` and `VERSION`. The results list eight components, all 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:

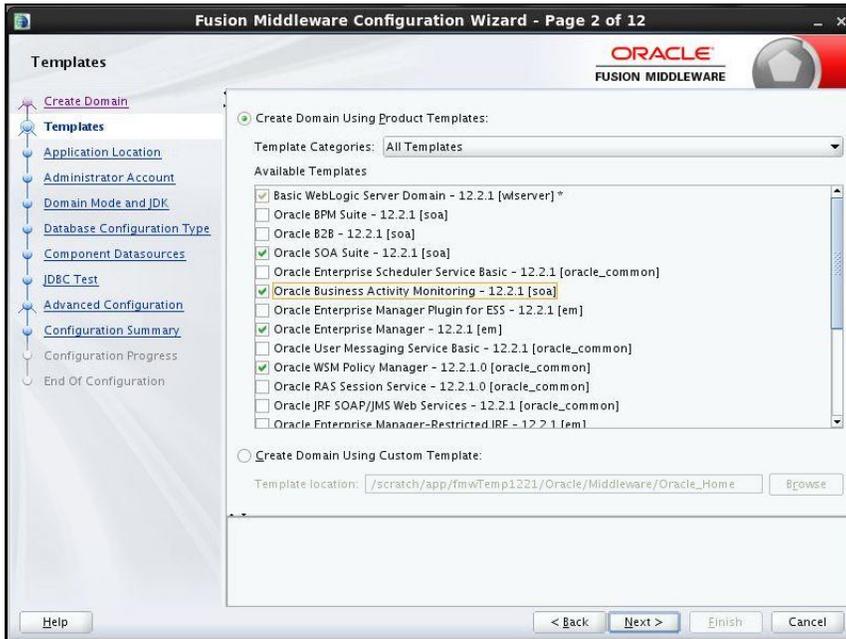


The screenshot shows the 'Fusion Middleware Configuration Wizard - Page 1 of 8' window. The 'Configuration Type' section is active, showing a tree view on the left with 'Create Domain' selected. The main area contains the question 'What do you want to do?' with two radio button options: 'Create a new domain' (selected) and 'Update an existing domain'. Below this, the 'Domain Location' is set to 'Oracle/Middleware/Oracle\_Home/user\_projects/domains/wls\_domain', with a 'Browse' button to its right. At the bottom, there are 'Help', '< Back', 'Next >', 'Finish', and 'Cancel' buttons.

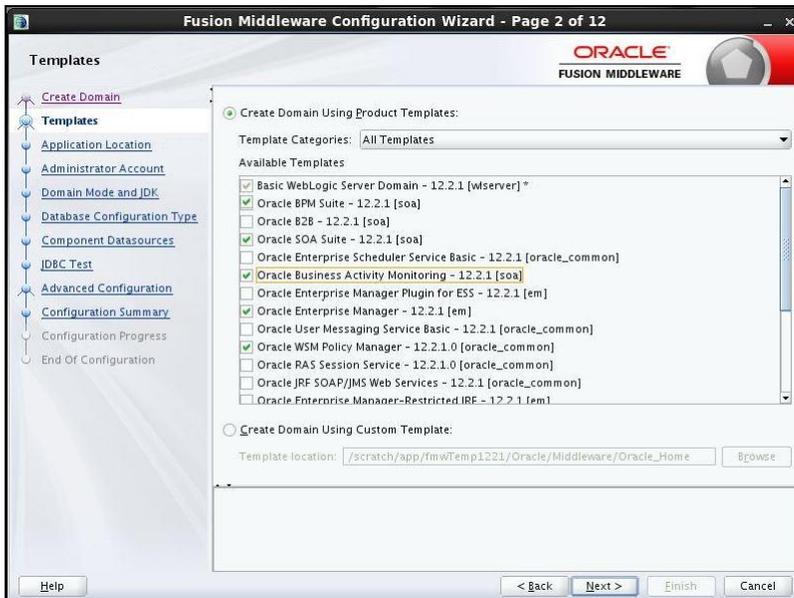
Step 2: Domain creation template

a. For BPEL only domain

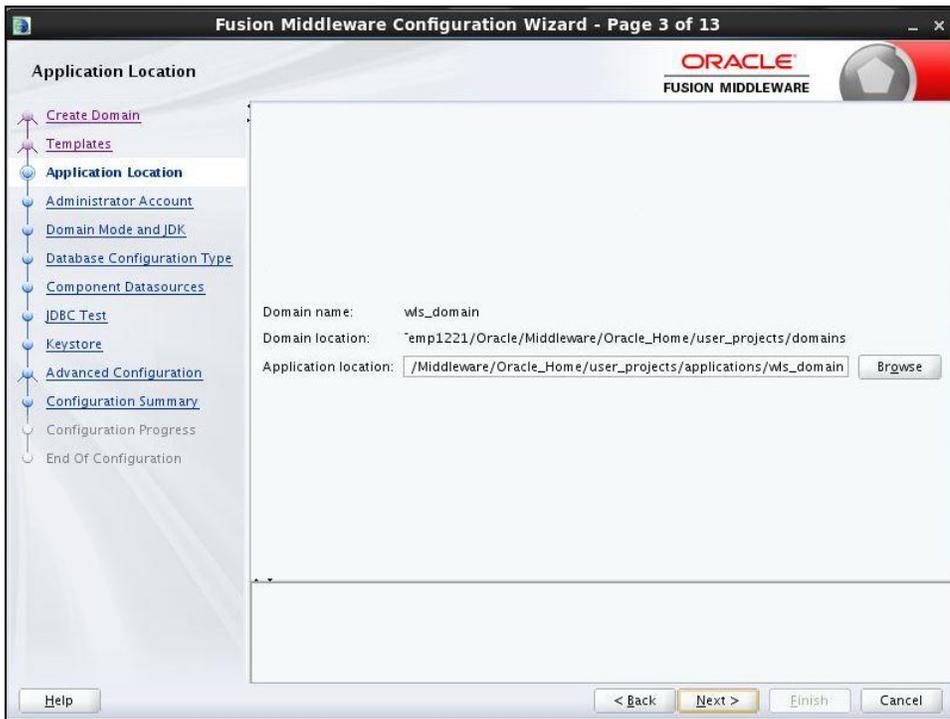
b.  Based on the requirement select the Oracle Business Activity Monitoring (BAM) check box.



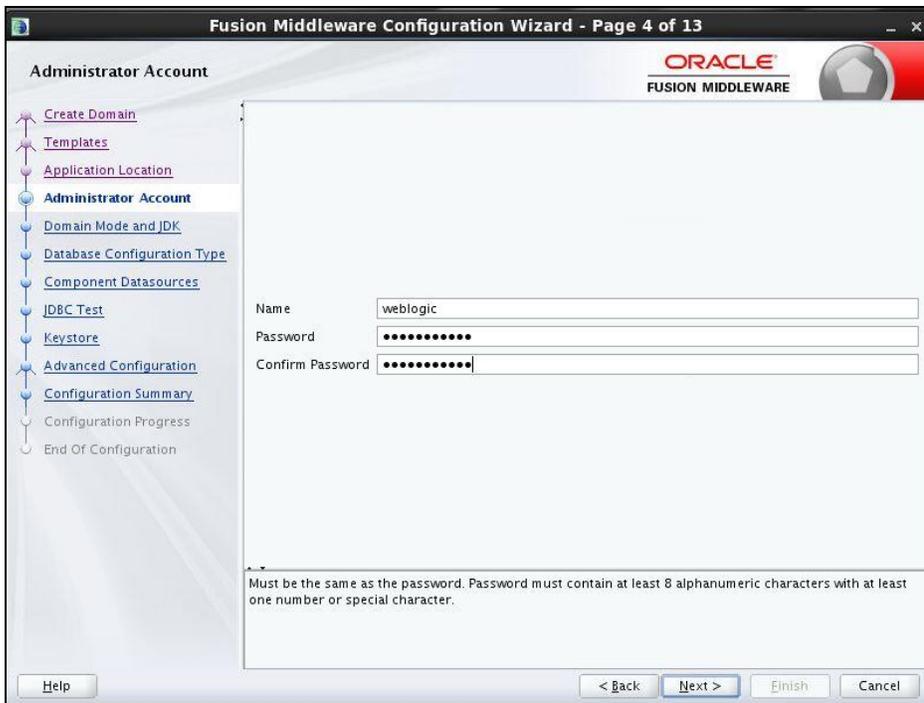
c. For BPM enabled domain (If BPM process flows deployment is required then we have to select the Oracle BPM Suite – 12.2.1)



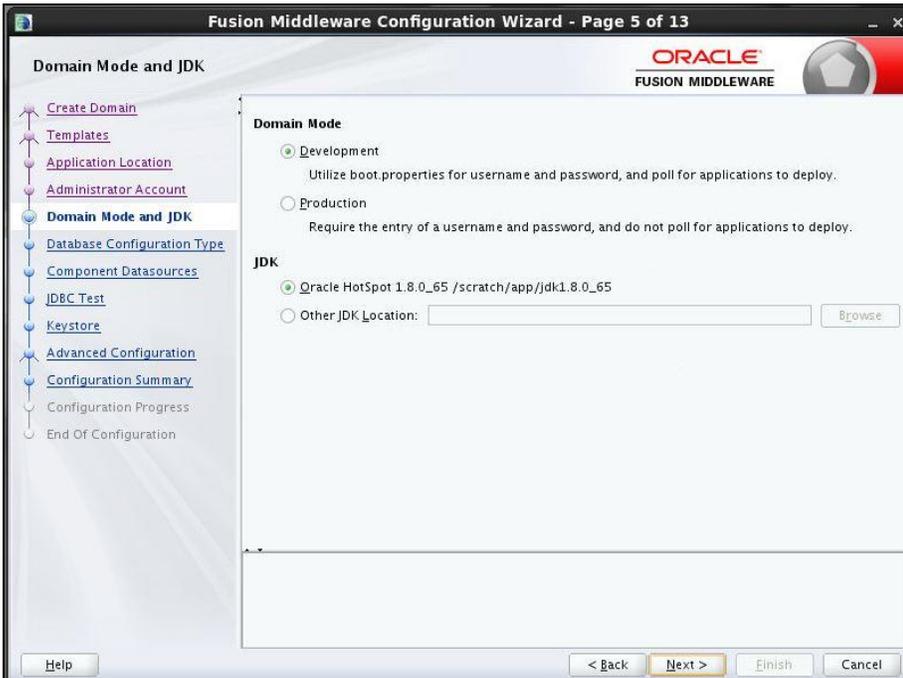
Step 3:



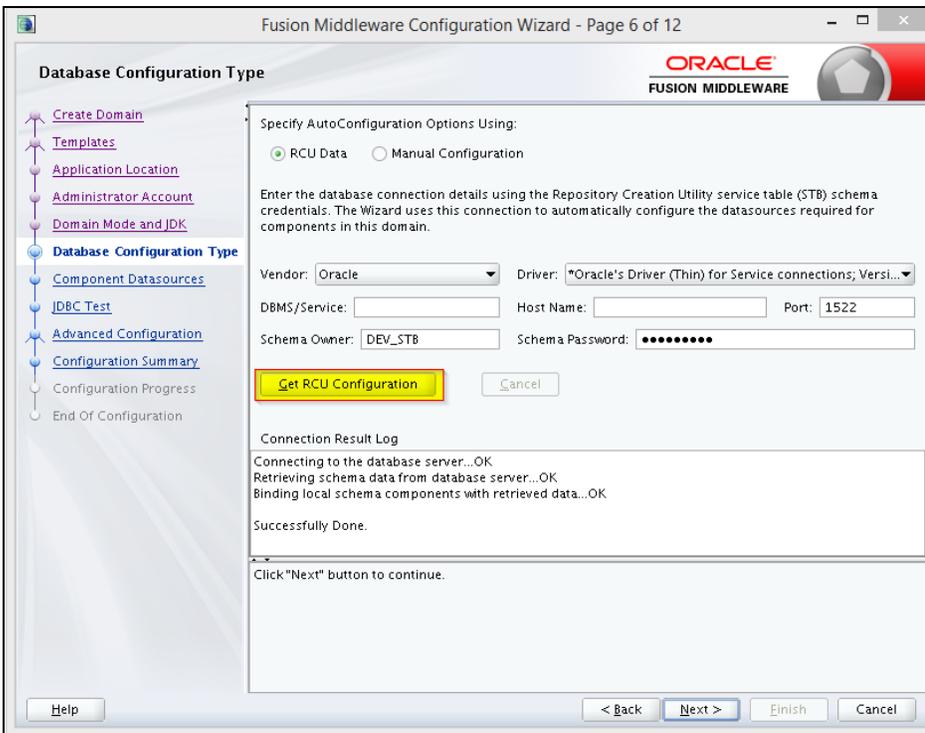
Step 4: Defining the domain user name and password



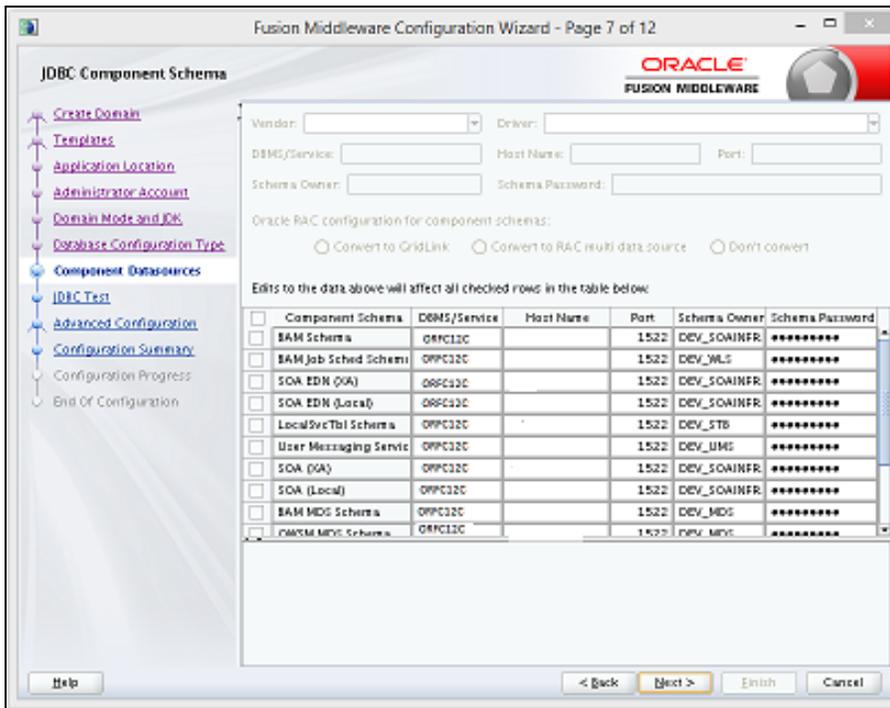
Step 5:  Domain mode needs to be production for all installations.



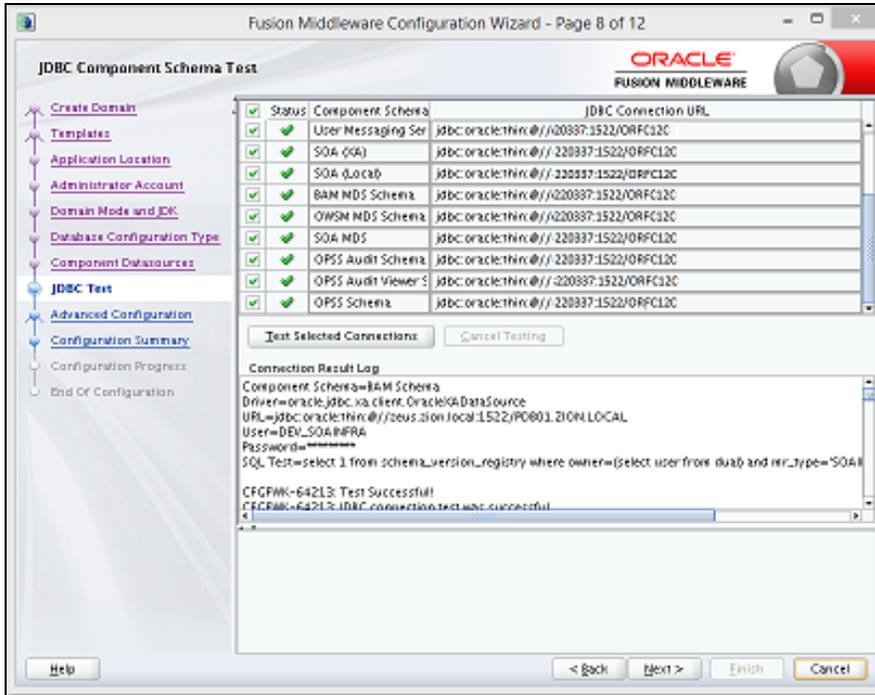
Step 6: Define the RCU schema details and the TNS connection details



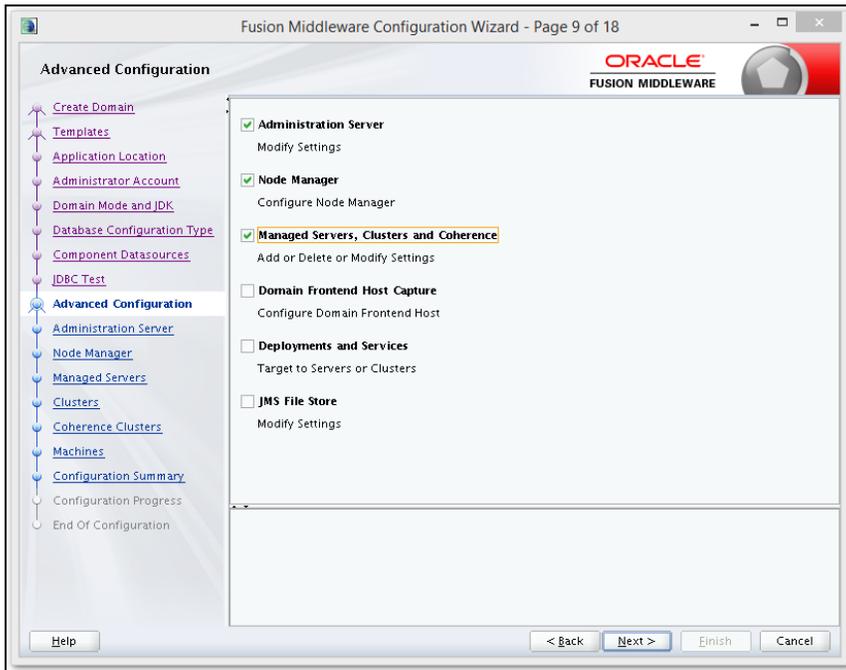
Step 7:



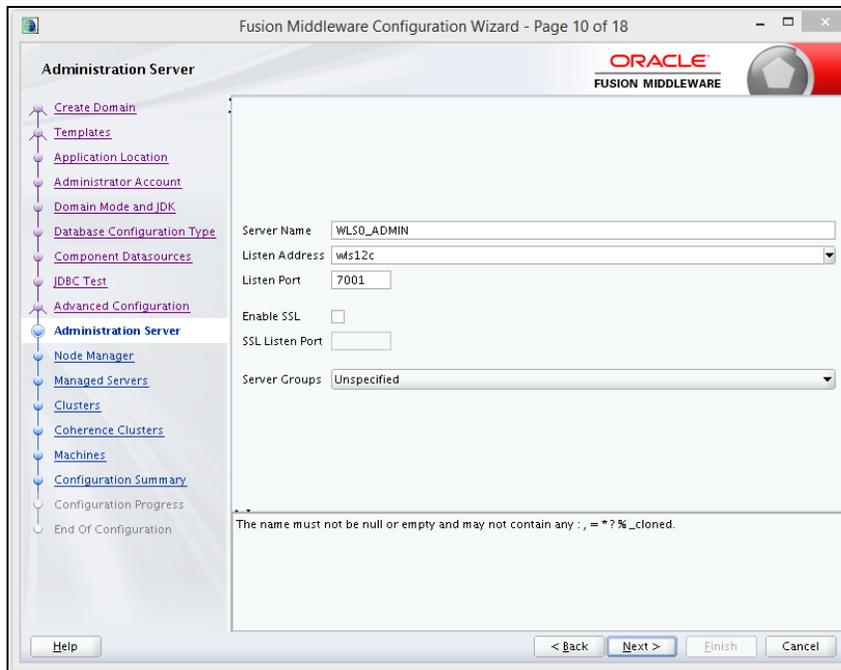
Step 8



Step 9: Select the admin server, node manager and managed servers.

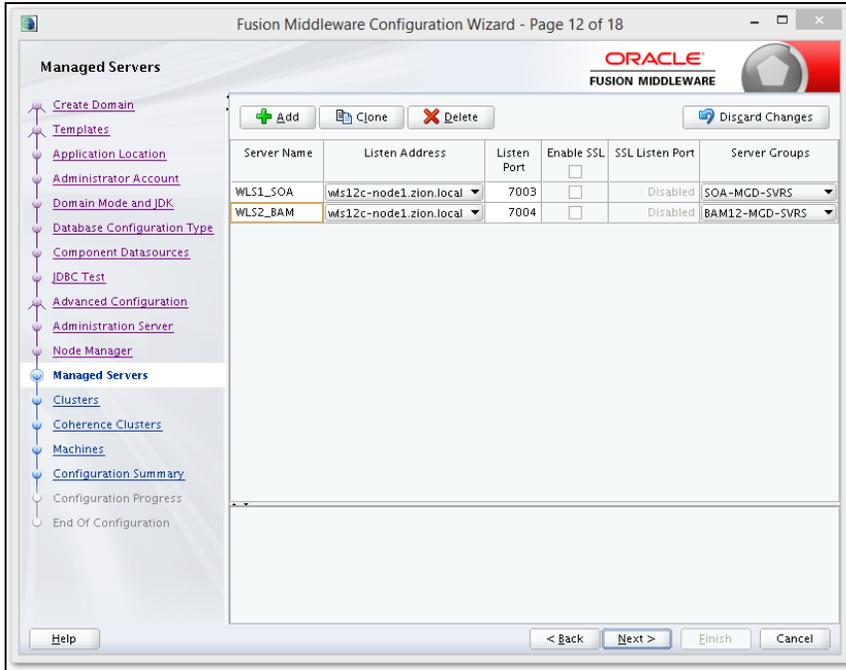


Step 10: Specify the server name as AdminServer and listener address as hostname. Based on the installation requirement, SSL need to be enabled.

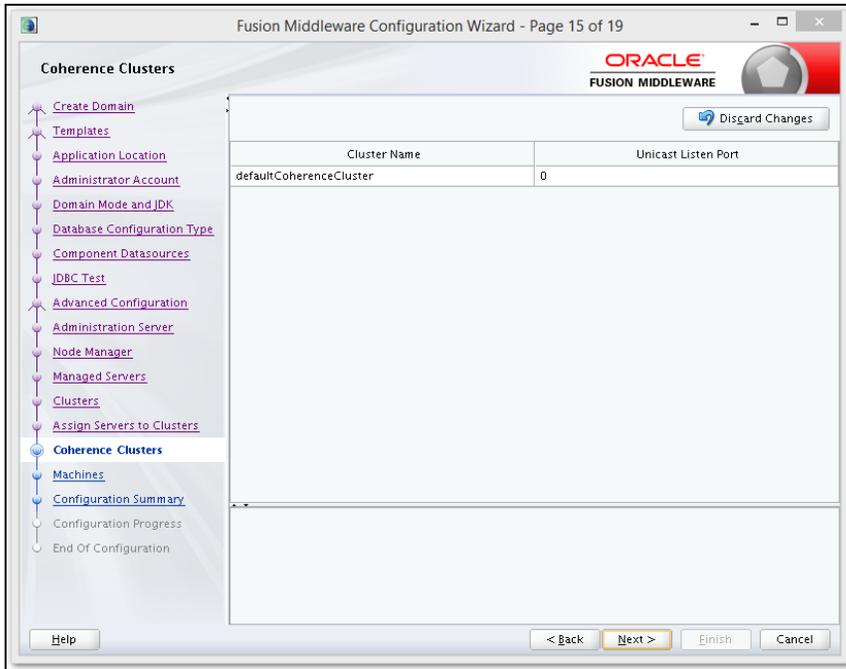


Step 11: specify the server name as soa\_server1 and bam\_server1 for the managed servers.

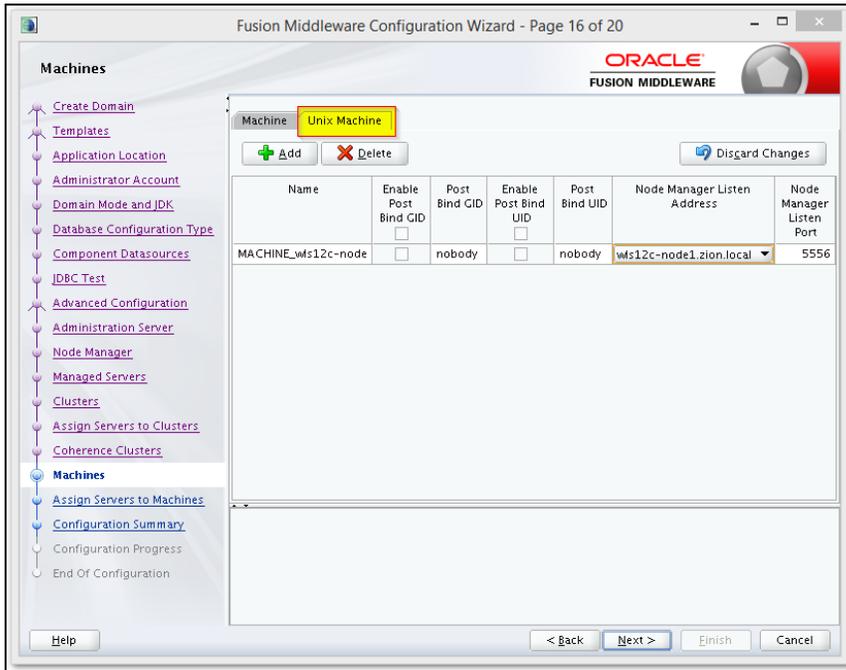
Based on the installation requirement SSL need to be enabled for managed servers



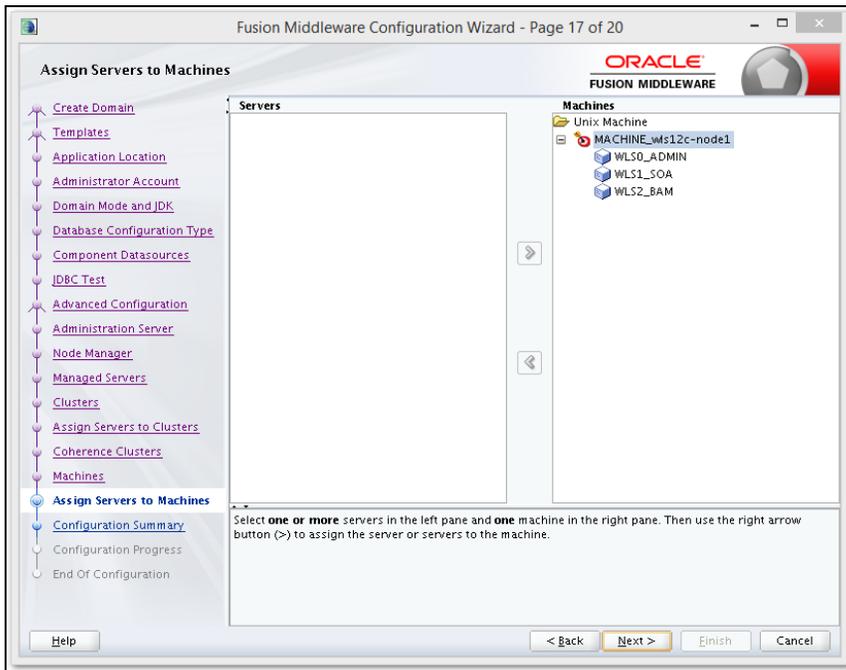
Step 12:



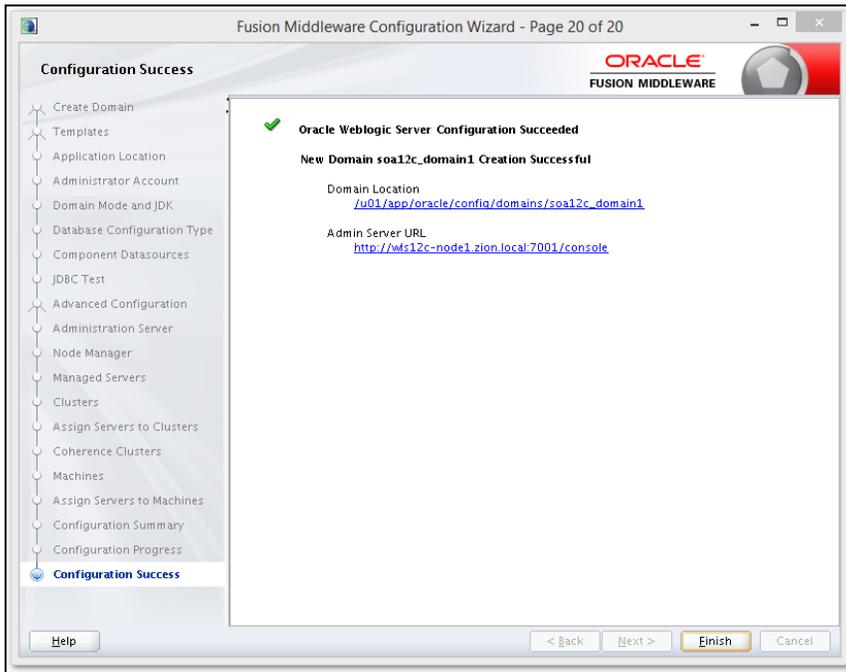
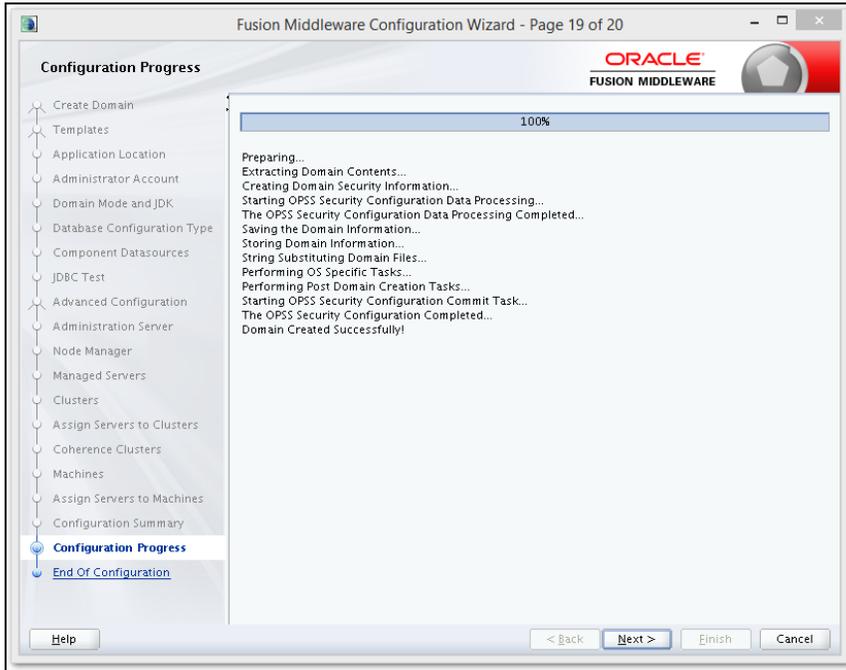
Step 13:



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

<b>Jar to be copied</b>	<b>Path where the jar is available in SOA Middleware</b>
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.wsc lient-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
oracle.bpm.bpm-services.interface.jar	Home%/soa/soa/modules/oracle.bpm.client_11.1.1
oracle.bpm.project.draw.jar	%Middleware
oracle.bpm.project.model.jar	Home%/soa/soa/modules/oracle.bpm.project_11.1.1
oracle.bpm.core.jar	%Middleware
oracle.bpm.ui.jar	Home%/soa/soa/modules/oracle.bpm.runtime_11.1.1
oracle.bpm.casemgmt.interface.jar	%Middleware
	Home%/soa/soa/modules/oracle.bpm.workspace_11.1.1
	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

The screenshot displays the 'Advanced' configuration page in the WebLogic Administration Console. On the left, a 'System Status' panel shows 'Health of Running Servers' with 2 OK servers. The main configuration area includes the following settings:

- Security Interoperability Mode:** default
- Credential:** [Redacted]
- Confirm Credential:** [Redacted]
- NodeManager Username:** weblogic
- NodeManager Password:** [Redacted]
- Confirm NodeManager Password:** [Redacted]
- Web App Files Case Inensitive:** false
- Enforce Strict URL Pattern**
- Downgrade Untrusted Principals**
- Principal Equals Case Inensitive**
- Principal Equals Compare DN and GUID**
- Compatibility Connection Filters Enabled**
- Allow Security Management Operations if Non-dynamic Changes have been Made**
- Clear Text Credential Access Enabled**

The search bar at the bottom shows the search term 'lang.SecurityException'.



SOA Suite Setup for BPEL Process Flow  
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