Oracle® Enterprise Performance Management System 11.1.2.2
IBM WebSphere Manual Deployment Guide

Description

This document describes most non-standard use cases that a user may face when deploying EPM System Java web applications to WebSphere; i.e., how to manually deploy EPM System components to WebSphere Application Server on UNIX platform to an existing WebSphere profile using different users to install and configure WebSphere and EPM System. Keep in mind the following considerations:

- If you are deploying on a Windows platform, use Windows analogs of scripts mentioned in this document.
- If the same user was used to install WebSphere software and EPM System, then skip the steps under the section 2. Setting permissions on the file system and 7. Reverting permissions on the file system.
- If you do not use a custom security policy, skip the steps under the section 3.7. Disabling global security on the profile.
- If you do not want to change the default EPM System deployment topology (i.e., Application Server names, Application targets, etc.) skip the steps under the section 4.2. Customizing configuration and 5.2. Applying JRF to custom Servers.

Documentation

1. Oracle® Enterprise Performance Management System Installation and Configuration Guide Release 11.1.2.2 – later referenced as EPM System Install and Config Guide.
2. Oracle® Fusion Middleware Configuration Guide for IBM WebSphere Application Server 11g Release 1 (11.1.1) – later referenced as WAS Config Guide.

Abbreviations and Terms

$WAS_HOME – WebSphere Application Server location, for example: /home/was/IBM/WebSphere/AppServer

$EPM – EPM System root folder, for example: /home/epm

$MWH – Middleware Home location, for example: $EPM/Oracle/Middleware

$EOH – EPM Oracle Home location, for example: $MWH/EPMSystem11R1

$EOI – EPM Oracle Instance location, for example: $MWH/user_projects/epmsystem1

was:wasgroup – 'was' user and group that owns WebSphere

epm:epmgroup – 'epm' user and group that installs and configures EPM System

Deployment Procedure

1. Installing and configuring EPM System products

Install EPM System products using EPM System Installer.

Under epm user, start EPM System Configurator in manual deployment mode by running the $EOH/common/config/11.1.2.0/configtool-manual.sh script. Pass all required configuration tasks for installed EPM System products.

Note: See EPM System Install and Config Guide for more details.

2. Setting permissions on the file system

Under epm user set permissions on Middleware Home folder:

```
chmod o+rx $MWH
```

Repeat the same command for each folder down to the $MWH. The $MWH folder should be accessible for the was user. For example:

```
chmod o+rx /home
chmod o+rx /home/epm
chmod o+rx /home/epm/Oracle
```

Set permissions on $EOH folder and other files under $MWH:

```
chmod o+rx $EOH
chmod -R o+rx $EOH/common
chmod -R o+rx $EOH/products
chmod -R o+rx $EOH/inventory
chmod -R o+rwx $MWH/user_projects
chmod -R o+rx $MWH/modules
chmod -R o+rx $MWH/oracle_common
chmod -R o+rwx $MWH/oracle_common/common/bin
chmod -R o+rwx $MWH/oracle_common/common/wsadmin
chmod -R o+rwx $EOH/common/config/11.1.2.0/resources/deployment/manual/
chmod -R o+rwx $MWH/logs
```

Note: You may see some warnings, because the chmod command never changes permission on symbolic links. This is not a problem since the permissions on symbolic links are never used.

Set full world permissions for all EPM System Data Directories, i.e. Essbase ARBORPATH, Reporting & Analysis Framework Repository, Performance Scorecard Files Location, etc.:

```
chmod -R o+rwx $EOI/ReportingAnalysis/data/RM1
chmod -R o+rwx $EOI/HPS/hpsfiles
chmod -R o+rwx $EOI/EssbaseServer/essbaseserver1
```

In this example you can see default values, but they can be changed using EPM System Configurator.

3. Executing pre-deployment steps

3.1. Applying workaround for WebSphere APAR PK70783 (UNIX only)

Under the was user, apply the workaround for WebSphere APAR **PK70783: JAVAOPTIONS ARGUMENTS PASSED INTO WSADMIN.SH ARE IGNORED.** To do this, after WebSphere installation, open the $WAS_HOME/bin/wsadmin.sh script and change the line which runs java: $javaOption must follow the $PERF_JVM_OPTIONS, not otherwise (see example on the next page).

Example of original shell script (wsadmin.sh):

```
"$JAVA_HOME/bin/java" \
        -Xbootclasspath/p:"$WAS_BOOTCLASSPATH" \
        $EXTRA_X_ARGS \
        $CONSOLE_ENCODING \
        $javaOption \
        $WAS_DEBUG \
        "$CLIENTSAS" \
        "$CLIENTSOAP" \
        ${JAASSOAP:+"$JAASSOAP"} \
        -Dcom.ibm.ws.scripting.wsadminprops="$WSADMIN_PROPERTIES" \
        -Dconfig_consistency_check="$CONFIG_CONSISTENCY_CHECK" \
        -Dwas.install.root="$WAS_HOME" \
        -Duser.install.root="$USER_INSTALL_ROOT" \
        -Dwas.repository.root="$CONFIG_ROOT" \
        -Dlocal.cell="$WAS_CELL" \
        -Dlocal.node="$WAS_NODE" \
        -Dcom.ibm.ws.management.standalone=true \
        -Dcom.ibm.itp.location="$WAS_HOME/bin" \
        -Dws.ext.dirs="$WAS_EXT_DIRS" \
        $EXTRA_D_ARGS \
        $JVM_EXTRA_CMD_ARGS \
        $PERF_JVM_OPTIONS \
        $WAS_LOGGING \
        -classpath "$C_PATH" com.ibm.ws.bootstrap.WSLauncher \
        $SHELL "${nonJavaOption[@]}"
```

Example of modified shell script (wsadmin.sh):

```
"$JAVA_HOME/bin/java" \
        -Xbootclasspath/p:"$WAS_BOOTCLASSPATH" \
        $EXTRA_X_ARGS \
        $CONSOLE_ENCODING \
        $WAS_DEBUG \
        "$CLIENTSAS" \
        "$CLIENTSOAP" \
        ${JAASSOAP:+"$JAASSOAP"} \
        -Dcom.ibm.ws.scripting.wsadminprops="$WSADMIN_PROPERTIES" \
        -Dconfig_consistency_check="$CONFIG_CONSISTENCY_CHECK" \
        -Dwas.install.root="$WAS_HOME" \
        -Duser.install.root="$USER_INSTALL_ROOT" \
        -Dwas.repository.root="$CONFIG_ROOT" \
        -Dlocal.cell="$WAS_CELL" \
        -Dlocal.node="$WAS_NODE" \
        -Dcom.ibm.ws.management.standalone=true \
        -Dcom.ibm.itp.location="$WAS_HOME/bin" \
        -Dws.ext.dirs="$WAS_EXT_DIRS" \
        $EXTRA_D_ARGS \
        $JVM_EXTRA_CMD_ARGS \
        $PERF_JVM_OPTIONS \
        $javaOption \
        $WAS_LOGGING \
        -classpath "$C_PATH" com.ibm.ws.bootstrap.WSLauncher \
        $SHELL "${nonJavaOption[@]}"
```

3.2. Applying workaround for Disclosure Management

If you need to deploy Disclosure Management, then apply the workaround for **14743956: [WAS] PS2: DEPLOYMENT.XML IS MISSING UNDER DISCLOSUREMANAGEMENT.EAR.** To do this put the attached deployment.xml file to the root folder of $EOH/products/DisclosureManagement/AppServer/InstallableApps/DisclosureManagement.ear archive (you need to extract the archive first, put the file and compress the files again):

deployment.xml

3.3. Applying workaround for JRE fonts

Under the was user, copy ALAN*.ttf files from $MWH/jdk160_29/jre/lib/fonts to folder $WAS_HOME/java/jre/lib/fonts folder. Change permissions on the copied files if required.

3.4. Setting WAS_HOME environment variable

Set WAS_HOME environment variable, for example:

```
export WAS_HOME=/home/was/IBM/WebSphere/AppServer
```

3.5. Removing WebSphere profile

Important: If and only if you have had unsuccessful Fusion Middleware Configuration Wizard run(s) for EPM System products, it is highly recommended to re-create the WebSphere profile. Stop all Application Servers, stop Manager and Node. Run the following commands and then remove the profile from the file system and re-create it:

```
$WAS_HOME/bin/manageprofiles.sh -delete -profileName <DM_PROFILE_NAME>
$WAS_HOME/bin/manageprofiles.sh -delete -profileName <PROFILE_NAME>
$WAS_HOME/bin/manageprofiles.sh -validateAndUpdateRegistry
```

3.6. Changing default Applications location (optional)

If you want to change Applications location for EPM System products:

1) Under the was user, start Manager and Node:

```
$WAS_HOME/profiles/<DM_PROFILE_NAME>/bin/startManager.sh
$WAS_HOME/profiles/<PROFILE_NAME>/bin/startNode.sh
```

2) Login to Integrated Solutions Console. Go to Environment > WebSphere variables. Change APP_INSTALL_ROOT variable for all nodes. Go to System administration > Save changes to master repository, choose Synchronize changes with Nodes checkbox and press Save button.

Note: You can apply these steps immediately after profile creation or after deployment.

3.7. Disabling global security on the profile

Important: If you have custom security enabled for the WebSphere profile, it is highly recommended to disable it before starting deployment.

1) Stop Node:

```
$WAS_HOME/profiles/<PROFILE_NAME>/bin/stopNode.sh -username <username> -
password <password>
```

2) Connect to Deployment Manager profile using wsadmin.sh:

```
$WAS_HOME/bin/wsadmin.sh -profileName <DM_PROFILE_NAME> -lang jython
```

3) Disable Global Security and Save:

```
AdminTask.setGlobalSecurity('[-enabled false]')
AdminConfig.save()
```

4) Restart Manager:

```
$WAS_HOME/profiles/<DM_PROFILE_NAME>/bin/stopManager.sh -username
<username> -password <password>
$WAS_HOME/profiles/<DM_PROFILE_NAME>/bin/startManager.sh
```

4. Using Fusion Middleware Configuration Wizard

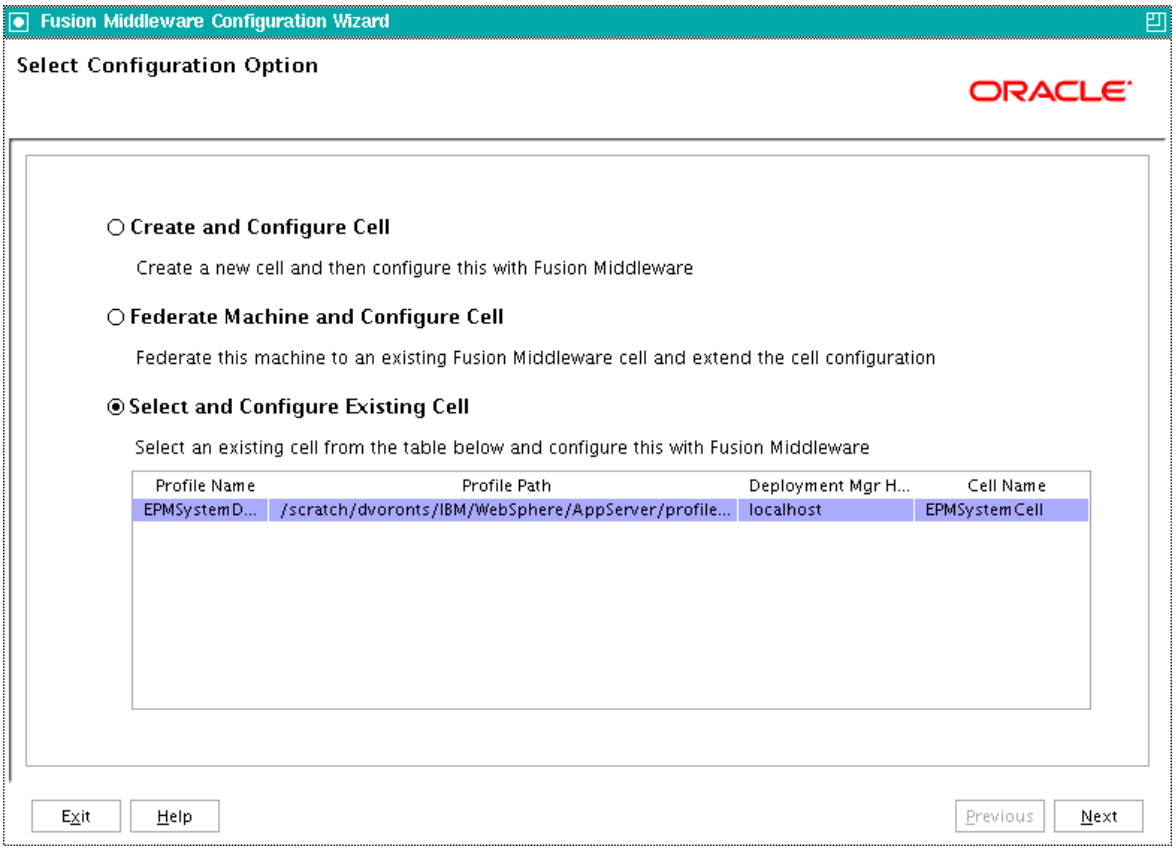
EPM System deployment is done using Fusion Middleware Configuration Wizard tool.

Important: This tool works only in graphical mode (X11). In dmz environment flows will need to be opened temporarily for the deployment time.

Important: If you do not have experience with using the tool it is highly recommended to go through Configuration Wizard Screens chapter in WAS Config Guide.

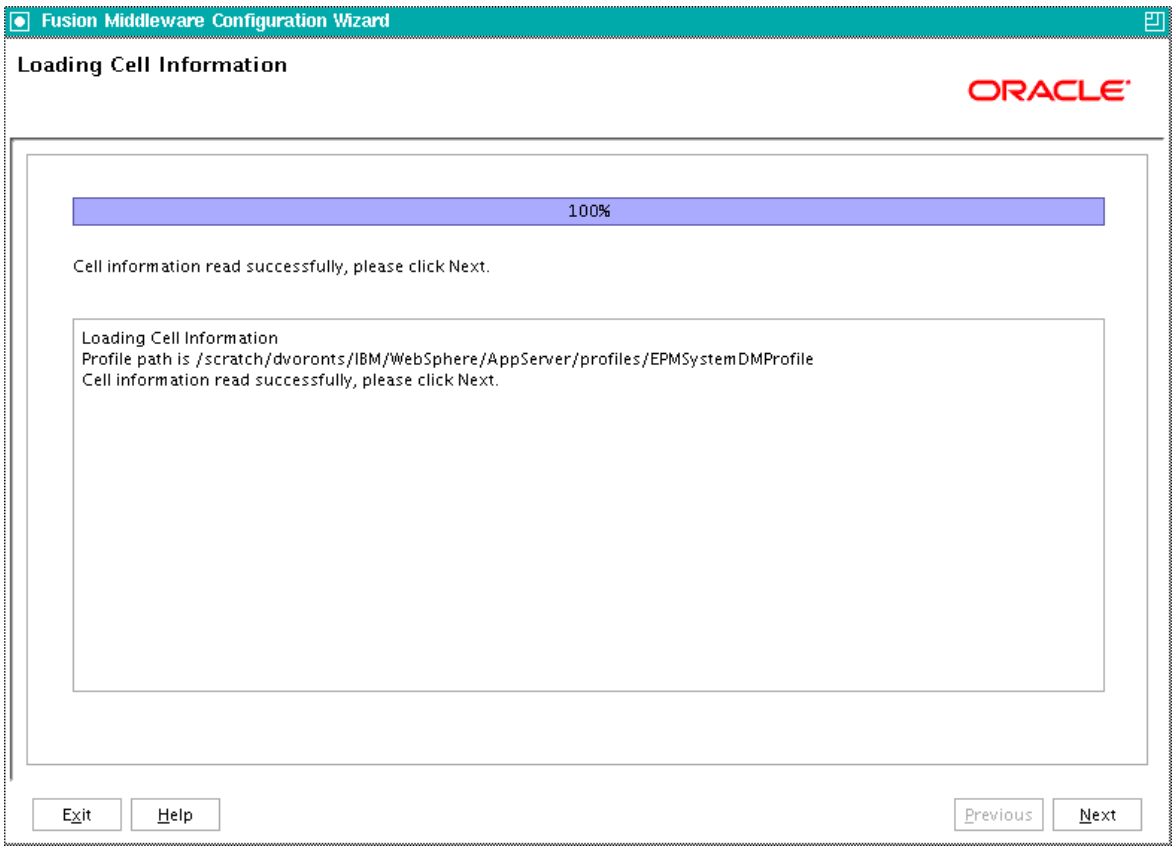
4.1. Doing default configuration

Under the was user, start Fusion Middleware Configuration Wizard (this tool can work in offline mode, so it is not necessary to start Manager and Node) by $EOI/bin/was_config_epm.sh script.



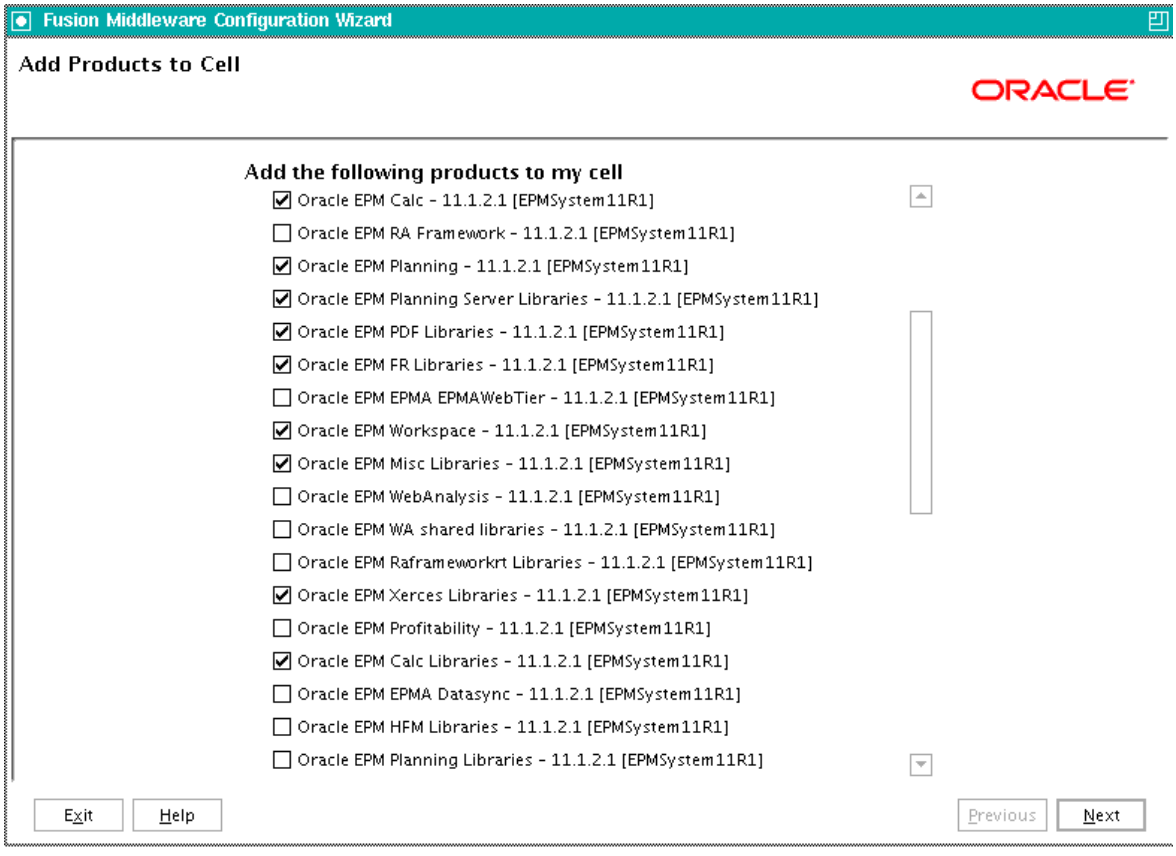
Choose Select and Configure Existing Cell option and select to deploy EPM System products that you need, but not more than 4-5 products at the same time (there is an IBM issue that can cause problems with more than 5 products in a deployment). Then repeat these steps if you need to deploy more than 4-5 EPM System products.

Note: Financial Close Management applications are not supported on WebSphere in EPM System 11.1.2.2 release.



For example, during the first run you can select:

- Oracle EPM Workspace – 11.1.2.1 [EPMSystem11R1]
- Oracle EPM Shared Services – 11.1.2.1 [EPMSystem11R1]
- Oracle EPM Calc – 11.1.2.1 [EPMSystem11R1]
- Oracle EPM Planning – 11.1.2.1 [EPMSystem11R1]

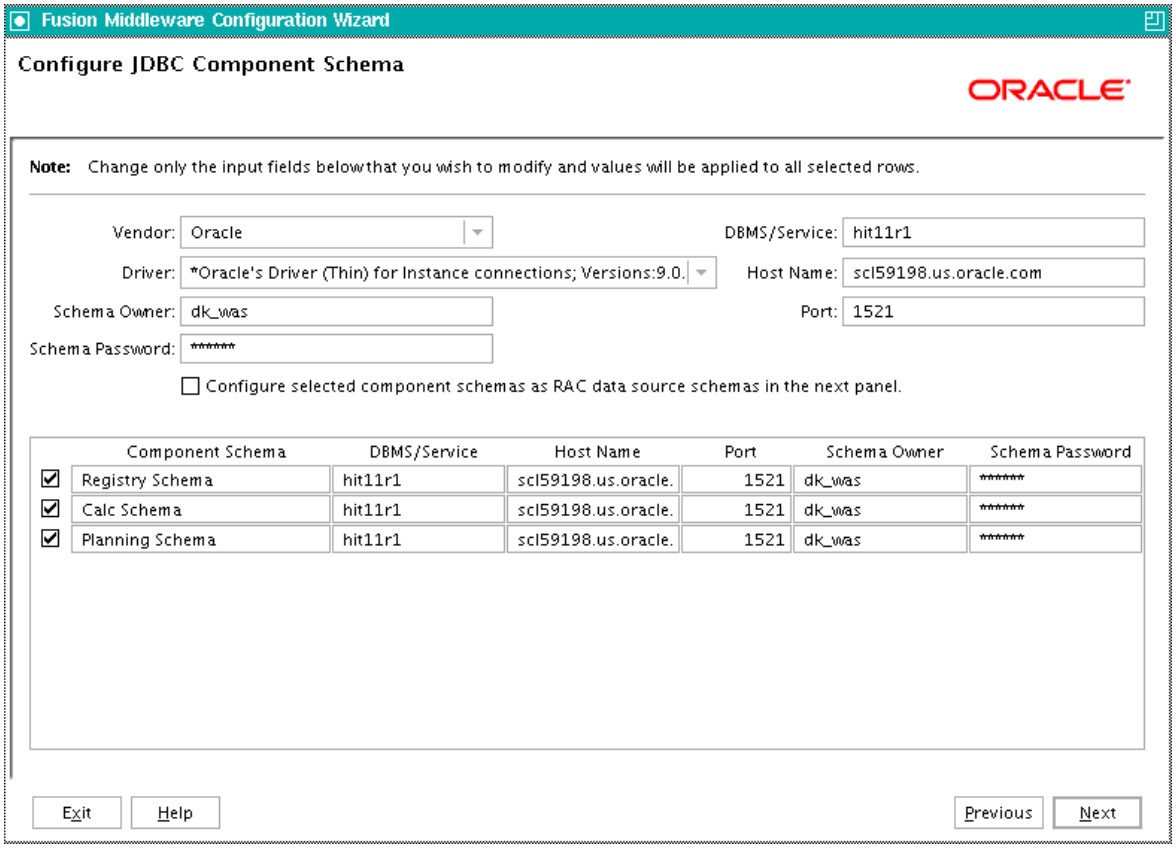


Important: All dependent shared Libraries for EPM System products will be selected automatically; do not unselect them. Also make sure to not unselect Oracle JRF for WebSphere – 11.1.1.0 [oracle_common]; it is a required component for any EPM System product deployment.

If you do not need to deploy Oracle Enterprise Manager application then do not select Oracle Enterprise Manager for WebSphere – 11.1.1.0 [oracle_common] item on the panel.

Important: Oracle Enterprise Manager does not work outside of OracleAdminServer Application Server.

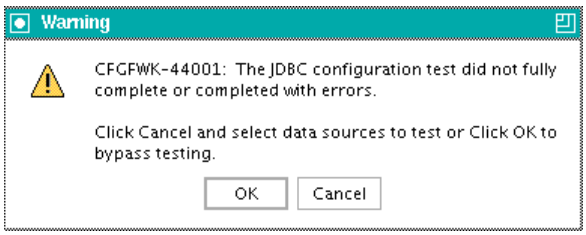
Review selection on the panel and press Next. Specify database connection details for EPM System products that were used in EPM System Configurator previously, and click Next.



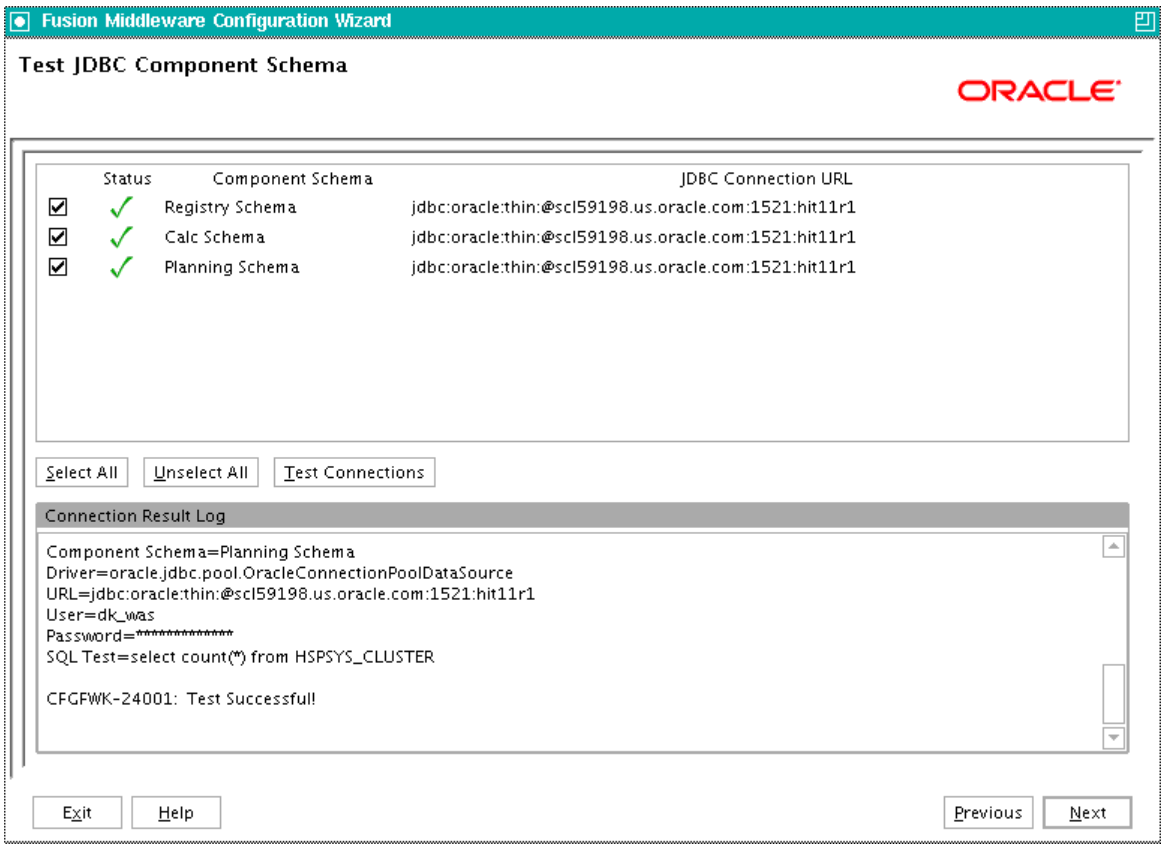
Make sure that all connections are tested successfully on the next panel (see next page).

Important: Fusion Middleware Configuration Wizard doesn't support automatic configuration to Microsoft SQL Server database, so corresponding option will be missing in Vendor drop down list.

If you are using Microsoft SQL Server as the database vendor for EPM System products, select all available Component Schemas, accept default proposed values, click Next. On the next screen click Cancel Testing or wait until validation will be completed. Ignore any reported failures and click Next. On the shown Warning popup click OK.

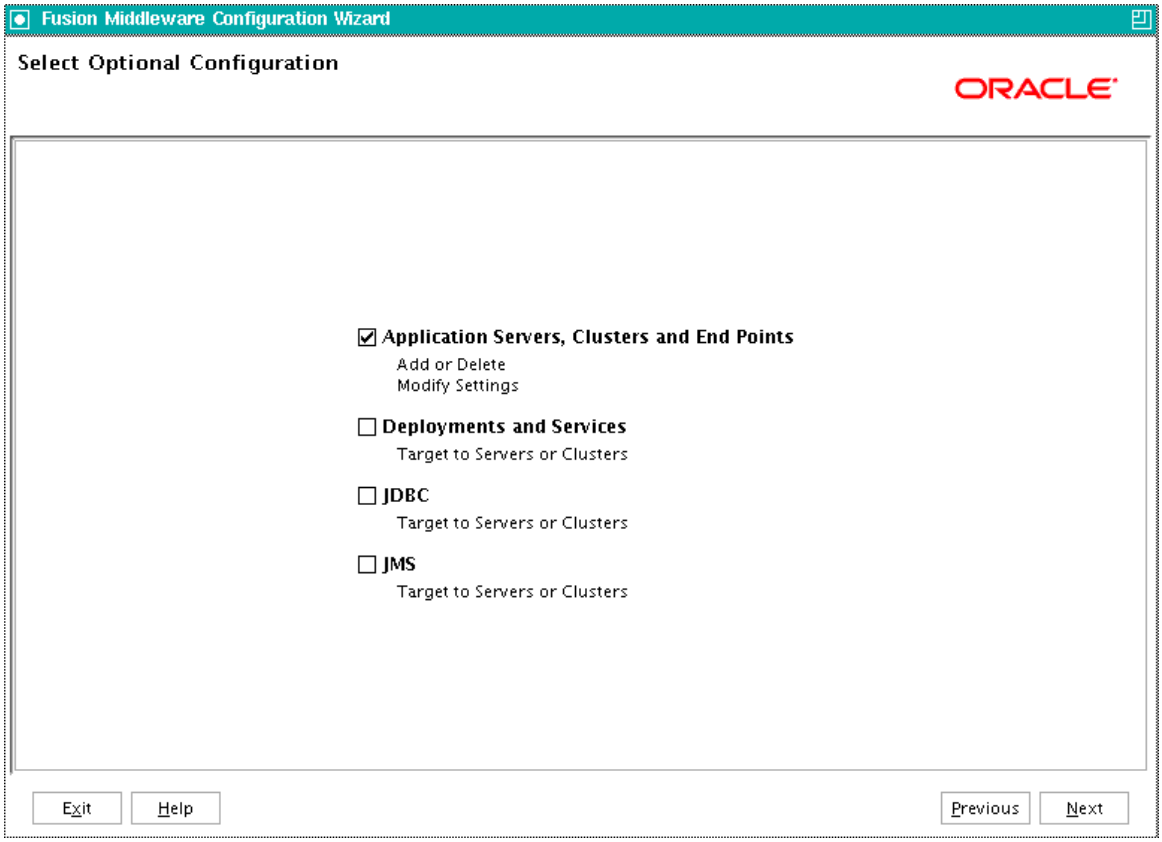


Important: After deployment is done, don't forget to apply workaround steps from the section 5.1. Updating JDBC data sources (Microsoft SQL Server only).

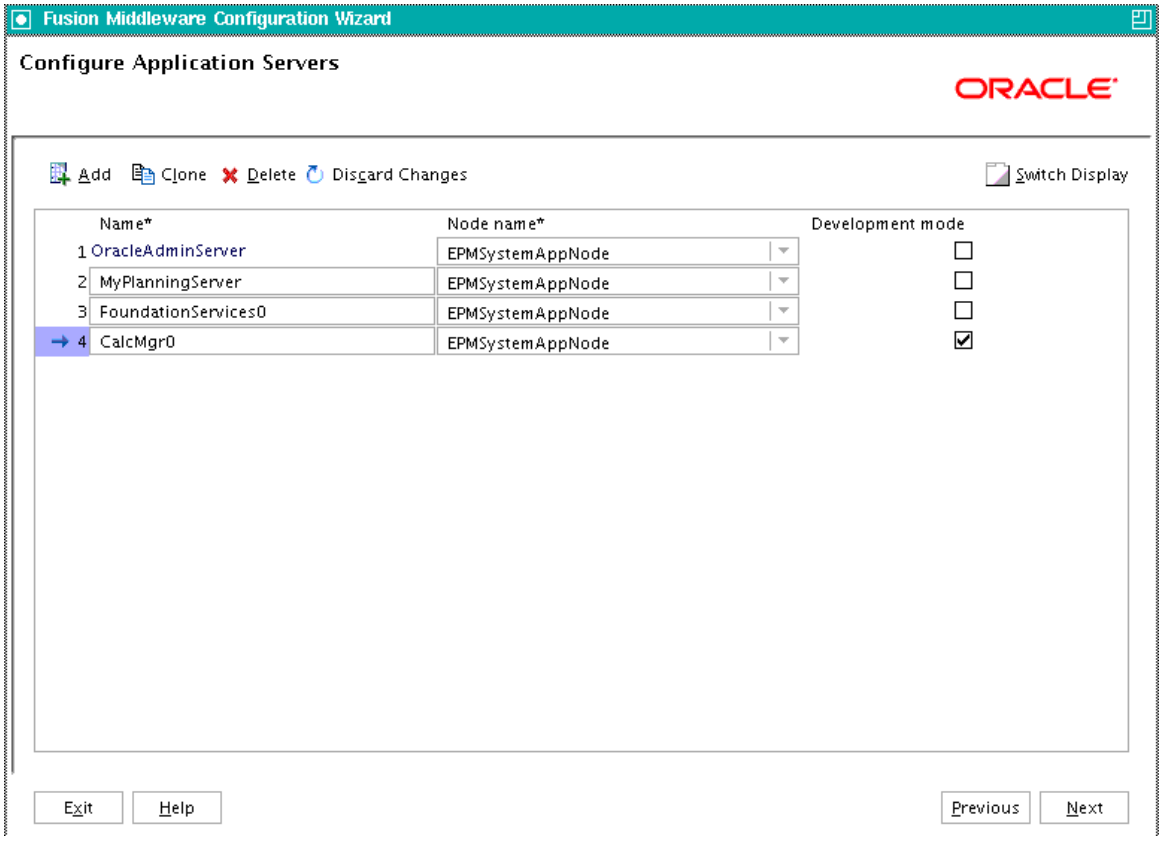


4.2. Customizing configuration

If you want to add, delete or modify Application Servers, Clusters or End Points (ports) select Application Servers, Clusters and End Points.

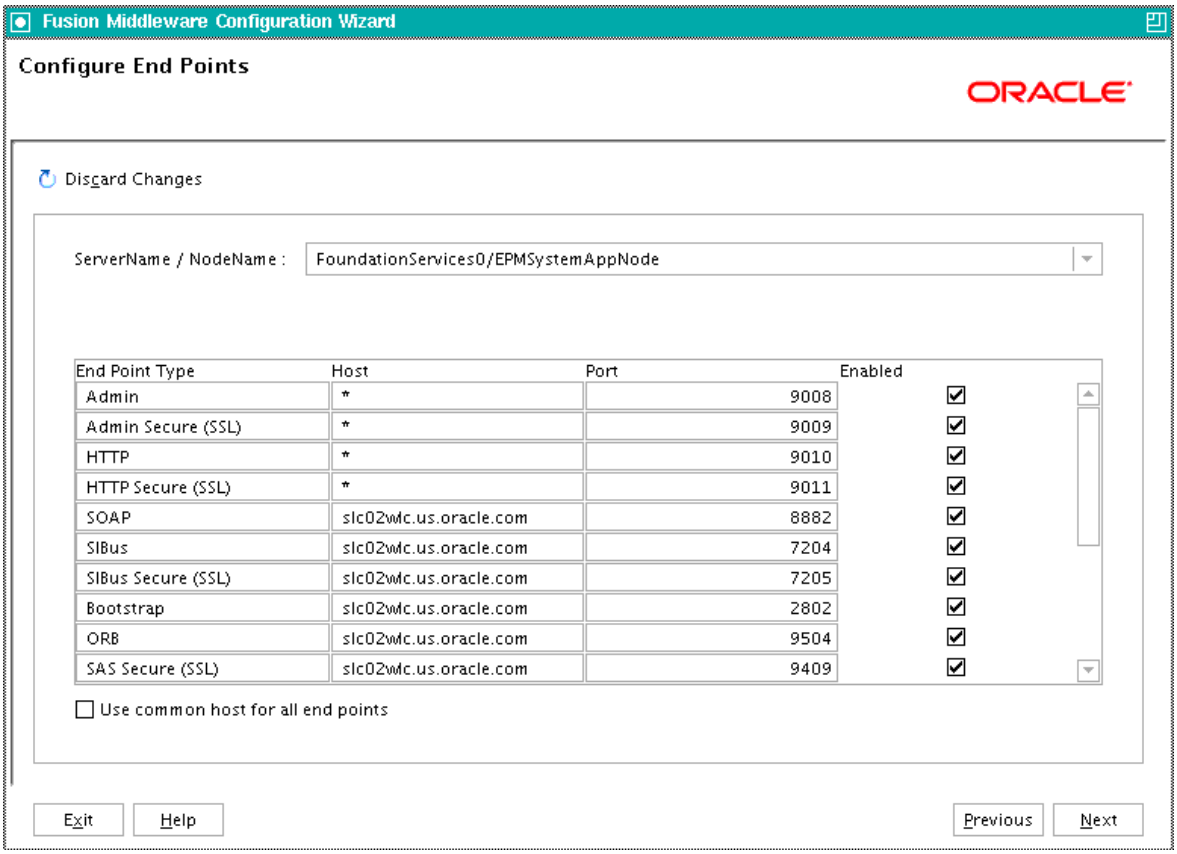


On the first screen you can Configure Application Servers, i.e. rename, add or delete default EPM System servers. However, you cannot delete pre-defined OracleAdminServer at this point. The server can be deleted later from Integrated Solution Console.

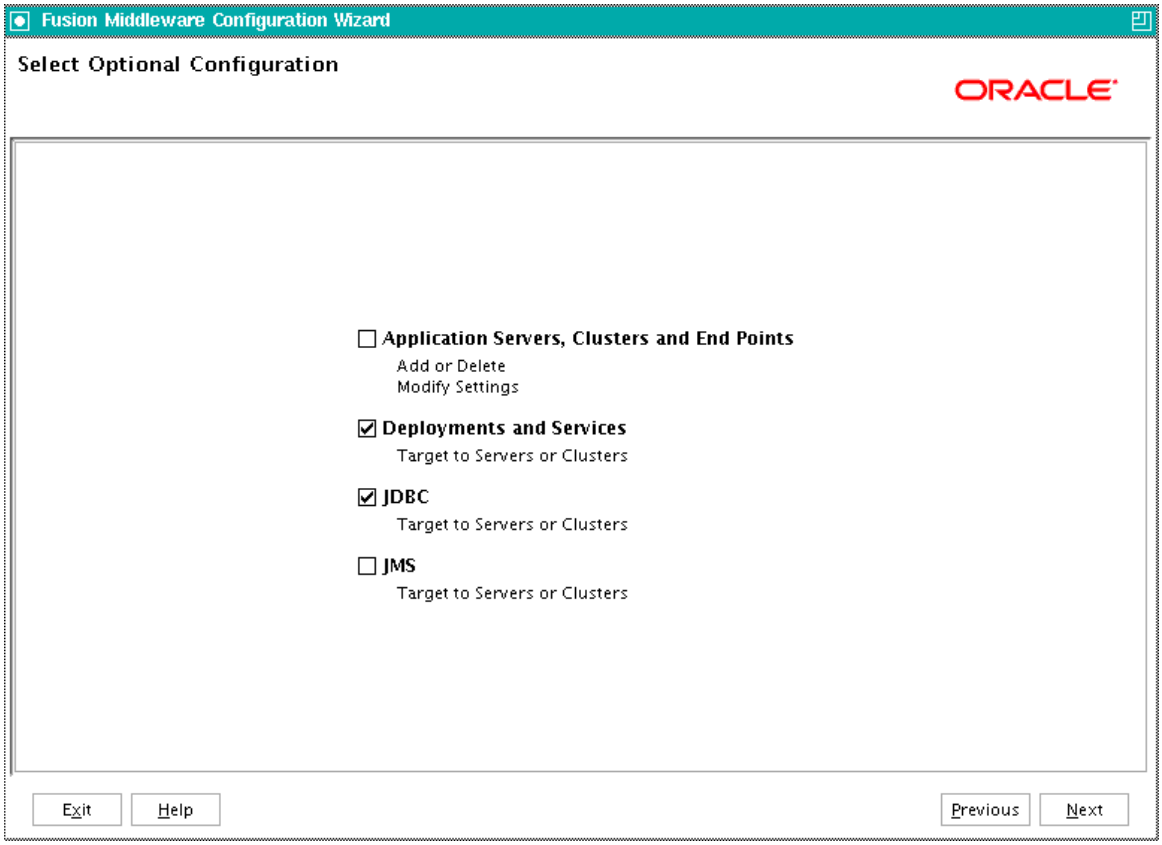


On the next screen you can Configure Clusters. This is usually required if you are doing vertical scaling configuration of EPM System products on multiple boxes.

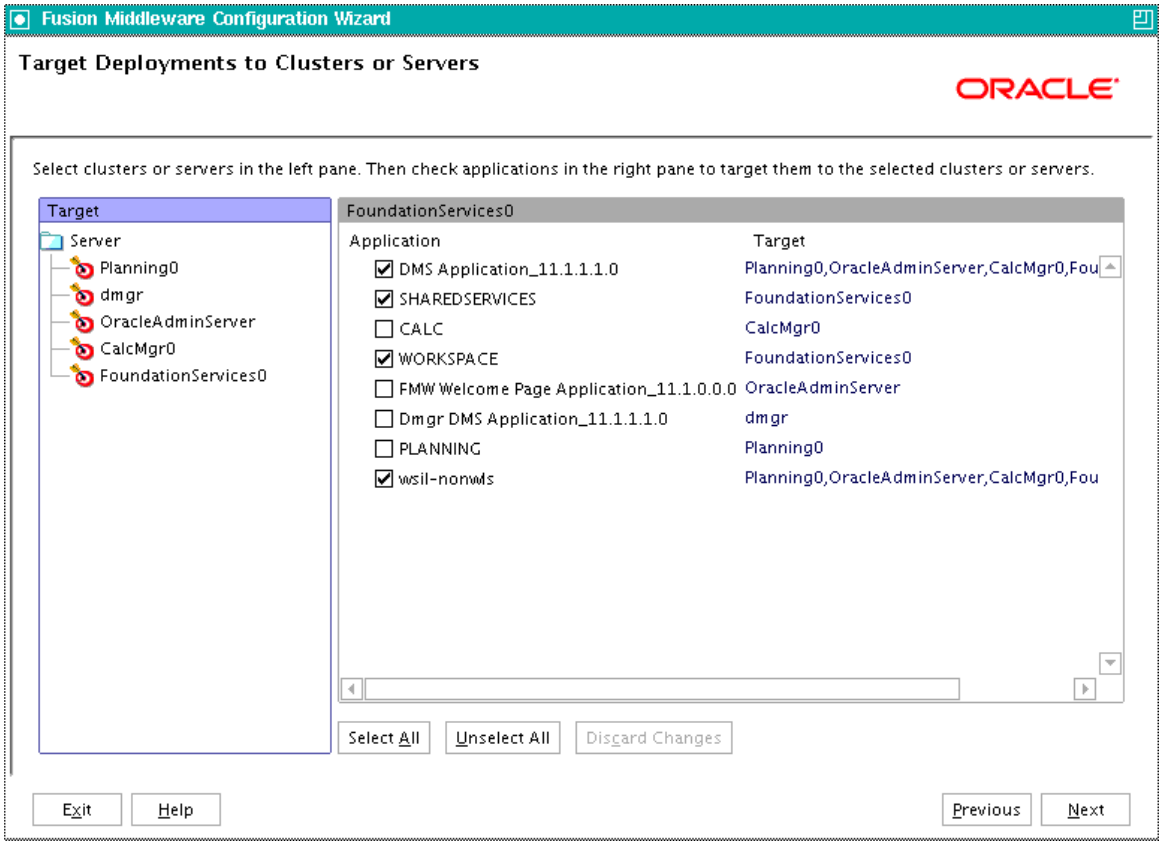
Then you can Configure End Points for each Application Server, i.e. change default ports, disable non-standard ports, etc.



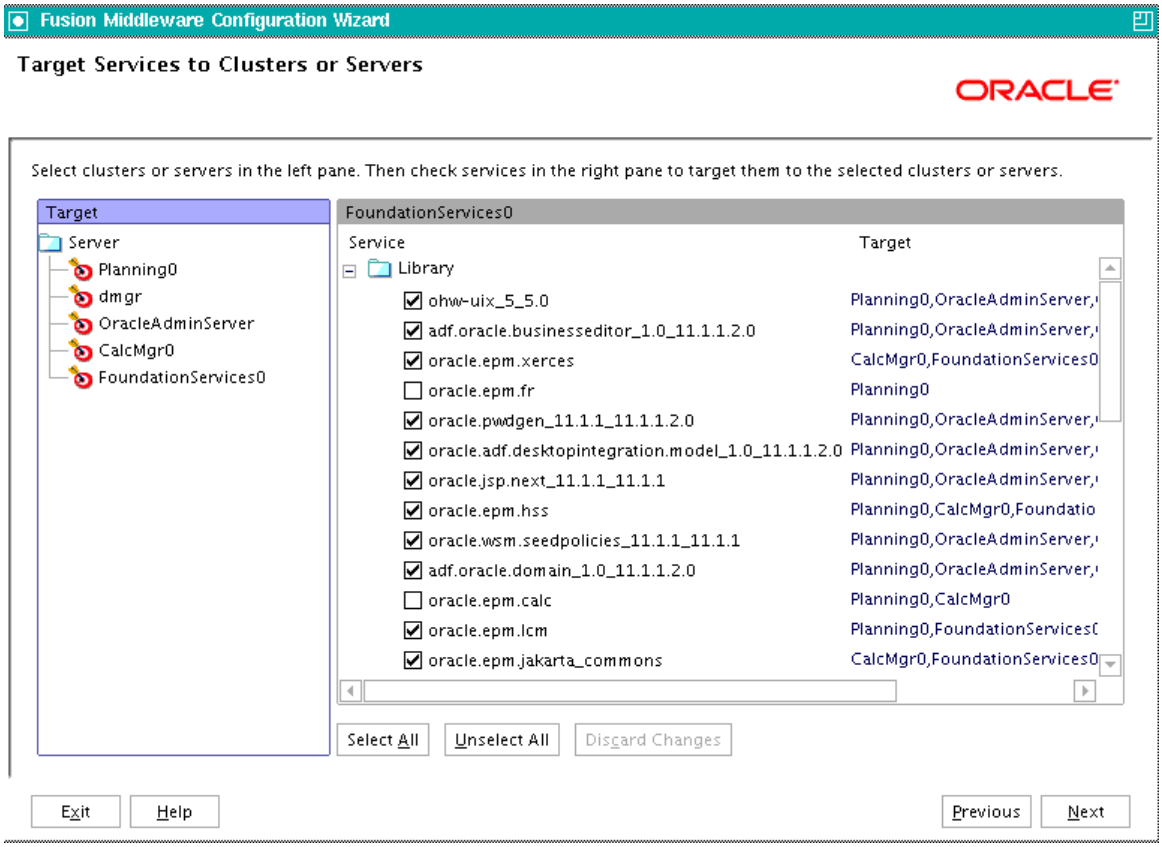
If you want to change default targets for EPM System applications, select Deployments and Services and JDBC checkboxes. Usually it is required when you want to do compact deployment, or deploy an EPM System application to the existing server, or setup vertical scaling configuration on multiple boxes.

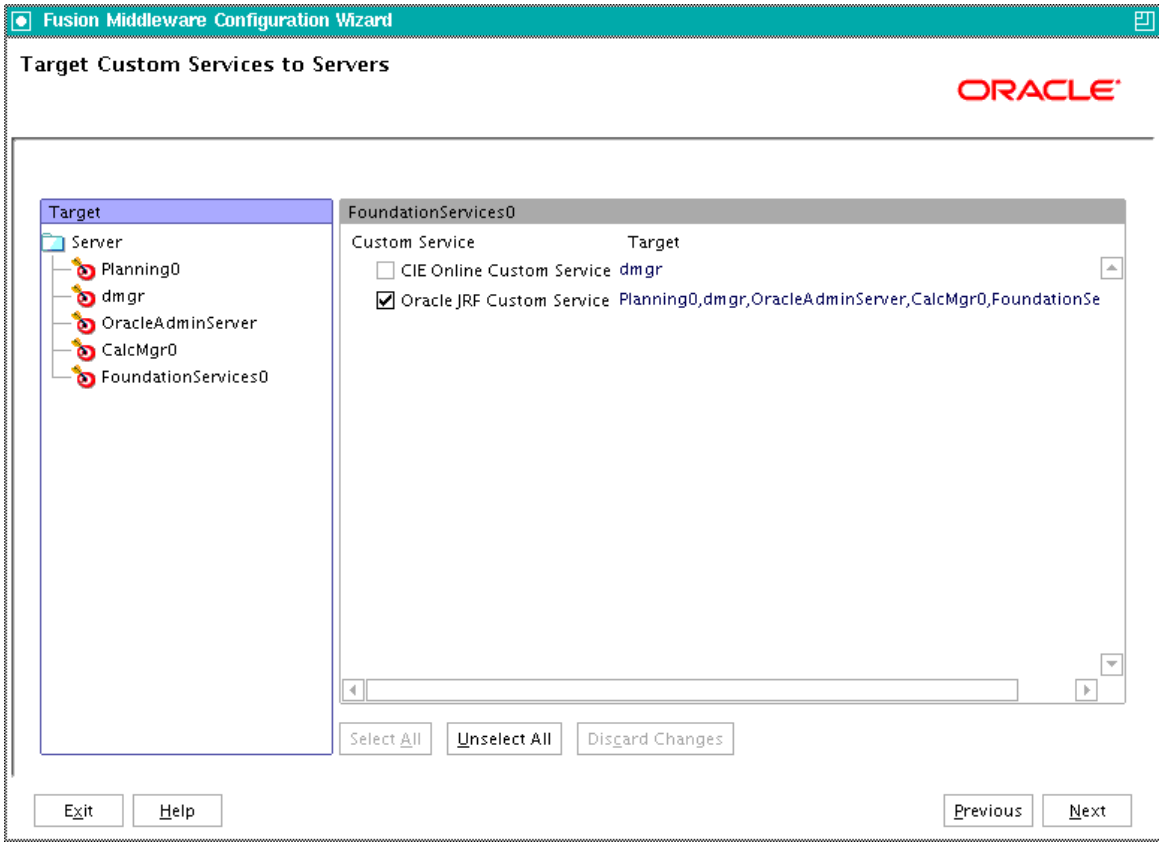


On the first screen you can change targets for EPM System applications:



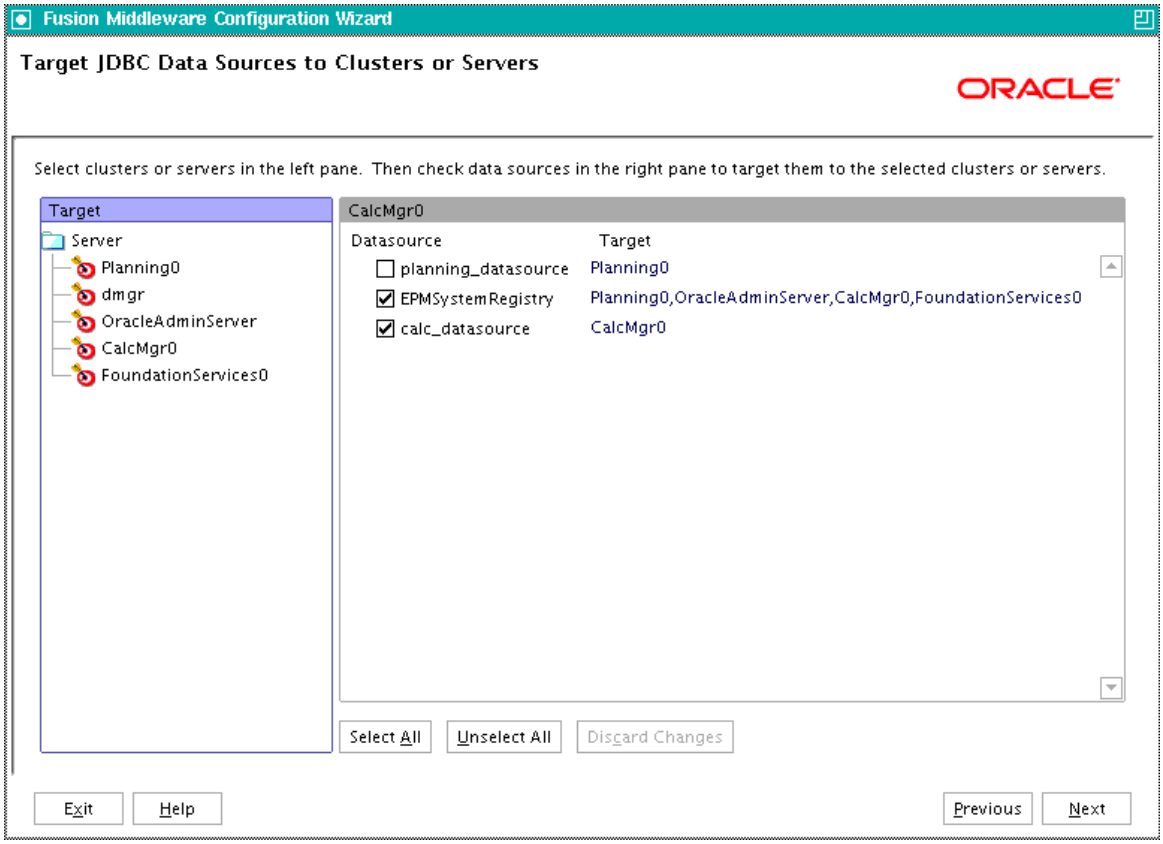
On the second and third screens you can change targets for Services (shared Libraries, URL Providers, etc.):





Important: Do not remove Oracle JRF Custom Service from the servers that will run EPM System applications.

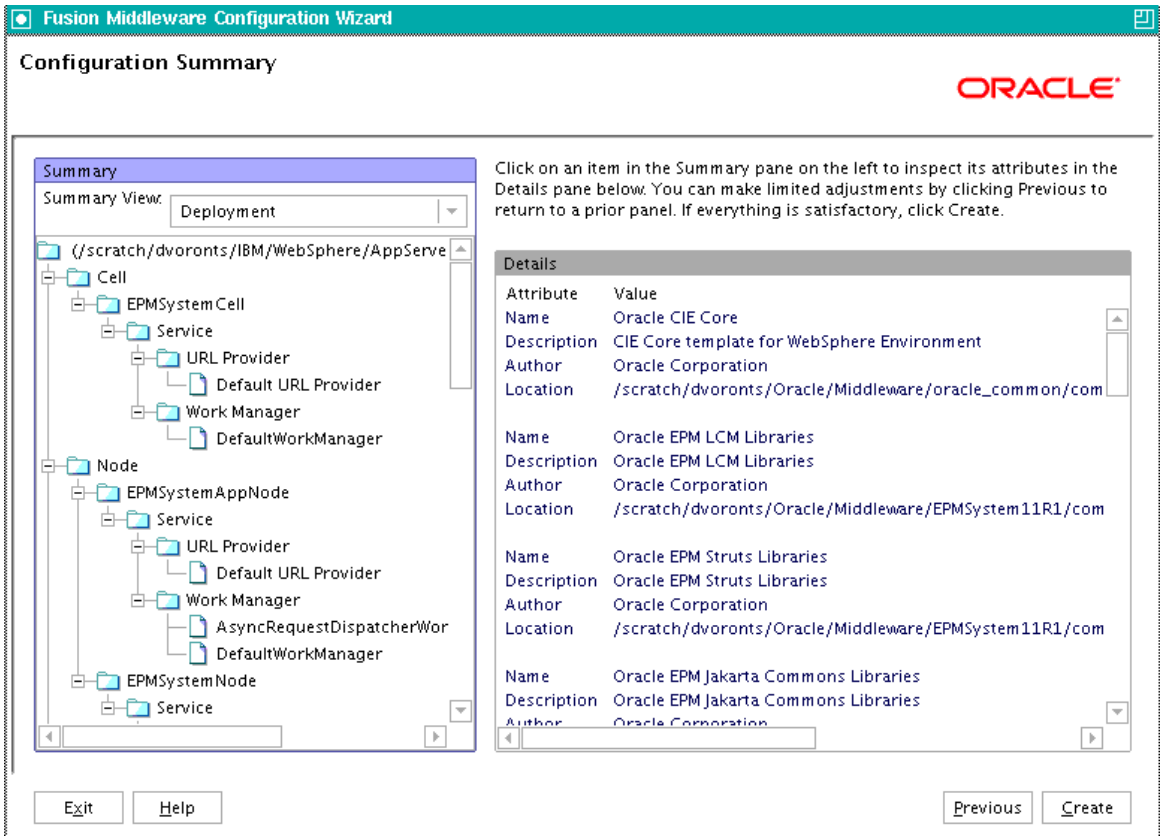
On the next screen you can change targets for JDBC Data Sources:



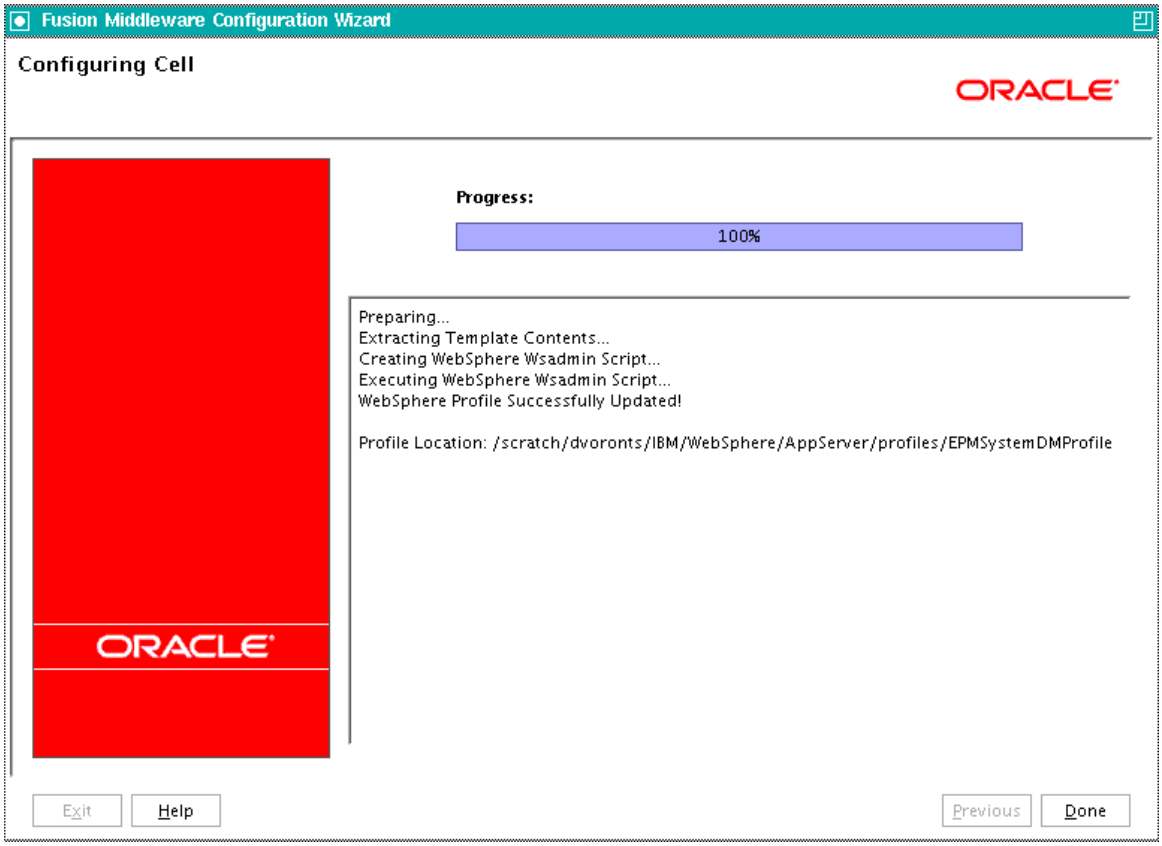
Important: EPMSystemRegistry data source must be targeted to each server that will run an EPM System application. Other EPM System product-specific data sources should be targeted only to the server that will run corresponding EPM System application. For example: calc_datasource should be targeted to CalcMgr0 Application Server only.

4.3. Finishing configuration

Review Configuration Summary and click Create:



Review Configuring Cell results and press Done:



5. Executing post-deployment steps

5.2. Applying JRF to custom Servers

Important: If you deployed EPM System applications to an existing Application Server, i.e. the Server created manually in Integrated Solutions Console or wsadmin.sh script, or if you changed default Server names in Config Wizard, you need to apply workaround for **9729324 – PROVIDE CLUSTER STEPS FOR APPLYJRF() SERVERS.** The JVM system property defined in the jvm-config.xml file in the JRF template only applies to the servers defined in the template. So when you create servers (i.e. MyExistingServer01, MyExistingServer02) outside of any template, they don't get this setting.

Note: It is not necessary to apply this workaround if you are going to use OracleAdminServer as single Application Server in the profile.

1) After the last Fusion Middleware Config Wizard run, execute the following script:

```
$MWH/oracle_common/common/bin/wsadmin.sh -profileName <DMProfileName> -
user <userName> -password <password >
```

For example:

```
$MWH/oracle_common/common/bin/wsadmin.sh -profileName dmgr -user admin -
password password
```

wsadmin.sh tool starts and displays an interactive shell with a wsadmin prompt.

2) Use the following commands to add missing properties:

```
OracleJRF.jrf_configJVM(cellName, appNodeName, serverName)
AdminConfig.save()
```

For example:

```
OracleJRF.jrf_configJVM('host.domain.com','hostManager',
'MyExistingServer01')
AdminConfig.save()
```

5.3. Deleting OracleAdminServer (optional)

If you didn't deploy Oracle Enterprise Manager you may want to remove OracleAdminServer from Integrated Solution Console.

5.4. Updating jps-config.xml and system-jazn-data.xml files

1) Under the was user, insert lines marked with red into $WAS_HOME/profiles/<DM_PROFILE_NAME>/config/cells/<CELL_NAME>/fmwconfig/jps-config.xml

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<jpsConfig …
  <property name="oracle.security.jps.jaas.mode" value="off"/>
  <propertySets … />
  <serviceProviders … />
  <serviceInstances>
    <serviceInstance … />
    <serviceInstance name="idstore.loginmodule"
provider="jaas.login.provider">
      <description>Identity Store Login Module</description>
      <property value="true" name="debug"/>
      <property value="REQUIRED" name="jaas.login.controlFlag"/>
      <property value="true" name="addAllRoles"/>
      <property
value="oracle.security.jps.internal.jaas.module.idstore.IdStoreLoginModule"
name="loginModuleClassName"/>
    </serviceInstance>
  </serviceInstances>
  <jpsContexts default="default">
    <jpsContext name="default">
      <serviceInstanceRef ref="credstore"/>
      <serviceInstanceRef ref="keystore"/>
      <serviceInstanceRef ref="policystore.xml"/>
      <serviceInstanceRef ref="audit"/>
      <serviceInstanceRef ref="trust"/>
      <serviceInstanceRef ref="pdp.service"/>
      <serviceInstanceRef ref="idstore.loginmodule"/>
    </jpsContext>
    <jpsContext … />
  </jpsContexts>
</jpsConfig>
```

2) Under the was user, merge $EOH/common/config/11.1.2.0/resources/deployment/xml/custom-jazn-data.xml file content into $WAS_HOME/profiles/<DM_PROFILE_NAME>/config/cells/<CELL_NAME>/fmwconfig/system-jazn-data.xml:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<jazn-data>
…
<!-- End WebCenter specific grants -->

      Insert all <grant … /> elements from 'custom-jazn-data.xml' file here

<!--
    End of grants specific to WebSphere platform
-->
        </jazn-policy>
    </system-policy>
</jazn-data>
```

5.5. Applying workaround for ERP Integrator

If you deployed ERP Integrator login to Integrated Solutions Console, select Resources, then JDBC, then Data sources, then aif_datasource, and then Custom properties. Add a new property: disableWASConnectionPooling. Set the value to true.

5.6. Synchronizing changes with Nodes

1) Under the was user, start Manager and Node:

```
$WAS_HOME/profiles/<DM_PROFILE_NAME>/bin/startManager.sh
$WAS_HOME/profiles/<PROFILE_NAME>/bin/startNode.sh
```

2) Login to Integrated Solutions Console. Go to System administration > Save changes to master repository, choose Synchronize changes with Nodes checkbox and press Save button.

6. Doing IBM HTTP Server configuration

Follow Configuring IBM HTTP Server chapter in EPM System Install and Config Guide.

Important: Do not forget to start and stop Application Servers to which EPM System applications are deployed before doing Web Server configuration to generate LWA/PWA nodes in HSS Registry.

Important: Don't forget to update permissions on the file system after each configtool-manual.sh run:

```
chmod o+rx $EOH
Do the same for each folder down to the $EOH. See example at the beginning
of this document.
chmod -R o+rwx $EOI
```

7. Reverting permissions on the file system

Under the epm user, remove unnecessary permissions on the file system as shown below:

```
chmod -R o-rx $EOH/inventory
chmod -R o-rx $MWH/oracle_common
chmod -R o-rwx $MWH/oracle_common/common/bin
chmod -R o-rwx $MWH/oracle_common/common/wsadmin
chmod -R o-rwx $EOH/common/config/11.1.2.0/resources/deployment/manual/
chmod -R o-rwx $EOI/bin
```

Important: Do not remove other world permissions; they are necessary to successfully start and use EPM System applications.