SOA Suite Setup for BPEL Process Flow
Oracle FLEXCUBE Investor Servicing
Release 12.4.0.0.0
[May] [2017]
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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

<table>
<thead>
<tr>
<th>Acronym/Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPEL</td>
<td>Business Process Execution Language</td>
</tr>
<tr>
<td>HA</td>
<td>High Availability</td>
</tr>
</tbody>
</table>
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

- HP-UX Itanium
- IBM AIX on POWER Systems (64-bit)
- IBM z/OS on System z
- IBM: Linux on System z
- Linux x86-64
- Microsoft Windows (32-bit)
- Microsoft Windows x64 (64-bit)
- Oracle Solaris on SPARC (32-bit)
- Oracle Solaris on SPARC (64-bit)
- Oracle Solaris on x86-64 (64-bit)

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:**

```
Welcome
Welcome to the Oracle Fusion Middleware 12c (12.2.1.0.0) Infrastructure Installer.

Use this installer to create a new Oracle home that contains the Oracle Fusion Middleware Infrastructure software. You can then install additional Fusion Middleware products that require the Infrastructure into the Oracle home, or you can use the Infrastructure to configure a WebLogic Server domain for the deployment of Java and Oracle AS technologies.

For more information, see Install, Patch, and Upgrade in the Oracle Fusion Middleware documentation library.

Context-sensitive online help is available from the Help button.
```

---

**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.
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:

![Image of Oracle Fusion Middleware 12c Infrastructure Installation - Step 8 of 9]

Installation Progress

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

View Messages: ✓ ViewSuccessful Tasks: ✓ View Log

Hardware and Software Engineered to Work Together

Step 9:

![Image of Oracle Fusion Middleware 12c Infrastructure Installation - Step 9 of 9]

Installation Complete

- Install Oracle Fusion Middleware 12c Infrastructure
  - Installation Location
    - Oracle Home Location: /u01/app/oracle/product/Oracle_Middleware/Oracle_Home
    - Log File Location: /u01/app/oracle/product/Oracle_Middleware/Oracle_Home/log/install.log
  - Feature Set Installed Successfully
    - Fusion Middleware Maven Support 12.2.1.0.0
    - Administration Console Additional Language Help Files 12.2.1.0.0
    - OAGLS 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 Core 12.2.1.0.0
    - OPMN 12.2.1.0.0
    - TOAD Developer 12.2.1.0.0

Next Steps:

See the online help for next steps after installation.

Oracle Fusion Middleware 12c Infrastructure installation completed successfully
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:

![Oracle Fusion Middleware 12c SOA Suite and Business Process Management Installation - 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.
Step 3:

Please select the below option based on the requirement:
Step 4: Please select BPM if the environment requires BPM process flow deployment.

Step 5:
Step 6:

[Image of Oracle Fusion Middleware installation summary]

Installation Summary

- Installation location
  - Oracle Home Location: /u01/app/oracle/product/12.2.1.0/soa
  - Log File Location: /u01/app/oracle/product/12.2.1.0/soa/soa.log

- Disk Space
  - Required: 1644 MB
  - Available: 1544 MB

- Feature Sets to Install
  - SOA Core Components 12.2.1.0.0
  - SOA Process Monitoring 12.2.1.0.0
  - Oracle Enterprise Scheduler 12.2.1.0.0
  - BAM Components 12.2.1.0.0
  - Foundation Pack 12.2.1.0.0
  - Managed File Transfer Interface 12.2.1.0.0
  - Event Processing 12.2.1.0.0
  - Enterprise Manager Plugin for SOA 12.2.1.0.0
  - Enterprise Manager Plugin for BAM 12.2.1.0.0
  - Enterprise Manager Plugin for ESS 12.2.1.0.0
  - BPM Components 12.2.1.0.0

- Save Response File

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.

Step 7:

[Image of Oracle Fusion Middleware installation progress]

Installation Progress

- Prepare
- Copy
- Generating Libraries
- Performing String Substitutions
- Linking
- Setup
- Saving the Inventory
- Post install scripts

View Messages  View Successful Tasks  View Log
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:

Welcome to Repository Creation Utility 12.2.1.0.0 for Oracle Fusion Middleware.

The Repository Creation Utility enables you to create and drop database schemas that are required for Oracle Fusion Middleware products.

Create Repository
Create and load component schemas into a database.

- System Load and Product Load
  I have DBA privileges.

- Prepare Scripts for System Load
  Create scripts for DBA to run later.

- Perform Product Load
  System Load scripts have been run by DBA.

Drop Repository
Remove component schemas from a database.
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.
Step 3: Define the prefix to be used for the schemas
Step 4: Define the password for the schemas.

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)
Step 6:

Repository Creation Utility

Map Tablespaces - Step 6 of 8

<table>
<thead>
<tr>
<th>Component</th>
<th>Schema Owner</th>
<th>Default Tablespace</th>
<th>Temp Tablespace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata Services</td>
<td>DEV_MDS</td>
<td>*DEV_MDS</td>
<td>*DEV_MDS_TEMP</td>
</tr>
<tr>
<td>Audit Services</td>
<td>DEV_IAU</td>
<td>*DEV_IAU</td>
<td>*DEV_IAU_TEMP</td>
</tr>
<tr>
<td>Audit Services Appen</td>
<td>DEV_IAU_APPEN</td>
<td>*DEV_IAU_APPEN</td>
<td>*DEV_IAU_APPEN_TEMP</td>
</tr>
<tr>
<td>Audit Services Viewer</td>
<td>DEV_IAU_VWR</td>
<td>*DEV_IAU_VWR</td>
<td>*DEV_IAU_VWR_TEMP</td>
</tr>
<tr>
<td>Oracle Platform Secu</td>
<td>DEV_OPS</td>
<td>*DEV_OPS</td>
<td>*DEV_OPS_TEMP</td>
</tr>
<tr>
<td>User Messaging Service</td>
<td>DEV_UMS</td>
<td>*DEV_UMS</td>
<td>*DEV_UMS_TEMP</td>
</tr>
<tr>
<td>MedLogic Services</td>
<td>DEV_WLS</td>
<td>*DEV_WLS</td>
<td>*DEV_WLS_TEMP</td>
</tr>
<tr>
<td>Oracle Enterprise Srv</td>
<td>DEV_BDS</td>
<td>*DEV_BDS</td>
<td>*DEV_BDS_TEMP</td>
</tr>
<tr>
<td>SOA Infrastructure</td>
<td>DEV_SOAFRA</td>
<td>*DEV_SOAFRA</td>
<td>*DEV_SOAFRA_TEMP</td>
</tr>
<tr>
<td>Common Infrastructure</td>
<td>DEV_STB</td>
<td>*DEV_STB</td>
<td>*DEV_STB_TEMP</td>
</tr>
</tbody>
</table>

* Default tablespaces (specified in the configuration files) are to be created upon confirmation.

Messages:

Repository Creation Utility - Confirmation

Any tablespaces that do not already exist in the selected scheme will be created.

Click OK to create table spaces.

Click Cancel to return to the wizard.

* Default tablespaces (specified in the configuration files) are to be created upon confirmation.

Messages:
Step 7:
Note: Verifying Schema Version Numbers in the database where RCU is executed

SQL> select comp_name, version from schema_version_registry;

<table>
<thead>
<tr>
<th>COMP_NAME</th>
<th>VERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Service</td>
<td>12.2.1.0</td>
</tr>
<tr>
<td>Audit Service Append</td>
<td>12.2.1.0</td>
</tr>
<tr>
<td>Audit Service Viewer</td>
<td>12.2.1.0</td>
</tr>
<tr>
<td>Metadata Services</td>
<td>12.2.1.0</td>
</tr>
<tr>
<td>Oracle Platform Security Services</td>
<td>12.2.1.0</td>
</tr>
<tr>
<td>SOA Infrastructure Services</td>
<td>12.2.1.0</td>
</tr>
<tr>
<td>User Messaging Service</td>
<td>12.2.1.0</td>
</tr>
<tr>
<td>WebLogic Services</td>
<td>12.2.1.0</td>
</tr>
</tbody>
</table>

2.7 WebLogic Server Domain Configuration

Step 1:
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:

![Capture of Fusion Middleware Configuration Wizard, page 7 of 12, showing the JDBC Component Schema stage with various configuration parameters and selected options.

Step 8:

![Capture of Fusion Middleware Configuration Wizard, page 8 of 12, showing the JDBC Component Schema Test with selected checkboxes and connection details.
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 15:

Configuration Progress:
- Domain
- Templates
- Application Location
- Administrator Account
- Domain Mode and JDK
- Database Configuration Type
- Component Datasources
- J2C Test
- Advanced Configuration
- Administration Server
- Node Manager
- Managed Servers
- Clusters
- Assign Servers to Clusters
- Coherence Clusters
- Machines
- Assign Servers to Machines
- Configuration Summary
- End Of Configuration

Prepping... Extracting Domain Context... Creating Domain Security Information... Starting OPS Security Configuration Data Processing... The OPS Security Configuration Data Processing Completed... Saving the Domain Information... Saving Domain Information... Defining Substituting Domain File... Performing Post Domain Creation Tasks... Performing Post OOPS Security Configuration Create Task... The OOPS Security Configuration Completed... Domain Created Successfully.

Configuration Success:
- Oracle WebLogic Server Configuration Succeeded

New Domain sal30_domain1 Creation Successful
- Domain Location: j06e/app/oracle/config/domains/sal30_domain1
- Admin Server URL: http://j06e:7001/console
## 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`

<table>
<thead>
<tr>
<th>Jar to be copied</th>
<th>Path where the jar is available in SOA Middleware</th>
</tr>
</thead>
<tbody>
<tr>
<td>bpm-services.jar</td>
<td>%Middleware Home%soa-soa/modules/oracle.soa.workflow_11.1.1</td>
</tr>
<tr>
<td>fabric-runtime.jar</td>
<td>%Middleware Home%soa-soa/modules/oracle.soa.fabric_11.1.1</td>
</tr>
<tr>
<td>tracking-fabric.jar</td>
<td>%Middleware Home%soa-soa/modules/oracle.soa.fabric_11.1.1</td>
</tr>
<tr>
<td>tracking-api.jar</td>
<td>%Middleware Home%oracle_common/modules/oracle.jrf</td>
</tr>
<tr>
<td>jrf-api.jar</td>
<td>%Middleware Home%soa-soa/modules/oracle.soa.bpel_11.1.1</td>
</tr>
<tr>
<td>orabpel-common.jar</td>
<td>%Middleware Home%soa-soa/modules/oracle.soa.bpel_11.1.1</td>
</tr>
<tr>
<td>orabpel-thirdparty.jar</td>
<td>%Middleware Home%soa-soa/modules/oracle.soa.bpel_11.1.1</td>
</tr>
<tr>
<td>orabpel.jar</td>
<td>%Middleware Home%soa-soa/modules/oracle.soa.mgmt_11.1.1</td>
</tr>
<tr>
<td>soa-infra-mgmt.jar</td>
<td>%Middleware Home%soa-soa/modules/oracle.soa.mgmt_11.1.1</td>
</tr>
<tr>
<td>xml.jar</td>
<td>%Middleware Home%oracle_common/modules/oracle.xdk</td>
</tr>
<tr>
<td>xmlparserv2.jar</td>
<td>%Middleware Home%oracle_common/modules/oracle.mds</td>
</tr>
<tr>
<td>mdsrt.jar</td>
<td>%Middleware Home%oracle_common/modules/oracle.mds</td>
</tr>
<tr>
<td>com.oracle.webservices.fmw.wsc liaent-rt-impl.jar</td>
<td>%Middleware Home%oracle_common/modules/oracle.mds</td>
</tr>
</tbody>
</table>
2. Additionally if BPMN enabled

<table>
<thead>
<tr>
<th>Jar to be copied</th>
<th>Path where the jar is available in SOA Middleware</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle.bpm.bpm-services.client.jar</td>
<td>%Middleware Home%/soa/soa/modules/oracle.bpm.client_11.1.1</td>
</tr>
<tr>
<td>oracle.bpm.bpm-services.interface.jar</td>
<td>%Middleware Home%/soa/soa/modules/oracle.bpm.project_11.1.1</td>
</tr>
<tr>
<td>oracle.bpm.project.draw.jar</td>
<td>%Middleware Home%/soa/soa/modules/oracle.bpm.runtime_11.1.1</td>
</tr>
<tr>
<td>oracle.bpm.project.model.jar</td>
<td>%Middleware Home%/soa/soa/modules/oracle.bpm.workspace_11.1.1</td>
</tr>
<tr>
<td>oracle.bpm.core.jar</td>
<td>%Middleware Home%/soa/soa/modules/oracle.bpm.runtime_11.1.1</td>
</tr>
<tr>
<td>oracle.bpm.ui.jar</td>
<td>%Middleware Home%/soa/soa/modules/oracle.bpm.workspace_11.1.1</td>
</tr>
<tr>
<td>oracle.bpm.casemgmt.interface.jar</td>
<td>%Middleware Home%/soa/soa/modules/oracle.bpm.runtime_11.1.1</td>
</tr>
</tbody>
</table>

3. The jars copied have to be from same soa-suite version where BPEL processflows deployed. I.e, 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

```java
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