Oracle Banking Microservices Architecture Installer Guide

Oracle Banking Supply Chain Finance

Release 14.7.0.0.0

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1. Preface

1.1 Purpose

This guide provides the procedure for installation of Oracle Banking Microservices Architecture and related products including database creation and required schemas using the Installer.

Note: For the exact version to be installed, refer to **Tech Stack** section of Release Notes.

1.2 Audience

This guide is intended for WebLogic admin or ops-web team who are responsible for installing the OFSS banking products.

1.3 Acronyms and Abbreviations

Following are some of the acronyms and abbreviations you are likely to find in the guide:

Abbreviation	Description
CMC	Common Core
OS	Operating System
SMS	Security Management System
VM	Virtual Machine

1.4 List of Topics

Topic	Description
Preface	Provides information on the intended audience. It also lists the various chapters covered in this manual.
Installation Overview	This topic provides the overview about the Product Installation procedure.
Database Installation	This topic provides the information to install the database for product installation.

Topic	Description
Download and Setup Installer	This topic provides the information to download and setup the installer.
Foundation Setup	This topic provides the systematic instruction to setup the Oracle Banking Microservices Platform Foundation.
Product Setup	This topic provides the systematic instruction to setup the Product application.
Miscellaneous Tasks	This topic provides the information about the various miscellaneous tasks performed.

1.5 Related Documents

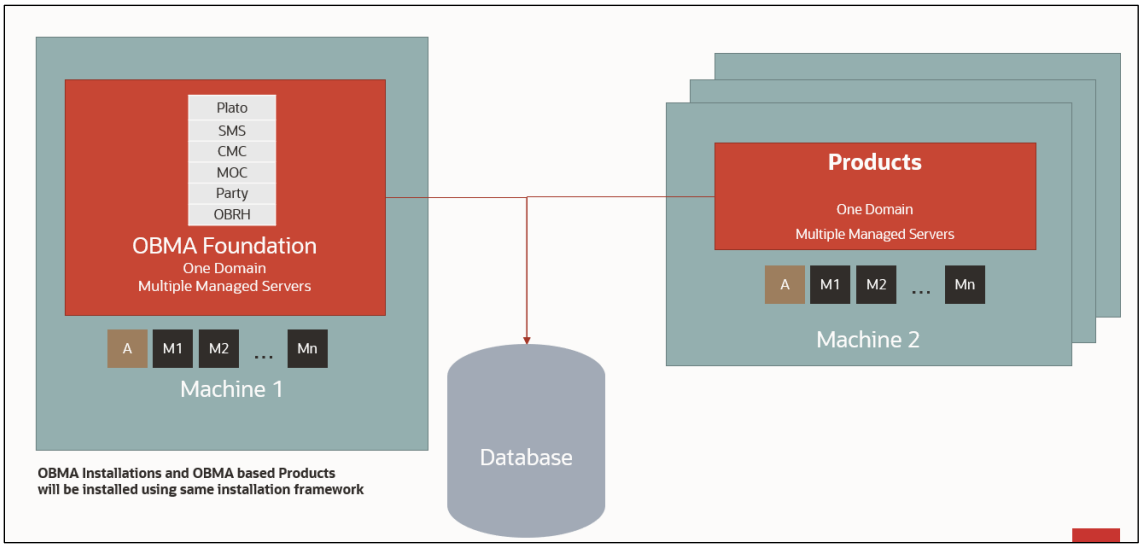
For information related to Installer, refer the following documentation:

- Product Installation Guide

2. Installation Overview

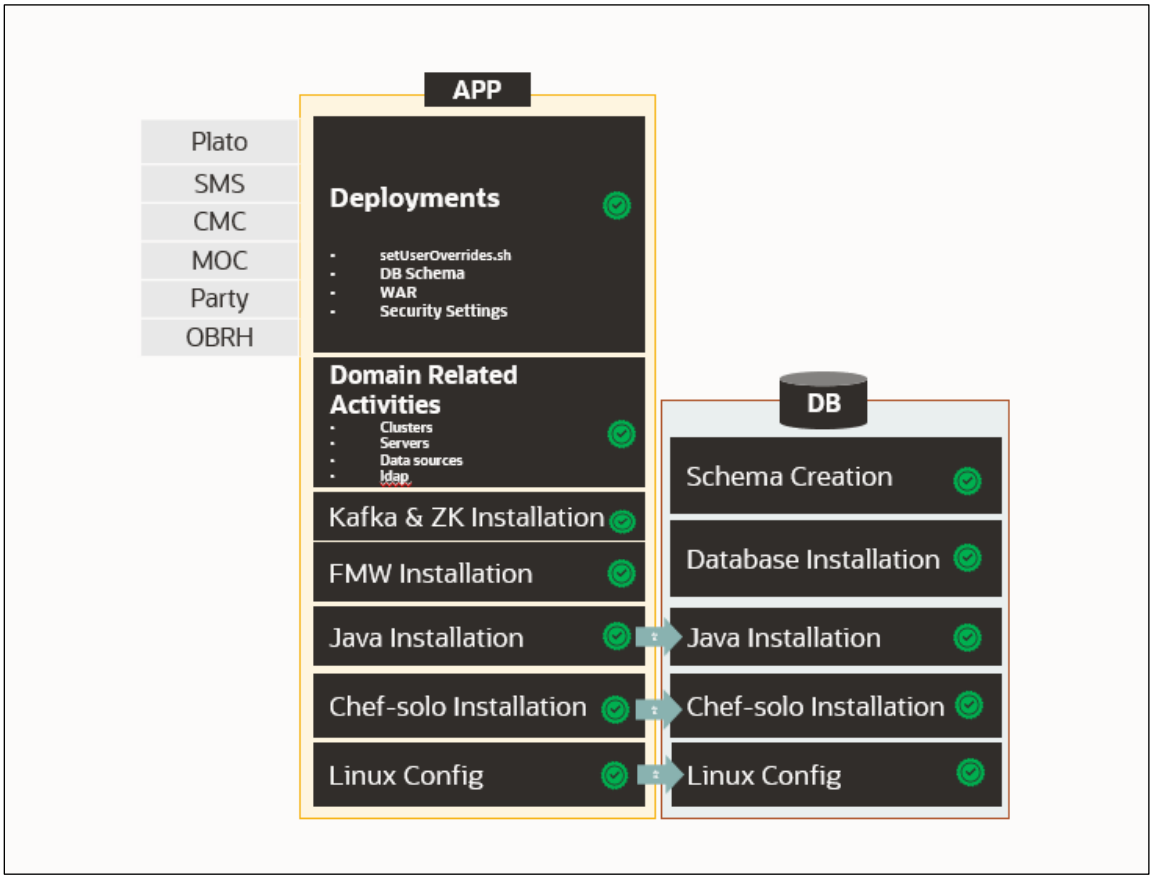
2.1 ECO System

To run any Oracle Banking Microservices Architecture based product, the user needs to have Oracle Banking Microservices Architecture foundation installed in the ECO system and then the user can install your product in same or in different machine. The following diagram is representation of installed Oracle Banking Microservices Architecture ECO system. In a domain there will be one Admin server and there can be multiple managed servers to be used for load balancing of the services.



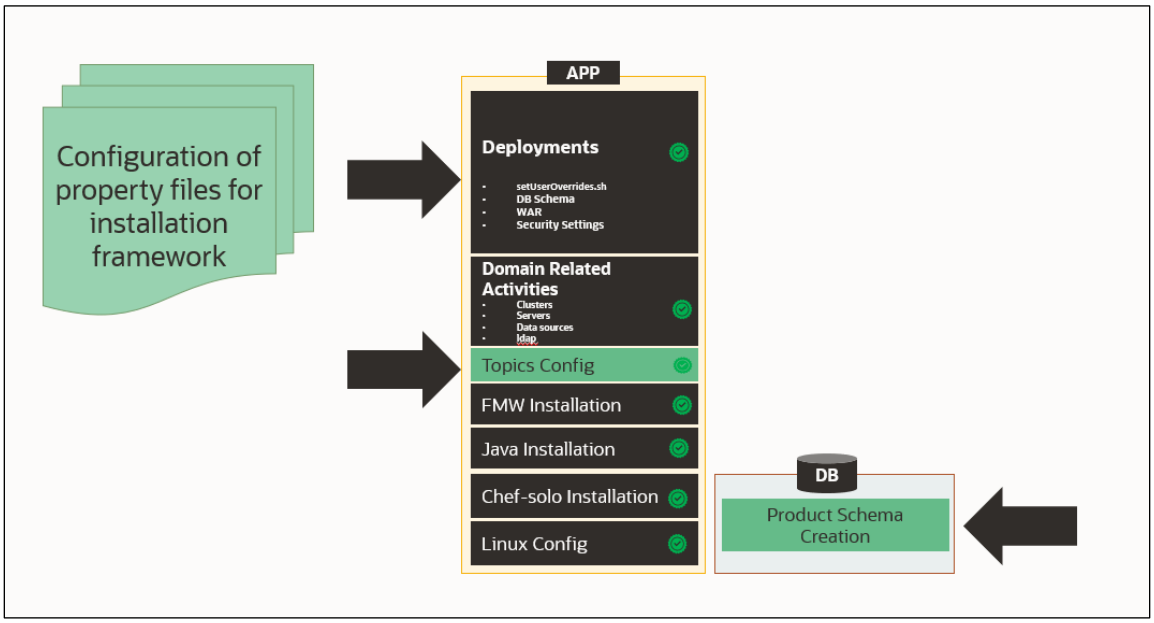
2.2 Oracle Banking Microservices Architecture Installation

Typical Oracle Banking Microservices Architecture installation consists of the deployment of Plato, SMS, CMC, MOC, Party and Oracle Banking Routing Hub wars, there are separate managed servers under a domain where war are distributed for load balancing. Also, the Oracle Banking Microservices Architecture foundation server can have zookeeper, kafka on the same physical machine. The Eureka is also installed as part of foundation which helps service discovery. The following diagram is a representation of the Oracle Banking Microservices Architecture Foundation installation.



2.3 Product Installation

Any Oracle Banking Microservices Architecture product installation can be visualized as like below diagram, it is assumed that you have existing Oracle Banking Microservices Architecture foundation and database installed and ready. You can then install your product on top of it. Many products can be installed in the same ECO system.



3. Database Installation

3.1 Prerequisites

Oracle Database needs to be installed and required schemas needs to be created before the installation. Database installation is not part of the installer.

Refer to the **Product Installation Guide** to create the database schemas.

4. Download and Setup Installer

4.1 Download Installer

The installer is available in OSDC zip of each product.

Perform the below steps to download the installer.

1. Launch putty and login to the VM (where the installation is planned) with OS user.
2. Create a directory obma_installer in /scratch
   ```
   mkdir -p /scratch/obma_installer ; chmod 755 /scratch/obma_installer
   ```
3. Navigate to the new directory obma_installer
   ```
   cd /scratch/obma_installer/
   ```
4. Download the installer zip file from the product OSDC zip to obma_installer directory.
5. Unzip installer zip file by executing the below command
   ```
   unzip <product zip file>
   ```

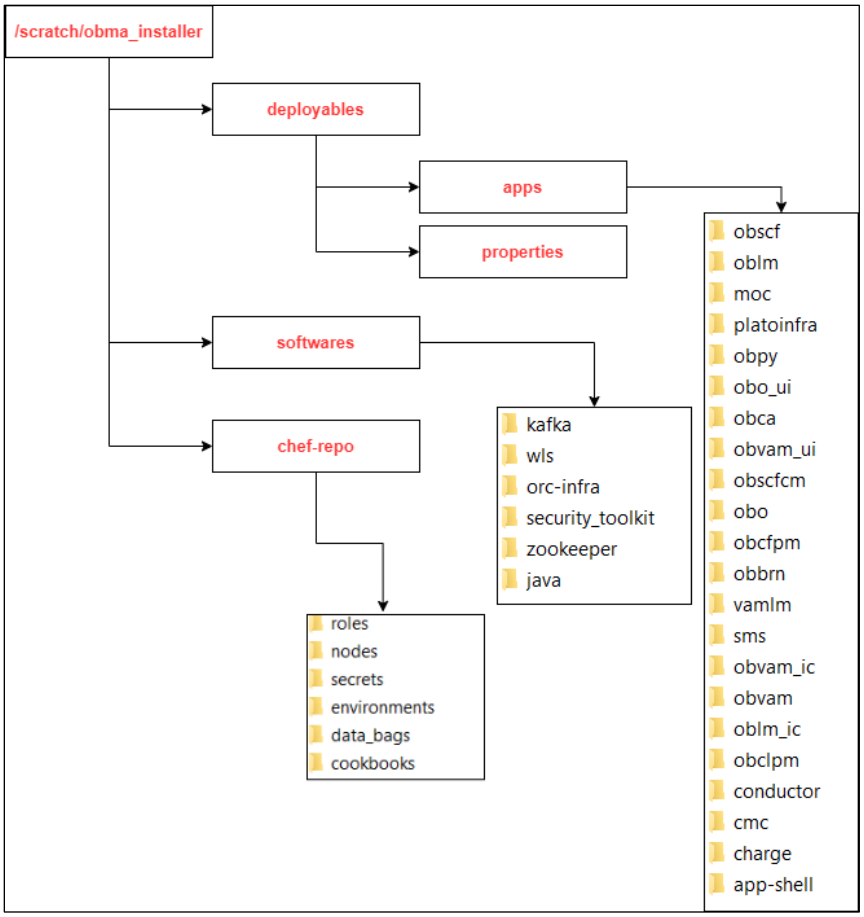
4.2 Installer Folder Structure

Post unzip of the installer file, the following directories will be displayed.

- **deployables** - contains sub-directories **apps** and **properties**.
  - The **apps** directory contains the various product wise directories where the applications or the wars files will be located for deployment. Please note, these files should be downloaded to the respective product directories from the artifactory path before starting the installation.
- **softwares** - contains the various software's required during the installation, like, java, weblogic, kafka, zookeeper, etc.
- **chef-repo** - contains various subdirectories, properties files, scripts etc., which are required for the installation.

The same is depicted in the below diagram along with their sub-directories.

Installer Folder Structure



Note: For each product, the applicable folders are displayed in the respective directories.

4.3 Download Applications (Domains) Related War Files

Before performing installation, copy the WAR file from the respective artifactory path to respective folders in the below mentioned folder structure.

```
/scratch/obma_installer/deployables/apps
```

Note: Installer will not check the presence of files in the respective directories before installation. The user needs to ensure all the required files with correct version are available in the respective directory for the product.

4.4 Download Softwares

Before performing installation, copy the required software's to respective folders in the below mentioned folder structure.

```
/scratch/obma_installer/deployables/softwares
```

Note: Installer will not check presence of software files in the respective directories before installation. The user needs to ensure all the required software files with correct version are available in the respective directory for the product.

4.5 Install the Oracle Replacement Configurator

1. Launch putty and login with the root user.
2. Navigate to the chef repo path: `cd /scratch/obma_installer/chef-repo`
3. Verify the version of Oracle Replacement Configurator installed in the VM by executing the command `chef-solo --version`
4. If the VM has older version of chef or Oracle Replacement Configurator, then remove the same by executing the command `yum remove orc-infra-<version_no.>`
   Alternatively, in case of chef solo installation, remove the same by executing the command `yum remove chef-*`
5. Install the new version of Oracle Replacement Configurator by executing the `install_orc.sh` script, and the command for the same is `./install_orc.sh`
6. Verify the version as mentioned in the **Step 3**.

5. Foundation Setup

Post completion of **Download and Setup Installer** tasks for VM identified for Foundation Setup, perform the below mentioned configurations.

5.1 Update Properties File

1. Launch WinSCP and login to Foundation VM with OS User (eg.: ofssobp)
2. Navigate to the path **/scratch/obma_installer/chef-repo/** and update the file "**obma_properties.rb**" with the below details,
   a. Update the local user and its group.

```
#Standard Values
INSTALL_USER =  "ofssobp"
INSTALL_GROUP =  "dba"
USER_ROOT = "root"
GROUP_ROOT = "root"
INSTALL_BASE_DIR =  "/scratch"
EXTRACT_LOC = "/scratch/extract"
```

   b. Verify the version of java, update if required, and ensure the same version is available in the software's directory.

```
#Java Installation Details
JAVA_INSTALLER_SOURCE =  "filesystem"
JAVA_INSTALLER_PATH =  "/java/"
#JAVA_INSTALLATION_DIR =  "/scratch/app/product"
JAVA_INSTALLATION_DIR =  INSTALL_BASE_DIR + "/obma"
JAVA_VERSION =  "1.8"
JDK_INSTALLER_VERSION =  "jdk1.8.0_281"
JDK_INSTALLER_FILE = "jdk-8u281-linux-x64.tar.gz"
CERTS_DIRNAME = INSTALL_BASE_DIR + "/ssl/"
```

   c. If the zookeeper installation will be done in the same foundation VM, then, update the hostname.

d. Verify the version of the zookeeper installable, update if required, and ensure the same version is available in the software's directory.

```
#Zookeeper Installation Details
ZOOKEEPER_HOST1 = "whf00jno.in.oracle.com"
# ZOOKEEPER_HOST2 = "whf00dwv.in.oracle.com"
# ZOOKEEPER_HOST3 = "whf00lsz.in.oracle.com"
PEER_PORT = 2891
LEADER_PORT = 3881
CLIENT_PORT = 2181
#ZOOKEEPER_INSTALL_DIR = INSTALL_BASE_DIR + "/app/zookeeper"
ZOOKEEPER_INSTALL_DIR = INSTALL_BASE_DIR + "/obma/zookeeper"
ZOOKEEPER_INSTALL_USER_HOME = INSTALL_BASE_DIR
ZOOKEEPER_VERSION = "apache-zookeeper-3.6.3-bin"
ZOOKEEPER_INSTALLER_PATH = SOFTWARE_INSTALLER_HOME + "/zookeeper/"
ZOOKEEPER_INSTALLER_FILE = "apache-zookeeper-3.6.3-bin.tar.gz"
```

e. If kafka installation will be done in the same foundation VM, then update the hostname.

f. Verify the version of the kafka installable, update if required, and ensure the same version is available in the software's directory.

```
#Kafka Installation Details
#KAFKA_INSTALL_DIR = INSTALL_BASE_DIR + "/app/kafka"
KAFKA_INSTALL_DIR = INSTALL_BASE_DIR + "/obma/kafka"
KAFKA_INSTALL_USER_HOME = INSTALL_BASE_DIR
KAFKA_INSTALLER_PATH = SOFTWARE_INSTALLER_HOME + "/kafka"
KAFKA_INSTALLER_FILE = "kafka_2.13-2.6.0.tgz"
# KAFKA_VERSION = "2.13-2.6.0"
KAFKA_SCALA_VERSION = "2.13"
JMX_PORT ="9999"
#Kafka Broker Configurations
KAFKA_BROKER_ID = 1
KAFKA_LISTEN_PORT = 9092
LOG_RETENTION_HOURS = "168"
LOG_RETENTION_CHECK_INTERVAL = "300000"
LOG_SEGMENT_BYTES = "1073741824"
LOG_RETENTION_BYTES = "1073741824"

KAFKA_HOST = "whf00jno.in.oracle.com"
KAFKA_PORT = "9092"
```

g. Verify the version of Tesseract installable, update if required, and ensure the same version is available in the software's directory.

```
#Tesseract Configurations Details
TESSERACT_INSTALL_USER_HOME = INSTALL_BASE_DIR
TESSERACT_INSTALL_DIR = INSTALL_BASE_DIR + "/obma/tesseract"
TESSERACT_INSTALLER_PATH = SOFTWARE_INSTALLER_HOME + "/tesseract"
INSTALLER_ZIP = "tesseract-4.1.1.zip"

LEPTONICA_INSTALLER_FILE = "leptonica-1.80.0.tar.gz"
LEPTONICA_INSTALLER_VERSION = "leptonica-1.80.0"
TESSERACT_INSTALLER_FILE = "tesseract-4.1.1.tar.gz"
TESSERACT_INSTALLER_VERSION = "tesseract-4.1.1"
```

h. Update hostname for LDAP configuration.

```
# LDAP DETAILS
LDAP_HOST = "ofss-mum-1315.snbomprshared1.gbucdsint02bom.oraclevcn.com"
LDAP_PORT = "7002"
```

i. Verify the version of weblogic server, update if required, and ensure the same version is available in the software's directory.

```
#Weblogic Infra Installation Details
#WLS_INSTALL_USER_HOME =   "/scratch"
ORACLE_INVENTORY =  "/scratch/app/oraInventory"
WLS_VERSION =  "12.2.1.4"
WLS_INSTALLER_SOURCE =  "filesystem"
WLS_INSTALLER_PATH =   "/wls/"
WLS_PACKAGE_BASENAME = "fmw_12.2.1.4.0_infrastructure.jar"
WLS_INSTALLER_FILE = "fmw_12.2.1.4.0_infrastructure_Disk1_1of1.zip"
#WLS_INSTALL_DIR = "/app/product/fmw"
WLS_INSTALL_DIR = INSTALL_BASE_DIR + "/obma"
WLS_INSTALLER_TYPE      = 'Fusion Middleware Infrastructure'
```

j. Update the hostname for plato configuration.

```
#Product specific Weblogic Server runtime parameters
PLATO_CONFIG_SERVICES_URI =  "http://whf00jno.in.oracle.com"
PLATO_CONFIG_SERVICES_PORT =  "8001"
APPLICATION_ENVIRONMENT =  "DEV"
APPLICATION_LOGGING_PATH =  "/scratch/work_area/logs"
PLATO_APIGATEWAY_URI = "http://whf00jno.in.oracle.com"
```

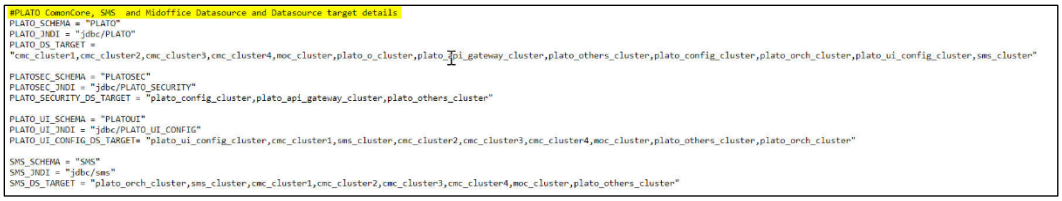
k. Update flyway domain locations i.e., update the details of domain locations for all the products that are considered for installation.

```
#
FLYWAY_DOMAIN_LOCATIONS=
"db/migration/domain/plato,db/migration/domain/sms,db/migration/domain/moc,db/migration/domain/cmc,db/migration/dom
ain/obpy,db/migration/domain/obremo,db/migration/domain/obtfpm,db/migration/domain/obedx,db/migration/domain/oblm,d
b/migration/domain/obic,db/migration/domain/vamlm,db/migration/domain/oflo,db/migration/domain/obvam,db/migration/d
omain/obclpm,db/migration/domain/obcfpm,db/migration/domain/obpm,db/migration/domain/obcm,db/migration/domain/obscf
,db/migration/domain/obscfcm"
```

l. The default servers and their respective ports are already defined. Any new addition of server details needs to be appended here under “#Product specific Weblogic Server runtime parameters”.

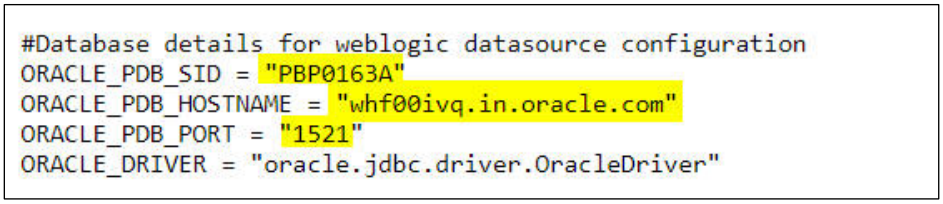
```
#PLATO ComonCore, SMS  and Midoffice common Server ports details
PLATO_CONFIG_SVCS_MAN_SERVER_LISTEN_PORT = "8001"
PLATO_CONFIG_SVCS_MAN_SERVER_SSL_PORT = "8002"

PLATO_DISCOVERY_SVCS_MAN_SERVER_LISTEN_PORT = "8003"
PLATO_DISCOVERY_SVCS_MAN_SERVER_SSL_PORT = "8004"

PLATO_API_GATEWAY_MAN_SERVER_LISTEN_PORT = "8005"
PLATO_API_GATEWAY_MAN_SERVER_SSL_PORT = "8006"
```

m. The default datasources are already defined. Any new addition of datasource needs to be appended here under “#PLATO ComonCore, SMS and Midoffice Datasource and Datasource target details”



Note: The password for all the default schema's is "welcome1". In case there is change in the password for the schemas, user needs to update the same in databag. Refer *Password Update in Databag* section for more details.

n. Update database details under “#Database details for weblogic datasource configuration”



o. Also, there are attributes and values related to individual products. Verify the details for your product/s, and in case, any changes to the default values are required, update accordingly.

Note: The below snapshot from Oracle Banking Cash Management product for reference.

5.2 Update Roles File

Navigate to the path **/scratch/obma_installer/chef-repo/roles/** and update the file "**obma_mw.rb**" with the below details,

a. In case of addition or changes to the existing kafka topics, modify the same under "**topics**".

```
  },
obma_kafka: {
   install_dir: KAFKA_INSTALL_DIR,
   install_user: INSTALL_USER,
   user_home: KAFKA_INSTALL_USER_HOME,
   install_group: INSTALL_GROUP,
       kafka_installer_path: KAFKA_INSTALLER_PATH,
   kafka_package_name: KAFKA_INSTALLER_FILE,
   # kafka_version: KAFKA_VERSION,
   kafka_scala_version: KAFKA_SCALA_VERSION,
   jmx_port: JMX_PORT,
   log: {
     retention_hours: LOG_RETENTION_HOURS,
     retention_check_interval: LOG_RETENTION_CHECK_INTERVAL,
     segment_bytes: LOG_SEGMENT_BYTES,
     retention_bytes: LOG_RETENTION_BYTES
   },
 topics: {
    topic1: {
     topic_name: "rpmDashboard",
     replication_factor: "1",
     partitions: "1",
     config: {
     "segment.bytes": "1073741824",
     "retention.ms": "604800000"
     }
     },
     topic2: {
     topic_name: "InitialFundingAck",
     replication_factor: "1",
     partitions: "1",
     config: {
     "segment.bytes": "1073741824",
     "retention.ms": "604800000"
     }
     },
            topic3: {
     topic_name: "PartyKYCStatusUpdate",
     replication_factor: "1",
     partitions: "1",
     config: {
     "segment.bytes": "1073741824",
     "retention.ms": "604800000"
     }
     },
            topic4: {
     topic_name: "PartyHandoffNotification",
     replication_factor: "1",
     partitions: "1",
```

b. In case of addition or changes to the existing cluster configuration, modify the same under “**cluster_config**”.

```
plato_config_services_port: PLATO_CONFIG_SERVICES_PORT,
plato_service_logging_path: APPLICATION_LOGGING_PATH,
plato_service_env: APPLICATION_ENVIRONMENT,
        oracle_driver: ORACLE_DRIVER,
cluster_configure: CONFIGURE_WLS_CLUSTER,
is_node_primary: "true",
cluster_config: {
    plato_config_cluster: {
        managed_servers: {
            Config_Server1: {
                listen_port: PLATO_CONFIG_SVCS_MAN_SERVER_LISTEN_PORT,
                ssl_port: PLATO_CONFIG_SVCS_MAN_SERVER_SSL_PORT,
                java_memory_min: "512",
                java_memory_max: "1024",
            }
        }
    },
    plato_discovery_cluster: {
        managed_servers: {
            Discovery_Server1: {
                listen_port: PLATO_DISCOVERY_SVCS_MAN_SERVER_LISTEN_PORT,
                ssl_port: PLATO_DISCOVERY_SVCS_MAN_SERVER_SSL_PORT,
                java_memory_min: "512",
                java_memory_max: "1024",
            }
        }
    },
    plato_api_gateway_cluster: {
        managed_servers: {
           API_Gateway_Server1: {
                listen_port: PLATO_API_GATEWAY_MAN_SERVER_LISTEN_PORT,
                ssl_port: PLATO_API_GATEWAY_MAN_SERVER_SSL_PORT,
                java_memory_min: "512",
                java_memory_max: "1024",
            }
        }
    },
    plato_ui_config_cluster: {
        managed_servers: {
           Plato_UI_Config_Server1: {
                listen_port: PLATO_UI_MAN_SERVER_LISTEN_PORT,
                ssl_port: PLATO_UI_MAN_SERVER_SSL_PORT,
                java_memory_min: "512",
                java_memory_max: "1024",
            }
        }
    },
    plato_o_cluster: {
        managed_servers: {
           Plato_O_Server1: {
```

c. In case of addition or changes to the existing data source configuration, modify the same under “**datasource_config**”.

```
            }
        }
    }
},
datasource_configure: "true",
datasource_config: {
    PLATO: {
        database_name: ORACLE_PDB_SID,
        driver_class: "oracle.jdbc.OracleDriver",
        jndi_name: PLATO_JNDI,
        host_name: ORACLE_PDB_HOSTNAME,
        port: ORACLE_PDB_PORT,
        global_transaction_protocol: "OnePhaseCommit",
        database_user_name: PLATO_SCHEMA,
                    target: PLATO_DS_TARGET
       },
              PLATOSEC: {
        database_name: ORACLE_PDB_SID,
        driver_class: "oracle.jdbc.OracleDriver",
        jndi_name: PLATOSEC_JNDI,
        host_name: ORACLE_PDB_HOSTNAME,
        port: ORACLE_PDB_PORT,
        global_transaction_protocol: "OnePhaseCommit",
        database_user_name: PLATOSEC_SCHEMA,
                    target: PLATO_SECURITY_DS_TARGET
     },
    PLATO_UI: {
        database_name: ORACLE_PDB_SID,
        driver_class: "oracle.jdbc.OracleDriver",
        jndi_name: PLATO_UI_JNDI,
        host_name: ORACLE_PDB_HOSTNAME,
        port: ORACLE_PDB_PORT,
        global_transaction_protocol: "OnePhaseCommit",
        database_user_name: PLATO_UI_SCHEMA,
                    target: PLATO_UI_CONFIG_DS_TARGET
    },
    SMS: {
        database_name: ORACLE_PDB_SID,
        driver_class: "oracle.jdbc.OracleDriver",
        jndi_name: SMS_JNDI,
        host_name: ORACLE_PDB_HOSTNAME,
        port: ORACLE_PDB_PORT,
        global_transaction_protocol: "OnePhaseCommit",
        database_user_name: SMS_SCHEMA,
                    target: SMS_DS_TARGET
    },
    CONDUCTOR: {
        database_name: ORACLE_PDB_SID,
        driver_class: "oracle.jdbc.OracleDriver",
```

d. In case of addition or changes to the existing services or war files, modify the same under "**app_deployment**".

```
            driver_class: "oracle.jdbc.OracleDriver",
            jndi_name: COMMON_CORE_JNDI,
            host_name: ORACLE_PDB_HOSTNAME,
            port: ORACLE_PDB_PORT,
            global_transaction_protocol: "OnePhaseCommit",
            database_user_name: COMMON_CORE_SCHEMA,
                            target: COMMON_CORE_DS_TARGET
        }
    },
    app_installer_path: "filesystem",
        app_dirname_url: PRODUCT_BUNDLE_HOME,
        app_deployment: {
        app1: {
            app_file_path: "/deployables/apps/platoinfra",
            app_file_name: "plato-config-service-7.3.0.1.war",
            app_target_name: "plato_config_cluster"
        },
        app2: {
            app_file_path: "/deployables/apps/platoinfra",
            app_file_name: "plato-discovery-service-7.2.0.war",
            app_target_name: "plato_discovery_cluster"
        },
                        app3: {
            app_file_path: "/deployables/apps/platoinfra",
            app_file_name: "plato-api-gateway-7.3.0.war",
            app_target_name: "plato_api_gateway_cluster"
        },
        app4: {
            app_file_path: "/deployables/apps/platoinfra",
            app_file_name: "plato-ui-config-services-7.3.0.war",
            app_target_name: "plato_ui_config_cluster"
        },
        app5: {
            app_file_path: "/deployables/apps/conductor",
            app_file_name: "conductor-server-v2.30.1_3.war",
            app_target_name: "plato_o_cluster"
        },
        app6: {
            app_file_path: "/deployables/apps/sms",
            app_file_name: "sms-core-services-7.3.0.war",
            app_target_name: "sms_cluster"
        },
        app7: {
            app_file_path: "/deployables/apps/platoinfra",
            app_file_name: "plato-orch-service-7.3.0.war",
            app_target_name: "plato_orch_cluster"
        },
                    app8: {
               app_file_path: "/deployables/apps/platoinfra",
               app_file_name: "plato-alerts-management-services-7.3.0.war",
```

e. Set the respective product installation as true, which will be configured as part of this Oracle Banking Microservices Architecture Environment Setup activity i.e. if “OBCFPM” will be installed, set the attribute “is_obcfpm_installation” to true.

```
                        app69: {
          app_file_path: "/deployables/apps/obo_ui",
          app_file_name: "oboflo-component-server-7.3.0.war",
          app_target_name: "plato_api_gateway_cluster"
        }
    },
          is_obcfpm_installation: "true",
       obcfpm_flyway_placefolder: {
    obcfpm_Server1_port: OBCFPM1_MAN_SERVER_SSL_PORT,
    obcfpm_Server2_port: OBCFPM2_MAN_SERVER_SSL_PORT,
    obcfpm_Server3_port: OBCFPM3_MAN_SERVER_SSL_PORT,
    obcfpm_Server4_port: OBCFPM4_MAN_SERVER_SSL_PORT,
    obcfpm_Server5_port: OBCFPM5_MAN_SERVER_SSL_PORT,
    obcfpm_Server6_port: OBCFPM6_MAN_SERVER_SSL_PORT,
    obpy_Server_port: OBPY_MAN_SERVER_SSL_PORT,
            collateral_schema: COLLATERAL_SCHEMA,
            collateral_jndi: COLLATERAL_JNDI,
            externalcheck_schema: EXTERNALCHECK_SCHEMA,
            externalcheck_jndi: EXTERNALCHECK_JNDI,
            risk_schema: RISK_SCHEMA,
            risk_jndi: RISK_JNDI,
            fieldinvestigation_schema: FIELDINVESTIGATION_SCHEMA,
            fieldinvestigation_jndi: FIELDINVESTIGATION_JNDI,
            facility_schema: FACILITY_SCHEMA,
            facility_jndi: FACILITY_JNDI,
            maintennce_schema: MAINTENANCE_SCHEMA,
            maintenance_jndi: MAINTENANCE_JNDI,
            valuation_schema: VALUATION_SCHEMA,
            valuation_jndi: VALUATION_JNDI,
            legal_schema: LEGAL_SCHEMA,
            legal_jndi: LEGAL_JNDI,
            safekeeping_schema: SAFEKEEPING_SCHEMA,
            safekeeping_jndi: SAFEKEEPING_JNDI,
            registration_schema: REGISTRATION_SCHEMA,
            registration_jndi: REGISTRATION_JNDI,
            stage_schema: STAGE_SCHEMA,
            stage_jndi: STAGE_JNDI,
            scoring_schema: SCORING_SCHEMA,
            scoring_jndi: SCORING_JNDI,
            covenant_schema: COVENANT_SCHEMA,
            covenant_jndi: COVENANT_JNDI,
            exception_schema: EXCEPTION_SCHEMA,
            exception_jndi: EXCEPTION_JNDI
```

f. Similarly, set all the other product installation to true, if the same will be configured as part of the environment setup, else set the same as false.

```
                CDDAPPTXNBTCH_JNDI: CDDAPPTXNBTCH_JNDI,
                DDASTMNTAPP_SCHEMA: DDASTMNTAPP_SCHEMA,
                DDASTMNTAPP_JNDI: DDASTMNTAPP_JNDI
},
              is_obvam_installation: "false",
          obvam_flyway_placefolder: {
                      obvam_hostname: OBVAM_HOSTNAME,
                      obvam_ic_Server_port: OBVAM_IC_MAN_SERVER_SSL_PORT,
                      obvam_Server_port: OBVAM_MAN_SERVER_SSL_PORT,
                      charge_Server_port: CHARGE_MAN_SERVER_SSL_PORT,
                      vam_schema: VAM_SCHEMA,
                  vam_jndi: VAM_JNDI,
                  vat_schema: VAT_SCHEMA,
                  vat_jndi: VAT_JNDI,
                  vas_schema: VAS_SCHEMA,
                  vas_jndi: VAS_JNDI,
                  van_schema: VAN_SCHEMA,
                  van_jndi: VAN_JNDI,
                  eda_schema: EDA_SCHEMA,
                  eda_jndi: EDA_JNDI,
                  vab_schema: VAB_SCHEMA,
                  vab_jndi: VAB_JNDI,
                  vac_schema: VAC_SCHEMA,
                  vac_jndi: VAC_JNDI,
                  vai_schema: VAI_SCHEMA,
                  vai_jndi: VAI_JNDI,
                  vae_schema: VAE_SCHEMA,
                  vae_jndi: VAE_JNDI,
                  eie_schema: EIE_SCHEMA,
                  eie_jndi: EIE_JNDI,
                  elm_schema: ELM_SCHEMA,
                  elm_jndi: ELM_JNDI,
                  vap_schema: VAP_SCHEMA,
                  vap_jndi: VAP_JNDI,
                  vas_ds_schema: VAS_DS_SCHEMA,
                  vas_ds_jndi: VAS_DS_JNDI,
                  vamlmchg_schema: VAMLMCHG_SCHEMA,
                  vamlmchg_jndi: VAMLMCHG_JNDI
              },
 is_obo_installation: "false",
     obo_flyway_placefolder: {
                      obo_hostname: OBO_HOSTNAME,
                      obo1_server_port: OBO1_MAN_SERVER_SSL_PORT,
                      obo2_server_port: OBO2_MAN_SERVER_SSL_PORT,
                      obo3_server_port: OBO3_MAN_SERVER_SSL_PORT,
                      obremobusprc_schema: OBREMOBUSSPRC_SCHEMA,
                      obremobusprc_jndi: OBREMOBUSSPRC_JNDI,
                      obremobpdetails_schema: OBREMOBPDETAILS_SCHEMA,
                      obremobpdetails_jndi: OBREMOBPDETAILS_JNDI,
```

g. Navigate to the bottom of the file and verify the recipes to be executed. All the listed recipes will be executed in sequential order as shown below.

```
run_list
['recipe[obma_sysprep::user_creation]','recipe[obma_sysprep::ulimit]','recipe[obma_java::_install_java]','
recipe[obma_java::create_certs]','recipe[obma_zookeeper]','recipe[obma_kafka]','recipe[obma_tesseract::tes
seract_prerequisite]','recipe[obma_tesseract::install_leptonica]','recipe[obma_tesseract::install_tesserac
t]','recipe[obma_weblogic::install_wls]','recipe[obma_weblogic::domain]','recipe[obma_weblogic::startadmin
]','recipe[obma_weblogic::startnm]','recipe[obma_weblogic::configureembaddedwlsldap]','recipe[obma_weblogi
c::ssl_admin]','recipe[obma_weblogic::stopadmin]','recipe[obma_weblogic::ssl_nodemanager]','recipe[obma_we
blogic::restartadmin]','recipe[obma_weblogic::cluster]','recipe[obma_weblogic::addjdbcconnections_plato]',
'recipe[obma_weblogic::setuseroverridesupdate_plato]','recipe[obma_weblogic::startman]','recipe[obma_weblo
gic::deployapp]']
```

Note: Remove the user_creation and ulimit recipes from the above list since it is used for internal purpose only.

5.3 Execute Installer Script

1. Launch putty and login to foundation VM with NIS user (eg.: dkarkera) and then switch to root user.
2. Navigate to the chef-repo path by executing the command,

   cd /scratch/obma_installer/chef-repo
3. Execute the installer script by executing the command **./obma_installer.sh**
4. This will perform the silent installation of Oracle Banking Microservices Architecture foundation.

6. Product Setup

Post completion of **Download and Setup Installer** tasks for VM identified for Product Setup, perform the below mentioned configurations.

Note: Oracle Banking Origination product is used as reference for understanding purpose.

6.1 Update Properties File

- Navigate to the path **/scratch/obma_installer/chef-repo/**
- Open the respective product properties file. Here we will update "**obo_properties.rb**" with the below details,

a. Update the local user and its group.

```
#Standard Values
INSTALL_USER =  "ofssobp"
INSTALL_GROUP =  "dba"
USER_ROOT = "root"
GROUP_ROOT = "root"
INSTALL_BASE_DIR =  "/scratch"
EXTRACT_LOC = "/scratch/extract"
```

b. Verify the version of java, update if required, and ensure the same version is available in the software's directory.

```
#Java Installation Details
JAVA_INSTALLER_SOURCE =  "filesystem"
JAVA_INSTALLER_PATH =  "/java/"
#JAVA_INSTALLATION_DIR =  "/scratch/app/product"
JAVA_INSTALLATION_DIR =  INSTALL_BASE_DIR + "/obma"
JAVA_VERSION =  "1.8"
JDK_INSTALLER_VERSION =  "jdk1.8.0_281"
JDK_INSTALLER_FILE = "jdk-8u281-linux-x64.tar.gz"
CERTS_DIRNAME = INSTALL_BASE_DIR + "/ssl/"
```

c. Verify the version of weblogic server, update if required, and ensure the same version is available in the software's directory.

```
#Weblogic Infra Installation Details
#WLS_INSTALL_USER_HOME =   "/scratch"
ORACLE_INVENTORY =  "/scratch/app/oraInventory"
WLS_VERSION =  "12.2.1.4"
WLS_INSTALLER_SOURCE =  "filesystem"
WLS_INSTALLER_PATH =  "/wls/"
WLS_PACKAGE_BASENAME = "fmw_12.2.1.4.0_infrastructure.jar"
WLS_INSTALLER_FILE = "fmw_12.2.1.4.0_infrastructure_Disk1_1of1.zip"
#WLS_INSTALL_DIR = "/app/product/fmw"
WLS_INSTALL_DIR = INSTALL_BASE_DIR + "/obma"
WLS_INSTALLER_TYPE      = 'Fusion Middleware Infrastructure'
```

d. Update the Product setup hostname and verify various ports, and update if required.

```
#Product specific parameters
PLATO_HOST = "ofss-mum-1315.snbomprshared1.gbucdsint02bom.oraclevcn.com"
PLATO_CONFIG_PORT = "8002"
DISCOVERY_PORT = "8004"
API_GATEWAY_PORT = "8006"
SMS_PORT = "8026"
PROTOCOL = "https"
```

e. For the respective product, the default servers and their ports are already defined. Any new addition of server or datasource details needs to be appended here under respective product “Flyway configuration details”

Note: Snapshot of Oracle Banking Origination FLYWAY Configuration Details is given for reference.

```
#*************************************************************************************************
#----------------------------------
# OBO FLYWAY Configurations Details
#----------------------------------

OBO_HOSTNAME = "whf00dxw.in.oracle.com"

# OBO Server ports details
OBO1_MAN_SERVER_LISTEN_PORT = "7101"
OBO1_MAN_SERVER_SSL_PORT = "7102"
OBO2_MAN_SERVER_LISTEN_PORT = "7103"
OBO2_MAN_SERVER_SSL_PORT = "7104"
OBO3_MAN_SERVER_LISTEN_PORT = "7105"
OBO3_MAN_SERVER_SSL_PORT = "7106"

# OBO Datasource Details
OBREMOBUSSPRC_SCHEMA = "OBREMOBUSSPRC"
OBREMOBUSSPRC_JNDI = "jdbc/OBREMOBUSSPRC"
OBREMOBUSSPRC_DS_TARGET = "obo1_cluster1"

OBREMOBPDETAILS_SCHEMA = "OBREMOBPDETAILS"
OBREMOBPDETAILS_JNDI = "jdbc/OBREMOBPDETAILS"
OBREMOBPDETAILS_DS_TARGET = "obo1_cluster1"

CMNAPPLICANT_SCHEMA = "CMNAPPLICANT"
CMNAPPLICANT_JNDI = "jdbc/CMNAPPLICANT"
CMNAPPLICANT_DS_TARGET = "obo2_cluster1"

OBREMOCOLLATERAL_SCHEMA = "OBREMOCOLLATERAL"
OBREMOCOLLATERAL_JNDI = "jdbc/OBREMOCOLLATERAL"
OBREMOCOLLATERAL_DS_TARGET = "obo2_cluster1"

RPMHOST_SCHEMA = "RPMHOST"
RPMHOST_JNDI = "jdbc/RPMHOST"
RPMHOST_DS_TARGET = "obo2_cluster1"

IPA_SCHEMA = "IPA"
IPA_JNDI = "jdbc/IPA"
IPA_DS_TARGET = "obo2_cluster1"
```

Note: The password for all the default schema's is "welcome1". In case there is change in the password for the schemas, user needs to update the same in databag. Refer *Password Update in Databag* section for more details.

f. Update the database details under “#Database details for weblogic datasource configuration”.

```
#Database details for weblogic datasource configuration
ORACLE_PDB_SID = "PBP0163A"
ORACLE_PDB_HOSTNAME = "whf00ivq.in.oracle.com"
ORACLE_PDB_PORT = "1521"
ORACLE_DRIVER = "oracle.jdbc.driver.OracleDriver"
```

6.2 Update Roles File

Navigate to the path **/scratch/obma_installer/chef-repo/roles/** and open the respective product role file. Here we will consider "**obo_mw.rb**" for reference.

a. In case of addition or changes to the existing cluster configuration, modify the same under “**cluster_config**”.

```
            nodemgr_mode: NODEMGR_MODE,
            domain_path: DOMAIN_PATH,
            domain_start_mode: DOMAIN_START_MODE,
            nodemgr_port: NODEMGR_PORT,
            admin_server_name: ADMIN_SERVER_NAME,
            plato_config_services_uri: PLATO_CONFIG_SERVICES_URI,
    plato_config_services_port: PLATO_CONFIG_SERVICES_PORT,
            plato_apigateway_uri: PLATO_CONFIG_SERVICES_URI,
            plato_apigateway_port: PLATO_API_GATEWAY_MAN_SERVER_LISTEN_PORT,
    plato_service_logging_path: APPLICATION_LOGGING_PATH,
    plato_service_env: APPLICATION_ENVIRONMENT,
            cluster_configure: CONFIGURE_WLS_CLUSTER,
    entityservices_port: SMS_MAN_SERVER_LISTEN_PORT,
    is_node_primary: "true",
    cluster_config: {
        obo1_cluster1: {
            managed_servers: {
                obo1_Server1: {
                                            listen_port: OBO1_MAN_SERVER_LISTEN_PORT,
                    ssl_port: OBO1_MAN_SERVER_SSL_PORT,
                    java_memory_min: "2048",
                    java_memory_max: "3072",
                }
            }
        },
                    obo2_cluster1: {
            managed_servers: {
                obo2_Server1: {
                                            listen_port: OBO2_MAN_SERVER_LISTEN_PORT,
                    ssl_port: OBO2_MAN_SERVER_SSL_PORT,
                    java_memory_min: "2048",
                    java_memory_max: "3072",
                }
            }
        },
                    obo3_cluster1: {
            managed_servers: {
                obo3_Server1: {
                                            listen_port: OBO3_MAN_SERVER_LISTEN_PORT,
                    ssl_port: OBO3_MAN_SERVER_SSL_PORT,
                    java_memory_min: "2048",
                    java_memory_max: "3072",
                }
            }
        }
```

b. In case of addition or changes to the existing data source configuration, modify the same under “**datasource_config**”.

```
            }
        }
    },
    datasource_configure: "true",
    datasource_config: {
        OBREMOBUSSPRC: {
            database_name: ORACLE_PDB_SID,
            driver_class: "oracle.jdbc.OracleDriver",
            jndi_name: OBREMOBUSSPRC_JNDI,
            host_name: ORACLE_PDB_HOSTNAME,
            port: ORACLE_PDB_PORT,
            global_transaction_protocol: "OnePhaseCommit",
            database_user_name: OBREMOBUSSPRC_SCHEMA,
                        target: OBREMOBUSSPRC_DS_TARGET
          },
                OBREMOBPDETAILS: {
            database_name: ORACLE_PDB_SID,
            driver_class: "oracle.jdbc.OracleDriver",
            jndi_name: OBREMOBPDETAILS_JNDI,
            host_name: ORACLE_PDB_HOSTNAME,
            port: ORACLE_PDB_PORT,
            global_transaction_protocol: "OnePhaseCommit",
            database_user_name: OBREMOBPDETAILS_SCHEMA,
                        target: OBREMOBPDETAILS_DS_TARGET
         },
        CMNAPPLICANT: {
            database_name: ORACLE_PDB_SID,
            driver_class: "oracle.jdbc.OracleDriver",
            jndi_name: CMNAPPLICANT_JNDI,
            host_name: ORACLE_PDB_HOSTNAME,
            port: ORACLE_PDB_PORT,
            global_transaction_protocol: "OnePhaseCommit",
            database_user_name: CMNAPPLICANT_SCHEMA,
                        target: CMNAPPLICANT_DS_TARGET
        },
        OBREMOCOLLATERAL: {
            database_name: ORACLE_PDB_SID,
            driver_class: "oracle.jdbc.OracleDriver",
            jndi_name: OBREMOCOLLATERAL_JNDI,
            host_name: ORACLE_PDB_HOSTNAME,
            port: ORACLE_PDB_PORT,
            global_transaction_protocol: "OnePhaseCommit",
            database_user_name: OBREMOCOLLATERAL_SCHEMA,
                        target: OBREMOCOLLATERAL_DS_TARGET
        },
        RPMHOST: {
            database_name: ORACLE_PDB_SID,
            driver_class: "oracle.jdbc.OracleDriver",
```

c. In case of addition or changes to the existing services or war files, modify the same under "**app_deployment**".

```
    },
    app_installer_path: "filesystem",
        app_dirname_url: PRODUCT_BUNDLE_HOME,
        app_deployment: {
        app1: {
            app_file_path: "/deployables/apps/obo",
            app_file_name: "obremo-rpm-batch-services-7.3.0.war",
            app_target_name: "obo1_cluster1"
        },
        app2: {
            app_file_path: "/deployables/apps/obo",
            app_file_name: "obremo-rpm-businessprocess-services-7.3.0.war",
            app_target_name: "obo1_cluster1"
        },
                app3: {
            app_file_path: "/deployables/apps/obo",
            app_file_name: "obremo-rpm-businessproductdetails-services-7.3.0.war",
            app_target_name: "obo1_cluster1"
        },
        app4: {
            app_file_path: "/deployables/apps/obo",
            app_file_name: "obremo-rpm-cmn-applicantservices-7.3.0.war",
            app_target_name: "obo2_cluster1"
        },
        app5: {
            app_file_path: "/deployables/apps/obo",
            app_file_name: "obremo-rpm-cmn-collateralservices-7.3.0.war",
            app_target_name: "obo2_cluster1"
        },
        app6: {
            app_file_path: "/deployables/apps/obo",
```

d. Navigate to the bottom of the file and verify the recipes to be executed. All the listed recipes will be executed in sequential order as shown below.

```
run_list
['recipe[obma_sysprep::user_creation]','recipe[obma_sysprep::ulimit]','recipe[obma_java::_install_java]','
recipe[obma_java::create_certs]','recipe[obma_zookeeper]','recipe[obma_kafka]','recipe[obma_tesseract::tes
seract_prerequisite]','recipe[obma_tesseract::install_leptonica]','recipe[obma_tesseract::install_tesserac
t]','recipe[obma_weblogic::install_wls]','recipe[obma_weblogic::domain]','recipe[obma_weblogic::startadmin
]','recipe[obma_weblogic::startnm]','recipe[obma_weblogic::configureembaddedwlsldap]','recipe[obma_weblogi
c::ssl_admin]','recipe[obma_weblogic::stopadmin]','recipe[obma_weblogic::ssl_nodemanager]','recipe[obma_we
blogic::restartadmin]','recipe[obma_weblogic::cluster]','recipe[obma_weblogic::addjdbcconnections_plato]',
'recipe[obma_weblogic::setuseroverridesupdate_plato]','recipe[obma_weblogic::startman]','recipe[obma_weblo
gic::deployapp]']
```

Note: Remove the user_creation and ulimit recipes from the above list since it is used for internal purpose only.

6.3 Execute Installer Script

1. Launch putty and login to product VM with NIS user (eg.: dkarkera) and then switch to root user.
2. Navigate to the chef-repo path by executing the command, **cd /scratch/obma_installer/chef-repo**
3. Execute the installer script by executing the command **./obo_installer.sh**
4. This will perform the silent installation of Oracle Banking Origination product.

Note:

- The above steps remain the same for all the other products
- If the Foundation and Product setups are in two different VM's, then the Certificate syncup between these VM's needs to be performed before the deployment activity.
  Refer to Certificate Sync Up between Foundation and Product VMs section for more details.

7. Miscellaneous Tasks

7.1 Password Update in Databag

1 Launch putty and login to product VM with NIS user (eg.: dkarkera) and then switch to root user

2 Navigate to the “chef-repo” directory by executing the command, **cd /scratch/obma_installer/chef-repo**

3 Set the required editor by executing the command, **export EDITOR=vim**

4 Execute the below command to open the databag file in edit mode, **knife data bag edit --local-mode <databag_sub_directory> <datasource_credential_json_file> --secret-file <secret_key_path>**

Attribute Name	**Attribute Description**
databag_sub_directory	Name of sub directory where the datasource credential json file is located inside databag directory Example: obma_weblogic, obma_java, obma_kafka etc
datasource_credential_json_file	Name of the datasource credential json file where all the credential related to respective product is listed Example: datasourceCred_obo, datasourceCred_obca, etc **Note:** Here mention the filename without the.json extension
secret_key_path	Location to the secret key Example: /scratch/obma_installer_ssl/chef-repo/secrets/secret_key

Example:

knife data bag edit --local-mode obma_weblogic datasourceCred_obvam --secret-file /scratch/obma_installer/chef-repo/secrets/secret_key

```
[root@whf00map chef-repo]#
[root@whf00map chef-repo]#
[root@whf00map chef-repo]#
[root@whf00map chef-repo]#
[root@whf00map chef-repo]# pwd
/scratch/obma_installer/chef-repo
[root@whf00map chef-repo]#
[root@whf00map chef-repo]#
[root@whf00map chef-repo]# export EDITOR=vim
[root@whf00map chef-repo]#
[root@whf00map chef-repo]#
[root@whf00map chef-repo]# knife data bag edit --local-mode obma_weblogic datasourceCred_obvam --secret-file /scratch/obma_ins
taller/chef-repo/secrets/secret_key
WARNING: No knife configuration file found. See https://docs.chef.io/config_rb/ for details.
Encrypting data bag using provided secret.
Saved data_bag_item[datasourceCred_obvam]
[root@whf00map chef-repo]#
```

```
{
  "id": "datasourceCred_obvam",
  "PLATO": "welcome1",
  "PLATO_UI": "welcome1",
  "SMS": "welcome1",
  "PLATOFEED": "welcome1",
  "PLATOBATCH": "welcome1",
  "CMNCORE": "welcome1",
  "VAM": "welcome1",
  "VAT": "welcome1",
  "VAS": "welcome1",
  "VAN": "welcome1",
  "EDA": "welcome1",
  "VAB": "welcome1",
  "VAC": "welcome1",
  "VAI": "welcome1",
  "VAE": "welcome1",
  "EIE": "welcome1",
  "ELM": "welcome1",
  "VAP": "welcome1",
  "VAS_DS": "welcome1",
  "VAMLMCHG": "welcome1"
```

5 Post updating the credential file, Click **Save and Close**.

7.2 Certificate Sync Up between Foundation and Product VMs

1 Launch putty and login to the foundation VM with OS user (i.e. ofssobp)

2 Navigate to certificate directory by executing the command **cd /scratch/ssl/cacerts**

3 Copy the certificate file of foundation VM to Product VM by executing the command

scp -r <cert_foundation> <credential_of_product>@<ip_product>:<cert_path_product>

Attribute Name	Attribute Description
cert_foundation	Certificate of Foundation VM Example: whf00map.crt

Attribute Name	Attribute Description
credential_of_product	OS user of Product VM Example: ofssobp
ip_product	IP or Hostname of Product VM Example: 10.40.73.66
cert_path_product	Product Certificate Path Example: /scratch/ssl/cacerts

Example: scp -r whf00map.crt ofssobp@10.40.89.28:/scratch/ssl/cacerts

4 Launch new putty session and login to product VM with OS user (i.e. ofssobp)

5 Navigate to the certificate path by executing the command, **cd /scratch/ssl/cacerts**

6 Sync the certificate of foundation VM by executing the command

scp -r <cert_product> <credential_of_foundation>@<ip_foundation>:<cert_path_foundation>

Attribute Name	Attribute Description
cert_path_foundation	Foundation Certificate Path Example: /scratch/ssl/cacerts
cert_product	Certificate of product VM Example: whf00gbl.crt
credential_of_foundation	OS user of foundationVM Example: ofssobp
ip_foundation	IP or Hostname of foundation VM Example: 10.40.73.66

Example: scp -r whf00gbl.crt ofssobp@10.40.73.66:/scratch/ssl/cacerts

7 In product VM, navigate to the certificate path by executing the command,

cd /scratch/ssl/cacerts

8 Sync the certificate of foundation VM by executing the command

/scratch/obma/jdk-11.0.14/bin/keytool -import -v -trustcacerts -alias selfsigned6 -file <cert_foundation> -keystore <trust_certificate_product> --storepass welcome1 -noprompt

Attribute Name	Attribute Description
cert_foundation	Certificate of foundation VM Example: whf00gbl.crt
trust_certificate_product	Trust certificate of product VM Example: whf00map.in.oracle.com_trust.jks

Example: /scratch/obma/jdk-11.0.14/bin/keytool -import -v -trustcacerts -alias selfsigned6 -file whf00gbl.crt -keystore whf00map.in.oracle.com_trust.jks --storepass welcome1 -noprompt

9 Now, switch to foundation VM putty session and navigate to the certificate path by executing the command, **cd /scratch/ssl/cacerts**

10 Sync the certificate of product VM by executing the command

/scratch/obma/jdk-11.0.14/bin/keytool -import -v -trustcacerts -alias selfsigned6 -file <cert_product> -keystore <trust_certificate_foundation> --storepass welcome1 -noprompt

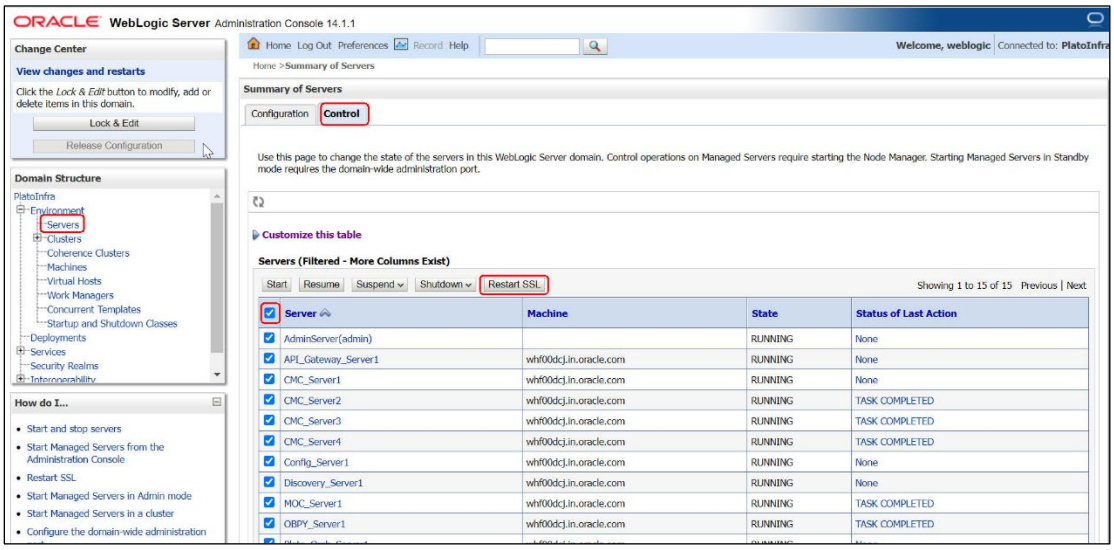
Attribute Name	Attribute Description
cert_product	Certificate of product VM Example: whf00map.crt
trust_certificate_foundation	Trust certificate of foundation VM Example: whf00gbl.in.oracle.com_trust.jks

Example: /scratch/obma/jdk-11.0.14/bin/keytool -import -v -trustcacerts -alias selfsigned6 -file whf00map.crt -keystore whf00gbl.in.oracle.com_trust.jks --storepass welcome1 -noprompt

11 Post Syncup, launch the browser and login to Admin Console of Foundation setup.

12 Navigate to **Servers** and then click on **Control** tab.

13 Select all the servers and Click **Restart SSL** button.



All the selected servers are restarted.

14 Repeat the steps 11 to 13 in Admin Console of Product VM.

15 This concludes the certificate sync up activity.

Oracle Banking Microservices Architecture Installer Guide

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