Oracle® Banking Supply Chain Finance

Services Installation Guide

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Oracle Banking Supply Chain Finance Services Installation Guide, Release 14.8.2.0.0

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Contents

Preface

Purpose

This guide helps to install the Oracle Banking Supply Chain Finance services on designated environment. It is assumed that all the prior setups for WebLogic installation, WebLogic managed server creation, and Oracle DB installation are completed.

Audience

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

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the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Related Resources

For more information, refer to the following resources:

- *Oracle® Banking Supply Chain Finance Pre-Installation Guide*
- *Oracle® Banking Supply Chain Finance Environment Variable Setup Guide*
- *Oracle® Banking Supply Chain Finance User Interface Installation Guide*
- *Configuration and Deployment Guide*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Screenshot Disclaimer

Personal information used in the interface or documents is dummy and does not exist in the real world. It is only for reference purposes.

Acronyms and Abbreviations

The list of the acronyms and abbreviations used in this guide are as follows:

Table 1 Acronyms and Abbreviations

Abbreviation	Description
SMS	Security Management System
CMC	Common Core
OBSCF	Oracle Banking Supply Chain Finance
OBSCFCM	Oracle Banking Supply Chain Finance and Cash Management
EOD	End of Day
JDK	Java Development Kit
OSDC	Oracle Software Delivery Cloud

Module Pre-requisite

Specify **User ID** and **Password**, and login to **Home** screen.

1

Overview of Database Setup

This topic describes about overview of database setup.

Prerequisites

Before proceeding with the below setup, make sure that the required schemas are created. It is recommended to create a different schema for each application.

Database Schema Creation

Create the following database schemas. These schema names are recommended, but not mandatory.

- CMNCORE
- CONDUCTOR
- PLATO
- PLATOALERTS
- PLATOBATCH
- PLATOFEED
- PLATOORCH
- PLATORULE
- PLATOSEC
- PLATOTRANSPORT
- PLATOUI
- PLATO_PASSWORD
- REPORTSERVICE
- SMS
- OBRC
- PLATOEDP
- PLATOFDT
- PLATOARCH
- DOMAINARCH
- DOMAINPURGE
- PLATODYNADATA
- PARTY
- OBPYBPROC
- OBSCF_CORE
- OBSCF_FCI_MESSAGES

- OBSCF_FINANCE
- OBSCF_ISLAMIC_INSTRUMENTS
- OBSCF_LIMIT_UTILIZ
- OBSCF_REPORT
- OBSCF_BATCH
- OBSCFCM_ACCOUNTING
- SFS_ALERTS
- OBSCFCM_ALERTS
- OBSCFCM_CHARGES
- OBSCFCM_CORE_SERVICES
- OBSCFCM_FILE_PROCESSING
- OBSCFCM_FILTER
- OBSCFCM_INSTRUMENTS
- OBSCFCM_MAINTENANCE
- OBSCFCM_RECON
- OBSCFCM_REPORT
- OBSCFCM_WORKFLOWS_CONDUCTOR
- OBSCFCM_GENAI_INTEGRATION

> **Note**
>
> For creating database schemas, refer to **Database Schema Creation** section in ***Configuration and Deployment Guide***.

2

SQLCL Deployment

This topic explains about SQLCL deployment.

- Prerequisites
  This topic describes about the prerequisites for the SQLCL deployment.
- Required Inputs for plato-sqlcl-deployer
  This topic describes about the inputs required for plato-sqlcl-developer.
- Deployer Folder Structure
  This topic describes about the deployer folder structure.
- Command to Execute Deployer
  This topic describes abou the command to execute deployer.
- Deployment Scenarios
- Post-Deployment Verification
  This topic describes about the post-deployment verification.
- Placeholder Management(placeholder.properties)
  This topic provides the systematic instructions for placeholder management.
- Notes/Troubleshooting
  This topic describes about the notes and troubleshooting issues.

2.1 Prerequisites

This topic describes about the prerequisites for the SQLCL deployment.

Follow the prerequisites before the SQLCL deployment.

- Linux server with Java 17 and SQLcl version 23+ installed(added to PATH).
- Prepare placeholder.properties with all parameter.* keys used by SQL files; avoid trailing spaces in values.
- If corporate proxies are required, export http(s)_proxy/HTTP(S)_PROXY and NO_PROXY as per the environment.
- Encrypt DB credentials using salt. Keep salt and encrypted values aligned with sqlclconfig.properties.

2.2 Required Inputs for plato-sqlcl-deployer

This topic describes about the inputs required for plato-sqlcl-developer.

The following are the inputs required for plato-sqlcl-developer.

- <service>-<version>-db.zip (from service build).
- sqlclconfig.properties (inside db.zip at db/properties).
- placeholder.properties (at deployer/properties).
- releaseCatalog.json (at deployer/properties).

- setUserOverrides.sh to export env variables for placeholders and DB connection per service.
- Salt and encrypted DB credentials as per security tool kit.

2.3 Deployer Folder Structure

This topic describes about the deployer folder structure.

```
deployer/
        plato-sqlcl-deployer-10.1.0.jar
db/
        <service1>-<ver>-db.zip
        <service2>-<ver>-db.zip
        properties/
        placeholder.properties
        releaseCatalog.json
        setUserOverrides.sh
```

2.4 Command to Execute Deployer

This topic describes abou the command to execute deployer.

```
# From deployer
        root:cd
        /path/to/deployer/propertiessource
        setUserOverrides.shcd
        /path/to/deployer/path/to/JAVA_HOME/bin/java
        -jar plato-sqlcl-deployer-10.1.0.jar > deployer_logs.log
```

2.5 Deployment Scenarios

This topic contains the following sub-topics:

- Greenfield (New Blank Schema)
  This topic describes about the greenfield(New Blank Schema).
- Brownfield Upgrade 14.8.0 (9.6.0) to 14.8.1 (10.1.0)
  This topic describes about the brownfield upgrade.
- Upgrade 14.7.4 (9.4.0) to 14.8.1 (10.1.0)
  This topic describes about upgrade 14.7.4 (9.4.0) to 14.8.1 (10.1.0).
- Upgrade 14.8.0.x (9.6.x) to 14.8.1 (10.1.0)
  This topic describes about the upgrade 14.8.0.x (9.6.x) to 14.8.1 (10.1.0).
- Upgrade 14.8.0.104.0 (9.6.2) to 14.8.1 (10.1.0)
  This topic provides the systematic instruction to upgrade 14.8.0.104.0 (9.6.2) to 14.8.1 (10.1.0).

2.5.1 Greenfield (New Blank Schema)

This topic describes about the greenfield(New Blank Schema).

Use full option; changelogVersion set to current version (Example, 10.1.0); changelogSync=false.

Example: releaseCatalog.json

```
{
 "releaseVersion":"14.8.0.0.0",
 "stopOnFailure":"true",
 "deployments":
  [
    {
      "service": "plato-config-service",
      "artifactVersion": "10.1.0",
      "changelogVersion": "10.1.0",
      "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
      "option": "Full",
      "changelogSync": false
    },
    {
      "service": "plato-api-gateway",
      "artifactVersion": "10.1.0",
      "changelogVersion": "10.1.0",
      "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
      "option": "Full",
      "changelogSync": false
    }
  ]
}
```

2.5.2 Brownfield Upgrade 14.8.0 (9.6.0) to 14.8.1 (10.1.0)

This topic describes about the brownfield upgrade.

Follow the steps to upgrade brownfield 14.8.0 (9.6.0) to 14.8.1 (10.1.0):

History Sync

1. Full, changelogVersion=9.6.0, changelogSync=true. Do not execute scripts, only update DATABASECHANGELOG.

   Example:

```
{
  "releaseVersion":"14.8.0.0.0",
  "stopOnFailure":"true",
  "deployments":
  [
   {
    "service": "plato-config-service",
    "artifactVersion": "10.1.0",
    "changelogVersion": "9.6.0",
    "groupId" : "dev.obma.plato.24_6_0_flyway_sql_migration.services",
    "option": "Full",
```

```
        "changelogSync": true
       },
       {
        "service":  "plato-api-gateway",
        "artifactVersion":  "10.1.0",
        "changelogVersion":  "9.6.0",
        "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
        "option": "Full",
        "changelogSync": true
       }
      ]
   }
```

> **Note**
>
> Verify DATABASECHANGELOG entries for all schemas (filenames and ORDEREXECUTED).

History Sync with changelogSync=false

2. Full, changelogVersion=9.6.0, changelogSync=false. Only update DATABASECHANGELOG;

   Example:

```
      {
       "releaseVersion":"14.8.0.0.0",
       "stopOnFailure":"true",
       "deployments":
       [
        {
         "service": "plato-config-service",
         "artifactVersion": "10.1.0",
         "changelogVersion": "9.6.0",
         "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
         "option": "Full",
         "changelogSync": false
        }
       ]
      }
```

> **Note**
>
> This step will update only the DATABASECHANGELOG entries for the target schema as per changelogVersion, without applying any scripts.

Delta Execution

3. Incremental, changelogVersion=10.1.0, changelogSync=false.

Example:

```
{
  "releaseVersion":"14.8.0.0.0",
  "stopOnFailure":"true",
  "deployments":
  [
    {
     "service": "plato-config-service",
     "artifactVersion": "10.1.0",
     "changelogVersion": "10.1.0",
     "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
     "option": "Incremental",
     "changelogSync": false
    },
    {
     "service": "plato-api-gateway",
     "artifactVersion": "10.1.0",
     "changelogVersion": "10.1.0",
     "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
     "option": "Incremental",
     "changelogSync": false
    }
  ]
}
```

2.5.3 Upgrade 14.7.4 (9.4.0) to 14.8.1 (10.1.0)

This topic describes about upgrade 14.7.4 (9.4.0) to 14.8.1 (10.1.0).

Baseline to 14.8.0 (last Flyway-supported) and follow 5.2 (sync 9.6.0, then incremental 10.1.0).

2.5.4 Upgrade 14.8.0.x (9.6.x) to 14.8.1 (10.1.0)

This topic describes about the upgrade 14.8.0.x (9.6.x) to 14.8.1 (10.1.0).

Follow the options to upgrade:

- **Option 1**: sync history up to 9.6.0 then execute 10.1.0 Incremental (see 5.2).
- **Option 2**: sync to the last patch level (Example, 9.6.2), then execute 10.1.0 Full.

2.5.5 Upgrade 14.8.0.104.0 (9.6.2) to 14.8.1 (10.1.0)

This topic provides the systematic instruction to upgrade 14.8.0.104.0 (9.6.2) to 14.8.1 (10.1.0).

Follow the steps to upgrade 14.8.0.104.0 (9.6.2) to 14.8.1 (10.1.0).

History Sync to 9.6.2

1. Generate db.zip for 9.6.2 via Migration Utility; Full with changelogSync=true.

Example:

```
    {
      "releaseVersion":"14.8.0.0.0",
      "stopOnFailure":"true",
      "deployments":
      [
       {
        "service": "plato-config-service",
        "artifactVersion": "9.6.2",
        "changelogVersion": "9.6.2",
        "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
        "option": "Full",
        "changelogSync": true
       },
       {
        "service":  "plato-api-gateway",
        "artifactVersion":   "9.6.2",
        "changelogVersion":   "9.6.2",
        "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
        "option": "Full",
        "changelogSync": true
       }
      ]
    }
```

Execution 10.1.0

2. Full with changelogSync=false.

   Example:

```
     {
        "releaseVersion":"14.8.0.0.0",
        "stopOnFailure":"true",
        "deployments":
       [
        {
          "service": "plato-config-service",
          "artifactVersion": "10.1.0",
          "changelogVersion": "10.1.0",
          "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
          "option": "Full",
          "changelogSync": false
        },
        {
          "service":  "plato-api-gateway",
          "artifactVersion": "10.1.0",
          "changelogVersion": "10.1.0",
          "groupId" :
"dev.obma.plato.24_6_0_flyway_sql_migration.services",
          "option": "Full",
```

```
      "changelogSync": false
    }
  ]
}
```

2.6 Post-Deployment Verification

This topic describes about the post-deployment verification.

Follow the below steps for post-deployment verification.

1. Verify DATABASECHANGELOG in each target schema: filenames, ORDEREXECUTED.
2. Optional schema compare in SQL Developer; expect only DATABASECHANGELOG tables as differences.
3. Ignore the differences due to auto-increment sequence names if those are dynamic.

2.7 Placeholder Management(placeholder.properties)

This topic provides the systematic instructions for placeholder management.

1. Maintain all placeholders used by SQL as parameter.<key>=value; no trailing spaces.
2. Do not change values of existing placeholders used in already-executed scripts (to avoid checksum errors).
3. Create new placeholder keys for new updates instead of reusing old ones.
4. To extract existing Flyway placeholders from PROPERTIES table:

   select REGEXP_REPLACE(key,'^flyway\..*\.placeholders\.','parameter.') ||'=' || value from Properties where key like '%.placeholders.%';
5. Also refer setUserOverrides.sh for placeholders not defined in PROPERTIES.

2.8 Notes/Troubleshooting

This topic describes about the notes and troubleshooting issues.

- Use Linux version of plato-sqlcl-deployer if SQLcl connection errors are observed on Windows.
- Verify encrypted DB credentials align with salt, re-encrypt if password changed.

3

Overview of Product Installation using Installer

This topic describes the systematic information to install Oracle Banking Supply Chain Finance application using Installer.

Prerequisite

Before proceeding with installation setup, make sure that the database installation is completed and required schemas are created.

Installer Path

The following table provides the path of the installer in OSDC Package.

Application	Archive Name	OSDC Path
Oracle Banking Microservices Architecture	obma.zip	OBSCF_{release number}/ Installer
Oracle Banking Supply Chain Finance	obscf.zip	
Oracle Banking Supply Chain Finance and Cash Management	obscfcm.zip	

> **Note**
>
> For the release number, refer to the OSDC file available as a part of the release.

> **Note**
>
> To install the application using installer, refer to ***Oracle Banking Microservices Architecture Installer Guide***.

4

Overview of Domain and Cluster Configuration

This topic describes about overview of domain and cluster configuration.

Prerequisite

- Oracle Banking Microservices Architecture, SMS, and Common Core deployments are up and running **(Required)**.
- The machine must have Java JDK installed.
- The machine must have Oracle Fusion Middleware Infrastructure installed.

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

Domain Creation and Configuration

It is recommended to have different managed server in one domain for each application.

> **Note**
>
> For creating domain and cluster configuration, refer to **Create Domain and Cluster Configuration** section in ***Configuration and Deployment Guide***.

5

Overview of Data Source Creation

This topic describes about overview of data source creation.

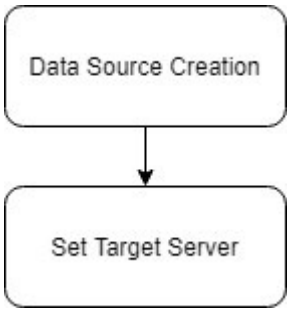
Prerequisite

Before proceeding with deployment setup, make sure that the database and application setup for Oracle Banking Microservices Architecture is completed.

Data Source Creation in WebLogic

The data sources for the respective micro-services must be created first before the application deployment. Each of the data source target to their corresponding servers on which the application will be deployed. The following sections explain the list of data sources required to be created for Oracle Banking Supply Chain Finance services and the steps to configure them in the server.

Figure 5-1 Data Source Creation



Data sources List

Database Connection Pool size to be defined - Oracle Banking Supply Chain Finance services pool configuration should be consistent with Oracle Banking Microservices Architecture services.

The following list of the data sources must be created on each domain before deployment of the applications onto the managed servers.

Table 5-1 Data Sources List

Service Name	Data Source Name	Mapped Database Schema	JNDI Names
obscfcm-eod-batch	EODBATCH	PLATOBATCH	jdbc/EODBATCH
	OBSCFCM_EOD_BATCH	OBSCF_BATCH	jdbc/EOD
obscfcm-auto-recon-batch	OBSCFCM_AUTORECONBATCH	OBSCFCM_RECON	jdbc/AUTORECONBATCH

Table 5-1 (Cont.) Data Sources List

Service Name	Data Source Name	Mapped Database Schema	JNDI Names
obscfcm-instruments-receivables-services	OBSCFCM_INSTRUMENTS	OBSCFCM_INSTRUMENTS	jdbc/OBSCFCM_INSTRUMENTS
obscfcm-mastermaintenance-services	OBSCFCM_MAINTENANCE	OBSCFCM_MAINTENANCE	jdbc/OBSCFCM_MAINTENANCE
obscfcm-manual-recon-services	OBSCFCM_RECON	OBSCFCM_RECON	jdbc/OBSCFCM_RECON
obscfcm-workflow-management-services	OBSCFCM_WORKFLOWS_CONDUCTOR	OBSCFCM_WORKFLOWS_CONDUCTOR	jdbc/OBSCFCM_WORKFLOWS_CONDUCTOR
obscfcm-account-maintenance	OBSCFCM_ACCOUNTING	OBSCFCM_ACCOUNTING	jdbc/OBSCFCM_ACCOUNTING
obscfcm-charges-services	OBSCFCM_CHARGES	OBSCFCM_CHARGES	jdbc/OBSCFCM_CHARGES
obscfcm-core-services	OBSCFCM_CORE_SERVICES	OBSCFCM_CORE_SERVICES	jdbc/OBSCFCM_CORE_SERVICES
obscfcm-filter-services	OBSCFCM_FILTER	OBSCFCM_FILTER	jdbc/OBSCFCM_FILTER
obscfcm-genai-integration-services	OBSCFCM_GENAI_INTEGRATION	OBSCFCM_GENAI_INTEGRATION	jdbc/OBSCFCM_GENAI
obscfcm-report-services	OBSCFCM_REPORT	OBSCFCM_REPORT	jdbc/OBSCFCM_REPORT
obscfcm-chatbot- services	OBSCFCM_REPORT	OBSCFCM_REPORT	jdbc/OBSCFCM_REPORT
sfs-alerts-services	SFS_ALERTS	SFS_ALERTS	jdbc/SFS_ALERTS
obscf-core-services	OBSCF_CORE	OBSCF_CORE	jdbc/OBSCF_CORE
obscf-eod-batch	OBSCF_BATCH	OBSCF_BATCH	jdbc/EOD
	EODBATCH	PLATOBATCH	jdbc/EODBATCH
obscf-fci-messaging-service	OBSCF_FCI_MESSAGES	OBSCF_FCI_MESSAGES	jdbc/OBSCF_FCI_MESSAGES
obscf-finance-services	OBSCF_FINANCE	OBSCF_FINANCE	jdbc/OBSCF_FINANCE
obscf-islamic-instruments-services	OBSCF_ISLAMIC_INSTRUMENTS	OBSCF_ISLAMIC_INSTRUMENTS	jdbc/OBSCF-ISLAMIC-INSTRUMENTS
obscf-limits-services	OBSCF_LIMITS	OBSCF_LIMITS	jdbc/OBSCF_LIMITS
	OBSCF_LIMIT_UTILIZ	OBSCF_LIMIT_UTILIZ	jdbc/OBSCF_LIMIT_UTILIZ
obscf-report-services	OBSCF_REPORT	OBSCF_REPORT	jdbc/OBSCF_REPORT
To be mapped with all the managed servers	PLATO	PLATO	jdbc/PLATO
	PLATOBATCH	PLATOBATCH	jdbc/PLATOBATCH
	PLATOFEED	PLATOFEED	jdbc/PLATOFEED
	PLATO_SECURITY	PLATOSEC	jdbc/PLATO_SECURITY
	PLATO_UI	PLATOUI	jdbc/PLATO_UI_CONFIG
	SMS	SMS	jdbc/sms

Table 5-1 (Cont.) Data Sources List

Service Name	Data Source Name	Mapped Database Schema	JNDI Names
	CMNCORE	CMNCORE	jdbc/CMNCORE
	CONDUCTOR	CONDUCTOR	jdbc/PLATO-O
To be mapped with all the obscf managed servers	PLATORULE	PLATORULE	jdbc/PLATORULE
To be mapped with all the obscfcm managed servers	PLATOTRANSPORT	PLATOTRANSPORT	jdbc/PLATOTRNSPRT

Note

For creating data source, refer to the **Create Datasource** section in ***Configuration and Deployment Guide***.

6 Overview of Deployments

This topic describes about overview of deployments.

Prerequisite

Before proceeding with deployment setup, make sure that the database and application setup is completed.

Each of the services corresponds to a specific war file that needs to be deployed into the server. The following sections explain the list of war files of the Oracle Banking Supply Chain Finance service and the steps to deploy them into the server.

- For any issues with fly configuration setup, refer to ***High Availability Setup Guide***.
- For Oracle Banking Supply Chain Finance environment variables setup, refer to ***Environment Variable Setup Guide***.
- If `obscf-eod-batch` is already deployed, bring it down and deploy `obscfcm-eod-batch` provided in the deployment list.

Deployments List

The following table provides the details of the deployments required on each Server for the Plato application to run. Deploy one after other in the same given order.

> **Note**
>
> INFRA prerequisites should be available before proceeding with the Application deployment process.

Application Startup and Deployment Sequence for new installation or Upgrades.

- **Oracle Banking Microservices Architecture Domain** - All Oracle Banking Microservices Architecture Infrastructure Services and Oracle Banking Microservices Architecture Services should be deployed as per respective installation document.
- **Common Core** - All SMS, Common Core, and Mid-Office Common Core services should be deployed as per respective installation document.
- **Domain services** - All the services can be deployed in any order, except the **obscfcm-master-maintenance** service which must be deployed at the end in the same given order.
- **OBSCFCM Gen AI Integration Services** - Follow the below steps to deploy this service:

> **Note**
>
> Generative AI feature is optional. The user can deploy this service only if the Gen AI feature is to be enabled.

1. Make sure you have the license for Gen AI/Cohere.

2. Follow the instructions in the Gen AI Document Analyzer Service Installation section to install the required services.
3. Make sure the below server argument in **OBSCFCM/OBSCF Managed Server** is set to **Y**. By default, it is set to **N**. Refer to **Environment Variables for OBSCFCM / OBSCF Managed Servers** section in the ***Environment Variable Setup Guide***.

   ```
   -Dflyway.sms.placeHolders.OBSCFCM_GENAI_ENABLED = 'N'
   ```

4. Once the above steps are completed, **Smart Maintenance** menu is enabled in the application.

- The recommended list of managed server names and the application distribution on the targets are listed below.

> **Note**
>
> The managed server targets are not mandatory, if they are configured as per the sizing recommendations during the implementation phase.

Table 6-1 Deployments List

Application	Archive Name	OSDC Path	Target
obscfcm-eod-batch	obscfcm-eod-batch-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-eod-batch-{version}\ARCHIVE	obscfcm_ms_1, obscfcm_ms_2, obscfcm_ms_3
obscfcm-auto-recon-batch	obscfcm-auto-recon-batch-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-auto-recon-batch-{version}\ARCHIVE	obscfcm_ms_1, obscfcm_ms_2, obscfcm_ms_3
obscfcm-instruments-receivables-services	obscfcm-instruments-receivables-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-instruments-receivables-services-{version}\ARCHIVE	obscfcm_ms_3
obscfcm-mastermaintenance-services	obscfcm-mastermaintenance-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-mastermaintenance-services-{version}\ARCHIVE	obscfcm_ms_1, obscfcm_ms_3
obscfcm-manual-recon-services	obscfcm-manual-recon-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-manual-recon-services-{version}\ARCHIVE	obscfcm_ms_1, obscfcm_ms_3

Table 6-1 (Cont.) Deployments List

Application	Archive Name	OSDC Path	Target
obscfcm-workflow-management-services	obscfcm-workflow-management-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-workflow-management-services--{version}\ARCHIVE	obscfcm_ms_3
obscfcm-account-maintenance	obscfcm-account-maintenance-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-account-maintenance-{version}\ARCHIVE	obscfcm_ms_2
obscfcm-charges-services	obscfcm-charges-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-charges-services-{version}\ARCHIVE	obscfcm_ms_2
obscfcm-core-services	obscfcm-core-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-core-services-{version}\ARCHIVE	obscfcm_ms_1
obscfcm-filter-services	obscfcm-filter-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-filter-services-{version}\ARCHIVE	obscfcm_ms_1
obscfcm-genai-integration- services	obscfcm-genai-integration- services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-genai-integration- services-{version}\ARCHIVE	obscfcm_ms_2
obscfcm-report-services	obscfcm-report-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-report-services-{version}\ARCHIVE	obscfcm_ms_1, obscfcm_ms_2, obscfcm_ms_3
obscfcm-chatbot-services	obscfcm-chatbot-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\obscfcm-chatbot-services-{version}\ARCHIVE	obscfcm_ms_1
sfs-alerts-services	sfs-alerts-services-{version}.war	OBSCF_OSDC_{release}\OBCM_SERVICES\sfs-alerts-services-{version}\ARCHIVE	obscfcm_ms_1

Table 6-1 (Cont.) Deployments List

Application	Archive Name	OSDC Path	Target
obscf-core-services	obscf-core-services-{version}.war	OBSCF_OSDC_{release}\OBSCF_SERVICES\obscf-core-services-{version}\ARCHIVE	obscf_ms_2
obscf-fci-messaging-service	obscf-fci-messaging-service-{version}.war	OBSCF_OSDC_{release}\OBSCF_SERVICES\obscf-fci-messaging-service{version}\ARCHIVE	obscf_ms_1
obscf-finance-services	obscf-finance-services-{version}.war	OBSCF_OSDC_{release}\OBSCF_SERVICES\obscf-finance-services-{version}\ARCHIVE	obscf_ms_1, obscf_ms_2
obscf-islamic-instruments- services	obscf-islamic-instruments- services-{version}.war	OBSCF_OSDC_{release}\OBSCF_SERVICES\obscf-islamic-instruments- services-{version}\ARCHIVE	obscf_ms_2
obscf-limits-services	obscf-limits-services-{version}.war	OBSCF_OSDC_{release}\OBSCF_SERVICES\obscf-limits-services-{version}\ARCHIVE	obscf_ms_1
obscf-report-services	obscf-report-services-{version}.war	OBSCF_OSDC_{release}\OBSCF_SERVICES\obscf-report-services-{version}\ARCHIVE	obscf_ms_1
OBSCF UI	app-shell-{version}.war cmc-component-server-{version}.war moc-component-server-{version}.war obpy-component-server-{version}.war obscfcm-component-server-{version}.war obscf-component-server-{version}.war sms-component-server-{version}.war	\OBSCF_OSDC_{release}\UI\	obscf_UI_ms_1

> **Note**
>
> For the exact version of the archive name, and release numbers, refer to the OSDC file available as a part of the release.

> **Note**
>
> To deploy the application, refer to the **Deploy Application** section in ***Configuration and Deployment Guide***.

7

Conductor Process Installation

This topic helps to install the Oracle Banking Supply Chain Finance Conductor based process on designated environment. It is assumed that all the prior setup is already done related to Netflix Conductor.

This topic contains the following subtopics:

7.1 Overview of Conductor Processes

This topic describes about overview of conductor process.

In conductor, workflows are defined using a JSON based DSL and includes a set of tasks that are executed as part of the workflows. The tasks are either system tasks or simple tasks (aka worker tasks). These simple/worker tasks are implemented by application(s) and run in a separate environment from Conductor. These tasks communicate with Conductor server via REST client.

In Oracle Banking Supply Chain Finance, for every workflow, a workflow definition JSON will be maintained.

Deploy the following list of conductor processes for Oracle Banking Supply Chain Finance. The deployable units are available in the **obscfcm-workflow-management-services** folder in the OSDC.

JSON File location: `OBSCF_OSDC_{release}\OBSCF_SERVICES\obscfcm-workflow-management-services-{version}.war\WEB-INF\classes\dsl\`

> **Note**
>
> For the exact version and release numbers, refer to the OSDC file available as a part of the release.

Table 7-1 Conductor Process List

S. No	Process Name
1	AMENDMENT_REVERSAL
2	ANOMALY_DETECTION
3	DATE_FLIP_WORKFLOW
4	DISBURSEMENT_INITIATION
5	DISCOUNTING
6	FCIMSG
7	FINANCE

Table 7-1 (Cont.) Conductor Process List

S. No	Process Name
8	FINANCE_AUTODEBIT
9	FINANCE_REVERSAL
10	FinanceDedupCheckWorkflow
11	FinanceDedupeCancellationWorkflow
12	INSTRUMENT
13	INSTRUMENT_AUTODEBIT
14	MANUALRECON
15	MGR
16	OBSCFCM_EOD
17	REFUND

7.2 Steps to Deploy

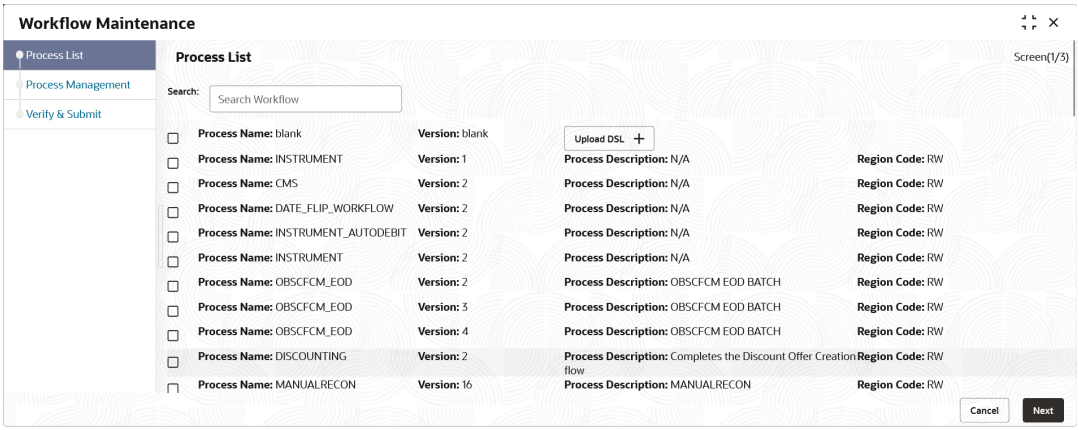
PLATO-O and **PLATO-ORCH-SERVICE** services should be up and registered in the Eureka registry. Refer to ***Oracle Banking Microservices Platform Foundation Installation Guide*** for the installation of PLATO-O and PLATO-ORCH-SERVICE.

Perform the following steps to deploy the workflow process mentioned in **Table 7-1** using app-shell:

1. 2. On **Home** screen, under **Tasks** menu, click **Business Process Maintenance**.

   The **Process List** screen displays.

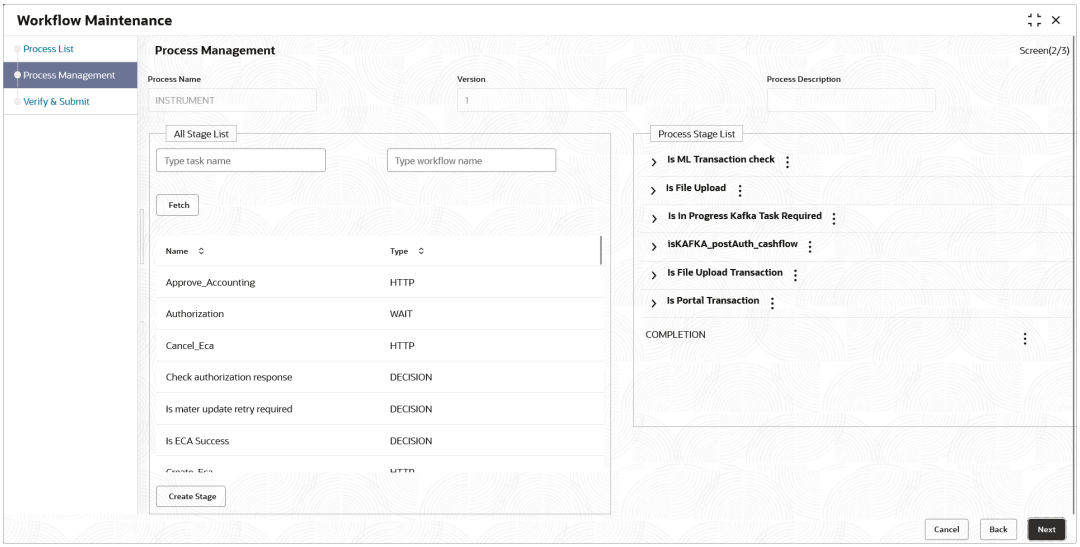
Figure 7-1 Process List



2. Select the **Process Name: blank** check box.
3. Click **Upload DSL+** to upload the JSON file from the path mentioned in the above table.
4. 5. Click **Next**.

   The **Process Management** screen displays.

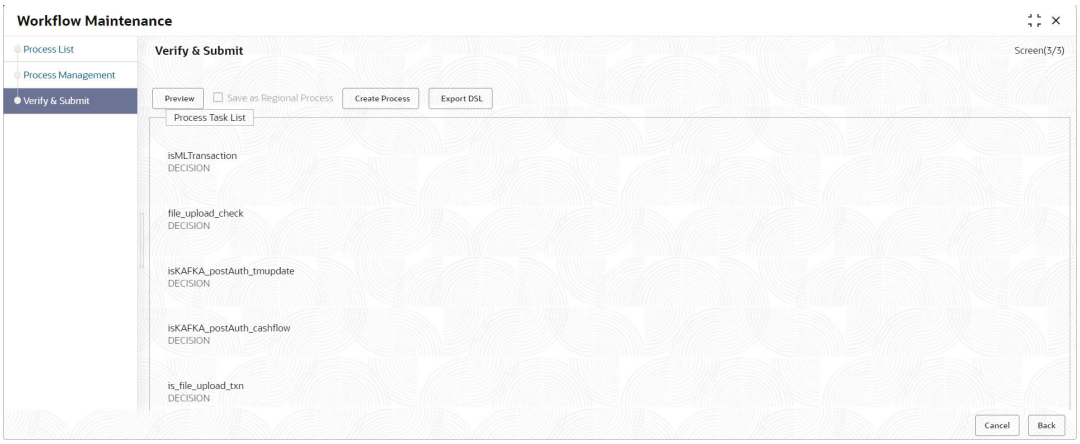
Figure 7-2 Process Management



5. Click **Next**.

   The **Verify & Submit** screen displays.

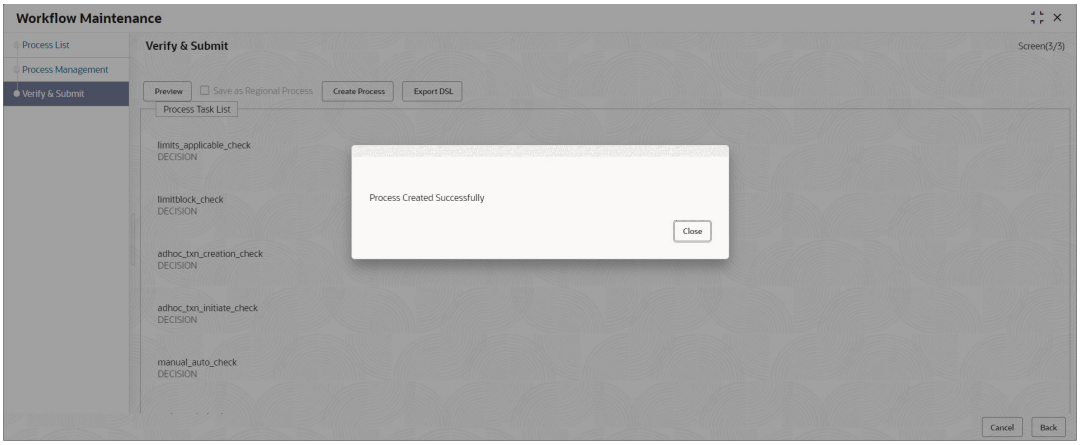
Figure 7-3 Verify & Submit



6. Click **Create Process** to deploy the workflow process definition.

   The **Process Created Successfully** pop-up menu displays.

Figure 7-4 Process Created Successfully



7. If an existing process is modified, a new process with updated version displays on the process list screen or else a new process displays.
8. Click **Cancel** to exit from the **Business Process Maintenance** menu.
9. To verify if the workflow is registered properly, verify the **Version** number in the **Process List** screen against the version number in the **META_WORKFLOW_DEF** table of the **OBSCFCM_WORKFLOWS_CONDUCTOR** database schema.

8

Overview of Restarts and Refresh

This topic describes about overview of restarts and refresh.

Once everything is deployed, restart all the managed servers. For each application call path `/refresh` to refresh the configuration properties.

> **Note**
>
> To restart the server, refer to **Restart Server** section in ***Configuration and Deployment Guide***.

Restart Order

- Restart sequence in case of any configuration changes in the properties table or server arguments of plato schema (eg : port or host):
  - Restart the plato-config-service and plato-discovery-service
  - Restart the impacted service
- Restart sequence in case of any configuration changes in the plato-ui-config schema (eg : port or host):
  - Restart the plato-ui-config-service

Caching Impact

The following services use caching and if any direct changes are done in database, then service needs to be bounced. If not, then cache eviction will happen in 2 hours for the configured value in the server start up params:

- obscfcm-master-maintenance
- obscfcm-filter-service
- obscfcm-manual-recon-service
- obscfcm-core-service

9

Overview of Logging Area

This topic describes about overview of logging area.

The logging area is configurable. The user can configure any path within the server, where you want to write the Oracle Banking Supply Chain Finance application logs. Oracle Banking Supply Chain Finance applications write the logs in the configured path with the name: **<Application name>.logs**.

For example, if application name is **obscf-alerts-services**, then the logs file name would be **obscf-alerts-servies.log**.

10

Migration Support

This topic describes the instruction to install the multi-branch support feature for the existing Oracle® Banking Supply Chain Finance implementations wherein configuration changes are required.

This topic contains the following subtopics:

- Recommended Process
  This topic describes the recommended process to install the multi-branch support feature for existing implementations.
- Alternate Process
  This topic describes the alternate Process to install the multi-branch support feature for existing implementations.

10.1 Recommended Process

This topic describes the recommended process to install the multi-branch support feature for existing implementations.

Pre-requisite: One product code is mapped to only one Branch i.e., there should not be a same product code mapped to different branches.

Case 1
Follow the below steps if the pre-requisite is true, i.e., if only one product code is mapped to only one branch.

1. Update the below server argument parameter as **Y** in the managed server where **obscf-core-service** is deployed.

   ```
   -Dflyway.domain.placeHolders.obscf.core.productMigrationReqd='Y'
   ```

2. Deploy both **obscf-core-service** and **obscf-report-service** serices.

Case 2
Follow the below steps if the pre-requisite is not true, i.e., if a product code is mapped to multiple branches.

3. Retain the product records for only one branch and delete it in the other branches in the following tables.

Table 10-1 Schema Table

Schema Name	Table Name	ID/Foreign Key
OBSCF_CORE	SCF_TM_PRODUCT_MASTER	ID
OBSCF_CORE	SCF_TW_PRODUCT_MASTER	ID
OBSCF_CORE	SCF_TM_PROD_LIMIT_DECN	PRODUCT_MASTER_ID
OBSCF_CORE	SCF_TW_PROD_LIMIT_DECN	PRODUCT_MASTER_ID
OBSCF_CORE	SCF_TM_PROD_LIMITS_EXP_HANDL	LIMIT_DECN_MASTER_ID

Table 10-1 (Cont.) Schema Table

Schema Name	Table Name	ID/Foreign Key
OBSCF_CORE	SCF_TW_PROD_LIMITS_EXP_HANDL	LIMIT_DECN_MASTER_ID
OBSCF_REPORT	SCF_TM_PRODUCT_MASTER	ID
OBSCF_REPORT	SCF_TW_PRODUCT_MASTER	ID
OBSCF_REPORT	SCF_TM_PROD_LIMIT_DECN	PRODUCT_MASTER_ID
OBSCF_REPORT	SCF_TW_PROD_LIMIT_DECN	PRODUCT_MASTER_ID
OBSCF_REPORT	SCF_TM_PROD_LIMITS_EXP_HANDL	LIMIT_DECN_MASTER_ID
OBSCF_REPORT	SCF_TW_PROD_LIMITS_EXP_HANDL	LIMIT_DECN_MASTER_ID

> **Note**
>
> The user must maintain only one record per branch if the products are maintained for multiple branches. For example: If product **VENF** is maintained for both 004 and 006 branches, then the user should retain the product record for only one branch and delete the record in the other branches from the below mentioned tables.

4. Update the below server argument parameter as **Y** in the managed server where **obscf-core-service** is deployed.

   ```
   -Dflyway.domain.placeHolders.obscf.core.productMigrationReqd='Y'
   ```

5. Deploy both **obscf-core-service** and **obscf-report-service serices**.
6. Perform the following steps to add the product records deleted for other branches:
   a. Login to the application.
   b. Navigate to **View Product Parameters** screen.
   c. Click **Options** for the respective product and then click **Unlock** to modify the record details.
   d. Add the deleted branches in the **Allowed/Restricted Branches** field accordingly. Refer to **Create Product Parameters** section in the ***Supply Chain Finance User Guide***.

10.2 Alternate Process

This topic describes the alternate Process to install the multi-branch support feature for existing implementations.

Pre-requisite: One product code is mapped to only one Branch that is, there should not be a same product code mapped to different branches.

Follow the below steps if the pre-requisite is not true, that is, if a product code is mapped to multiple branches.

1. Retain the product records for only one branch and delete it in the other branches in the following tables.

Table 10-2 Schema Table

Schema Name	Table Name	ID/Foreign Key
OBSCF_CORE	SCF_TM_PRODUCT_MASTER	ID
OBSCF_CORE	SCF_TW_PRODUCT_MASTER	ID
OBSCF_CORE	SCF_TM_PROD_LIMIT_DECN	PRODUCT_MASTER_ID
OBSCF_CORE	SCF_TW_PROD_LIMIT_DECN	PRODUCT_MASTER_ID
OBSCF_CORE	SCF_TM_PROD_LIMITS_EXP_HANDL	LIMIT_DECN_MASTER_ID
OBSCF_CORE	SCF_TW_PROD_LIMITS_EXP_HANDL	LIMIT_DECN_MASTER_ID
OBSCF_REPORT	SCF_TM_PRODUCT_MASTER	ID
OBSCF_REPORT	SCF_TW_PRODUCT_MASTER	ID
OBSCF_REPORT	SCF_TM_PROD_LIMIT_DECN	PRODUCT_MASTER_ID
OBSCF_REPORT	SCF_TW_PROD_LIMIT_DECN	PRODUCT_MASTER_ID
OBSCF_REPORT	SCF_TM_PROD_LIMITS_EXP_HANDL	LIMIT_DECN_MASTER_ID
OBSCF_REPORT	SCF_TW_PROD_LIMITS_EXP_HANDL	LIMIT_DECN_MASTER_ID

> **Note**
>
> The user must maintain only one record per branch if the products are maintained for multiple branches. For example: If product **VENF** is maintained for both 004 and 006 branches, then the user should retain the product record for only one branch and delete the record in the other branches from the below mentioned tables.

2. Update the below server argument parameter as **N** in the managed server where **obscf-core-service** is deployed.

   ```
   -Dflyway.domain.placeHolders.obscf.core.productMigrationReqd='N'
   ```

3. Run the following scripts present in the **obscf-core-services** war file.

   Path: `obscf-core-services.war\WEB-INF\classes\db\migration\domain\`

   a. Run the drop constraint scripts:

   ```
   V506_002_8.8.1_7_50600215_14_0__SCF_TW_PRODUCT_MASTER.sql
   V506_002_8.8.1_8_50600215_14_0__SCF_TM_PRODUCT_MASTER.sql
   ```

   b. Run the migration DML scripts:

   ```
   V506_002_8.8.1_9_50600215_1_1__SCF_TW_PRODUCT_MASTER.sql
   V506_002_8.8.1_10_50600215_1_1__SCF_TM_PRODUCT_MASTER.sql
   ```

   c. Run the create constraint scripts:

   ```
   V506_002_8.8.1_15_50600215_15_0__SCF_TW_PRODUCT_MASTER.sql
   V506_002_8.8.1_16_50600215_15_0__SCF_TM_PRODUCT_MASTER.sql
   ```

4. Perform the following steps to add the product records deleted for other branches:

a. Login to the application.

b. Navigate to **View Product Parameters** screen.

c. Click **Options** for the respective product and then click **Unlock** to modify the record details.

d. Add the deleted branches in the **Allowed/Restricted Branches** field accordingly. Refer to **Create Product Parameters** section in the ***Supply Chain Finance User Guide***.

11

Known Issues - Resolutions

This topic describes the known issues encountered while using the application and its resolutions.

obscfcm-instruments-receivables-services

Troubleshooting deployment failure in obscfcm-instruments-receivables-services.war. This failure is occuring due to duplicate values getting created in the **OB PAYMENT TW** for the 510.114.9.5.0.2.051011424.28.0.sql.

Deployment Error –

```
Error is because data issue in table :-
mum-1922.snbomprshared1.gbucdsint02bom.oraclevcn.com:1521/OBSCF (Oracle 19.1)
07:56:49:503 | obscfcm-instruments-receivables-services | | | | | WARN |
[,] | o.f.c.i.d.b.Database.warn | Flyway upgrade recommended: Oracle 19.1 is
newer than this version of Flyway and support has not been tested. The latest
supported version of Oracle is 19.0.
07:56:49:619 | obscfcm-instruments-receivables-services | | | | | WARN |
[,] | o.s.b.w.s.c.AnnotationConfigServletWebServerApplicationContext.refresh
| Exception encountered during context initialization - cancelling refresh
attempt: org.springframework.beans.factory.UnsatisfiedDependencyException:
Error creating bean with name 'purchaseOrderProcessingBatchConfig':
Unsatisfied dependency expressed through field 'jobRepository'; nested
exception is org.springframework.beans.factory.BeanCreationException: Error
creating bean with name 'executeDomain' defined in class path resource
[oracle/fsgbu/plato/flyway/FlywayConfig.class]: Bean instantiation via
factory method failed; nested exception is
org.springframework.beans.BeanInstantiationException: Failed to instantiate
[org.flywaydb.core.Flyway]: Factory method 'domainFlywayInit' threw
exception; nested exception is
org.flywaydb.core.api.exception.FlywayValidateException: Validate failed:
Migrations have failed validation

Detected failed migration to version 510.114.9.5.0.2.051011424.28.0 (OB
PAYMENT TW).
Please remove any half-completed changes then run repair to fix the schema
history.
Need more flexibility with validation rules? Learn more:  https://rd.gt/
3AbJUZE
07:56:49:648 | obscfcm-instruments-receivables-services | | | | | INFO |
[,] | o.s.b.a.l.ConditionEvaluationReportLoggingListener.logMessage |Error
starting ApplicationContext. To display the conditions report re-run your
application with 'debug' enabled.
07:56:49:671 | obscfcm-instruments-receivables-services | | | | | ERROR |
[,] | o.s.b.SpringApplication.reportFailure | Application run failed
org.flywaydb.core.api.exception.FlywayValidateException: Validate failed:
Migrations have failed validation

Detected failed migration to version 510.114.9.5.0.2.051011424.28.0 (OB
```

```
PAYMENT TW).
Please remove any half-completed changes then run repair to fix the schema
history.
Need more flexibility with validation rules? Learn more:  https://rd.gt/
3AbJUZE
at org.flywaydb.core.Flyway$1.execute(Flyway.java:130)
at org.flywaydb.core.Flyway$1.execute(Flyway.java:124)
at org.flywaydb.core.FlywayExecutor.execute(FlywayExecutor.java:205
```

Resolution –

1. Delete the entry with status 0 in the Flyway history table under OBSCFCM_INSTRUMENTS schema.
2. Run the following scripts on the OBSCFCM_INSTRUMENTS schema.

```
DELETE FROM OB_PAYMENT_TW WHERE ID NOT IN ( SELECT MAX(ID) FROM
OB_PAYMENT_TW GROUP BY PAYMENT_NUMBER,PAYMENT_MODE,SEQ_NO);
DELETE FROM OB_PAYMENT WHERE ID NOT IN ( SELECT MAX(ID) FROM OB_PAYMENT
GROUP BY PAYMENT_NUMBER,PAYMENT_MODE,SEQ_NO);
Delete from obscfcm_instruments.OB_PAYMENT_TW where id in ( SELECT y.id
FROM obscfcm_instruments.OB_PAYMENT_TW y INNER JOIN (SELECT
PAYMENT_NUMBER,PAYMENT_MODE,SEQ_NO, COUNT(*) AS CountOf FROM
obscfcm_instruments.OB_PAYMENT_TW GROUP BY
PAYMENT_NUMBER,PAYMENT_MODE,SEQ_NO HAVING COUNT(*)>1) dt ON
y.PAYMENT_NUMBER=dt.PAYMENT_NUMBER AND y.PAYMENT_MODE=dt.PAYMENT_MODE AND
y.SEQ_NO=dt.SEQ_NO );
commit;
```

3. Start the obscfcm-instruments-receivables-services application in the Weblogic.

12

Gen AI Document Analyzer Service Installation

This topic describes the systematic instructions to install Gen AI Document Analyzer Service Installation service.

Gen AI document analyzer service (cmc-ml-genai-doc-analyzer) is an optional component that is shipped with various products that utilizes Generative AI for managing documents.

Prerequisite

Follow the below steps to setup the prerequisites of Gen AI service.

1. The Operating System version should be same as product that is, Oracle Linux 8.

   > **Note**
   >
   > Other Oracle Linux OS are not supported due to incompatibility with gcc++ v17 compiler.

2. gcc++ compiler v17

   > **Note**
   >
   > This compiler is required for tesseract.

3. Install the following OS packages:
   a. yum install zlib zlib-devel
   b. yum install libffi-devel openssl-devel
   c. yum install bzip2 bzip2-devel
   d. yum install poppler-utils
   e. yum install xz xz-devel xz-libs
   f. yum install mesa-libGL
   g. yum install mesa-libgbm
   h. yum install mesa-libglapi
   i. yum install sqlite-devel
   j. yum install openblas
4. Python Version: 3.9.5
5. Tesseract: 5.4.1
6. Document Verification Service: This is provided as part of the distribution.

To run the Gen AI document analyzer service; Python, Tesseract, and Document Verification Service must be installed. Refer to **Document Verification Framework** section in ***Common Core Services Installation Guide*** to manually install these packages.

This topic consists the following sub-topics:

- Process of Application Installation
  This topic provides the information to install the Gen AI application.
- Starting The Application
  This topic describes the systematic instructions to start the application process.

12.1 Process of Application Installation

This topic provides the information to install the Gen AI application.

Gen AI document analyzer (cmc-ml-genai-doc-analyzer) is a python-based application. The application is shipped as a byte-coded whl file. This wheel file installs all the implementation files without the dependencies. All the required dependencies are to be installed separately. It is recommended to install the whl file and the dependencies in a new virtual environment using **pip** so that it doesn't affect any other operations or applications running in the system.

Follow the steps below to install the app and the dependencies:

1. Use the below command to install the application wheel package provided, e.g.

   ```
   cmc_ml_genai_doc_analyzer-{version}-py3-none-any.whl
   ```

   ```
   pip install <wheel_package_name>.whl
   ```

2. Install all the dependencies listed in the Dependency Installation.

This topic consists the following sub-topics:

- Dependency Installation
  This topic describes the information to install the dependencies.
- Configure Gen AI service with OBRH
  This topic describes the systematic instructions to configure the Gen AI service with OBRH.
- Configuration Update
  This topic provides the information to update the configurations.
- OCI Credentials and Configuration Setup
  This topic provides the systematic instructions on the OCI Credentials and Configuration Setup.
- Enable/Disable Gen AI Application

12.1.1 Dependency Installation

This topic describes the information to install the dependencies.

After installing the Document verification service, the following dependencies must be installed. Please install the below third-party dependencies before starting the services.

> **Note**
>
> These packages must be installed in the environment where the document verification services are installed.

Common Dependencies:

Install the below dependencies for all the LLM's.

> **Note**
>
> These dependencies are mandatory.

> **Note**
>
> If you are installing on server behind the proxy server, then provide the proxy settings e.g., if connected to Oracle network then following proxy will work. Set the proxy before installing the dependencies according to the shell (bash/csh/sh, etc.,).

https_proxy = <HTTP-PROXY>

https_proxy = <HTTPS-PROXY>

no_proxy=<NO_PROXY>

All the required dependencies are bundled together in a python.zip file, which are to be extracted and installed separately. It is recommended to install the .whl file and the dependencies in a virtual environment using **pip** to make sure that it does not affect other operations or applications running in the system.

Extract the python.zip file provided in the desired location. Navigate to the python folder (cd python/) and run the following commands:

```
pip install --no-deps --no-index --find-links . aiohttp==3.9.5
pip install --no-deps --no-index --find-links . aiosignal==1.3.1
pip install --no-deps --no-index --find-links . annotated_types==0.7.0
pip install --no-deps --no-index --find-links . anyio==4.4.0
pip install --no-deps --no-index --find-links . asgiref==3.8.1
pip install --no-deps --no-index --find-links . async_timeout==4.0.3
pip install --no-deps --no-index --find-links . attrs==23.2.0
pip install --no-deps --no-index --find-links . blinker==1.8.2
pip install --no-deps --no-index --find-links . certifi==2024.7.4
pip install --no-deps --no-index --find-links . cffi==1.16.0
pip install --no-deps --no-index --find-links . charset_normalizer==3.3.2
pip install --no-deps --no-index --find-links . circuitbreaker==1.4.0
pip install --no-deps --no-index --find-links . click==8.1.7
pip install --no-deps --no-index --find-links . configparser==7.0.0
pip install --no-deps --no-index --find-links . connexion==3.1.0
pip install --no-deps --no-index --find-links . contourpy==1.2.1
pip install --no-deps --no-index --find-links . cryptography==42.0.8
pip install --no-deps --no-index --find-links . cycler==0.12.1
pip install --no-deps --no-index --find-links . dataclasses_json==0.6.7
pip install --no-deps --no-index --find-links . datefinder==0.7.3
```

```
pip install --no-deps --no-index --find-links . dateparser==1.1.8
pip install --no-deps --no-index --find-links . dnspython==2.6.1
pip install --no-deps --no-index --find-links . docx2python==2.10.1
pip install --no-deps --no-index --find-links . et_xmlfile==1.1.0
pip install --no-deps --no-index --find-links . exceptiongroup==1.2.1
pip install --no-deps --no-index --find-links . flask==3.0.3
pip install --no-deps --no-index --find-links . fonttools==4.53.1
pip install --no-deps --no-index --find-links . frozenlist==1.4.1
pip install --no-deps --no-index --find-links . greenlet==3.0.3
pip install --no-deps --no-index --find-links . gunicorn==22.0.0
pip install --no-deps --no-index --find-links . h11==0.14.0
pip install --no-deps --no-index --find-links . httpcore==1.0.5
pip install --no-deps --no-index --find-links . httpx==0.27.0
pip install --no-deps --no-index --find-links . idna==3.7
pip install --no-deps --no-index --find-links . ifaddr==0.2.0
pip install --no-deps --no-index --find-links . importlib_metadata==7.2.1
pip install --no-deps --no-index --find-links . importlib_resources==6.4.0
pip install --no-deps --no-index --find-links . inflection==0.5.1
pip install --no-deps --no-index --find-links . itsdangerous==2.2.0
pip install --no-deps --no-index --find-links . jinja2==3.1.4
pip install --no-deps --no-index --find-links . joblib==1.4.2
pip install --no-deps --no-index --find-links . jsonpatch==1.33
pip install --no-deps --no-index --find-links . jsonpointer==3.0.0
pip install --no-deps --no-index --find-links . jsonschema==4.23.0
pip install --no-deps --no-index --find-links .
jsonschema_specifications==2023.12.1
pip install --no-deps --no-index --find-links . kiwisolver==1.4.5
pip install --no-deps --no-index --find-links . langchain==0.2.5
pip install --no-deps --no-index --find-links . langchain_community==0.2.5
pip install --no-deps --no-index --find-links . langchain_core==0.2.9
pip install --no-deps --no-index --find-links . langchain_experimental==0.0.61
pip install --no-deps --no-index --find-links .
langchain_text_splitters==0.2.1
pip install --no-deps --no-index --find-links . langsmith==0.1.81
pip install --no-deps --no-index --find-links . llvmlite==0.43.0
pip install --no-deps --no-index --find-links . lxml==5.2.2
pip install --no-deps --no-index --find-links . MarkupSafe==2.1.5
pip install --no-deps --no-index --find-links . marshmallow==3.21.3
pip install --no-deps --no-index --find-links . matplotlib==3.9.1
pip install --no-deps --no-index --find-links . multidict==6.0.5
pip install --no-deps --no-index --find-links . mypy_extensions==1.0.0
pip install --no-deps --no-index --find-links . numba==0.60.0
pip install --no-deps --no-index --find-links . numpy==1.26.4
pip install --no-deps --no-index --find-links . oci==2.128.2
pip install --no-deps --no-index --find-links . opencv_python==4.8.1.78
pip install --no-deps --no-index --find-links . openpyxl==3.1.2
pip install --no-deps --no-index --find-links . oracledb==2.2.1
pip install --no-deps --no-index --find-links . orjson==3.10.5
pip install --no-deps --no-index --find-links . packaging==24.1
pip install --no-deps --no-index --find-links . pandas==2.2.2
pip install --no-deps --no-index --find-links . paragraphs==0.2.1
pip install --no-deps --no-index --find-links . pdf2image==1.17.0
pip install --no-deps --no-index --find-links . pdfminer.six==20231228
pip install --no-deps --no-index --find-links . pdfplumber==0.11.2
pip install --no-deps --no-index --find-links . Pillow==10.3.0
pip install --no-deps --no-index --find-links . pyap2==0.1.3
```

```
pip install --no-deps --no-index --find-links . pybase64==1.3.2
pip install --no-deps --no-index --find-links . pycparser==2.22
pip install --no-deps --no-index --find-links . pydantic==2.7.4
pip install --no-deps --no-index --find-links . pydantic_core==2.18.4
pip install --no-deps --no-index --find-links . py_eureka_client==0.11.10
pip install --no-deps --no-index --find-links . pyod==2.0.1
pip install --no-deps --no-index --find-links . pyOpenSSL==24.1.0
pip install --no-deps --no-index --find-links . pyparsing==3.1.2
pip install --no-deps --no-index --find-links . pypdf2==3.0.1
pip install --no-deps --no-index --find-links . pypdf==3.9.1
pip install --no-deps --no-index --find-links . pytesseract==0.3.13
pip install --no-deps --no-index --find-links . python_dateutil==2.9.0.post0
pip install --no-deps --no-index --find-links . python_magic==0.4.27
pip install --no-deps --no-index --find-links . python_multipart==0.0.9
pip install --no-deps --no-index --find-links . pytz==2024.1
pip install --no-deps --no-index --find-links . pyxDamerauLevenshtein==1.8.0
pip install --no-deps --no-index --find-links . PyYAML==6.0.1
pip install --no-deps --no-index --find-links . referencing==0.35.1
pip install --no-deps --no-index --find-links . regex==2024.5.15
pip install --no-deps --no-index --find-links . requests==2.32.3
pip install --no-deps --no-index --find-links . rpds_py==0.19.0
pip install --no-deps --no-index --find-links . scikit_learn==1.5.0
pip install --no-deps --no-index --find-links . scipy==1.13.1
pip install --no-deps --no-index --find-links . six==1.16.0
pip install --no-deps --no-index --find-links . six==1.16.0
pip install --no-deps --no-index --find-links . sniffio==1.3.1
pip install --no-deps --no-index --find-links . SQLAlchemy==2.0.31
pip install --no-deps --no-index --find-links . starlette==0.37.2
pip install --no-deps --no-index --find-links . tabulate==0.9.0
pip install --no-deps --no-index --find-links . tenacity==8.4.1
pip install --no-deps --no-index --find-links . threadpoolctl==3.5.0
pip install --no-deps --no-index --find-links . typing_extensions==4.12.2
pip install --no-deps --no-index --find-links . typing_inspect==0.9.0
pip install --no-deps --no-index --find-links . tzdata==2024.1
pip install --no-deps --no-index --find-links . tzlocal==4.1
pip install --no-deps --no-index --find-links . urllib3==2.2.2
pip install --no-deps --no-index --find-links . werkzeug==3.0.3
pip install --no-deps --no-index --find-links . yarl==1.9.4
pip install --no-deps --no-index --find-links . zipp==3.19.2
```

LLM Dependencies:

The dependencies mentioned below can be installed based on which large language model you choose to configure.

Cohere LLM Dependencies:
Install the below dependencies to use Cohere LLM.

```
pip install cohere==5.5.8
pip install langchain-cohere==0.1.8
```

> **Note**
>
> To use Cohere as a LLM, you can install the above library. Alternatively, you can configure Cohere LLM using OBRH. For more information, refer to section Configure Gen AI service with OBRH. These dependencies are not needed if the calls are routed to the external LLM via OBRH.

OpenAI LLM Dependencies:
Install the below dependencies, to use OpenAI LLM.

```
pip install openai==1.35.7
pip install langchain-openai==0.1.13
```

Gemini LLM Dependencies:
Install the below dependencies, to use Gemini LLM.

```
pip install google-generativeai==0.7.1
pip install langchain-google-genai==1.0.7
```

> **Note**
>
> This application works when the above libraries are installed with required versions. You must not upgrade the libraries unless instructed in the documentation.

12.1.2 Configure Gen AI service with OBRH

This topic describes the systematic instructions to configure the Gen AI service with OBRH.

Calls to the LLM can be routed via OBRH. Follow the below steps to configure OBRH to use the Gen AI Service.

> **Note**
>
> Before configuring the OBRH, make sure that all the common dependencies are installed except the LLM dependencies.

> **Note**
>
> For detailed information on the OBRH configuration, refer to ***Routing Hub Configuration User Guide***.

1. On **Home screen**, click **Core Maintenance**. Under **Core Maintenance**, click **Routing Hub**. Under **Routing Hub**, click **Service Consumers**.
2. Create a new service consumer with default name **GENAI**.
3. Click on **GENAI** service consumer and add a new service provider with the following details:

Table 12-1 Add Service Provider

Field	Value
Product Name	COHERE
Type	EXTERNAL
Version	0.1
Headers	Add the below headers as Name - Value: • accept - application/json • content-type - application/json
Service	Update the below values under service
Type	OTHERS
Name	Add the below services: • CHAT_ENDPOINT • EMBED_ENDPOINT
Http Method	POST
Endpoint	Add the below endpoints for the respective services: • For CHAT_ENDPOINT- v1/chat • For EMBED_ENDPOINT - v1/embed
Service Header	Add the service header for both the services: • Name - Authorization • Value - Bearer $body.token

4. Click the **COHERE** service provider and add the implementation parameters.

Table 12-2 Add Implementation

Field	Value
Name	COHERE_Default
Description	Default Implementation
Type	DEFAULT
Default	Toggle Enabled
Scheme	https
Host	api.cohere.com
Port	0

5. Click **Consumer Services** and add the following service IDs.
   - COHERE_CHAT_ENDPOINT
   - COHERE_EMBED_ENDPOINT
6. Click the consumer service IDs and add the transformation, and routing details.
   - **COHERE_CHAT_ENDPOINT**

Table 12-3 Add Transformation

Field	Value
Name	Chat
Active	Toggle Enabled
Product Processor	COHERE 0.1
Implementation	COHERE_Default

Table 12-3 (Cont.) Add Transformation

Field	Value
Service	CHAT_ENDPOINT - v1/chat
Request Transformation	Update the below values under request transformation
Body Type	RAW
Template Type	JSLT
Template	{"model": .model,"message": .message, "temperature": .temperature, "chat_history": .chat_history,"prompt_truncation": "AUTO","stream": false,"connectors": []}

Table 12-4 Add Route

Field	Value
Name	chat
Start/Stop	START
Auto Shutdown	Toggle Enabled
Default/Custom Rule	Default Rule
Transformations	Click Add and select the transformation created.

- COHERE_EMBED_ENDPOINT

Table 12-5 Add Transformation

Field	Value
Name	embed
Active	Toggle Enabled
Product Processor	COHERE 0.1
Implementation	COHERE_Default
Service	EMBED_ENDPOINT - v1/embed
Request Transformation	Update the below values under request transformation
Body Type	RAW
Template Type	JSLT
Template	{"texts":.texts,"model": .model,"input_type": .input_type}

Table 12-6 Add Route

Field	Value
Name	route1
Start/Stop	START
Auto Shutdown	Toggle Enabled
Default/Custom Rule	Default Rule
Transformations	Click Add and select the transformation created.

12.1.3 Configuration Update

This topic provides the information to update the configurations.

The following are the two configuration files provided:

- **system-config.json**: This file contains the internal settings of LLM and the configuration details. This should not be changed unless otherwise specified.
- **logging-config.json**: This file is used for changing the logging settings. Use the default setting unless otherwise specified.

system-config.json:

system-config.json contails the configuration details that are required to be changed by the user for each installation. Refer the below table for the fields and description of the fields:

Table 12-7 application-config.json

Parameter	Description
APPLICATION_NAME	cmc-ml-genai-doc-analyzer
WORKING_DOCUMENT_DIR	Path to local folder where trained files will be stored. User should have Read-Write permissions to this folder.
OCI_CONFIG_FILE	Path to **oci_config.txt** file. You can get the file path after completion of OCI Credentials and configuration explained in OCI Credentials and Configuration Setup.
EUREKA_CLIENT_SERVICE_DEFAULT_ZONE	Address of Eureka for Service Discovery that will be used to connect with DMS service (cmc-document-services).
DMS_DOWNLOAD_ENDPOINT	Endpoint of cmc-document-services used for downloading from DMS. For Example: /cmc-document-services/service/v1/documents?documentRefId=
DMS_UPLOAD_ENDPOINT	Endpoint of cmc-document-services used for uploading to DMS. DMS service is accessed by using this endpoint. For Example: /cmc-document-services/service/v1/documents
DMS_SERVICE	Name of the DMS (cmc-document-services) service to locate on eureka. For Example: cmc-document-services
SSL_CERTIFICATE	Path to your SSL Certificate (.crt file)
SSL_KEY	Path to your SSL Key (.key file)
DOWNLOAD_CONFIG_ENDPOINT_NAME	Endpoint to retrieve the configuration settings by the Gen AI Admin service. For Example: cmc-ml-genai-admin-services/genai/loadConfiguration
GENAI_CONTEXT_PATH	Application name of GenAI Admin service to locate on eureka. For Example: CMC-ML-GENAI-ADMIN-SERVICES
OBRH_DISPATCH_ENDPOINT	Dispatch endpoint is the single entry-point for invoking the routes configured in Oracle Banking Routing Hub. For Example: /cmc-obrh-services/route/dispatch
OBRH_CONTEXT_PATH	Application name of OBRH service to locate on eureka. For Example: CMC-OBRH-SERVICES

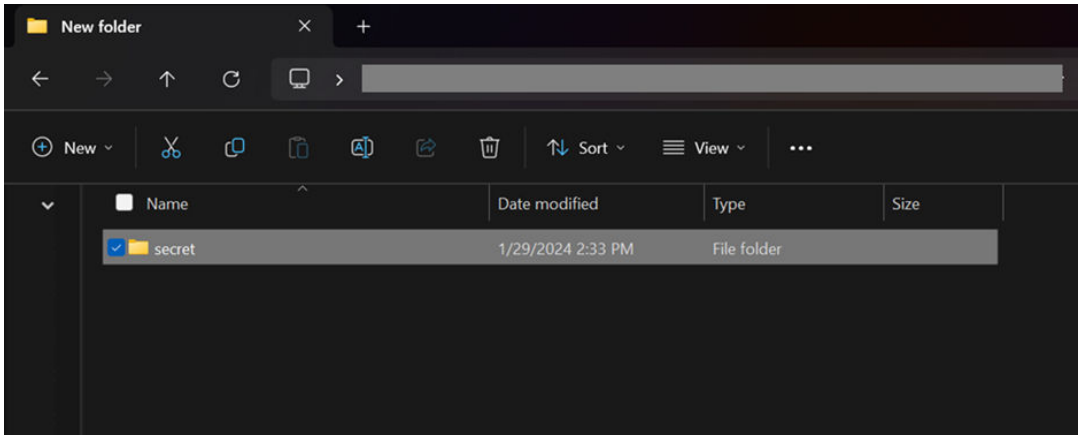
> **Note**
>
> The following fields will be fetched from the cmc-ml-genai-admin-services;
>
> - **LLM**
> - **LLM_API_KEY**
> - **EXTRACTOR_TYPE**
> - **DELETE_AFTER_TRAINING**
> - **USE CLASSIFIER**
> - **CLASSIFIER MODEL ID**

12.1.4 OCI Credentials and Configuration Setup

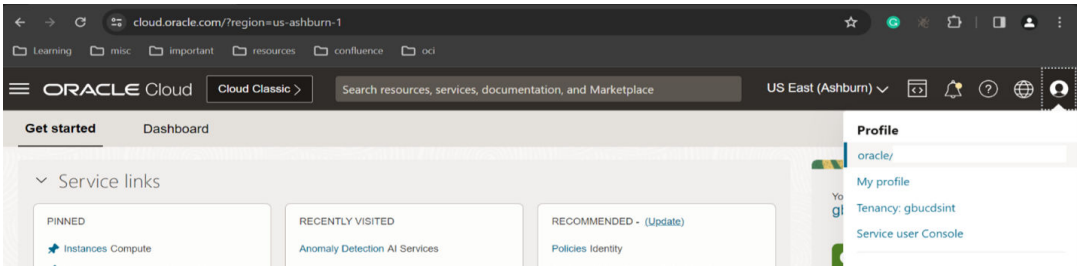
This topic provides the systematic instructions on the OCI Credentials and Configuration Setup.

> **Note**
>
> Subscription for the **Document Understanding** services in OCI is required. Oracle Cloud Identifier (OCID) of the compartment is required to access the Document Understanding services.

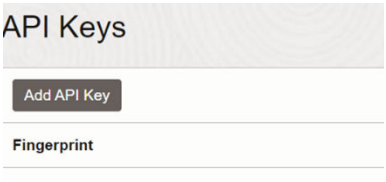
1. Create a folder **secret**.



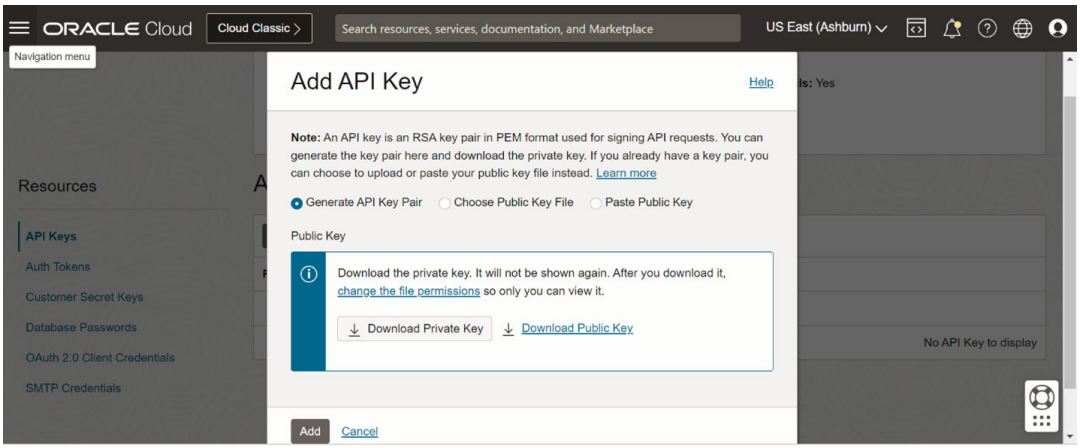
2. Login to OCI with your credentials.
3. Open the **Profile** menu and click **My profile**.



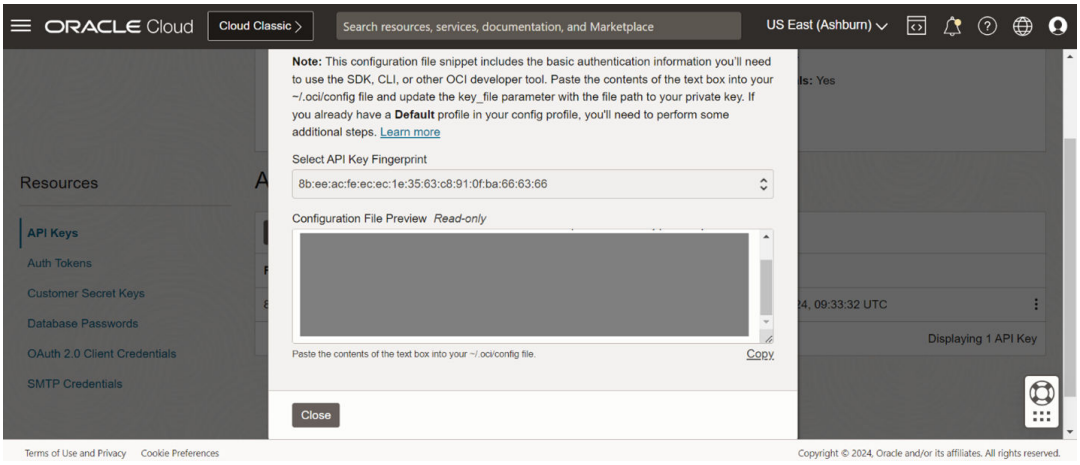
4. In the **Resources** section at the bottom left, click **API Keys**.



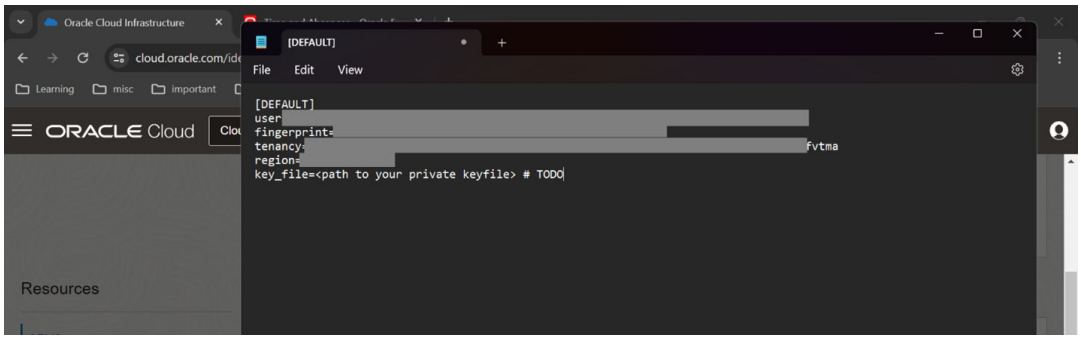
5. Click **Add API Key** at the top left of the **API Keys** list. The **Add API Key** dialog displays.



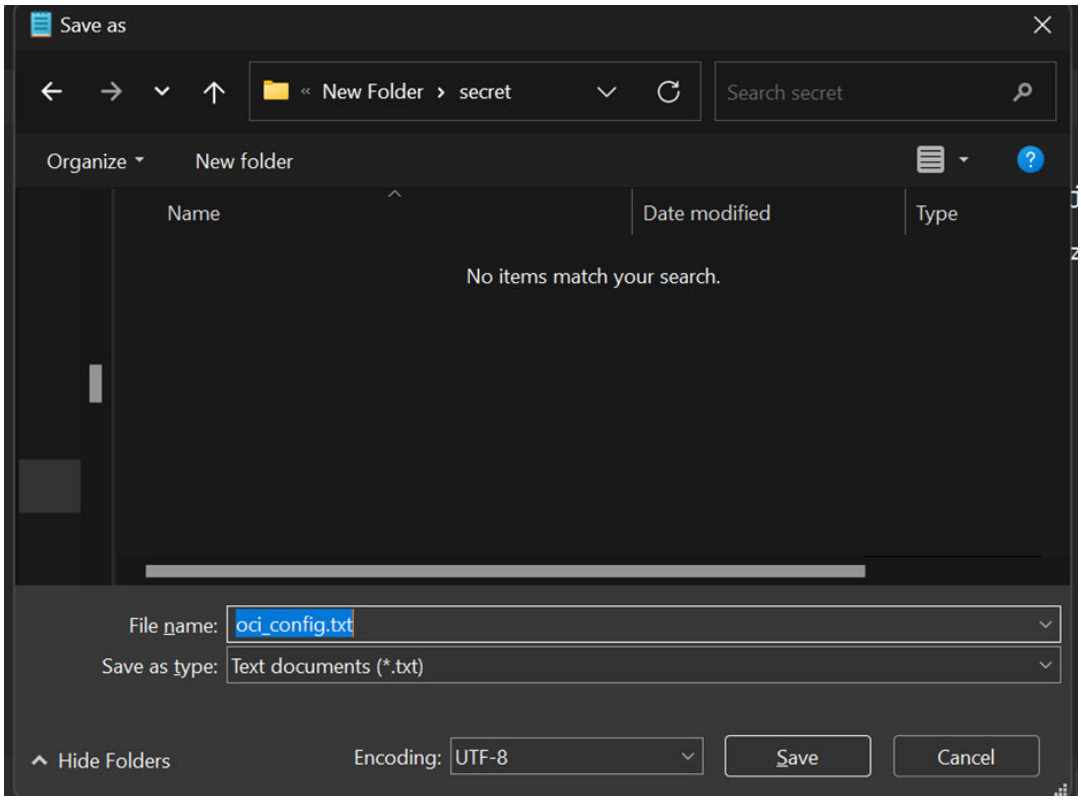
6. Click **Download Private Key**, the file gets downloaded.



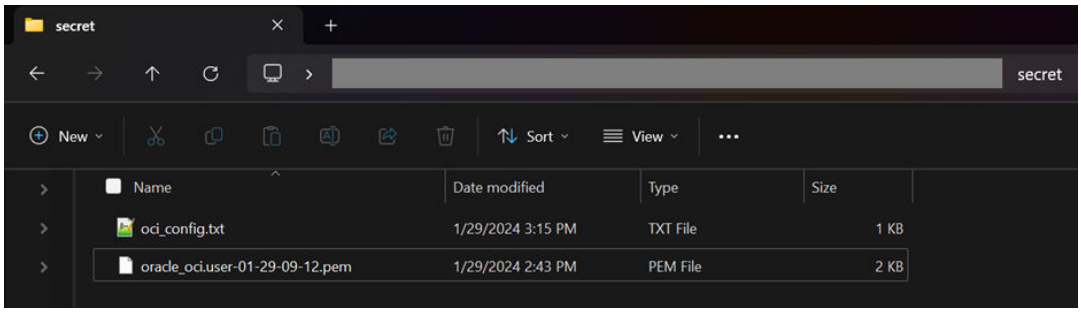
7. Click **Add**. A Pop-up window **Configuration File Preview** is displayed. Copy the content of file in a text file.



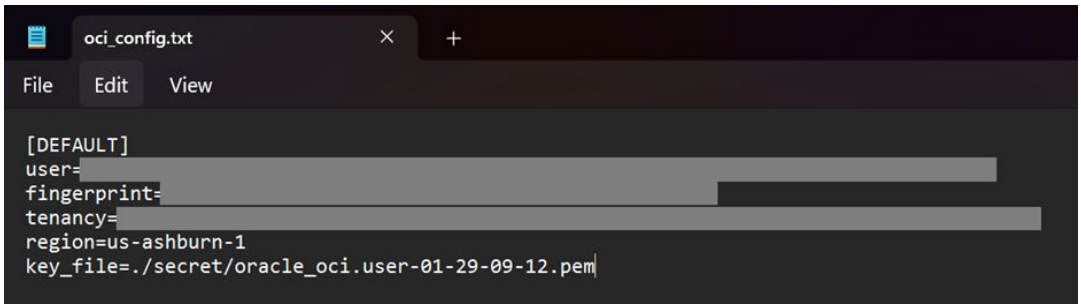
8. Save the file in the secret folder.



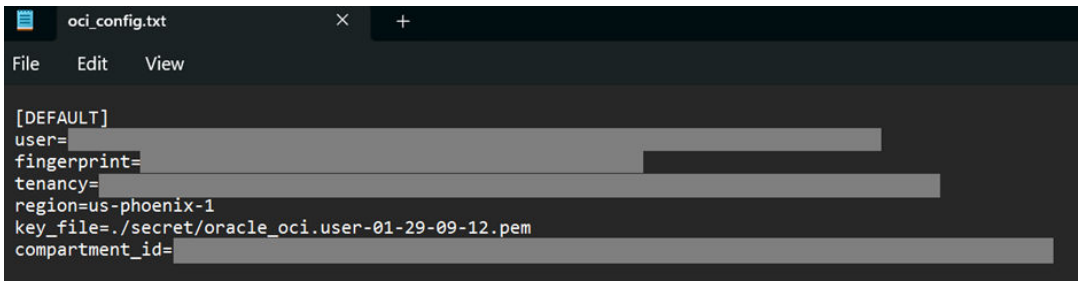
9. Copy the Private Key file downloaded in the secret folder created.



10. Edit **oci_config.txt** file. Change the key file path to the path of the private file in the secret folder. For example: key_file=./secret/oracle_oci.user-01-29-09-12.pem.



11. In the **oci_config.txt** file, add a parameter name **compartment_id**. Specify the OCID of the compartment you will use for Document Uunderstanding Services.



12. Save the file **oci_config.txt**.
13. Move the **logging-config.json**, **system-config.json** and **application-config.json** to the current working directory.
14. Make sure the below folder structure is followed:
    - root_dir
      - secret
      - Config.ini
      - system-config.json
      - application-config.json
      - logging-config.json

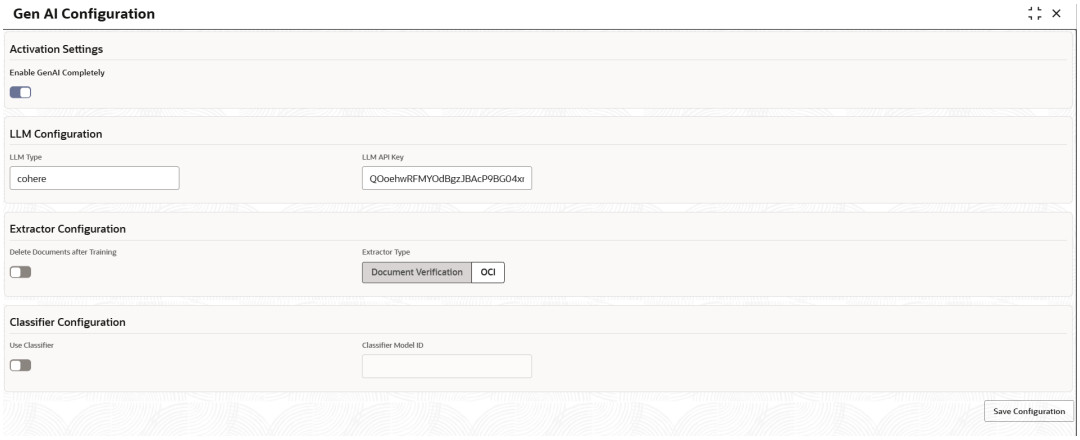
12.1.5 Enable/Disable Gen AI Application

The Gen AI Configuration screen provides a centralized interface for managing the operational settings of the Gen AI application. The service can be enabled or disabled using a toggle switch, and configurations can be customized for the environment.
This screen ensures full control over the behaviour of the service, ensuring adaptabilty across different environment. To process this screen, perform the following steps:

1. From **Home** screen, click **Machine Learning**. Under **Machine Learning**, Click **Gen AI Configuration**.

   The **Gen AI Configuration** screen is displayed.

Figure 12-1 Gen AI Configuration



2. Specify the fields on the **Gen AI Configuration** screen to configure the Gen AI service for the environment.

   For more information on fields, refer to the field description table below.

Table 12-8 Gen AI Configuration

Field	Description
Enable GenAI Completely	Switch the toggle to enable/disable the Gen AI doc analyzer service. By default, it is disabled. **Note:** This is a mandatory field.
LLM Type	Specify the name of the LLM to be used. By default, the value is set as cohere. The options are: • openai • cohere • gemini **Note:** This is a mandatory field.
LLM API Key	Specify the API Key for the LLM selected.
Delete Documents after Train	Switch the toggle to enable/disable the deletion of the files post training. By default, it is enabled.
Extractor Type	Specify the document extraction service to be used. By default, the value is set as Document Verification. The options are: • OCI • Document Verification Service
Use Classifier	Switch the toggle to enable/disable the LLM based classifier to be used for classifying the documents. By default, it is disabled.
Classifier Model ID	Specify the Model ID of the custom trained classifier.

12.2 Starting The Application

This topic describes the systematic instructions to start the application process.

Make sure that the wheel package and the dependencies are installed, and configuration setup is complete.

1. Run the genai_doc_analyzer server using the below-mentioned command.

   ```
   python -m genai_doc_analyzer
   ```

2. By default, the application runs on port 7777. You can change the port by passing **–p** argument.

   For example: `python -m genai_doc_analyzer -p 5000`

3. To run the service in the background, use the command below.

   ```
   nohup python -m genai_doc_analyzer > nohup.txt
   ```

   > **Note**
   >
   > After the execution of the above command, all the execution logs will be added to **nohup.txt** text file. You can close the terminal and the application will keep running on port, unless stopped explicitly.

4. By default, the application starts on http. You can change the protocol by passing the **-s** argument.

   ```
   python -m genai_doc_analyzer –p 5000 -s https
   ```

   ```
   python –m genai_doc_analyzer –p 5000 -s both
   ```

   > **Note**
   >
   > This starts the application on both http and https protocols on ports 5000 and 5001 respectively.

   > **Note**
   >
   > To run the service on https port, set the **SSL_CERTIFICATE** and **SSL_KEY** paths as mentioned in the Configuration Update section.

5. To terminate or kill the application, use the netstat command to find the **process_id** using the port on which the application is running. Then use the kill command with the **process_id** as shown below to terminate the application.

   ```
   netstat -nlp | grep 7777
   ```

   ```
   kill -9 <process_id>
   ```

6. To start the application using gunicorn on production mode, use the command below.

   ```
   gunicorn -b 0.0.0.0:<{port}>
   'genai_doc_analyzer.genai_wsgi:genai_wsgi_service('<{port}>')
   ```

Index