

Oracle® Banking Microservices Architecture

AI Foundation Python Services Installation Guide



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Preface

Purpose

This guide enables the user to integrate Oracle Products with External Product Processor through Oracle Banking Routing Hub Platform.

Before You Begin

Kindly refer to the **Getting Started User Guide** for information on common functionalities like login, navigation, and general settings before proceeding with this guide.

Module Pre-requisite

Specify **User Id** and **Password**, and login to the **Home** screen.

Audience

This guide is intended for the central administrator of the Bank who controls the system and application parameters and ensures smooth functionality and flexibility of the banking application.

Critical Patches

Oracle advises customers to get all their security vulnerability information from the Oracle Critical Patch Update Advisory, which is available at [Critical Patches, Security Alerts and Bulletins](#). All critical patches should be applied in a timely manner to make sure effective security, as strongly recommended by [Oracle Software Security Assurance](#).

Related Resources

For more information on any related features, refer to the following documents

-
-
-

Screenshot Disclaimer

Acronyms and Abbreviations

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

Table 1 Acronyms and Abbreviations

Abbreviation	Description
AI	Artificial Intelligence
OCI	Oracle Cloud Infrastructure
API	Application Programming Interface
GenAI	Generative AI

Basic Actions

Table 2 Basic Actions

Action	Description
Approve	Used to approve the initiated report. This button is displayed, once the user click Authorize .
Audit	Used to view the maker details, checker details, and report status.
Authorize	Used to authorize the report created. A maker of the screen is not allowed to authorize the report. Only a checker can authorize a report, created by a maker.
Close	Used to close a record. This action is available only when a record is created.
Confirm	Used to confirm the performed action.
Cancel	Used to cancel the performed action.
Compare	Used to view the comparison through the field values of old record and the current record. This button is displayed in the widget, once the user click Authorize .
Collapse All	Used to hide the details in the sections. This button is displayed, once the user click Compare .
Expand All	Used to expand and view all the details in the sections. This button is displayed, once the user click Compare .
New	Used to add a new record. When the user click New , the system displays a new record enabling to specify the required data.
OK	Used to confirm the details in the screen.
Save	Used to save the details entered or selected in the screen.
View	Used to view the report details in a particular modification stage. This button is displayed in the widget, once the user click Authorize .
View Difference only	Used to view a comparison through the field element values of old record and the current record, which has undergone changes. This button is displayed, once the user click Compare .
Unlock	Used to update the details of an existing record. System displays an existing record in editable mode.

Symbols and Icons

The following symbols and icons are used in the screens.

Table 3 Symbols and Icons - Common

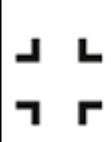
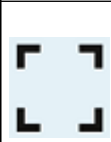



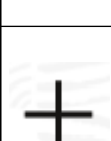


Symbol/Icon	Function
	Minimize
	Maximize
	Close
	Perform Search
	Open a list
	Add a new record
	Navigate to the first record
	Navigate to the last record

Table 3 (Cont.) Symbols and Icons - Common










Symbol/Icon	Function
	Navigate to the previous record
	Navigate to the next record
	Grid view
	List view
	Refresh
	Click this icon to add a new row.
	Click this icon to delete an existing row.
	Click to view the created record.
	Click to modify the fields.

Table 3 (Cont.) Symbols and Icons - Common


Symbol/Icon	Function
	Click to unlock, delete, authorize or view the created record.

Table 4 Symbols and Icons - Audit Details





Symbol/Icon	Function
	A user
	Date and time
	Unauthorized or Closed status
	Authorized or Open status

Table 5 Symbols and Icons - Widget





Symbol/Icon	Function
	Open status
	Unauthorized status

Table 5 (Cont.) Symbols and Icons - Widget

Symbol/Icon	Function
	Closed status
	Authorized status

Module Post-requisite

After finishing all the requirements, log out from the **Home** screen.

1

Introduction

This topic describes the information about an AI-Foundation services.

AI-Foundation services are optional components that are shipped with various product that utilizes Generative AI for managing documents.

Below are the steps to install the service manually.

2

Prerequisite

This topic describes the prerequisites for AI services.

Prerequisites

Follow below order to successfully setup the prerequisites of AI Foundation services.

1. Operating System: Version should be same as other banking products
2. Other Oracle Linux versions are not supported due to incompatibility with gcc++ v17 xcompiler.
 1. Install the following OS packages in the following order:
 - a. yum install libstdc++
 - b. yum install autoconf automake
 - c. yum install libtool
 - d. yum install pkg-config
 - e. yum install gcc gcc-c++ make
 - f. yum install libjpeg-devel libpng-devel libtiff-devel zlib-devel readline readline-devel
 - g. yum install zlib zlib-devel
 - h. yum install libffi-devel openssl-devel
 - i. yum install bzip2 bzip2-devel
 - j. yum install poppler-utils
 - k. yum install xz xz-devel xz-libs
 - l. yum install mesa-libGL
 - m. yum install mesa-libgbm
 - n. yum install mesa-libglapi
 - o. yum install sqlite-devel
 - p. yum install openblas
 - q. yum install python3.12-devel
 - r. yum install python3.12-3.12.6-1.el8_10
 - s. yum install python3.12-pip python3.12-setuptools python3.12-wheel
 - t. yum install git

If the command mentioned in **Point t.** does not work, try the following command instead: `sudo dnf install git --allow-erase`

Note: Points: q, r, s outline the installation of python 3.12.6. Please don't upgrade the libraries unless instructed in the documentation.

To stop Python from upgrading, run these commands after completing the previous steps:

1. `sudo yum install yum-plugin-versionlock`

2. `sudo yum versionlock add python3.12`

3

Application Installation

This topic describes the application installation.

AI Foundation services rely on applications built with Python. These applications will be delivered as whl (wheel) files. This wheel file will install all the necessary implementation files, excluding the dependencies.

All necessary dependencies must be installed individually (see the steps below). It is advisable to install the .whl files and their dependencies in a new virtual environment using **pip** to avoid impacting other operations or applications on the system.

Follow the steps below to install the applications and their dependencies:

1. Create a virtual environment
 - a. `python3.12 -m venv <venv_name>`
 - b. `source venv/bin/activate`
2. Run the following command to upgrade **pip** to the latest version. a. `pip install --upgrade pip`
3. Use the below command to install the application wheel package provided, example
 - a. `pip install cmc_aif_access_services-{version}-py3-none-any.whl`
 - b. `pip install cmc_aif_core-{version}-py3-none-any.whl`
 - c. `pip install cmc_aif_data_ingestion_services-{version}-py3-none-any.whl`
 - d. `pip install cmc_aif_embedding_services-{version}-py3-none-any.whl`
 - e. `pip install cmc_aif_generate_services-{version}-py3-none-any.whl`
 - f. `pip install cmc_aif_rag_services-{version}-py3-none-any.whl`

4

Dependency Installation

This topic describes the dependency installation.

After installing the above services, the following dependencies must be installed in the same virtual environment. Install below third-party dependencies before starting the services.

Note: These packages must be installed in the environment where the services in step 3 are installed.

Now all the dependencies need to be installed. To do this, extract the `python.zip` file provided, go into the `python` folder (`cd python/`) and run the following commands:

```
pip install --no-deps jishnu-1.6a95-py3-none-any.whl
pip install --no-deps accelerate==0.31.0
pip install --no-deps aiohappyeyeballs==2.6.1
pip install --no-deps aiohttp==3.12.15
pip install --no-deps aiosignal==1.4.0
pip install --no-deps annotated-types==0.7.0
pip install --no-deps anthropic==0.29.2
pip install --no-deps anyio==4.6.2.post1
pip install --no-deps appdirs==1.4.4
pip install --no-deps atlassian-python-api==4.0.4
pip install --no-deps attrs==25.3.0
pip install --no-deps Automat==25.4.16
pip install --no-deps backoff==2.2.1
pip install --no-deps bcrypt==4.3.0
pip install --no-deps beautifulsoup4==4.13.4
pip install --no-deps blis==1.3.0
pip install --no-deps boto3==1.40.1
pip install --no-deps botocore==1.40.1
pip install --no-deps bs4==0.0.2
pip install --no-deps build==1.3.0
pip install --no-deps cachetools==5.5.2
pip install --no-deps catalogue==2.0.10
pip install --no-deps certifi==2025.4.26
pip install --no-deps cffi==1.17.1
pip install --no-deps charset-normalizer==3.4.2
pip install --no-deps chromadb==1.0.15
pip install --no-deps circuitbreaker==2.1.3
pip install --no-deps click== 8.1.7
pip install --no-deps cloudpathlib==0.21.1
pip install --no-deps coloredlogs==15.0.1
pip install --no-deps confection==0.1.5
pip install --no-deps constantly==23.10.4
pip install --no-deps coverage==7.10.2
pip install --no-deps cryptography==44.0.3
pip install --no-deps cssselect==1.3.0
pip install --no-deps cymem==2.0.11
pip install --no-deps dataclasses-json==0.6.7
pip install --no-deps datasets==4.0.0
```

```
pip install --no-deps defusedxml==0.7.1
pip install --no-deps Deprecated==1.2.18
pip install --no-deps dill==0.3.8
pip install --no-deps diskcache==5.6.3
pip install --no-deps distro==1.9.0
pip install --no-deps dnspython==2.7.0
pip install --no-deps docling==2.41.0
pip install --no-deps docling-core==2.44.1
pip install --no-deps docling-ibm-models==3.8.1
pip install --no-deps docling-parse==4.1.0
pip install --no-deps docx2txt==0.9
pip install --no-deps durationpy==0.10
pip install --no-deps easyocr==1.7.2
pip install --no-deps et_xmlfile==2.0.0
pip install --no-deps Events==0.5
pip install --no-deps fastapi==0.115.12
pip install --no-deps filelock==3.18.0
pip install --no-deps filetype==1.2.0
pip install --no-deps flatbuffers==25.2.10
pip install --no-deps frozenlist==1.7.0
pip install --no-deps fsspec==2025.3.0
pip install --no-deps google-auth==2.40.3
pip install --no-deps googleapis-common-protos==1.70.0
pip install --no-deps grpcio==1.74.0
pip install --no-deps gunicorn==23.0.0
pip install --no-deps h11==0.16.0
pip install --no-deps hf-xet==1.1.5
pip install --no-deps httpcore==1.0.9
pip install --no-deps httptools==0.6.4
pip install --no-deps httpx==0.28.1
pip install --no-deps httpx-sse==0.4.1
pip install --no-deps huggingface-hub==0.34.3
pip install --no-deps humanfriendly==10.0
pip install --no-deps hyperlink==21.0.0
pip install --no-deps idna==3.10
pip install --no-deps ifaddr==0.2.0
pip install --no-deps imageio==2.37.0
pip install --no-deps importlib_metadata==8.7.0
pip install --no-deps importlib_resources==6.5.2
pip install --no-deps incremental==24.7.2
pip install --no-deps itemadapter==0.12.0
pip install --no-deps itemloaders==1.3.2
pip install --no-deps Jinja2==3.1.6
pip install --no-deps jiter==0.10.0
pip install --no-deps jmespath==1.0.1
pip install --no-deps joblib==1.5.1
pip install --no-deps jsonlines==3.1.0
pip install --no-deps jsonpatch==1.33
pip install --no-deps jsonpointer==3.0.0
pip install --no-deps jsonref==1.1.0
pip install --no-deps jsonschema==4.25.0
pip install --no-deps jsonschema-specifications==2025.4.1
pip install --no-deps kubernetes==33.1.0
pip install --no-deps langchain==0.3.25
pip install --no-deps langchain-community==0.3.24
pip install --no-deps langchain-core==0.3.72
```



```
pip install --no-deps langchain-experimental==0.3.4
pip install --no-deps langchain-openai==0.3.28
pip install --no-deps langchain-text-splitters==0.3.9
pip install --no-deps langcodes==3.5.0
pip install --no-deps langgraph==0.4.7
pip install --no-deps langgraph-checkpoint==2.0.26
pip install --no-deps langgraph-prebuilt==0.2.3
pip install --no-deps langgraph-sdk==0.2.0
pip install --no-deps langsmith==0.3.45
pip install --no-deps language_data==1.3.0
pip install --no-deps latex2mathml==3.78.0
pip install --no-deps lazy_loader==0.4
pip install --no-deps lightning-utilities==0.15.0
pip install --no-deps litellm==1.74.15.post1
pip install --no-deps loguru==0.7.3
pip install --no-deps lxml==5.4.0
pip install --no-deps marisa-trie==1.2.1
pip install --no-deps markdown-it-py==3.0.0
pip install --no-deps marko==2.1.4
pip install --no-deps MarkupSafe==3.0.2
pip install --no-deps marshmallow==3.26.1
pip install --no-deps mdurl==0.1.2
pip install --no-deps mmh3==5.2.0
pip install --no-deps mpire==2.10.2
pip install --no-deps mpmath==1.3.0
pip install --no-deps multidict==6.6.3
pip install --no-deps multiprocessing==0.70.16
pip install --no-deps murmurhash==1.0.13
pip install --no-deps mypy_extensions==1.1.0
pip install --no-deps nest-asyncio==1.6.0
pip install --no-deps networkx==3.5
pip install --no-deps ninja==1.11.1.4
pip install --no-deps nltk==3.9.1
pip install --no-deps numpy==2.2.6
pip install --no-deps oauthlib==3.3.1
pip install --no-deps oci==2.153.0
pip install --no-deps onnxruntime==1.22.1
pip install --no-deps openai==1.98.0
pip install --no-deps opencv-python-headless==4.12.0.88
pip install --no-deps openpyxl==3.1.5
pip install --no-deps opensearch-py==2.8.0
pip install --no-deps opentelemetry-api==1.36.0
pip install --no-deps opentelemetry-exporter-otlp-proto-common==1.36.0
pip install --no-deps opentelemetry-exporter-otlp-proto-grpc==1.36.0
pip install --no-deps opentelemetry-proto==1.36.0
pip install --no-deps opentelemetry-sdk==1.36.0
pip install --no-deps opentelemetry-semantic-conventions==0.57b0
pip install --no-deps oracledb==3.1.1
pip install --no-deps orjson==3.11.1
pip install --no-deps ormsgpack==1.10.0
pip install --no-deps overrides==7.7.0
pip install --no-deps packaging==25.0
pip install --no-deps pandas==2.3.1
pip install --no-deps parsel==1.10.0
pip install --no-deps pillow==11.3.0
pip install --no-deps pipdeptree==2.26.1
```

```
pip install --no-deps plotly==5.24.1
pip install --no-deps pluggy==1.6.0
pip install --no-deps poetry-core==2.1.3
pip install --no-deps posthog==5.4.0
pip install --no-deps preshed==3.0.10
pip install --no-deps propcache==0.3.2
pip install --no-deps Protego==0.5.0
pip install --no-deps protobuf==6.31.1
pip install --no-deps psutil==7.0.0
pip install --no-deps puremagic==1.30
pip install --no-deps py_eureka_client==0.11.10
pip install --no-deps pyarrow==21.0.0
pip install --no-deps pyasn1==0.6.1
pip install --no-deps pyasn1_modules==0.4.2
pip install --no-deps pybase64==1.4.2
pip install --no-deps pyclipper==1.3.0.post6
pip install --no-deps pycparser==2.22
pip install --no-deps pydantic==2.9.2
pip install --no-deps pydantic-settings==2.10.1
pip install --no-deps pydantic_core==2.23.4
pip install --no-deps PyDispatcher==2.0.7
pip install --no-deps Pygments==2.19.2
pip install --no-deps pylatexenc==2.10
pip install --no-deps pyOpenSSL==24.3.0
pip install --no-deps pypdf==5.5.0
pip install --no-deps pypdfium2==4.30.0
pip install --no-deps PyPika==0.48.9
pip install --no-deps pyproject_hooks==1.2.0
pip install --no-deps python-bidi==0.6.6
pip install --no-deps python-dateutil==2.9.0.post0
pip install --no-deps python-docx==1.2.0
pip install --no-deps python-dotenv==1.1.1
pip install --no-deps python-pptx==1.0.2
pip install --no-deps pytorch-lightning==2.5.2
pip install --no-deps pytz==2025.2
pip install --no-deps PyYAML==6.0.2
pip install --no-deps queuelib==1.8.0
pip install --no-deps ragas==0.3.0
pip install --no-deps ragchecker==0.1.9
pip install --no-deps rank-bm25==0.2.2
pip install --no-deps RapidFuzz==3.13.0
pip install --no-deps refchecker==0.2.17
pip install --no-deps referencing==0.36.2
pip install --no-deps regex==2025.7.34
pip install --no-deps requests==2.32.4
pip install --no-deps requests-file==2.1.0
pip install --no-deps requests-oauthlib==2.0.0
pip install --no-deps requests-toolbelt==1.0.0
pip install --no-deps rich==14.1.0
pip install --no-deps rpds-py==0.26.0
pip install --no-deps rsa==4.9.1
pip install --no-deps rtree==1.4.0
pip install --no-deps s3transfer==0.13.1
pip install --no-deps safetensors==0.5.3
pip install --no-deps scikit-image==0.25.2
pip install --no-deps scikit-learn==1.7.1
```

```
pip install --no-deps scipy==1.16.1
pip install --no-deps Scrappy==2.13.3
pip install --no-deps semchunk==2.2.2
pip install --no-deps service-identity==24.2.0
pip install --no-deps setuptools==80.9.0
pip install --no-deps shapely==2.1.1
pip install --no-deps shellingham==1.5.4
pip install --no-deps six==1.17.0
pip install --no-deps smart_open==7.3.0.post1
pip install --no-deps sniffio==1.3.1
pip install --no-deps soupsieve==2.7
pip install --no-deps spacy==3.8.7
pip install --no-deps spacy-legacy==3.0.12
pip install --no-deps spacy-loggers==1.0.5
pip install --no-deps SQLAlchemy==2.0.42
pip install --no-deps srsly==2.5.1
pip install --no-deps starlette==0.41.3
pip install --no-deps sympy==1.14.0
pip install --no-deps tabulate==0.9.0
pip install --no-deps tenacity==9.1.2
pip install --no-deps thinc==8.3.6
pip install --no-deps threadpoolctl==3.6.0
pip install --no-deps tifffile==2025.6.11
pip install --no-deps tiktoken==0.9.0
pip install --no-deps tldextract==5.3.0
pip install --no-deps tokenizers==0.21.4
pip install --no-deps torch==2.7.1 --index-url https://
download.pytorch.org/whl/cpu
pip install --no-deps torchmetrics==1.8.0
pip install --no-deps torchvision==0.22.1 --index-url https://
download.pytorch.org/whl/cpu
pip install --no-deps tqdm==4.67.1
pip install --no-deps transformers==4.54.1
pip install --no-deps Twisted==25.5.0
pip install --no-deps typer==0.16.0
pip install --no-deps typing-inspect==0.9.0
pip install --no-deps typing-inspection==0.4.1
pip install --no-deps typing_extensions==4.12.2
pip install --no-deps tzdata==2025.2
pip install --no-deps urllib3==2.5.0
pip install --no-deps uvicorn==0.34.2
pip install --no-deps uvloop==0.21.0
pip install --no-deps w3lib==2.3.1
pip install --no-deps wasabi==1.1.3
pip install --no-deps watchfiles==1.1.0
pip install --no-deps weasel==0.4.1
pip install --no-deps websocket-client==1.8.0
pip install --no-deps websockets==15.0.1
pip install --no-deps wrapt==1.17.2
pip install --no-deps xlswriter==3.2.5
pip install --no-deps xxhash==3.5.0
pip install --no-deps yarl==1.20.1
pip install --no-deps zipp==3.23.0
pip install --no-deps zope.interface==7.2
pip install --no-deps zstandard==0.23.0
```

5

Setting Configurations

This topic describes the setting configurations.

AI Foundation services need aif-config.ini, Vault_Config, Wallet_Vectorstore_ADB, and OCI Generative AI service configurations set up before starting the services. The required folder structure is:

```
<root_dir>
  ____aif-config.ini
  ____Vault_Config (config_vault.txt / key_vault.pem)
  ____venv
  ____Wallet_Vectorstore_ADB
```

Follow the below steps to setup the above configurations

Setting aif-config.ini

This topic describes the systematic instructions to setting aif-config.ini.

aif-config.ini

```
[DEFAULT]
register_to_eureka=yes
eureka_server=<eureka_url_ending_with /eureka>
eureka_interservice_prefer_https_metrics=True
eureka_interservice_prefer_https_py=False
eureka_instance_secure_port_enabled=False
eureka_instance_unsecure_port_enabled=True
eureka_use_instance_ip_addr=no
```

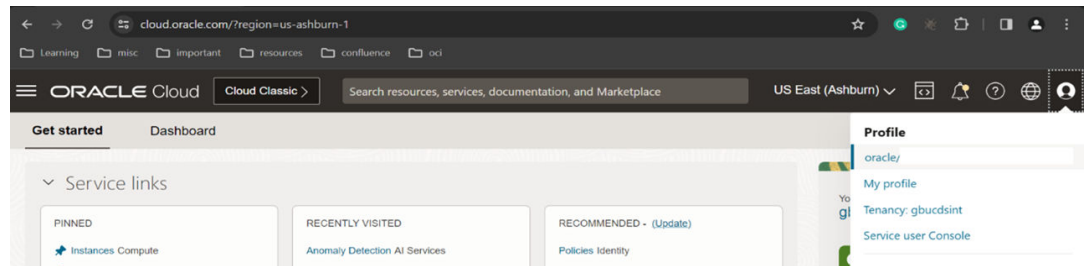
Setting Vault Config

This topic describes the systematic instructions to setting Vault Config.

Note: subscription for the Vault services in OCI is required.

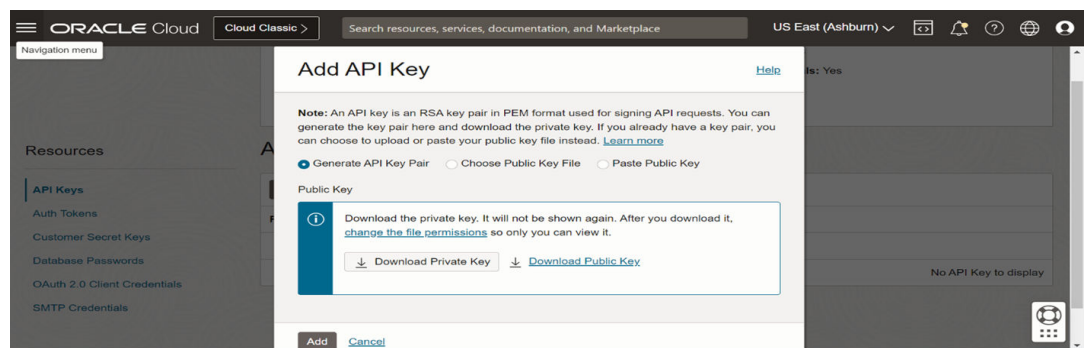
1. Navigate to <root_dir>
2. Create a folder with name **Vault_Config**.
3. Login to OCI, using your credentials. Switch to the region you have Vault services.
4. Click on the user icon → Click on first option oracle/<Your email id>

Figure 5-1 Get Started



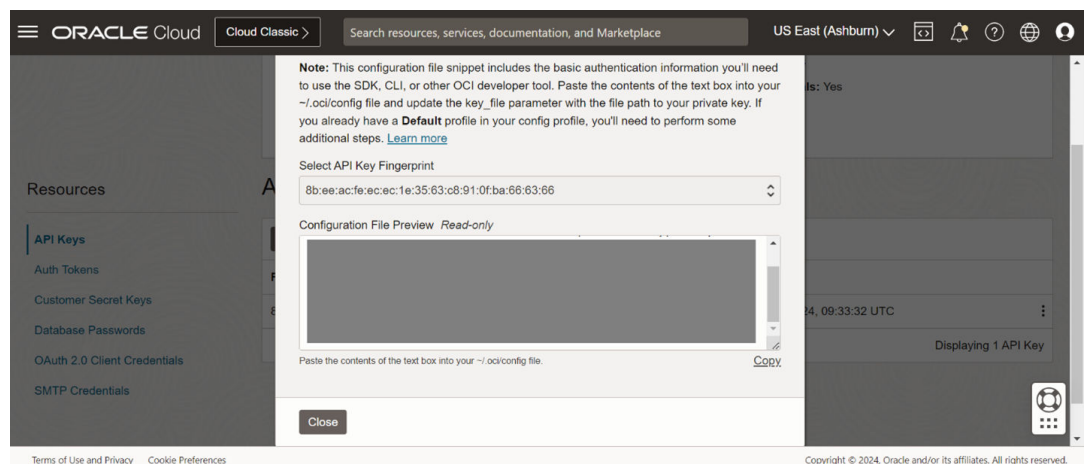
5. Click on the **Add API Key**.
The **Add API Key** popup screen is displayed.

Figure 5-2 Add API Key

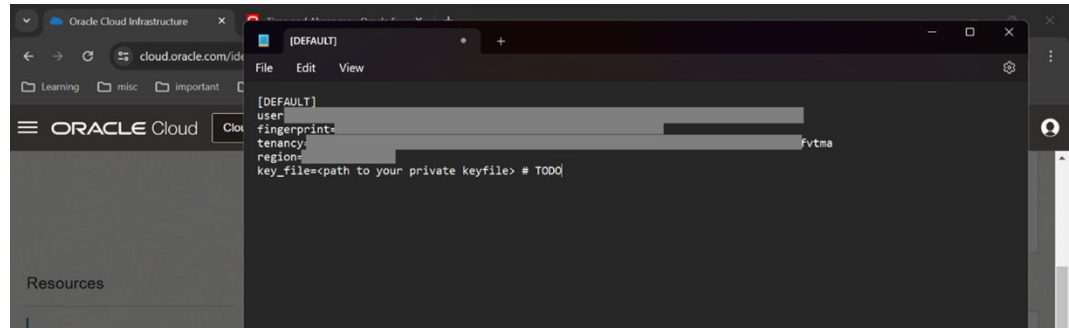


6. Click on **Download Private Key** to download the file from the **Add API Key** screen.
7. Then click on **Add**.
A pop-up window **Configuration File Preview** is displayed.

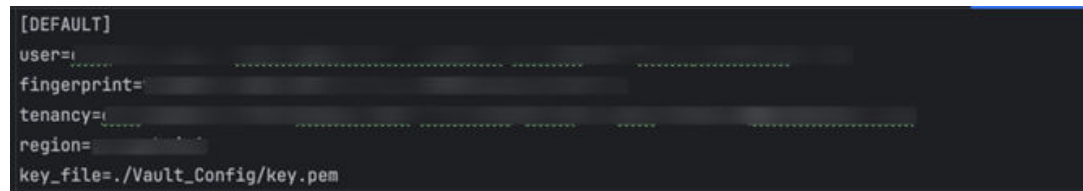
Figure 5-3 Download Private Key



8. Copy the content of the file and save it as a text file named **config.txt**.

Figure 5-4 Configuration File Preview

9. Save the file in the **Vault_Config** folder created (in step 1).
10. Copy the **Private Key** file downloaded (in step 5) in the **Vault_Config** folder created (in step 1) and named it **key.pem**.
11. Edit **config.txt** file and change the key file path to the path of the private file in the secret folder.
For example: `key_file=./Vault_Config/key.pem`

Figure 5-5 config.txt file

12. Save the file **config.txt**.

Setting OCI GenAI credentials

This topic describes the systematic instructions to setting OCI GenAI credentials.

1. Navigate to <root_dir>.
2. Login to OCI using your credentials. Switch to the region you have access to Generative AI services.
3. Follow the steps in the below links to setup API Authentication for OCI Generative AI services .
<https://docs.public.content.oci.oraclecloud.com/en-us/iaas/Content/generative-ai-agents/setup-oci-api-auth.htm#get-config-info>
<https://docs.public.content.oci.oraclecloud.com/en-us/iaas/Content/generative-ai-agents/setup-oci-api-auth.htm#create-local-config>

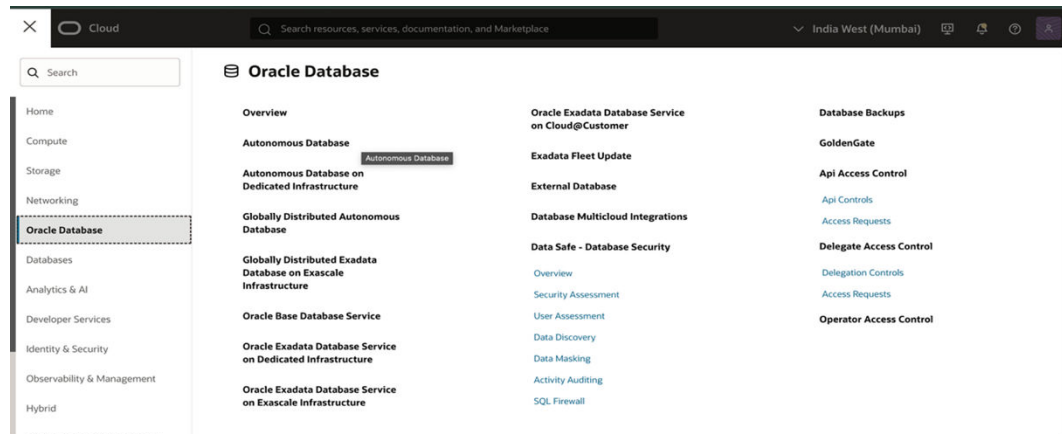
Setting Oracle Autonomous Database Configurations

Setting Wallet Config

This topic describes the systematic instructions to setting configurations.

1. Navigate to <root_dir>.
2. Login to OCI using your credentials and then switch to the region you have access to 23ai Autonomous Database.
3. From the **Menu**, click **Oracle Database**, then click **Autonomous Database**. The **Oracle Database** screen is displayed.

Figure 5-6 Autonomous Database



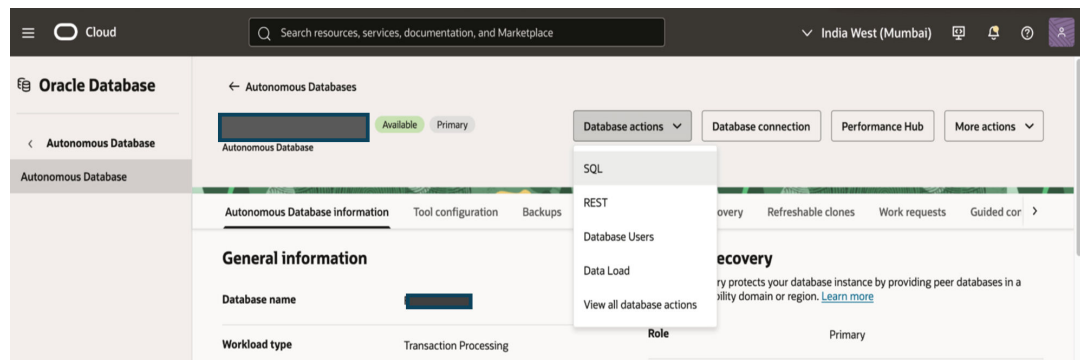
4. Download the wallet and save in <root_dir> as per the instruction specified in this page. <https://docs.public.content.oci.oraclecloud.com/en-us/iaas/autonomous-database-serverless/doc/connect-download-wallet.html#ADBSB-GUID-B06202D2-0597-41AA-9481-3B174F75D4B1>
The wallet will be downloaded as a .zip file.
5. Extract the contents of the zip file to a folder.
6. Rename the folder to Wallet_Vectorstore_ADB.

Creating user, grants and tables in ADB

This topic describes the systematic instructions to creating user, grants and tables in ADB.

1. Login to OCI Using your credentials. Switch to the region you have access to 23ai Autonomous Database.
2. From the **Menu**, click **Oracle Database**, then click **Autonomous Database**.
3. Click **Database Actions** and then click **SQL**.

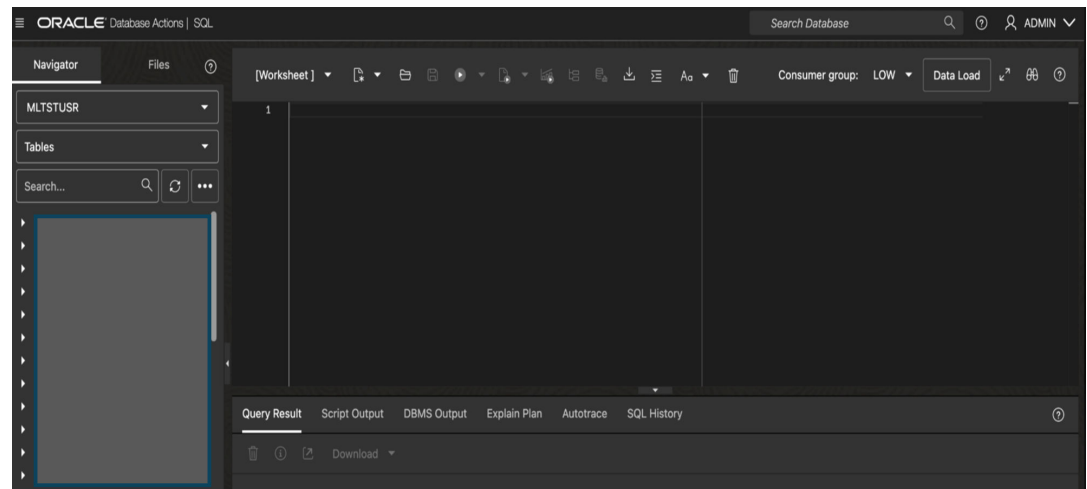
Figure 5-7 Autonomous Database



The **SQL editor** screen is displayed.

4. Select the user.

Figure 5-8 SQL editor



5. Create user and grant the following privileges.
 - a. `CREATE USER <USER_NAME> IDENTIFIED BY <USER_PASSWORD> DEFAULT TABLESPACE <TABLESPACE>;`
 - b. `GRANT CREATE SESSION, CREATE TABLE, CREATE VIEW, CREATE SEQUENCE, CREATE PROCEDURE, UNLIMITED TABLESPACE TO <USER_NAME>;`
6. Switch to the above created user.
7. Next, execute the following SQL commands for each product in the list given below:
 - a. OBCL
 - b. OBRL
 - c. OBCLPM
 - d. OBO
 - e. OBTF
 - f. OBSCF
 - g. OBTFM

```
CREATE TABLE CMC_TB_AIF_EMBEDDING_<PRODUCT>
( BRANCH_CODE VARCHAR2(6 CHAR) NOT NULL ,
  EMBED_SCOPE VARCHAR2(10 CHAR) NOT NULL ,
  USER_ID VARCHAR2(320 CHAR) NOT NULL ,
  USE_CASE VARCHAR2(100 BYTE) NOT NULL ,
  REFERENCE_ID VARCHAR2(100 CHAR) ,
  UPLOAD_DATE DATE NOT NULL ,
  CHAT_ID VARCHAR2(36 CHAR) ,
  ID VARCHAR2(36 CHAR) NOT NULL ,
  PROVIDER VARCHAR2(100 CHAR) ,
  EMBED_MODEL_NAME VARCHAR2(100 CHAR) ,
  DOC_CATEGORY VARCHAR2(100 CHAR) ,
  DOC_NAME VARCHAR2(255 BYTE) ,
  DOC_ID VARCHAR2(22 BYTE) ,
```



```

PAGE_NO NUMBER(4, 0) ,
CHUNK_SEQ NUMBER(15, 0) ,
CHUNK_RAW VARCHAR2(6000 CHAR) ,
VECTOR_EMBEDDINGS VECTOR ,
CONSTRAINT PK_EMBEDDING_<PRODUCT> PRIMARY KEY
(USE_CASE,REFERENCE_ID,DOC_NAME,DOC_ID,PAGE_NO,CHUNK_SEQ) );

CREATE INDEX IDX_CMC_TB_AIF_EMBEDDING_<PRODUCT>

ON CMC_TB_AIF_EMBEDDING_<PRODUCT> (USE_CASE, REFERENCE_ID, DOC_CATEGORY,
DOC_ID);

```

Adding secrets to Vault

This topic describes the systematic instructions to adding secrets to Vault.

The ADB credentials for the Vector store and the key file needed to access OCI GenAI services are kept as secrets in Vault: Add the specified secrets with their names and content to the Vault.

1. aif-23ai-adb-credentials

```

username=<oracle_vectorstore_adb_username>
password=<oracle_vectorstore_adb_password>
dsn=<oracle_vectorstore_adb_dsn_connection_string>
walletPassword=<oracle_vectorstore_adb_wallet_password>

```

2. aif-generative-ai-key-file

- a. contents of .pem file from step: Setting OCI GenAI credentials [setting-oci-genai-credentials-dont-use.xml#GUID-4A948CA0-862D-422B-B56F-FA7261BD0038](#)

3. aif-generative-ai-config-file

- a. contents of config file from step: Setting OCI GenAI credentials [setting-oci-genai-credentials-dont-use.xml#GUID-4A948CA0-862D-422B-B56F-FA7261BD0038](#)

```

[DEFAULT]
user=ocidl.user.oc1...xyzs
fingerprint=ab:cd:xx:xxx:hl
tenancy=ocidl.tenancy.oc1...ab
region=uk-london-1
compartment_id=ocidl.compartment.oc1...abcd
key_file=<path to your private keyfile>

```

6

Starting the services

This topic describes the systematic instructions to starting the services.

1. Set the following proxies and variables:
 - a. `export https_proxy=""`
 - b. `export http_proxy=""`
 - c. `export https_proxy_domain="<domain_name of_above_https_proxy>"`
 - d. `export https_proxy_port=<port_of_above_https_proxy>`
2. Create logs directory.
 - a. `cd <root_dir>`
 - b. `mkdir logs`
3. After installing the wheel package and the dependencies and setting up the configuration files, we can run the AI Foundation services using the below-mentioned commands:
 - a. CMC-AIF-ACCESS-SERVICE
 - i. `nohup uvicorn cmc_aif_access_services.__main__:app --port <PORT> --loop asyncio --host <HOST_NAME> --workers 4 & tail -f nohup.out`
 - b. CMC-AIF-DATA-INGESTION-SERVICES
 - i. `nohup uvicorn cmc_aif_data_ingestion_services.__main__:app --port <PORT> --loop asyncio --host <HOST_NAME> --workers 4 & tail -f nohup.out`
 - c. CMC-AIF-EMBEDDING-SERVICES
 - i. `nohup uvicorn cmc_aif_embedding_services.__main__:app --port <PORT> --loop asyncio --host <HOST_NAME> --workers 4 & tail -f nohup.out`
 - d. CMC-AIF-GENERATE-SERVICES
 - i. `nohup uvicorn cmc_aif_generate_services.__main__:app --port <PORT> --loop asyncio --host <HOST_NAME> --workers 4 & tail -f nohup.out`
 - e. CMC-AIF-RAG-SERVICES
 - i. `nohup uvicorn cmc_aif_rag_services.__main__:app --port <PORT> --loop asyncio --host <HOST_NAME> --workers 4 & tail -f nohup.out`
4. To terminate/kill the app, use the `netstat` command to find the `process_id` using the port on which the app is running and then use the `kill` command with the `process_id` of the app as shown below to terminate the application.

```
netstat -nlp | grep <PORT>
kill -9 <process_id>
```

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