Oracle® Financial Services
Investigation Toolkit Installation Guide

Release 8.1.2.9.0

G30143-03

June 2025

ORACLE®

Contents

Preface

1   Pre-Installation

2   Installation

A   Appendix

ORACLE

Document Control

This topic lists the document control of this guide.

Table   Document Control

Version Number	Revision Date	Change Log
1	April 2025	Updated the document for the 8.1.2.9.0 release.
2	June 2025	Updated the document for BD schema as a source.

Preface

This section provides information of the Oracle Financial Services (OFS) Investigation Toolkit Installation Guide.

Audience

The Installation Guide is intended for system engineers responsible for installing and configuring the OFS Investigation Toolkit Application's components. The document assumes that you have experience in installing Enterprise components and basic knowledge about the following is recommended:

- PGQL and PGX
- UNIX commands
- Database concepts

Related Resources

This section identifies additional resources to the OFS Investigation Toolkit. You can access additional documents from the Oracle Help Center.

Abbreviations

The following table lists the abbreviations used in this document.

Table 1   Abbreviations Used in This Guide

Abbreviation	Meaning
OFS	Oracle Financial Services
AAI	Analytical Applications Infrastructure
PGX	Parallel Graph Analytics
PGQL	Property Graph Query Language
LHS	Left Hand Side
OFSAA	Oracle Financial Services Analytical Applications
FCGM	Financial Crime Graph Model
FCDM	Financial Crime Data Model
SQL	Structured Query Language
ECM	Enterprise Case Management
AML	Anti-money Laundering
BD	Behavior Detection
OOB	Out-of-the-Box

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customer access to and use of Oracle support services will be pursuant to the terms and conditions specified in their Oracle order for the applicable services.

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and 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.

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.

Comments and Suggestions

Please give us feedback about Oracle Applications Help and guides! You can send an e-mail to: https://support.oracle.com/portal/.

1
Pre-Installation

This section provides information about the tasks that must be performed before installing the Oracle Financial Service (OFS) Investigation Toolkit application.

Prerequisites

The installation of this application depends on prerequisites as described in the following table.

Table 1-1   Prerequisites for Installing the Investigation Toolkit

Component	Version/Patch

Compliance Studio	• Apply patch **37649413** (8.1.2.9.0)
	• Apply patch **37865671** (8.1.2.9.1)
	NOTE: To install Compliance Studio, see OFS Compliance Studio Installation Guide.
	NOTE: This is applicable only for Investigation Toolkit use case (L1 and SI notebook):
	If Compliance Studio is installed with BD schema as a source, to make the Red Flags and Risk Factors paragraphs of L1 and SI notebooks:
	
	1. Navigate to the directory:
	`<COMPLIANCE_STUDIO_INSTALLATION_PATH>/deployed/mmg-home/mmg-studio/interpreter-server/pgx-interpreter-23.4.15/conf`
	
	2. Open the `graph-client.properties` file and update the **ecmWalletAlias** with ECM schema name.
	For example: ecmWalletAlias=<test ECM alias>
	
	3. Restart Compliance Studio
	
	4. Perform the above steps in `graph-client.properties` file the following directory:
	`<COMPLIANCE_STUDIO_INSTALLATION_PATH>/mmg-home/mmg-studio/interpreter-server/pgx-interpreter-23.4.15/conf`

ECM	To install ECM, see OFS Enterprise Case Management Installation Guide.
ECM-Investigation Toolkit	Apply patch **36972839_GENERIC.zip** . **NOTE:**Apply this generic patch on ECM even if ECM IH Integration is available.

Download the Installer Kit

To download the software as a .zip folder, download the installer **37876907** for **v8.1.2.9.0** release from My Oracle Support (MOS).

> ✎ **Note:**
>
> Copy the downloaded installer archive to the Download Directory (in Binary Mode) on the setup identified for OFS Compliance Studio installation.

Extract the Installer Kit

Once you downloaded the installer, copy the installer (in BINARY mode) to the system on which the OFSAA Infrastructure components will be installed.

> ✎ **Note:**
>
> You must be logged in to the UNIX operating system as a non-root user.

To extract the downloaded .zip file, extract the `OFS_FCCIH_8.1.2.9.0.zip` file from the installer in the download directory using the following command.

```
unzip OFS_FCCIH_8.1.2.9.0.zip
```

2
Installation

Perform the following steps to complete the installation.

Prerequisites:

- Ensure that Compliance Studio is installed.

- Ensure to execute the out-of-the-box graph FINANCIAL_CRIME_GLOBAL_GRAPH before using Investigation Toolkit for ECM Integration L1, Special Investigation, and ECM Case Narrative notebooks.

- ECM-Investigation Toolkit integration is required. For more information, see the ECM-Investigation Toolkit Integration section.

2.1 Configuring PGX Interpreter for Investigation Toolkit

To configure PGX interpreter:

1. Obtain the zip file and extract (unzip) it on the Compliance Studio Linux Server at any path; this path is referred to as **<INVESTIGATION_TOOLKIT_INSTALLATION_PATH>**.

2. To extract the downloaded .zip files, execute the following command.

   ```
   unzip OFS_FCCIH_<Version>.zip
   ```

3. Navigate to the `<INVESTIGATION_TOOLKIT_INSTALLATION_PATH>/bin` directory.

4. Open the **config.sh** file.

5. Update the value of **COMPLIANCE_STUDIO_INSTALLATION_PATH** parameter by providing the value of the path where Compliance Studio is installed.

   Example: /scratch/user/OFS_COMPLIANCE_STUDIO

6. Save the file.

7. Execute install.sh file using the `./install.sh` command.

   This will copy the investigation_toolkit-<version>.jar into PGX Interpreters' extralib path.

   If an older investigation_toolkit-<version>.jar is present, then the script will take a backup and update the jar.

   Console output when older jar is backed up as given below.

   ```
   bash $ ./install.sh
   [INFO] creating backup of Investigation Toolkit's library
   [INFO] Back up of Investigation Toolkit's library successful
   [INFO] Removing Investigation Toolkit's library
   [INFO] Removed Investigation Toolkit's library successfully.
   [INFO] Copying Investigation Toolkit's library
   [INFO] Copied Investigation Toolkit's library successfully.
   [INFO] Please restart Compliance Studio
   ```

> **Note:**
>
> The following statements about backup of Investigation Toolkit is applicable only after the installation:
>
> ```
> [INFO] Back up of Investigation Toolkit's library successful
> [INFO] Removing Investigation Toolkit's library
> [INFO] Removed Investigation Toolkit's library successfully.
> ```

8. If an older jar needs to be restored, follow these steps:

    a. Replace the `investigation_toolkit-<version>.jar` in the `<OFS_COMPLIANCE_STUDIO_INSTALLATION_PATH>/deployed/mmg-home/mmg-studio/interpreter-server/pgx-interpreter-<version>/extralibs` directory with the backed-up jar present in the `<INVESTIGATION_TOOLKIT_INSTALLATION_PATH>/backup` directory.

    b. Restart Compliance Studio.

9. Restart Compliance Studio.

2.2 Importing Notebooks

The Investigation Toolkit contains the ECM Integration L1, Special Investigation, ECM Case Narrative and Investigation Flow Template notebooks.

These notebooks are available in the `<INVESTIGATION_TOOLKIT_INSTALLATION_PATH>/notebook` directory. A copy of each notebook is present in `<INVESTIGATION_TOOLKIT_INSTALLATION_PATH>/notebook-with-source-code` directory. These copies contain code in each paragraph and can be used to deep-dive into implementation and customize it if required.

> **Note:**
>
> The `notebook-with-source-code` is applicable only for ECM Integration L1, Special Investigation and ECM Case Narrative.

To import notebooks:

1. Navigate to the `<INVESTIGATION_TOOLKIT_INSTALLATION_PATH>/notebook` directory and download notebooks to the local directory.

2. Login to the Data Studio application.

    `https://<Host_Name>:<Port_Number>/cs`

    Here <Port_Number> is **7008** for the Data Studio application installed on-premise.
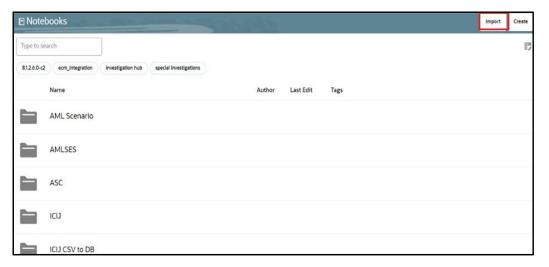
> **Note:**
>
> The default port number is 7008. However, the port number can be customized while deploying Compliance Studio. Reach out to the Compliance Studio installation team if the port number is customized.

> **Note:**
>
> If the user is logging in for the first time, then login to Compliance Studio first and then access the Data Studio.
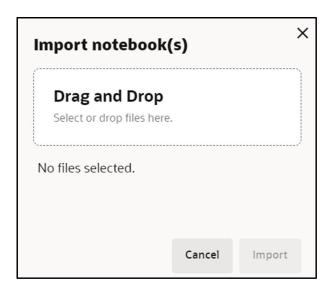
Once logged in, the Notebooks page is displayed.

Figure 2-1   Notebooks page

3. Click **Import**. The Import notebook(s) page is displayed.
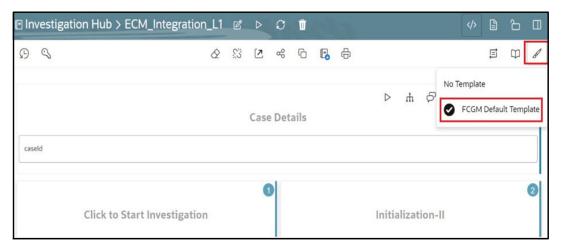
Figure 2-2   Import Notebooks Page

4. Click **Drag and Drop**and select the downloaded notebooks from the local directory.

5. Click **Open**. The selected notebooks are added to the Import notebook(s) page.

6. Click **Import**. These notebooks will be imported and available in the Investigation Toolkit folder.

7. Navigate to the **Investigation Toolkit** folder and click the required notebook. The following page is displayed.

Figure 2-3   Setting Default Template

8. Click **Update Notebook Template** and select **FCGM Default Template** to access the notebook.

> **Note:**
>
> This step is required only when the FCGM Default Template is not selected automatically.

2.2.1 Importing Notebooks with Source Code

Users can import the notebook through source code for accessing the Investigation Toolkit notebooks.

> **Note:**
>
> This section is an alternative approach for importing the notebook and this is optional.

To import notebooks-with-source-code:

1. Navigate to the `<INVESTIGATION_TOOLKIT_INSTALLATION_PATH>/notebook-with-source-code` directory.

2. Download notebooks to the local directory.

3. Import notebook-with-source-code using Compliance Studio's Data Studio.
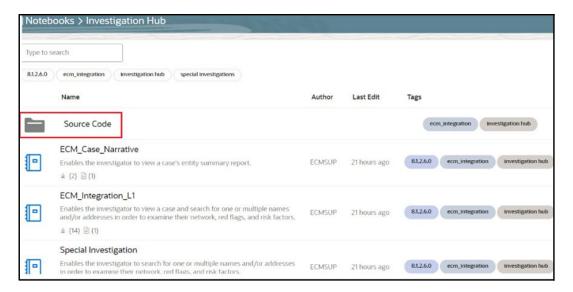
   Once imported, these notebooks will be available in the **Investigation Toolkit** > **Source Code** folder as shown below.

> ✎ **Note:**
>
> Contact My Oracle Support (MOS) for more information on the customization and maintenance of the source-code based notebooks.

Figure 2-4   Source Code
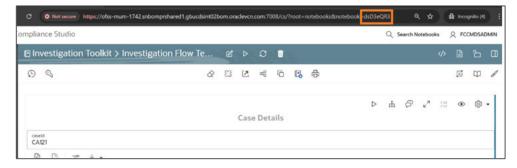
2.3 How to Get Template Notebook ID

To get template notebook ID:

1. Import notebook template to the Data Studio and open the notebook.

2. Once the template notebook is opened, copy notebook id from the URL.

   For example, URL: https://testserver.com:7008/cs/?root=notebooks&notebook=dsD3eQR3

   As per the above example, the notebook id is **dsD3eQR3**.

Figure 2-5   Investigation Flow Template Notebook

3. In ECM Atomic Schema, replace the template notebook id in these **FCC_CM_CTYPE_NB_MAPPING** and **FCC_CM_NB_GROUPS** tables.

4. Add the template notebook id and pdf template id mappings in the **FCC_CM_NB_AND_PDF_TMPLT_MAPPING** table.

2.4 ECM-Investigation Toolkit Integration

This section tells how to set up ECM with Investigation Toolkit.

To set up ECM:

1. Download the ECM-Investigation Toolkit patch (as mentioned in the prerequisite).

2. Copy the zip file to the ECM server and extract it to any directory in the ECM webapp server.

3. Open the `Readme.txt` file and follow the instructions to set up ECM which is present inside the extracted directory.

4. Ensure ECM trusts Compliance Studio's SSL Certificate by following the respective Web Server deployment.

> **Note:**
>
> There is an alternate way to trust Compliance Studio's SSL certificate. For more information, see the Trusting Compliance Studio's SSL section.

5. Restart the OFSAA App Server and Web Server.

2.5 Generating SSO API Token

This section describes how to generate SSO API token.

To generate the API token:

1. Navigate to the `<COMPLIANCE_STUDIO_INSTALLATION_PATH>/mmg-home/bin` directory.

2. Execute the `./token-generator.sh ECM_API_USER` script with any value as ECM API User.

   The value of the SSO Token will be available in the **token.outfile** of the same directory.

> **Note:**
>
> If any changes are made in the **public.key** and **private.key** files, then the user must re-generate the SSO API token.

2.6 Configuring ECM-Investigation Toolkit Integration

Investigation Toolkit is integrated with ECM to enable Case Investigators to access additional rich information about a case such as a case summary, a detailed narrative about case entities, graph view of a case, and so on, which is otherwise not available in ECM.

ORACLE®

> **Note:**
>
> - **Prerequisite**: Apply the ECM-Investigation Toolkit patch (36031993).
> - In the case of an upgrade, all groups present in the FCC_CM_CTYPE_NB_MAPPING table have been moved to the FCC_CM_NB_GROUPS table.

Configure the schemas as described in the following table.

Table 2-1   Configuration Table for ECM-Investigation Toolkit Integration

Schema	Table Name	Description
Atomic Schema	FCC_CM_STUDIO	Compliance Studio details
Atomic Schema	FCC_CM_CTYPE_NB_MAPPING	This table stores the mapping between case type and template notebook id.
Atomic Schema	FCC_CM_NB_GROUPS	This table stores the mapping between notebook id and user group.
Atomic Schema	CS_IH_KDD_CASE_STATUS_MAP	This table stores the mapping between IH case status and KDD case status.
Atomic Schema	FCC_CM_NB_AND_PDF_TMPLT_MAPPING	This table stores mapping between pdf template Id and notebook id. **Note**: The FCC_CM_NB_AND_PDF_TMPLT_MAPPING table is applicable only to the Investigation Flow Template.
Atomic Schema	FCC_CM_NB_CODE_MAPPING	This table will store the mapping between template notebook, interpreter, case initialization and case update code snippet.

2.6.1 Configuring FCC_CM_STUDIO Table

Update the FCC_CM_STUDIO database table in ECM by replacing the placeholders with the user-specified values to integrate Investigation Toolkit with ECM.

The following table describes the placeholders that must be replaced with the required values, which will replace the corresponding rows in the FCC_CM_STUDIO database table.

> **Note:**
>
> - The keys **DATA_STUDIO_URL**, **DATA_STUDIO_API_VERSION**, **DATA_STUDIO_SSO_TOKEN**, **GRAPH_SERVICE_URL**, and **DATA_STUDIO_DOMAIN_NAME** are mandatory. The remaining keys are optional, and some have default values assigned. Optional parameters should be updated only when necessary.
>
> - During an upgrade, the username and password parameters in the FCC_CM_STUDIO table are deprecated and replaced by the DATA_STUDIO_SSO_TOKEN value.

Table 2-2   FCC_CM_STUDIO Table Details

N_ID	V_KEY	V_VALUE	Description
1	DATA_STUDIO_URL	##DATA_STUDIO_URL##	Data studio URL.
			https://<FULLY QUALIFIED HOSTNAME OF CS>:<DATASTUDIO PORT NO>/cs. For example, https://testserver.com:7008/cs
2	DATA_STUDIO_API_VERSION	##DATA_STUDIO_API_VERSION##	Data studio API version. Replace placeholder to 20230913
3	DATA_STUDIO_SSO_TOKEN	##DATA_STUDIO_SSO_TOKEN##	Data studio API token
4	GRAPH_SERVICE_URL	##GRAPH_SERVICE_URL##	Graph service URL
			https://<FULLY QUALIFIED HOSTNAME OF CS>:<GRAPH SERVICE PORT NO>/graph-service
			Ex: https://testserver.com:7059/graph-service
5	DATA_STUDIO_SYSTEM_ADMIN_USER	MMGUSER	Data studio system admin user.
			Default value: MMGUSER
6	DATA_STUDIO_SYSTEM_ADMIN_ROLE	DSUSRGRP	Data studio system admin role.
			Default value: DSUSRGRP
7	NOTEBOOK_NAME_PATTERN	ECM Case {CASE_ID} Notebook	Notebook name pattern. {CASE_ID} is replaced with case id value.
8	CASE_FIRST_PARAGRAPH_TITLE	Case Details	First Paragraph title name of ECM IH template notebook

Table 2-2   (Cont.) FCC_CM_STUDIO Table Details

N_ID	V_KEY	V_VALUE	Description
9	FL_HIDE_TOOL_BAR_ACTIONS	TRUE	Flag to hide tool bar actions in notebook. Accepts Values: TRUE or FALSE
10	FL_HIDE_ADD_PARA_ACTIONS	TRUE	Flag to hide add paragraph action in notebook. Accepts Values: TRUE or FALSE
11	FL_HIDE_PARA_ACTIONS	FALSE	Flag to hide paragraph actions in notebook. Accepts Values: TRUE or FALSE
12	FL_HIDE_PARA_CODE	TRUE	Flag to hide paragraph code. Accepts Values: TRUE or FALSE
13	FL_EXEC_PRE_PROC_REFRESH_CASE	TRUE	Flag to execute pre - procedure in refresh case. Accepts Values: TRUE or FALSE
14	FL_EXEC_POST_PROC_REFRESH_CASE	TRUE	Flag to execute post procedure. Accepts Values: TRUE or FALSE
15	DURATION_AUTH_TOKEN_RENEW	PT3H	Duration for renewal of auth token. Default value is PT3H. The auth token will be refreshed every 3 hours.
16	DURATION_NOTEBOOK_ACTIVITY_STEP	PT1M	Duration for notebook activity step. Default value: PT1M. for every 1M. we track notebook activity
17	DURATION_NOTEBOOK_ACTIVITY_INTERVAL	PT10M	Duration for notebook activity interval. Default value: PT10M. Next request to track notebook activity is will be after this duration from last activity duration.
18	DURATION_NOTEBOOK_ACTIVITY_MAX_SLEEP	PT3H	The max duration to wait before verifying the activity in the notebook.
			Default value: PT3H
19	ACTIVE_USER_COUNT	200	Active user count.
20	FL_TRACK_ACTIVITY_IN_NOTEBOOK	TRUE	Flag to track activity in notebook. Accepts Values: TRUE or FALSE
21	FL_LOG_TRACK_ACTIVITY_IN_NOTEBOOK	TRUE	Flag to log tracked activity in notebook. Accepts Values: TRUE or FALSE

Table 2-2   (Cont.) FCC_CM_STUDIO Table Details

N_ID	V_KEY	V_VALUE	Description
22	FL_CACHE_IH_CONFI GURATION	FALSE	Flag to cache IH configurations. Accepts the value TRUE or FALSE.
			If the value is set to TRUE, all the configurations fetched initially will be cached.
23	FL_LOG_NOTEBOOK_ REST_DETAIL	FALSE	Flag to log notebook rest detail. Accepts the value TRUE or FALSE.
24	N_DB_CONNECTION_T RY_COUNT	5	Connection try to DB before timeout
25	N_DB_CONNECTION_ WAIT_MILLIS	1000	Wait time for connection setup.
26	DURATION_HTTP_REA D_TIMEOUT	PT2M	http read duration timeout
27	DURATION_HTTP_CON NECTION_TIMEOUT	PT2M	http connection timeout
28	FL_MASK_NOTEBOOK _REST_RESPONSE	FALSE	
29	DATA_STUDIO_DOMAI N_NAME	##DOMAIN_NAME##	Domain name where datastudio is installed
30	DATA_STUDIO_COOKI E_NAME	ORA_OLDS_SESSION	Cookie name, this name cookie will be saved in browser while logging in.
31	LB_DATA_STUDIO_STI CKY_COOKIE_NAME	ORA_OLDS_TEST	Sticky cookie name while load balancer is active
32	FL_LOAD_BALANCED_ STUDIO	FALSE	Flag for load balancer active or not
33	NO_OF_LOAD_BALAN CER_INSTANCES	2	No of load balancer instances
34	INTERPRETER	java	Default interpreter for notebook.
35	CODE_CASE_INIT	out.println(caseId);	Case initialization code snippet for the default interpreter.
36	CODE_UPDATE_CASE	ihub.initializeVisibleGrap h(visible_graph); out.println(generateUpda teCaseButtonOutput());	Case update code snippet for the default interpreter.

A

Appendix

This section provides additional information that supports the installation activity.

A.1 Trusting Compliance Studio's SSL Certificate

You can generate an SSL certificate.

To generate an SSL certificate, see **Import the certificate to JDK security** section in the OFS Compliance Studio Installation Guide.

A.2 Notebook Cleanup

You have two approaches to cleanup the notebook:
Approach 1: Instant Notebook Deletion

If you want to delete a notebook or particular case in the notebook from the Data Studio screen, the case ID and notebook ID mappings must be removed from the FCC_CM_CASEID_NB_MAPPING table in the ECM atomic schema.

1. Log in to the Data Studio screen.

2. Click **Select Notebooks** and select the notebook to be deleted.

3. Click **Delete Notebooks**. The selected notebook is deleted.

Approach 2: Mark Notebook for Deletion

1. Update the value as R in the **F_DELETE** column of the FCC_CM_CASEID_NB_MAPPING table.
    Once a notebook is marked for deletion, it will be automatically deleted during the archival process run.