Oracle Financial Services Investigation Hub

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OFS Investigation Hub User Guide

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Document Control

Table 1 lists the document control of this guide.

Table 1: Document Control

Version Number	Revision Date	Change Log
8.1.2.4.0	August 2023	Removed features related to review alerts generated by ML models in the Key Features section.
8.1.2.4.0	June 2023	Deprecated L2 and Generate Correlation Networks notebooks. Updated note in the Viewing the Entity Summary Historical Report section. Removed the "Investigator Brief" section.
8.1.2.1.0	December 2022	 OJET Upgrade (all UI elements are updated according to UI in the entire document). Renamed Advanced Options to Model Pipelines in the entire document. Updated screen in the Investigation Summary section.
8.1.2.0.0	April 2022	 Modified the following sections: Updated the heading for Case related Features, Importance and Description section. Removed Investigator Guidance section.
8.1.1.0	December 2021	There is no content update from the previous version. Only version number has been changed.
8.1.1.0.0	October 2021	This is the first version created for IH 8.1.1.0.0 release based on OFS Compliance Studio 8.1.1.0.0 release.

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1 Preface

This section provides the functional and navigational information about the Oracle Financial Services Investigation Hub (OFS IH) application.

Topics:

- Summary
- Documentation Accessibility
- Audience
- Related Documents
- Conventions
- Abbreviations

1.1 Summary

You can find the latest copy of this document in the Oracle Help Center (OHC) Documentation Library which includes all the recent additions/revisions (if any) done to date.

1.2 Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website.

1.3 Audience

The Oracle Financial Services Investigation Hub User Guide is intended for end-users such as Data Analysts and Data Scientists.

1.4 Related Documents

This section identifies additional documents related to the OFS IH application.

The following OFS IH documents are available in Oracle Help Center Documentation Library:

- Oracle Financial Services Investigation Hub Installation Guide
- Oracle Financial Services Investigation Hub Administration and Configuration Guide
- Oracle Financial Services Investigation Hub Release Notes

1.5 Conventions

Table 2 lists the conventions used in this document.

Table 2: Co	nventions Used	in This Guide
-------------	----------------	---------------

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 on the screen, or text you enter.

1.6 Abbreviations

Table 3 lists the abbreviations used in this document.

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
OFS IH	Oracle Financial Services Investigation Hub
FCGM	Financial Crime Graph Model
FCDM	Financial Crime Data Model
SQL	Structured Query Language
IH	Investigation Hub
ECM	Enterprise Case Management
AML	Anti-money Laundering
BD	Behavior Detection
OOB	Out-of-the-Box

Table 3:	Abbreviations	Used in	This Gui	ide
Table J.	ADDIEVIALIONS	Useu III	11113 Ou	iue

2 About Oracle Financial Services Investigation Hub

This chapter provides a brief overview of the OFS IH application.

2.1 Introduction

OFS IH is an application built on OFS Compliance Studio which allows investigators to rapidly view the case and ad-hoc information within the FCGM. The in-built scoring, matching, and correlation engines create meaningful units of investigation, and pre-configured red flags and risk factors target investigative effort effectively. The FCGM on which it is built accelerates investigations by bringing relevant information sources together, preventing the need for the manual collation of information from disparate sources for ad-hoc investigations. OFS IH automatically generate case narratives and insights, highlights risk factors, and red flags which are meaningful to the investigation and recommend actions based on graph scoring algorithms.

2.1.1 Key Features

- Pre-built user interfaces for case investigation and special investigation
- Configurable red flags and risk factors to highlight key areas for investigation
- Case summary in narrative format and case recommendation
- In-built correlation and scoring algorithms. It is applicable only for non-ECM customers
- Exploration of the financial crimes global-graph using an interactive and visual Graph Explorer tool.
- Integrates fully with FCDM (data can be loaded directly from Behavior Detection (AML) or ECM instance) and ICIJ data sources. It can be enhanced to support other data sources such as watchlist and company hierarchy data
- It is built on OFS Compliance Studio, which includes a highly scalable in-memory Oracle Graph Analytics Engine (PGX), AI, and machine learning.

3 Investigating Business Entity

You can search the graph nodes with attributes (Name, TaxID, Address, and Date) that include business entities (customers, address, and so on), events, and external entities. After searching the graph node, you can investigate the network of that node. The business entity network shows the connection of an entity with other entities based on correlation.

For more information, see **Appendix** section in the Oracle Financial Services Investigation Hub Administration and Configuration Guide.

The paragraphs in the Special Investigation are as follows:

- Access the OFS Compliance Studio application
- Import the Notebook
- Access the Investigation Hub Objective
- Special Investigation (SI) Notebook

3.1 Access the OFS Compliance Studio application

To access the OFS Compliance application, follow these steps:

1. Enter the URL in the following format in the web browser:

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

Here <Port_Number> is 7001 for the OFS Compliance Studio application installed on-premise.

2. The OFS Compliance Studio application login page is displayed.

Figure 1: OFS Compliance Studio Login Page

	Oracle Financial Services Compliance Studio
ORACLE	Log In A
	Copyright © 2020, 2022. Oracle and/or to affiliates.

- 3. Enter the **Username** and **Password**.
- 4. Click Login.
- 5. After login into the OFS Compliance Studio application, the Workspace Summary page is displayed.

Workspace Summary		Add Workspace
Sandbox 2	Production 🦻 👗	
Q Search		EĒ
💷 May 15, 2023, 11:16:01 PM	🛤 May 15, 2023, 11:16:01 PM	
BD BD production workspace SYSADMN	CS Default production workspace for Compliance Studio FCCMDSADMIN	
0 4		
(1-2 of 2 items) < (1) →	Х	

3.2 Import the Notebook



For IH Notebook to be executable, it needs to be imported into the **Sandbox** workspace.

For more information on how to import notebooks, see the **Installing the Software** section in the Oracle Financial Services Investigation Hub Installation Guide.

3.3 Access the Investigation Hub Objective

The Investigation Hub objective (folder) displays the Special Investigation Notebook that are mapped to the role of the logged-in user and also displays the details of each Notebook, such as Notebook name, Notebook details, date when the Notebook is published, and related tags. The Detailed Information section includes the date and time of Notebook creation, the number of compilations performed using different interpreters in a Notebook, and the username of the Notebook creator.

To access the Investigation Hub Objective, follow these steps:

- 1. Log in to the Compliance Studio application.
- 2. On the **Workspace Summary** page, click Launch next to the SI workspace. The Workspace Dashboard is displayed.
- 3. Click **Model Pipelines** $\stackrel{\bigstar}{\sim}$ to display the Model Pipelines page.
- 4. Click the **Investigation Hub** Objective. Ensure that the following notebooks are available in the Investigation Hub objective:
 - Investigation Hub_Special_Investigation
 - Investigation Hub_ECM_Integration_L1

Figure 3: Investigation Hub Objective

-	del Pipe	elines / Investigation HUB					Add 👻	<u>R</u> & 2
Q	Search		1 11 113 1			156 in 10 🗰 🚺 🖬 7771	7177 4 21	E®
	Obje	tive Name		ID	Owner	Tags		
	D	L1 Enables the investigator to view a case and sea		1684235213103	FCCMDSADMIN	ecm_integration nub		
	C	SI Enables the investigator to search for one or m		1684235305831	FCCMDSADMIN	investigation special hab investigations		

5. Click 🖤 next to the corresponding notebook and select **Open in Pipeline Designer** option. The following window is displayed.

Figure 4: L1 Notebook

*	L1 Enables the investigator to view a case and search for one or multiple names and/or addresses in order to examine their network, red flags, and risk factors. 🖉	Parameter Sets Publish	Model Report	Delete	Download
Version	1684235215103 dsK5o68g May 16, 2025, 4:56:55 PM				
=	Image: Second		Draft auto-	save is on	C
ري بي الله الله				Default Scoring Training Experir	2
% *		°ф —	°	→ P@	
			All Transactio	Graph Result	0

6. Click on the **Notebook** tab. The notebook window is displayed.

network, red flags, and risk factors. A Model ID Notebook ID Greated D	search for one or multiple names and/or addresses in order to exam	ine their Publish
Pipeline Canvas 🖾 Dashboard 🚺 Notebook 🕼	Simulations 👔 Execution History 🛱 Compare	
	⊳ Ø	4 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Versioning 💬 🕄	2 \\$ 4 G 6	Default 🗐 Zeppelin 💭 FCGM Template_1 🖉
₩# Do not delete this paragraph. Also, ensure th	Start widget at this is the first paragraph in the notebook. You may use 'Nove up	▷ fh ở x ⁿ H≣ ③ ♣ • ✓ Hove Down' from Settings to change the paragraph order.
	Case Details	
caseid CA119		
CA119		
CA119	stigation	Initialization-II

Special Investigation (SI) Notebook 3.4

A Notebook is a collection of paragraphs and acts as a container to hold one or more paragraphs. A Paragraph is a piece of code that can be executed to obtain a result. The following seeded notebooks of the OFS IH objective are provided for Investigators:

Fi	gur	e 6: Special Inves	stigatio	n				
8 Mo	del Pipe	elines / Investigation HUB					Add 👻	8 8
Q	Search		997 977					E û
	Obje	ctive Name		ID	Owner	Tags		
	D	L1 Enables the investigator to view a case and sea		1684235213103	FCCMDSADMIN	ecm_integration investigation hab		
	ß	SI Enables the investigator to search for one or m		1684235305831	FCCMDSADMIN	investigation special hab investigations		

Special Investigation notebook enables the investigator to search for one or multiple names and/or addresses to examine the network, red flags, and risk factors.

To open the notebook, follow these steps:

- 1. Navigate to the **Investigation Hub** objective.
- 2. Click next to the Investigation Hub Special Investigation notebook and select **Open in Pipeline Designer** option. The Pipeline Canvas window is displayed.
- 3. Click on the **Notebook** tab. The Special Investigation Notebook window is displayed.

Figure 7: Special Investigation Notebook

X SI Enables the investigator to se and risk factors. /	arch for one or multiple names and/	/or addresses in or	der to examine th	eir network, red flags,	Parameter Sets Publish	Model Report	Delete	Download
Version 0 Model ID Notebook 1684235305831 dsbBWKG		vestigation hub specia	investigations 🧳					
🎗 Pipeline Canvas 📰 Dashboard 🚺	Notebook L Simulations II Execut	tion History ① Co	npare	THE BUILD				
)					
Versioning 💭 🔍		\$ \$ %	6 🖪 6	1	Default 🗐	Zeppelin []]	FCGM Te	mplate_1 🖉
## Do not delete this paragraph.	Also, ensure that this is the first p	Start w	-		> ft 6			88 ▼ order.:
Click to	Start Investigation			Initia	lization-II			
₿ \$ ± •			1	∻ ⊻ ∗				
Created program: 'markNeighbours'			Initialization suc	cessful.				
		Input Sear	h Results					
Tax.ld CU-277	Name	Address		Date 1990-01-01 00:00:00	. 🛱	Use date No	Empl	ty th
50 Minimum Match Score Cutoff in %	Select Indexes(selected			ternal Address 🛛 🛛	Derived Entity	Accour	nt	
Type to search	⊎ △ ※ ∷ △ ③	• 🖃 🕀	₿ \$ ¥	•				
Tax Id ≎	Name 🗘		Address 🗘		Date	0		
CU-277								

NOTE

An Administrator can configure the parameters for Investigation using the Special Investigation notebook.

3.4.1 Starting the Investigation

You can directly start the investigation by executing this paragraph. By default, it executes the relevant customer (business entity) paragraph and displays the Initialization successful message in the subsequent paragraph.

To execute the paragraph, follow these steps:

- 1. Navigate to the Special Investigation notebook that is assigned for a particular user role.
- 2. Execute **Click to Start Investigation** paragraph. It executes the **Click to Start Investigation** paragraph and also the initialization paragraph automatically.

The successful initialization message is displayed.

Figure 8: Start Investigation Paragraph

Click to Start Investigation	Initialization-II
	B [i ⁰] ⇔ ∓ ▲
Created program: "markNeighbours"	Initialization successful.

3.4.2 Searching for a Business Entity

You can search for an FCDM/ICIJ entity (customer, account), derived entity, address, event, or external entity in the graph to find a similar match.

To search for an entity, follow these steps:

1. Navigate to the **Input Search Results** paragraph.

Figure 9: Input Search Results Paragraph

	Input Search Results	▷ ⋔ ዏ ਯ ≒ ● ֎・
Tax Id CU-277 Name	Address Date 1990-01-01 00	0:00:00 🔁 Use date 🗸 Empty th 🗸
50 Minimum Match Score Cutoff in %	Select Indexes(selected indexes are used for search)	Derived Entity Account
100 <u>■</u> ⋈ ⊪ ছ ⋈ ⊗ △	··· \$ @ @ im 4 * **	

2. Enter the search criteria in the Input Search Results paragraph as described in the Table 4.

Field	Description
Tax ID	Tax ID of the entity (for example, customer tax ID). You must enter the complete Tax ID to get the exact search result.
Name	Name of the entity (for example, customer name). This filters the names by the title of the business entity that matches the search criteria.
Address	Address of the customer.
Date	Date when a business entity (for example, customer name) is added to the system. You must enter the complete date to get the exact match during the search result. The date format must be in DD/ MM/ YYYY.
Use Date	Allows you to enable or disable the Date field.

Table 4: Input Search Results

Empty the Existing Entities List	• Yes : It continues with the existing Search list. The searched items are added to the existing Search list.			
	• No: It displays view the search results in the New search list/ Clears the search list.			
	The individual or combination of the following field values are inputs for the search:			
	Name			
	Address			
	• Date			
	By default, this field value is set as Yes .			
Minimum Match Score	You can set the cutoff value to define the matching criteria.			
Cutoff in %	The records that match (equivalent or more than) the configured cutoff value will be displayed in the search results with the score.			
Select Indexes (selected indexes are used for search)	Select the required index(es) to search results. The available options are:			
	ICIJ External Entity			
	Customer			
	ICIJ External Address			
	Derived Entity			
	Account			

Table 4: Input Search Results

- 3. To reset the searched entities list, use the Empty the Existing Entities List drop-down.
- 4. Run the **Input Search Results** paragraph.

The matched results will display in the Input Search Results paragraph.

Figure 10: Input Search Results Paragraph

Type to search			
Tax Id ⇔	Name 😄	Address 😋	Date 🗘
CU-277			
Page 1 of 1 (1 of 1 items) <	< 1 → > Load More		

3.4.3 Viewing the Initial Screening Results

The Initial Screening Results paragraph allows you to define the conditions based on which the initial screening results are filtered and fetched.

Table 5 describes the conditions to be defined based on which the initial screening results are displayed.

Table 5: Initial Screening Results

Field	Description
Top Critical Matches	The value to decide how many matches you want to view in the search result output.

Table 5: Initial Screening Results

Number of Hops to Pre- Fetch	The number of hops that the search result graph can be expanded.
Number of Hops to Display	The number to decide how many hops must be displayed in the search result graph.

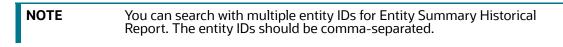
Figure 11: Initial Screening Results

	Initial Scre	ening Results	\triangleright	4 Ø	∠ ⁷ 1=	• 錄 •
Top Critical Matches 10	Number of Hops to Pre-Fetch 5		Number of Hops t 2	o Display		
	⊕ △ ≝ ☆ ≏ ⊕					
Type to search						
Name 🗘 Score 🗘	Entity_ID 🗘 Description 🗘	Tax Id ≎ Date	0	Address 🖒		
	Entity_ID Description CUTRAAC0005 matched_on tax id with score	ld ≎ Date	-	-		ERS SUITE 1038 A

You can view these transactions in various formats. For more information on formats, see the Data Visualization section.

3.4.4 Viewing the Entity Summary Historical Report

Enter the entity ID in the Entity ID field of the Entity Summary Historical Report paragraph after searching for similar names and execute the paragraph. You can get the entity ID from the Initial Screening Results or Input Search Results paragraph.



The Entity Summary Historical Report paragraph allows you to view the historical summary (in text format) of the searched entity ID.

This information includes the following parameters:

- Customer details
- Account Summary
- Compliance Summary
- Risk Factor & Red Flags

To view the historical summary of an entity, navigate to the Entity Summary Historical Report paragraph. The following figure shows a sample of the historical summary of an entity.

Figure 12: Entity Summary Historical Report

	Entity Summary Historical Report	\triangleright	h	Ş	u ⁿ	12	۲	\$
Entity ID CUTRAAC0005								
₽ ■ ₽ 📚 ⊻ •								
The Customer DEPT OF STATE is in our internal records a Entity Type : FIN Date of Birth : 1969-05-03T00:00 Tax ID : CU-277 Address : 1900 HOLIDAY INN TOWERS SUITE 1038 APT City : DELAWARE State : DE Country : US Email : CUTRAAC0005@gmail.com Phone No : 7035210140 Risk Score : 9 Added to the Bank on: 2014-12-31T00:00								
Account Summary								
The Customer has 1 Account(s) with the Bank: -> XXACTRANSRNDAMTAC-005 of type SAV opened on	2014-12-31T00:00							
Total Transactions : 0 Cash Transaction : 0 Mi Transaction : 0 Wire Transaction : 0								
0 High Risk Transactions were identified on the entity. (Cr	iteria for High Risk Transaction : Transaction Risk > 7 ; Party Risk >	- 7)						
Compliance Summary								
0 AML Events were generated for the Customer:								
Risk Factors & Red Flags								
After analysis, we have identified 1 entity(s) shares a come -> Shares Customer- BORDER COOL HILLS with ID - CUT	non link(s) to the searched entity. RAAC0007 with Account called RAO with ID - XXACTRANSRND	AMTAC-	007					

3.4.5 Viewing the Transactions Analysis

This paragraph shows all transactions related to the search entity from the FCDM. In addition, you can filter the transaction details based on the transaction amount specified in the following fields:

- Min Transaction Amount: You enter the minimum transaction amount.
- Max Transaction Amount: You enter the maximum transaction amount.

To view the transaction details, navigate to the Transaction Analysis paragraph.

Figure 13: Transaction Analysis Paragraph Details

				Tra	nsaction Analysi	s	$\[\] \]$	μ	Ŋ	ч ^л	1	۲	گ	•
Min Transaction A	Amount				Max Transacti 10000000									
\$	↓ •													
Entity_A Entity_B	ID_A ID_B	Risk_A Risk_B	Transaction_Type	Transaction_Amount	Transaction_Amounts	Transaction_Currency	Trans	action_	Date	Tr	ansacti	on_Risk		
												16 \$7500	a day	020

You can view these transactions in various formats. For more information on formats, see the Data Visualization section.

3.4.6 Viewing the Graph Result of the Entity Search

This paragraph allows you to view the network graphical representation of the searched entity that was displayed in the Entity Search paragraph.

A typical network graph shows nodes and links. Nodes are entities such as a customer or account. Each node can join to zero, one or many other nodes via a link. Each type of node is associated with a specific icon on the graph. Table 11 describes the icon displayed on the graph for each type of node. For example, for a customer entity, the links of the customer are displayed with other customers, accounts, and so on.

To view the graph result of the entity search, navigate to the Graph Result of Entity Search paragraph. The graphical view is displayed in the Graph Result of Entity Search paragraph.

The following figure shows the sample graph.

Figure 14: Graph Result of the Entity Search Paragraph

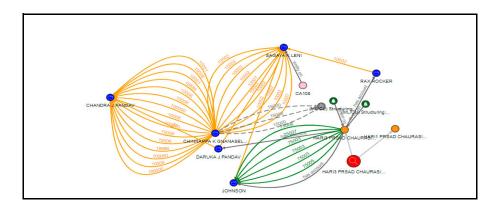
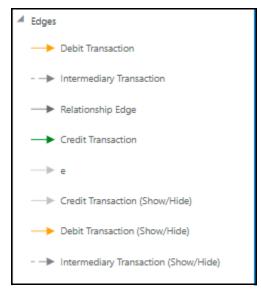


Figure 15: Edges



NOTE	 You must re-execute the paragraph after any modification to view the results in the subsequent paragraphs.
	 This graph will provide the end-to-end transactions (account to derived entity and account to account vice versa) and transactions via correspondent banks. And also, users can switch between them by hiding/showing the transactions. Figure 16: Types of Transaction
	Credit Transaction (Show/Hide)
	> Debit Transaction (Show/Hide)
	> Intermediary Transaction (Show/Hide)

You can perform many actions on a graph. For more information, see the Graph Details.

3.4.7 Viewing the Reference Data Sources

This paragraph shows the reference data of the searched entity from the **All Transactions in Visible Graph** paragraph along with other associated entities.

To view the reference data sources, navigate to the Reference Data Sources paragraph. The following figure shows the sample reference data source details.

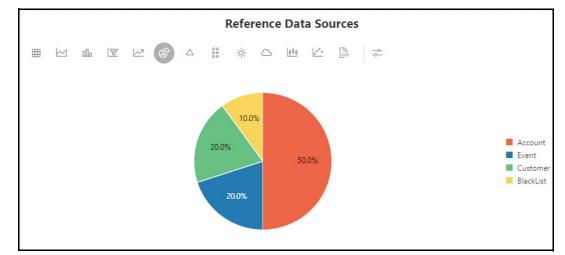


Figure 17: Reference Data Source Details Paragraph

You can view these transactions in various formats. For more information on formats, see the Data Visualization section.

3.4.8 Viewing the Countries

This paragraph shows the countries of the searched entity from the **All Transactions in Visible Graph** paragraph along with other associated entities.

To view the countries, navigate to the Countries paragraph. The following figure shows the sample reference data source details.

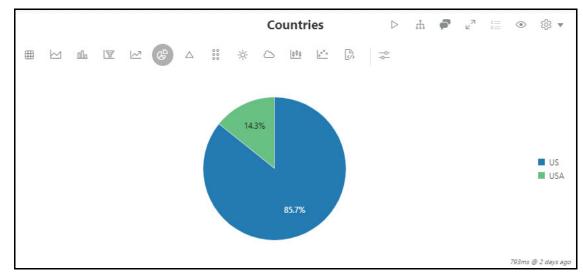


Figure 18: Countries Details Paragraph

You can view these transactions in various formats. For more information on formats, see the Data Visualization section.

3.4.9 Viewing the Risk Factors

This paragraph shows the risk factor details of the searched entity with other associated entities. You can also search for a specific risk factor. For more information, see the **Configuring Risk Factors** section in the Oracle Financial Services Investigation Hub Administration and Configuration Guide.

To view the risk factor details, navigate to the Risk Factor paragraph. The following figure shows the sample risk factor details.

- Hits (Initial): It fetches the information from Result Graph for each item in the Risk Factors.
- **Hits (Investigator)**: It fetches the information from the **Visible Graph** for each item in the Risk Factors.

For more information on Result Graph and Visible Graph, see Graph Types.

Figure 19: Risk Factor Details

	Risk Factors		
■ 🖟 🗢			
Type to search			
Risk Factors	Hits (Initial)	Hits (Investigator)	
Country/Region Hits	0	0	
Prohibited Business List Match	0	0	
High Risk Transaction Present	9	9	
Page 1 of 1 (1-3 of 3 items) K < 1 >	К		4s 487ms @ 2 days ago

3.4.10 Viewing the Red Flags

This paragraph shows the red flag details of the searched entity with associated entities. You can search for a specific risk factor. For more information, see the **Configuring Red Flags** section in the **Oracle Financial Services Investigation Hub Administration and Configuration Guide**.

To view the red flag details, navigate to the Red Flags paragraph. The following figure shows the sample red flag details.

- Hits (Initial): It fetches the information from Result Graph for each item in the Red Flags.
- **Hits (Investigator)**: It fetches the information from the **Visible Graph** paragraph for each item in the Red Flags.

For more information on Initial Graph and Visible Graph, see Graph Types.

Figure 20: Red Flag Details

	Red Flags	\triangleright	₼ 🖗 ⊭" 🗄 👁 🕸	v
■ ▷ ≈				
Type to search				
Red Flags		Hits (Initial)	Hits (Investigator)	
Entities with SARs filed		1	1	
Transactions with payer in r	isky country and beneficiary in tax haven	101	6	
Accounts interacting with s	anctioned entities	3	3	

3.4.11 Viewing the All Transactions in Visible Graph

This paragraph displays information on transactions that are available in **Visible Graph**. For more information, see All Transactions in Visible Graph section.

For more information on Visible Graph, see Graph Types.

3.4.12 Viewing the Network Disposition Score

This paragraph shows the network disposition score based on the nodes' risk on the Visible Graph.

The formula to calculate the network score is "(Total risk of nodes in Visible Graph/ Number of nodes in the Visible Graph) * 10." You can divide the total risk of nodes by the number of nodes in the Visible Graph and multiply the output by 10.

For more information on Visible Graph, see Graph Types.

Figure 21: Network Disposition Score Details

Network Disposition Score	10
21	

For more information, see the **Configuring Network Disposition** section in the Oracle Financial Services Investigation Hub Administration and Configuration Guide.

To view the network disposition score, navigate to the Network Disposition Score paragraph.

3.4.13 Viewing the Network Disposition Score Breakdown

This paragraph shows the details of the network disposition score breakdown based on the visible graph.

To view the network disposition score breakdown, navigate to the Network Disposition Score Breakdown paragraph.

Figure 22: Network Disposition Score Breakdown Details

		Network Disposition Score Breakdown
	ur A	
Type to sear	rch	
Score	Туре	Name
0.0	CASE	
0.0	CASE	
0.0	Event	RICKY NAME GIBSON
0.0	Event	440~ACESCINACTAC-001~FOTRXNESCLINACTAC0001~HHESCINACTAC-001~RICKY
0.0	BlackList	HARI3 PRSAD CHAURASIA
6.0	Account	MICHEL SECOND
6.0	Account	MNOHAR LAL

For more information, see the **Configuring Network Disposition** section in the Oracle Financial Services Investigation Hub Administration and Configuration Guide.

You can view these transactions in various formats. For more information on formats, see the Data Visualization section.

3.4.14 Viewing the Investigation Recommendation

After the case investigation is performed and based on the scores, the recommendation for the case is displayed in the Recommendation paragraph.

The Investigator can investigate the case details and take further action.

For more information, see the **Configuring Investigation Recommendation Score** section in the Oracle Financial Services Investigation Hub Administration and Configuration Guide.

To view the investigation recommendation, navigate to the Recommendation paragraph.

Figure 23: Viewing the Investigation Recommendation

Recommendation	\triangleright	h	к ₃	1=	۲	 ₩
Low Risk Network						

Following is the criteria for recommendation:

- If the investigation score is between 25 to 51, the case status is displayed as **Low Risk Network**.
- If the investigation score is between 50 to 76, the case status is displayed as **Medium Risk Network**.
- If the investigation score is greater than 76, the case status is displayed as **High Risk Network**.

An Investigator can print or save the notebook after viewing the investigation recommendation.

3.4.15 Exporting Investigation Detail to PDF format

Use the **Export to PDF** option to save the notebook. For more information, see Exporting a Notebook to PDF section.

4 Investigating ECM Cases Using OFS IH

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

Investigators can expand the graph view to view the relationship between case entities and search for additional entities within a graph. Investigators can also update a case with any customers, account, derived entities, or transactions that are part of the graph view.

NOTE All the additional information, which is not part of the case in a graph, will be added to the case.

By default, Level 1 information is displayed in the Investigation Hub tab that is targeted at Level 1 Case Investigators.

• **ECM Integration_L1**: Enable Level 1 case Investigators to access additional rich information about a case such as, case summary, a detailed narrative about case entities, graph view of a case, and so on, which is otherwise not available in ECM. Allows the investigator to explore a case - including graph, risk factors, and red flags.

The paragraphs in the Investigation Hub tab are as follows:

- Accessing OFS IH from ECM
- Elements of the ECM Integration for Level1
- Updating a Case with Entities in a Graph

4.1 Accessing OFS IH from ECM

You can access the Investigation Hub tab from ECM to perform graph-based investigation for cases in ECM.

To access the Investigation Hub tab from ECM, follow these steps:

- 1. Login to the OFS ECM application. For more information, see Accessing OFSECM Application section in the Oracle Financial Services Enterprise Case Management User Guide.
- 2. Search for a case that has the Investigation Hub tab enabled.

NOTE

To access the Investigation Hub tab, the Case Type must have the required mapping in the Case Designer in ECM. For more information, see Oracle Financial Services Investigation Hub Administration and Configuration Guide.

3. Click the desired Event ID.

Figure 24: Investigation Hub Tab in ECM

Seet Dealls Account Customer Transactions Beterné Entry Involved Parry Correlation Nervolve Analysis Résidonahos Nervolve Analysis Nervolve Analysis Résidonahos Nervolve Analysis Nervolve Analysis Résidonahos Nervolve Analysis Nervolve Analysis Nervolve Analys	ome > S	Search Cases	> Case Su	immary											
Eiven Dezals Account Customer Transactions Estemal Entry Incolved Party Correlation Network Analysis Relationship Narrative Evidence Investigation Hub Audit History ~ Eiven List													Take Action	Assign Add Evidence Print	Workflow Monito
v Eiert List	Case ID: CA	A100 Title: A	ML_Events_Pro	ocessing_Rule St	atus: Investigatio	on Priority: Hig	ph				_	_			
	Event Details	Account	Customer	Transactions	External Entity	Involved Party	Correlation	Network Analysis	Relationship	Narrative	Evidence Investi	gation Hub Audi	t History		
			Add Event St	atement View	Set Event Decision						-				8 3

4. Click the Investigation Hub tab.

The ECM_Integration_L1 is cloned and displayed in the Investigation Hub tab. All the paragraphs of the notebooks will be pre-executed whenever the user opens a case for the first time.

4.2 Elements of the ECM Integration for Level1

The paragraphs in the ECM_Integration_L1 are as follows:

- Starting the Investigation
- Viewing Case Details
- Searching for Non-Case Entities
- Viewing the Initial Screening Results
- Viewing the Entity Summary Historical Report
- Viewing the All Transactions for Focal Entities
- Viewing the Graph Result of the Entity Search
- Viewing the Reference Data Sources
- Viewing the Countries
- Viewing the Risk Factors
- Viewing the Red Flags
- For more information, see Viewing the Red Flags section in the SI Notebook.
- Viewing the Network Disposition Score
- Viewing the Network Disposition Score Breakdown
- Exporting Investigation Detail to PDF format

4.2.1 Starting the Investigation

You can directly start the investigation by executing this paragraph. For more details, see Starting the Investigation section.

4.2.2 Viewing Case Details

The Case Details paragraph will take the case ID automatically whenever user opens the case from ECM for the first time.

Figure 25: Case Details Paragraph

	Case Details	$\[\square \]$	ф	Q	R _N	1 2 2	۲	· 翁
caseld CA119								
€° ∻ → •								

4.2.3 Searching for Non-Case Entities

Follow these steps to search for an FCDM entity (customer, account), derived entity, address, event, or external entity in the graph to find a similar match.

NOTE	

It is an optional step if additional entities that are not part of the case are investigated alongside the case.

1. Navigate to the Search for Non-Case Entities paragraph.

Figure 26: Search for Non-Case Entities Paragraph

		Search For Non-Case	Entities	\triangleright	h ₽	∠ ⁷ 1= ≥=	
Tax Id	Name JOHN DOE	Address	Date 1990-01-01	00:00:00	₿	Use date No	Empty th Yes
50 Minimum Match Score Cutoff in %		res(selected indexes are used for search) xternal Entity Zustomer) ICIJ External Address	Derive	ed Entity	Account	

2. Enter the search criteria in the Search for Non-Case Entities paragraph as described in the Table 6.

Field	Description
Tax ID	Tax ID of the entity (for example, customer tax ID). You must enter the complete Tax ID to get the exact search result.
Name	Name of the entity (for example, customer name). This filters the names by the title of the business entity that matches the search criteria.
Address	Address of the customer.
Date	Date when a business entity (for example, customer name) performed a transaction. You must enter the complete date to get the exact match during the search result. The date format must be in DD/ MM/YYYY.
Use Date	Allows you to enable or disable the Date field.
Empty the Existing Entities List	• Yes : It continues with the existing Search list. The searched items are added to the existing Search list.
	• No: It displays view the search results in the New search list/ Clears the search list.
	The individual or combination of the following field values are inputs for the search:
	Name
	Address
	• Date
	By default, this field value is set as Yes .
Minimum Match Score	You can set the cutoff value to define the matching criteria.
Cutoff in %	The records that match (equivalent or more than) the configured cutoff value will be displayed in the search results with the score.

Table 6: Search for Non-Case Entities Paragraph Details

Select Indexes (selected indexes are used for search)	Select the required index(es) to search results. The available options are:ICIJ External Entity
search)	Customer
	ICIJ External Address
	Derived Entity
	Account

Table 6: Search for Non-Case Entities Paragraph Details

- 3. To reset the searched entities list, use the Empty the Existing Entities List drop-down.
- 4. Execute the Search for Non-Case Entities paragraph.

The matched results will display in the Search for Non-Case Entities paragraph.

Figure 27: Search

Type to search]			
Tax ld ≎	Case Id ≎	Name 🗘	Address 💲	Date 🗘
	CA119			
		JOHN DOE		

You can view these transactions in various formats. For more information on formats, see Data Visualization section.

4.2.4 Viewing the Initial Screening Results

The Initial Screening Results paragraph allows you to define the conditions based on which the initial screening results are filtered and fetched.

Table 7 describes the conditions to be defined based on which initial screening results are displayed.

Field	Description
Top Critical Matches	The value to decide how many matches you want to view in the search result output.
Number of Hops to Pre-Fetch	The number of hops that the search result graph can be expanded.
Number of Hops to Display	The number to decide how many hops must be displayed in the search result graph.

Table 7: Initial Screening Results

Figure 28: Initial Screening Results Paragraph

	Initial Screening Results	▷ ⋔ ͡͡ ▞ ░ ♥ ৷
Top Critical Matches 3	Number of Hops to Pre-Fetch 5	Number of Hops to Display 1
	• ▶ \$ @ @ ` ! !!! • •	
Type to search		
Name 🗘 Score 🗘 Entity_Id 🗘	Description 🗘 Tax	ld ≎ Node_ID ≎
JOHN DOE 100.0 CU-GRAPHDEMO-CUS	T-1801 matched on name - 100.00 TAX	-GRAPH-DEMO-812X Customer(CU-GRAPHDEMO-CUST-
100.0 CA119	matched_on case id with score 100.00	Case(CA119)

4.2.5 Viewing the Entity Summary Historical Report

Enter the entity ID in the Entity ID field of the Entity Summary Historical Report paragraph and execute the paragraph. You can get the entity ID from the Initial Screening Results or Input Search Results paragraph.

In addition, this paragraph displays the details of focal entities associated to the case ID.

NOTE	 You can search with multiple entity IDs for Entity Summary Historical Report.
	 Make sure that the "Number of Hops to Prefetch" is set to 4 in the "Initial Screening Results" paragraph before executing this paragraph. Only then it will display the "Focal Entity Summary" details.

The Entity Summary Historical Report paragraph allows you to view the historical summary (in text format) of the searched entity ID. This information includes the following parameters: Customer Summary, Account Summary, Compliance Summary, Risk Factor & Red Flags.

To view the historical summary of an entity, navigate to Entity Summary Historical Report paragraph. The following figure shows a sample of the historical summary of an entity.

Figure 29: Entity Summary Historical Report

Entity Summary Historical Report	\triangleright	rh	P	×'n		۲	⊜ •
Entity ID CU-GRAPHDEMO-CUST-1801							
■ □ ≈ ± •							
Focal Entity Summary							
The Customer KING GIBSON is in our Internal records with ID CUDPGTOTACTAC-044 and Status of Customer is Active							
Entity Type : IND Date of Birth : 1973-10-20T00:00							
Tax ID : TAXDPGTOTACTAC-044 Address : 951 COLORFUL WAY SUITE 1A CB 277 GAMMA ROAD DELTA SECTION BETA 75							
City : HERNDON State : VA							
Country : US Email : CUDPGTOTACTAC-044@yahoo							
Phone No : 803321990 Risk Score : 4							
Added to the Bank on: 2014-12-31T00:00							
Account Summary							
The Customer has 1 Account(s) with the Bank: -> ACDPGTOTACTAC-044 of type SAV opened on 2014-12-31T00:00							
Total Transactions : 1 Cash Transaction : 0							
MITransaction: 0 Wire Transaction: 1							
 O High Risk Transactions were identified on the entity. (Criteria for High Risk Transaction : Transaction Risk > 7 : Party Risk 	~ 7)						
Compliance Summary							
2 ANU, Events were generated for the Customer:	lisk Count lisk Count lisk Count lisk Count Risk Count actions: H	er Part er Part er Part er Part ter Part iter Par	/~(FŔ/# /~(FR/# / /~(ML/ ty~(ML k Coun	AC) Hig AC) Hig AC) Hi (AC) Hi (AC) Hi ter Par	th Risk th Risk gh Risk ligh Risk ty~(Mi	Transa Transa Transa K L/AC) H	ctions: ctions: ections:
Risk Factors & Red Flags							
After analysis, we have identified ${\bf 0}$ entity(s) shares a common link(s) to the searched entity.							
The Account GIBSON is in our Internal records with ID ACDPGTOTACTAC-044 and Status of Account is Active Entity Type : SAV							
Tax ID : TAXDPGTOTACTAC-044T Address :							
City : HERNDON State : VA							
Country : US Risk Score : 4							
Jurisdiction : AMEA Business Domain : c							
Added to the Bank on: 2014-12-31T00:00							

4.2.6 Viewing the All Transactions for Focal Entities

This paragraph shows all transactions related to the searched entity and focal entities of a case from **Result Graph**. In addition, you can filter the transaction details based on transaction amount specified in the following fields:

- Min Transaction Amount: You enter the minimum transaction amount.
- **Max Transaction Amount:** You enter the maximum transaction amount.

To view the transaction details, navigate to the Transaction Analysis paragraph.

Figure 30: All Transactions for Focal Entities Paragraph Details

		All Transa	ctions for Focal En	tity(s) ⊳	$\Psi \ominus \pi_{\lambda} \equiv \odot$	\$\$ •
Min Transaction Amount O			Max Transaction / 10000000	Amount		
Type to search	* * & • *			↓. •		
Entity_A 💲	ID_A 💠	Risk_A ≎	Transaction_Type 💲	Transaction_Amount 💲	Transaction_Currency 💲	Trans
JOHN DOE	CU-GRAPHDEMO-CUST-1801	10.0	cash trxn	110002.0	USD	2015
JOHN DOE	CU-GRAPHDEMO-CUST-1801	10.0	cash trxn	107728.0	USD	2015
JEGADHAS K PRASAD	ACTRUSTEDPAIR-002	9.0	end to end wire trxn	100000.0	USD	2015
DURKA K SINGH	ACTRUSTEDPAIR-008	9.0	end to end wire trxn	100000.0	USD	2015
		0.0	end to end wire trxn	100000.0	USD	2015

You can view these transactions in various formats. For more information on formats, see Data Visualization section.

4.2.7 Viewing the Graph Result of the Entity Search

The Graph Result of the Entity Search paragraph allows you to view the network graphical representation of the case and its associated entities. This paragraph also displays the case graph along with the graph for the non-case entities searched in the Input Search Results paragraph.

A typical network graph shows nodes and links. Nodes are entities such as a customer or account. Each node can join to zero, one or many other nodes via a link called an edge. Each type of node is associated with a specific icon on the graph. Table 11 describes the icon displayed on the graph for each type of node. For example, for a customer entity, the links of the customer are displayed with other customers, accounts, and so on.

When the Investigation Hub tab is opened for the first time, it displays the following details:

The case node and four hops from the case node to include all the events, customers, derived entities, accounts, and transactions that are the focal entities and impact the case.

Additional nodes and edges that provide case context such as relationship and similarity edges to include external data sources.

If the analyst searches for additional entities, all the search nodes and their surrounding nodes and edges are displayed as part of the graph visualization.

The analyst can then be able to manipulate the graph by expanding any high-risk entities or parties on unusual transactions to obtain better understanding of the context and risk associated with the case. The analyst can also remove entities and transactions which are not pertinent to the case to provide a snapshot of only the pertinent information.

When a graph shows the relevant information, the case narrative and other paragraphs can be re-run to provide updated summary information. The following figure shows the sample graph.

The default template is FCGM template. For more information, see the Managing Template section in the Oracle Financial Services Compliance Studio User Guide.

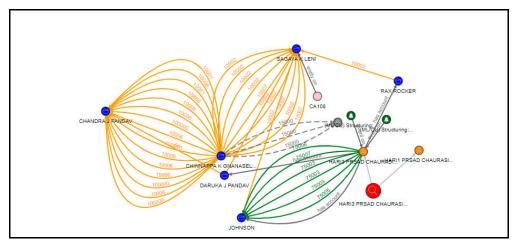
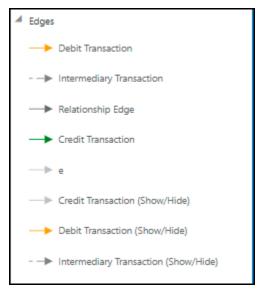


Figure 31: Graph Result of Entity Search

Figure 32: Edges



You can perform many actions on a graph. For more information, see the Graph Details.

NOTE

You must re-execute the paragraph after any modification to view the results in the subsequent paragraphs.

4.2.8 Viewing the Reference Data Sources

This paragraph shows the reference data of the searched entity from the **Visible Graph** paragraph along with other associated entities.

For more information, see Viewing the Reference Data Sources section in SI Notebook.

For more information on Visible Graph, see Graph Types.

4.2.9 Viewing the Countries

This paragraph shows the countries of the searched entity from the **Visible Graph** paragraph along with other associated entities.

For more information, see Viewing the Countries section in the SI Notebook.

For more information on Visible Graph, see Graph Types.

4.2.10 Viewing the Risk Factors

This paragraph shows the risk factor details of the searched entity with other associated entities. You can also search for a specific risk factor.

For more information, see Viewing the Risk Factors section in the SI Notebook.

For more information on Visible Graph, see Graph Types.

4.2.11 Viewing the Red Flags

This paragraph shows the red flag details of the searched entity with associated entities. You can search for a specific risk factor.

For more information, see Viewing the Red Flags section in the SI Notebook.

4.2.12 Viewing the Network Disposition Score

The Network Disposition Score paragraph shows the network disposition score of the searched entity.

The formula to calculate the network score is "(Total risk of nodes in Visible Graph/Number of nodes in the Visible Graph) * 10."

For more information on Visible Graph, see Graph Types.

Figure 33: Network Disposition Score Paragraph Details

Network Disposition Score	10
21	

For more information, see the **Configuring Network Disposition** section in the Oracle Financial Services Investigation Hub Administration and Configuration Guide.

To view the network disposition score, navigate to the Network Disposition Score paragraph.

4.2.13 Viewing the Network Disposition Score Breakdown

The Network Disposition Score Breakdown paragraph shows the details of the network disposition score of the searched entity.

			Network Disposition Score Breakdown	> н 🏓	∠ ⁷ 1= ≥=	● 袋 ▼
Type to search		28 △ 8	* △ 迪 ビ ⊕ 0 ☆ ⊻▼			
Name 🔻	Туре	Score	Address	Opened Date	Acct	Cust
TORRY WILSON	Account	10.0	MAN 003 E DRAGRAM SUITE 5A	2015-12-03	2.0	0
Thomson	Account	6.0	MAN SUITE 1A CB 789 GAMMA ROAD DELTA SECTION BETA 697	2014-12-31	2.0	0
TAFIQU	Account	9.0	MAN BERLIN ST DK	2001-03-09	2.0	0
STAKE HELLER	Account	10.0	MAN 003 E DRAGRAM SUITE 5A	2015-12-03	2.0	0
SARA	Account	4.0	MAN SECTOR 13 BLOCK 18 SEA VIEW S HUTCHINS FAWN LN	2014-12-01	2.0	0

Figure 34: Network Disposition Score Breakdown Paragraph Details

For more information, see the Configuring Network Disposition section in the Oracle Financial Services Investigation Hub Administration and Configuration Guide.

To view the network disposition score breakdown, navigate to Network Disposition Score Breakdown paragraph.

You can view these transactions in various formats. For more information on formats, see Data Visualization section.

4.2.14 Exporting Investigation Detail to PDF format

Use the **Export to PDF** option to save the notebook. For more information, see Exporting a Notebook to PDF.

4.3 Updating a Case with Entities in a Graph

Updating a case enables investigators to add additional entities to the case from the graph. To update a case, follow these steps:

- 1. Navigate to the Investigation Hub tab in a case.
- 2. Click Update Case to add the account, customer, transaction, and external entities.

Figure 35: Updating a Case

	CRACLE Financial Services Enterprise Case Management																		
Home > Se	me > Search Cases > Case Summary																		
												Take	Action	<u>Assign</u>	Add Evid	lence	Print W	forkflow M	lonitor
> Case ID: CA1	Case ID: CA100 Title: AML_Events_Processing_Rule Status: Investigation Priority: High																		
Event Details	Account	Customer	Transactions	External Entity	Involved Party	Correlation	Network Analysis	Relationship	Narrative	Evidence	Investigation Hub	Audit History							
~ Investigatio	on Hub																		
Update Cas	e																		_
E FCN	A > ECM	A Case C	A100 Not	ebook															
																			*
							6	Details					N		L ^A	- 0	- co		
							Case	Details					V	m 🗭	ĸ		- cp *		
Case	100																		
"CA1																			

NOTE	 The Level 1 Investigator can expand the case graph to update a case, to add or remove edges and nodes. For more information, see Working with Graph Nodes.
	 On updating a case, all the customers, accounts, derived entities, and transactions that are part of the visible graph and are not already part of the case are added to the case.
	 Level 1 Investigator is displayed with different information on the Investigation Hub tab depending on the configuration for that user.

5 Common Features

Topics:

- Managing the Notebooks
- Managing the Paragraphs
- Managing the Results
- All Transactions in Visible Graph
- Graph Details

5.1 Managing the Notebooks

A notebook acts as a frame for Paragraphs.

Topics:

- Common Screen Elements in Notebooks
- Exporting a Notebook
- Reset Session
- Deleting a Notebook

5.1.1 Common Screen Elements in Notebooks

Table 8 describes the common screen elements in a notebook that can be used to perform various actions on a notebook.

Table 8: Co	ommon Screen	Elements in	Notebooks
-------------	--------------	-------------	-----------

Button	lcon	Action/Description
Modify Notebook	Ľ	Click this button to modify the details of a notebook such as name, description, and/or tags.
Hide Code	>	Click this button to hide or show the Code Section in all the paragraphs in a notebook.
Show Result		Click this button to hide or show the Results Section in all the paragraphs in a Notebook.
Read Only	6	Click this button to set the notebook to Read-only mode. Note: The notebook is protected from edit, clear result, delete, reset session, run paragraphs, and share in Read-only mode.

Write	Click this button to set the notebook to Write mode.
Show Panel	Click this button to show or hide the Paragraph Settings Bar Commands, Results Toolbar, and Settings Dialog for a selected paragraph in a panel to the right of the notebook.
Run Paragraphs	Click this button to execute all the paragraphs in a notebook in sequential order. For more information, see Run All Notebook Paragraphs section. You can view the results in various formats. For more information, see Managing the Results section.
Invalidate Session	Click this button to reset any connection or code executed in a notebook.
Delete Notebook	Click this button to delete a notebook.
Clear Result	Click this button to clear results for all the paragraphs in a notebook. Warning: This action clears all the results. You must run the paragraphs again to view the results.
Clear Paragraph Dependencies	Click this button to remove all defined paragraph dependencies.
Open as Embedded Window	Click this button to open a notebook in Embedded window. This allows a notebook to be embedded inside another webpage.

Table 8: Common Screen Elements in Notebooks

Table 8:	Common	Screen	Elements	in	Notebooks
----------	--------	--------	----------	----	-----------

Share Notebook	ශ්රි	Click this button to share a notebook with another user, user group, or role.
Clone Notebook	G	Click this button to create a copy of a notebook. All paragraphs in the current notebook are replicated in the new notebook.
		The cloned notebook is created with the default name, Copy of <current name="" notebook="">.</current>
Export Notebooks		Click this button to export a notebook to your computer as a DNSB file.
Print Notebook	 	Click this button to print a notebook in the PDF format and save it in your local machine.
Layout	Zeppelin 🎵	Click this button to set the preferred layout, Zeppelin, or Jupyter.
Default Template	Default 🗐	Click this button to apply the overall look and feel of the notebook using the default template.
Default View	Default 🖽	Click this button to switch between Default, Simple, and Report views.
Versioning	Versioning (L	You can use this option to create versions for your notebook, which helps you analyze the changes based on the version control.

Table 8: Common Screen Elements in Notebooks

Attach Credentials	\sim	You can use this option to attach credentials (a wallet and a password) to the notebook to enable secure data access.

5.1.2 Exporting a Notebook

The Export notebook feature enables you to export notebooks available in the OFS IH to your local machine. Notebooks are exported in the OFS IH Notebook (*.pdf) file format, which can be saved, shared, or printed.

5.1.2.1 Exporting a Notebook to PDF

The Export individual notebooks option enables you to export selected notebooks in OFS IH to your local machine.

To export individual Notebooks, follow these steps:

- 1. Log in to the **OFS Compliance Studio** application.
- 2. On the Workspace Summary page, select Launch workspace for display the application configuration and model creation menu.
- 3. Click **Model Pipelines** $\stackrel{\bigstar}{\sim}$ to display the Model Pipelines page.
- 4. Click Investigation Hub Objective.
- 5. Click ^{•••} next to the corresponding notebook and select **Open in Pipeline Designer** option. The Pipelines Canvas window is displayed.
- 6. Click on the Notebook tab. The notebook window is displayed.
- 7. Click the Notebook that you want to export. The selected Notebook is opened.
- 8. Click **Export to PDF**. The Notebook is downloaded to your local machine in.pdf format.

5.1.3 Reset Session

The Reset button allows you to refresh any connection or code executed in a notebook. Follow these steps:

- 1. Navigate to Model Pipelines.
- 2. Click Investigation Hub Objective.
- 3. Click next to the corresponding notebook and select **Open in Pipeline Designer** option. The Pipelines Canvas window is displayed.
- 4. Click on the **Notebook** tab. The notebook window is displayed.
- 5. Click **Invalidate Session** to invalidate the session and free up resources.

5.1.4 Deleting a Notebook

- 1. Navigate to Model Pipelines.
- 2. Click Investigation Hub Objective.
- Click mext to the corresponding notebook and select **Open in Pipeline Designer** option. The Pipelines Canvas window is displayed.
- 4. Click on the **Notebook** tab. The notebook window is displayed.
- 5. Click 🔟. The Delete Objects window is displayed.
- 6. Select the required notebooks, and click Delete. The selected notebooks are deleted.

5.2 Managing the Paragraphs

Topics:

- Common Screen Elements in Paragraph
- Paragraph Dependencies
- Run All Notebook Paragraphs

5.2.1 Common Screen Elements in Paragraph

A paragraph is a piece of code that can be executed to obtain the result. In OFS IH, paragraph offers a workbench to author code or a query using various interpreter friendly scripting languages supported in OFS IH.

Table 9 describes the elements in the Paragraph Settings Bar that can be used to perform various actions on individual paragraphs in a notebook.

Button/Icon	Action/Description
Run Paragraph	Click this button to execute the code or query in a paragraph.
	After execution, you can view the result in various formats. For more information, see Managing the Results section.
Enter Dependency Mode	Click this button to add or remove dependent paragraphs.
ĥ	Paragraphs with dependent paragraphs are executed in the dependency order.
	For more information, see Paragraph Dependencies section.
Comments	Click this button to add comments to a paragraph.
ති	

Expand	Click this button to expand a paragraph and view the paragraph in full-screen mode.
Show/Hide Line Numbers	Click this button to show or hide line numbers in the code in a paragraph. NOTE: This button is applicable only to the code section.
Visibility 💿	Click this button to manage the visibility settings in a paragraph. It controls how a paragraph may be viewed by the author and other users who have access to the notebook.
Settings ট্টে 🕶	 Click this button to perform the following actions: Resize the width of a paragraph. Change the order of placement of the paragraphs by moving them up or down. Clear the paragraph result. Open the notebook in Embedded window. Clone the paragraph. Delete a paragraph.

Table 9: Elements in Paragraph Settings Bar

5.2.2 Paragraph Dependencies

The Paragraph Dependencies feature allows you to add dependencies between paragraphs. The dependents of a paragraph are automatically executed after the original paragraph itself or any graph manipulation on the original paragraph is executed.

To create paragraph dependencies, follow these steps:

- 1. Click the **Dependency** icon in the Paragraph Settings Bar of a paragraph. The Dependency Mode window is displayed.
- 2. Select or deselect paragraphs to add or remove them as dependents.

The order in which the paragraphs are selected appears as a number over the selected paragraphs. The number indicates the order in which the dependent paragraphs will be executed.

3. Click Save.

The changes are saved. Every time a paragraph is executed or graph actions are applied, its dependent paragraphs will be executed automatically.

5.2.3 Run All Notebook Paragraphs

A paragraph is a piece of code that can be executed to obtain the result. Notebook execution includes the execution of all paragraphs.

To run all the paragraphs in a notebook, follow these steps:

1. Click **Run Paragraphs** in the Notebook Toolbar.

Figure 36: Run Paragraphs

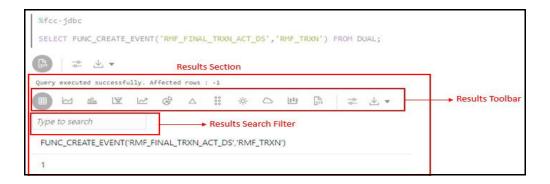


All the paragraphs will execute in order from top to bottom. If a paragraph was deleted during the Run Paragraphs job execution, it is ignored and paragraph execution continues for the rest of the paragraphs.

5.3 Managing the Results

After executing a paragraph, the result is displayed in the Results section.

Figure 37: Paragraph Results Section



Topics:

- Results Search Filter
- Data Visualization
- Customizing Result Settings

Table 10 describes the various result formats supported in OFS IH.

Table 10: Result Formats in Studio

Chart	Button/Icon	Action/Description
Table Chart	⊞	Click this button to view results in tabular format.
Area Chart		Click this button to view results in the area chart format.
Bar Chart	nla	Click this button to view the results in bar chart format.
Funnel Chart	A	Click this button to view the results in the funnel chart format.
Line Chart		Click this button to view the results in line chart format.

Table 10: Result Formats in Studio

Pie Chart	G	Click this button to view the results in pie chart format.
Pyramid Chart		Click this button to view the results in pyramid chart format.
TreeMap Chart	00 00 00	Click this button to view the results in tree map format.
Sunburst Chart	-\¢-	Click this button to view the results in sunburst chart format.
Tag Cloud Chart	6	Click this button to view the results in tag cloud chart format.
Box Plot Chart	0 ⁰⁰	Click this button to view the results in the plot chart format.
Text		Click this button to view the results in text format.
Settings	-¢-	Click this button to customize the results based on the selected format.
		Enter the required values for the General, Visualization, and Text settings.
Download As	↓ •	Click this button to download the result in the following format:
		Raw: Available for all formats.
		SVG Format: Available for Graph and Visualization formats.

5.3.1 Results Search Filter

The Results Search Filter is available only in Table Format. This feature instantly searches for an entered value in the results.

5.3.2 Data Visualization

You can view the transactions in the following formats:

- Table
- Area Chart
- Bar Chart
- Funnel Chart
- Line Chart
- Pie Chart
- Pyramid Chart

- Treemap Diagram
- Sunburst Diagram
- Tag Cloud
- Box Plot
- Scatter Plot
- Map Visualizer
- Text

5.3.2.1 Table

The Investigation Data Hub allows you to visualize your data in the form of a Table Diagram. The table can be sorted by column in ascending or descending order. Additionally, the table can be filtered for a specific search term. Rows that do not contain this term are hidden from view and the remaining rows highlight the location of the search term within the row.

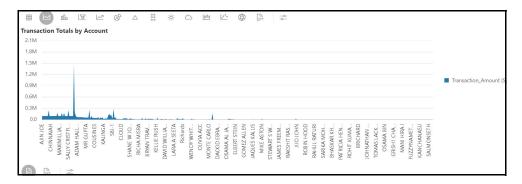
Figure 38: Table Diagram

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Type to search						
Account_A	ID_A	Risk_A	Transaction_Type	Transaction_Amount	Transaction_Currency	Transaction_
AJIN JOE	ACTRUSTEDPAIR-018X	0	EFT-SWIFT	100000	USD	2015-11-30
AJITH VINCENT	ACTRUSTEDPAIR-017X	0	EFT-SWIFT	100000	USD	2015-11-30
AMBIKA K CHRISTALIN	ACTRUSTEDPAIR-039	9	EFT-SWIFT	100000	USD	2015-11-30
AMIT THUKRAL	ACHRGBENETRXNEAC-001XXA	10	CASH-EQ-TRVLRS-CHK	100000	USD	2015-11-30

5.3.2.2 Area Chart

The OFS IH allows you to visualize your data in the form of an Area Chart.

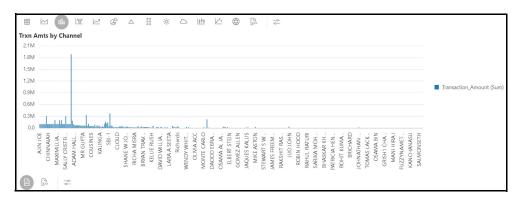
Figure 39: Area Chart



5.3.2.3 Bar Chart

The OFS IH allows you to visualize your data in the form of a Bar Chart.

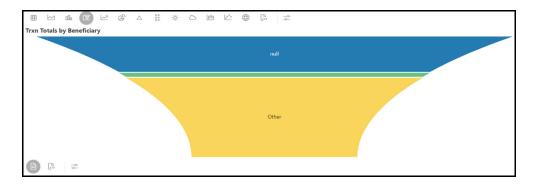
Figure 40: Bar Chart



5.3.2.4 Funnel Chart

The OFS IH allows you to visualize your data in the form of a Funnel Chart.

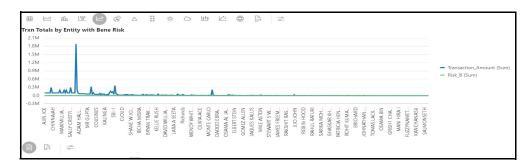
Figure 41: Funnel Chart



5.3.2.5 Line Chart

The OFS IH allows you to visualize your data in the form of a Line Chart.

Figure 42: Line Chart



5.3.2.6 Pie Chart

The OFS IH allows you to visualize your data in the form of a Pie Chart.

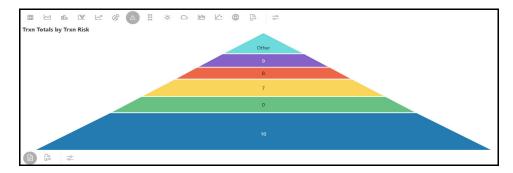
Figure 43: Pie Chart

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5.3.2.7 Pyramid Chart

The OFS IH allows you to visualize your data in the form of a Pyramid Chart.

Figure 44: Pyramid Chart



5.3.2.8 Tree Map Diagram

The OFS IH allows you to visualize your data in the form of a Tree Map Diagram.

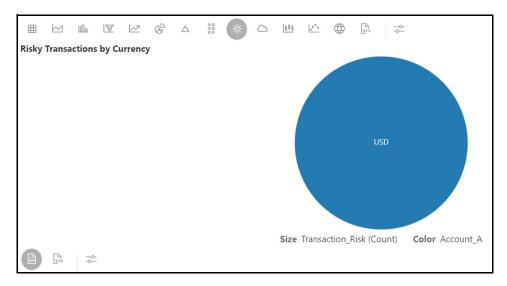
Figure 45: Tree Map Diagram

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5.3.2.9 Sunburst Diagram

The OFS IH allows you to visualize your data in the form of a Sunburst Diagram.

Figure 46: Sunburst Diagram



5.3.2.10 Tag Cloud

The OFS IH allows you to visualize your data in the form of tags. The tag cloud operation is used to identify the spots where there are more flags.

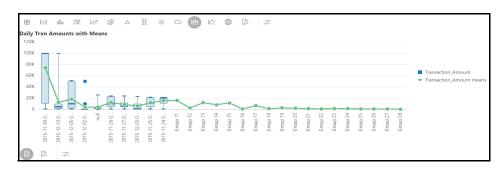
Figure 47: Tag Cloud



5.3.2.11 Box Plot

The OFS IH allows you to visualize your data in the form of a Box Plot.

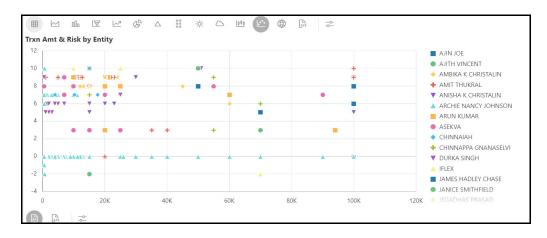
Figure 48: Box Plot



5.3.2.12 Scatter Plot

The OFS IH allows you to visualize your data in the form of a Scatter Plot.

Figure 49: Scatter Plot



5.3.2.13 Map Visualizer

The OFS IH allows you to visualize your data on top of a Map.

Figure 50: Map Visualizer

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	MOROCCO LIBYA EGYPT SANDI INDIA
o openMapTiles and OpenStreetMap Contributors	MAURITANIA MALINIGER CHAD ^S UDAN YEMEN CONDUCTO
▶ ₽ ≈	

5.3.3 Customizing Result Settings

To customize the result format, follow these steps:

- 1. Navigate to the Notebooks page.
- 2. Click the required result format for a paragraph in the Result section and then click Settings. The Settings window is displayed and contains the following category:
 - General
 - Visualization
 - Text
- 3. Select a category and enter the required values for that category. The result is customized as per the entered values.

5.4 All Transactions in Visible Graph

This paragraph shows all the transactions from the **Visible Graph**. In addition, you can filter the transaction details based on transaction amount specified in the following fields:

- Min Transaction Amount: You enter the minimum transaction amount.
- Max Transaction Amount: You enter the maximum transaction amount.

For more information on Visible Graph, see Graph Types.

To view the transaction details, navigate to the All Transaction in Visible Graph paragraph.

Figure 51: All Transactions in Visible Graph Details

			All Transaction	ns in Visible Graph	t.	⇒ th 🗭 ⊮ ⁿ 1≣	
Min Transaction Amount			fax Transaction Amount				
0 Image:	¢° ∆ ∷ ⊰		10000000				
Entity_A	ID_A	Risk_A	Transaction_Type	Jansaction_Amount ▲	Transaction_Currency	Transaction_Date	Transaction
HARI3 PRSAD CHAURASIA	CUTRUSTFTNCU-103	8	cash trxn	75007	USD	2021-10-11	8
HARI3 PRSAD CHAURASIA	CUTRUSTFTNCU-103	8	cash trxn	75006	USD	2021-10-11	7
HARI3 PRSAD CHAURASIA	CUTRUSTFTNCU-103	8	cash trxn	75005	USD	2021-10-11	6
HARI3 PRSAD CHAURASIA	CUTRUSTFTNCU-103	8	cash trxn	75003	USD	2021-10-10	9

You can view these transactions in various formats. For more information on formats, see Data Visualization section.

NOTE

Ensure that **Graph Result of the Entity Search** paragraph is re-execute after modification to view the correct results in this paragraph.

5.5 Graph Details

This chapter provides information on the graph details such as the action performed on a graph, nodes in a graph, and so on.

5.5.1 Graph Types

- **Result Graph**: This graph is created with the result of the Initial Screening Result paragraph.
- Visible Graph: This graph state that this is for the end graph after user actions ns (depending on nodes/edges are expanded/dropped)

5.5.2 Graph Highlights

Table 11 describes highlights in the graph as follows:

Table 11: Graph Highlights

Button/Icon	Action/Description
0	Click this icon to search entity.
8	Click this button to view customers.

Table 11: Graph Highlights

	Click this icon to view closed events.
0	Click this icon to view open events.
e	Click this icon to view accounts.
	Click this icon to view open cases.
	Click this icon to view institutions.

5.5.3 Working with Graph Nodes

- Repositioning Nodes
- Collapsing and Expanding Nodes
- Viewing the Node Details
- Deleting a Node
- Removing an Edge
- Hiding an Edge

5.5.3.1 Repositioning Nodes

N

The Network Graph page allows you to move nodes around the screen, using the drag and drop feature, to reposition them.

To reposition nodes, follow these steps:

- 1. Navigate to the Network Graph in a notebook.
- 2. Select a node to reposition and click it.
- 3. Drag and Drop the node to the required position.

NOTE	The graph only uses a specific portion of the browser window to display the graph. Dragging a node beyond a certain point towards the right side of the browser hides the portion of the graph dragged beyond that point. However, you can use the Zoom Out feature on the Graph Toolbar to view the hidden portion again.

5.5.3.2 Collapsing and Expanding Nodes

This option allows you to hide all outgoing links and nodes to which these outgoing links are connected from the node being collapsed. The collapsed node remains on the graph and the node icon changes to indicate that the node is in a collapsed state. To collapse nodes, follow these steps.

1. Navigate to the Network Graph in a notebook.

- 2. Select a node to collapse and right-click the node. An option menu is displayed.
- 3. Select the Collapse option from the menu. The outgoing links are hidden on the page.

NOTE	• If any child node has at least one incoming link from any other node, the child node and its child network are not collapsed. But the link from the collapsed node to the child node is hidden and the icon of the collapsed node changes to indicate that the node is in a collapsed state.
	 On the Node menu of a collapsed node, the Collapse option changes to Expand. If the user collapses a node but has no impact on the graph (that is, if no part of the graph is hidden), the Node menu remains unchanged. There is no restriction on how many nodes can be collapsed on a graph.

To expand the node, select Expand from the menu. The outgoing links are then restored on the page.



The Collapse option does not appear for outer nodes. Outer nodes are nodes that do not have any outgoing links.

5.5.3.3 Viewing the Node Details

This section allows you to view the current information associated with the selected node. This is the same information that is displayed on the Entity Summary Historical Report paragraph for this entity.

To view the node details, follow these steps:

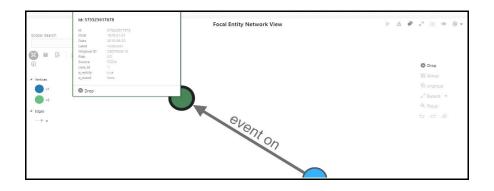
- 1. Navigate to the Network Graph in a notebook.
- 2. Select a node and right-click. An option menu is displayed. The Node Details window is displayed with the current information associated with the selected node. This includes the Properties and Risk details of the node.

5.5.3.4 Deleting a Node

You can drop a node to from a network graph view the result on On-screen data. To delete a node, follow these steps:

- 1. Navigate to the Network Graph in a notebook.
- 2. Right- click on any node as shown in the following figure and click Drop.

Figure 52: Deleting a Node



5.5.3.5 Removing an Edge

You can remove and edge from a network graph to view the result on On-screen data. To remove an edge, follow these steps:

- 1. Navigate to the Network Graph in a notebook.
- 2. Right- click on any edge and click Drop Delete selected vertices.

Figure 53: Removing an Edge

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0	Publish No	Label Match Score	Is similar to 81% 8.83664	@	<u>%</u> 2 « C Q
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5.5.3.6 Hiding an Edge

You can hide an edge from a network graph to view the result on On-screen data. To hide an edge, follow these steps:

- 1. Navigate to the Network Graph in a notebook.
- 2. Click on any edge. The edge highlights is enable. Click on the same edge to disable. For example,
 - Enabled

Figure 54: Enabled Transaction



Disabled

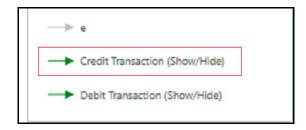
Figure 55: Disabled Transaction



In addition, you can perform **Show/Hide** for the Transactions in the same way.

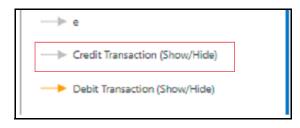
Show

Figure 56: Show Transaction



Hide

Figure 57: Hide Transaction



OFSAA Support

Raise a Service Request (SR) in My Oracle Support (MOS) for queries related to OFSAA applications.

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- Is the information clearly presented?
- Do you need more information? If so, where?
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- What features did you like most about this manual?

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