Troubleshooting Guide

Oracle Banking Origination

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Troubleshooting Guide

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1 Preface

1.1 Introduction

This guide provides guidance to users for the issues within the application. It describes various methods to figure out the error and then troubleshoot it.

1.2 Audience

This guide is intended for the software developers and software testers.

1.3 Document 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.

1.4 List of Topics

This guide is organized into the following topics. The topic 1 to 3 are generic and applicable for Oracle Banking Microservice Architecture platform wide troubleshooting and topic 4 to 7 are specific to Oracle Banking Origination product.

Торіс	Description
Preface	This topic provides the information about this guide and intended audience. It also lists the various chapters covered in this User Manual.
Troubleshooting Technical Flows	This topic describes the platform wide troubleshooting of technical flows. This includes UI side checking, Service side logs, tracing using zipkin, debugging using ELK stack and some environment issues of weblogic
Health Checks	This topic describes the health check measures and observability required.
Troubleshooting Functional Workflows	This topic describes Oracle Banking Origination specific troubleshooting of flows and specific data stores that can be checked for issues.
Business Error Codes	This topic provides the list of error codes expected out of Oracle Banking Origination.

Table 1: List of Topics



1.5 Acronyms, Abbreviations and Definitions

The following acronyms/abbreviations are used in this guide:

Table 2: Acronyms and Abbreviations

Acronyms	Definition
SMS	Security Management System
СМС	Common Core
MOC	Mid office Common Core
ELK	Elasticsearch Logstash Kibana

1.6 Related Documentation

The related documents are as follows:

- Oracle Banking Common Core User Guide
- Getting Started User Guide
- Oracle Banking Security Management System User Guide
- Alerts and Dashboard User Guide
- Configurations User Guide
- Retail 360 User Guide
- Retail Onboarding User Guide
- Operations User Guide
- Current Account Origination User Guide
- Savings Account Origination User Guide
- Retail Loans Origination User Guide



- Term Deposit Origination User Guide
- Credit Card Origination User Guide
- Tasks User Guide



2 Troubleshooting Technical Flows

This chapter describes various programming issues, possible causes, and solutions to resolve the issues. This topic contains the following sections:

- 2.1 Where is the problem
- 2.2 Preliminary checks from UI
- 2.3 Preliminary checks from Service Log files
- 2.4 Troubleshooting using Zipkin Traces
- 2.5 Troubleshooting Logs using ELK stack
- 2.6 Troubleshooting Logs Kafka issues
- 2.7 Troubleshooting Environmental Issues

2.1 Where is the problem

Troubleshooting the problem in distributed system could be bit challenging if not understood fully. Each product has UI application components and service side application components. Each side requires different troubleshooting techniques and various logs that can be used to corroborate the problem.

The below picture shows that on service side, it is important to establish the area of the problem. This can be achieved by complete understanding of UI, Service side flows along with the data architecture of application.



Figure 1: Distributed Flow across Micro Services



2.2 Preliminary checks from UI

This section describes how to launch the application and check for the basic errors. Perform the following steps:

- 1. Launch the application with delegated URL.
- 2. Press F12 key, and select Inspect and See network tab.
- 3. Verify that all the calls responses are successful. Usually RED color indicates non 2xx HTTP response.

Figure 2: Call Responses

🕞 🚹 Elements Console Sources Netwo	ork Application Per	formance Lightho	use Memory Security		0 6
🔵 🚫 🍟 🔍 🗹 Preserve log 🗋 Disable cach	e No throttling 🔻	<u>*</u> <u>*</u>			
Filter 🗌 Hide data URLs 📶	XHR JS CSS Img Med	ia Font Doc WS	Manifest Other 🗌 Has block	ed cookies 🗌 Blocked Requests	
Use large request rows			Group by frame		
Show overview			apture screenshots		
Name	Status	Туре	Initiator	Size	T Waterfall
tiles?userId=OBLM02&branchCode=LMB	200	xhr	jquery-3.5.1.min.js:2	3.1 kB	1
currencyliability	200	preflight	Preflight 🚱	0 B	4
topcustomersbalances	200	preflight	Preflight 🕢	0 B	4
topcustomersweeps	200	preflight	Preflight 🚱	0 B	5
crossborder	200	preflight	Preflight 🚱	0 B	5
events?eventType=P	200	preflight	Preflight 🚱	0 B	5
events?eventType=E	200	preflight	Preflight 🚱	0 B	4
events?eventType=A	200	preflight	Preflight 🚱	0 B	6
currencyliability	200	xhr	jquery-3.5.1.min.js:2	1.0 kB	3
topcustomersbalances	200	xhr	jquery-3.5.1.min.js:2	1.8 kB	5
topcustomersweeps	200	xhr	jquery-3.5.1.min.js:2	1.7 kB	4
crossborder	200	xhr	jquery-3.5.1.min.js:2	542 B	6
events?eventType=P	200	xhr	jquery-3.5.1.min.js:2	20.1 kB	8
events?eventType=E	200	xhr	jquery-3.5.1.min.js:2	236 kB	2
events?eventType=A	200	xhr	jquery-3.5.1.min.js:2	2.0 MB	7

Figure 3: Non 2xx response

Earch Parameters									
Mod Number 2 Compare									
Dens By OSLM02 Dens On 11/30/2018 Record Status O	S Error		×						
Once Auth Y View	Maker cannot authorize								
-									
Cand Approx									
View Branch Parameters 🖉 Branch Parameters 🦨									
🕞 🗇 Bernents Console Sources Network Application Performance Lighthouse Memory Security									
🜻 🛇 🝸 🔍 🗹 Preserve log 🗌 Disable cache No throttling 🔻	± ±					•			
Filter Dide data URLs All XHR JS CSS Img Med	dia Font Doc WS Man	ifest Other 🗌 Has blo	ocked cookies 🗌 Blocked Requests						
Use large request rows		Group by t	frame						
Show overview		Capture sc	creenshots						
Name	Status	Туре	Initiator	Size	T Waterfall				
approve	200	preflight	Preflight 🕞	0 B	9				
approve	400	xhr	jquery-3.5.1.min.js:2	924 B	9				
o error.png	200	png	fsgbu-ob-cmn-ct-alert.css	(disk cache)	1				



Figure 4: Details of Non 2xx Response

Branch Parameters		2 ×					
Mod Number 2 Compare							
Done By OBLM02 Done On 11/30/2018	😧 Error	×					
View Branch Parameters 🥜 Branch Parameters 🥜	Maker cannot authorize	I second s					
🕞 🛅 🛛 Elements Console Sources Net	work Application Performance Lighthouse Memory S	Security					
鱼 🛇 🝸 🔍 🗹 Preserve log 🗌 Disable ca	ache No throttling 🔻 🛓 🛓	۵					
Filter Dide data URLs Al	XHR JS CSS Img Media Font Doc WS Manifest Other 🗌	Has blocked cookies Delocked Requests					
Use large request rows	Gr	roup by frame					
Show overview	Ca	apture screenshots					
Name	× Headers Preview Response Initiator Timing						
approve	▼ General	×					
approve	Request URL: http://whf00bjo.in.oracle.com:7007/api-gat	teway/oblm-maintenance-services/branch/d24a66cd-93c5-4394-bb2a-6465385adfdb/approve					
o error.png	Request Method: PATCH						
	Status Code: \varTheta 400 Bad Request						
	Remote Address: 10.40.138.30:7007						
	Referrer Policy: strict-origin-when-cross-origin						
	Response Headers View source						
	Access-Control-Allow-Credentials: true						
	Access-Control-Allow-Headers						
	Access-Control-Allow-Headers						
3 requests 924 B transferred 5.7 kB resources	Access-Control-Allow-Methods: GET, POST, PUT, DELETE, OP	PTIONS, HEAD, PATCH					

Branch Parameters			
Mod Number 2 Compare			
Done By OBLM02 Done On 11/30/2018	C Error	×	
View Branch Parameters 🧬 Branch Parameters 🖉	Maker cannot authorize	1	
🕞 🛅 🛛 Elements Console Sources Net	twork Application Performance Lighthouse M	emory Security	
🔵 🛇 🍸 🔍 🗹 Preserve log 🗌 Disable ci	ache 🛛 No throttling 🔻 🛓 🛓		
Filter Hide data URLs A	XHR JS CSS Img Media Font Doc WS Manifest	Other 🗌 Has blocked cookies 🗌 Blocked Requ	ests
Use large request rows		Group by frame	
Show overview		Capture screenshots	
Name	× Headers Preview Response Initiator Timin	1	
approve			
approve	<pre>b data: {links: []} messages: {kevId: "d24a66cd-93c5-4394-bb2a-6</pre>	165385adfdb", status, "EATLURE", codes, [.	1. requestId: null. }
o error.png	▼ codes: [,]	issues , status. Threak , cours. [,	,, requestion noti;
	♥0: {args: null, arg: null, information:	alse, override: false, error: true, overr	ideAuthLevelsReqd: null,}
	arg: null		
	args: hull		
	desc: " Maker cannot authorize"		
	error: true		
	information: false		
	language: "ENG"		
	overrideitte ovelsReadt pull		
	type: "E"		
3 requests 924 B transferred 5.7 kB resources	httpStatusCode: null		

4. You can also export the trace using export option in browsers.

Example in Chrome you would see this option as below

Figure 5: Export Option



NOTE: You can also use tools such as **fiddler** and **wireshark** to get the browser to API gateway web traffic. This would help to investigate exact request and response payloads exchanged between UI and API Gateway.



2.3 Preliminary checks from Service Log files

Each micro service sub domain war deployments can generate the log files in weblogic server. The configuration of this log can be found at logback.xml

```
<root level="INFO">
```

```
<appender-ref ref="FILE" />
```

```
</root>
```

In production scenarios, it is wise to ensure the root level is configured as ERROR so that log files doesn't get overwhelmed

Refer Weblogic documentation to know the path where these files are generated. In on-premises cases, these log files can be zipped and send for remote troubleshooting purposes.



2.4 Troubleshooting using Zipkin Traces

2.4.1 Setting Zipkin Server

Refer below document for installation document for Zipkin installation

https://docs.oracle.com/cd/F72113_01/PDF/User_Guide/Observability_User_Guide.pdf

2.4.2 Login to Zipkin

The basic layout of Zipkin looks as follows

Figure 6: Layout of Zipkin

	Span Name			inder -
zipkin	all	all	V 15 m	inutes *
Annotation Query		Duration (µs) >=	Limit	Sort
For example: http.path	=/foo/bar/ and cluster=foo and cach	e.miss Ex: 100ms or 5s	10	Longest First
	for your trace leadure			
Discours and such that any territory	for your trace lookup.			
Please select the criteria				

We can find the traces of required API calls and services using the above search options given in the user interface. The search options given in the user interface are self-explanatory and there is another UI option (Try Lens UI). It's given a different user interface with the same functionality.

Figure 7: List of Traces

Service Name Span Name	Remote Service Name	Lookback
zipkin 🗸 all 🗸	all 🗸	1 hour •
Annotation Query	Duration (µs) >= Limit	Sort
For example: http.path=/foo/bar/ and cluster=foo and cache.miss	Ex: 100ms or 5s 10	Longest First 🔻
Find Traces		
Showing: 4 of 4		JSON 🛓
Services: zipkin		
2.163s 5 spans		
zipkin 100%		
zipkin x5 2.163s		18 minutes ago
1.449s 4 spans		
zipkin 100%		
zipkin x4 1.449s		22 minutes ago
1.430s 4 spans		
zipkin 100%		



The list of the traces can be seen as the above screen. I made some error API calls to showcase how to track errors. The blue listings show the successful API hits and the red listings indicate errors. Each block indicates a single trace in the listings.

Opening an individual trace shows the below-shown screen.

Figure 8: Individual Trace

Duration: 2.163	Services: 1	Depth: 3	Total Spa	ns: 4		JSON 🕹
zipkin x4	Compse An					
rvices		432.639ms	865.278ms	1.298s	1.731s	
zipkin	-2.163s : http:/api1		-			
zipkin	 1.001s : api1 		. 0	·		
zipkin				1.068s : nttp://api2		
				ciere in culture		

The above-shown image describes the time taken for each block. As I created 2 custom spans inside 2 service calls, we can find a total of 4 blocks. The time taken for an individual block can be seen above. Clicking an individual block shows the following details.

Investigate system	Date Time	Relative Tim	e Annotation	Address		Search
	9/10/2019, 4:11:23 PM		Server Start	10.184.89.16:8080 (zipkin)		
	9/10/2019, 4:11:25 PM	2.163s	Server Finish	10.184.89.16:8080 (zipkin)		
Duration: 2.163s	Кеу	Valu	ıe			JSON 🛓
Expand All Collapse	http.host	loca	lhost			
	http.method	GET				
zipkin x4	http.path	/api	1			
Consister .	http.status_code	200			721.	
zipkin -2.16	http.url	http	://localhost:8080/api1			
zipkin 1.	mvc.controller.class	Con	troller			
zipkin -	mvc.controller.method	api1				
_	spring.instance_id	esw	arperabathini.in.oracle.o	com:Zipkin		
	Show Dr.					
	SHOW IDS				_	
	traceld	9d63642c	172ab6f9f			
	spanid	9d63642c	l72ab6f9f			

Figure 9: Details of Individual Block

The details of the specific span block are shown above and the logging events can also be seen in the Zipkin UI as small circular blocks. An example of an error log is shown below.



Figure 10: Sample Error Log

Inves	stigate system behavior Fin	nd a trace View Saved Trace	Dependencies	Try Lens UI	Go to trace	Search
Duration: 1.02	26s Services: 1	Depth: 2	Total Spans:	3		JSON 🛓
Expand All	Collapse All					
ervices		205.134ms	410.267ms	615.401ms	820.534ms	1.026
zipkin	-1.026s : http:/api1					
zipkin zipkin	-1.026s : http:/api1 -1.001s : api1					
zipkin zipkin zipkin	-1.026s : http:/api1 -1.001s : api1 -					
zipkin zipkin zipkin	-1.026s : http:/api1 -1.001s : api1 -					

Clicking on the error portion gives a clear detail about the error and where the error has arisen. An example is shown below.

Figure 11: Details of Error

	tigate system	Services: zipkin				
		Date Time		Relative Time	Annotation	Address
ration: 1.02	6s	9/11/2019, 6:09:01 PM			Server Start	10.184.89.16:8080 (zipkin)
		9/11/2019, 6:09:02 PM		1.026s	Server Finish	10.184.89.16:8080 (zipkin)
pand All	Collapse /	Кеу	Value			
tin x3		error	Reques Server	t processing failed; ErrorException: 500 r	nested exception is null	org.springframework.web.client.Http
	0.36	http.host	localho	ost		
n .	-1.026	http.method	GET			
	- 1.001	http.path	/api1			
		http.status_code	500			
		http.url	http://l	ocalhost:8080/api1		
		mvc.controller.class	BasicEr	rorController		
		mvc.controller.method	errorHt	tml		
		spring.instance_id	eswarp	erabathini.in.oracle.	com:Zipkin	

If the Lens UI is used in Zipkin, the above screenshots are not applicable but are relatable to the Lens UI as well.

Traces of the application can be found using Traceld, which can be found in the debug logs of the deployment when spring-cloud-sleuth is included in the dependencies (Included in spring-cloud-starter-zipkin dependency). Clicking the dependency tab gives the dependency graph info between micro-services. An example dependency graph is shown below.



Figure 12: Sample Dependency Graph

Zipkin Ir	nvestigate system behav	ior Find a trace	Dependencies	
Start time	2018-02-19	13:30	End time 2018-02-20 13:39 Analyze Dependence	encies
frontend		todos-api	log-message-processor	
		auth-api	users-api	

2.4.3 Zipkin Issues

2.4.3.1 Application service not registered

Perform the following steps to find the cause of this error:

1. Check the applications, which are sending the trace report to zipkin server from **Service Name** drop-down list.

Figure 13: Find Traces

ervice Name		Span Name	Lookback		
oblm-maintenance-services	^	all	/ 1 hour		
	Q		Duration (μs) >=	Limit	Sort
obic-interest-batch-services	^	o and cache.miss	Ex: 100ms or 5s	10	Longest First
oblm-batch-services					
oblm-cash-concentration-services	- 8				
oblm-dashboard-services	- 1				ISON
oblm-integration-services	- 1				
✓ oblm-maintenance-services					
obles report convices	_				

Service Name	Span Name	Lookback		
oblm-maintenance-services V	all	1 hour		
Annotation Query	nttp://doim-maintenance-services/account	Duration (μs) >=	Limit	Sort
For example: http.path=/foo/bar/ and cluster=foo	http:/oblm-maintenance- services/account/updatebala	Ex: 100ms or 5s	10	Longest First
Find Traces	http:/oblm-maintenance- services/application			
Services: oblm-maintenance-services	http://oblm-maintenance-services/branch			
2007ms 0 spans	http:/oblm-maintenance- services/customer			
alm-maintenance-convices 27%	http://oblm-maintenance-			



2. If the required application is not listed in Zipkins, check the application.yml file for zipkin base URL configuration. The shipped application.yml should have the zipkin entry.

Figure 14: Application.yml File

⊠ logback.xml 2 application.yml ≅
1# Copyright (c) 2016. Oracle. All rights reserved.
2spring:
3 application:
4 name: oblm-maintenance-services
5 main:
6 allow-bean-definition-overriding: true
7 autoconfigure:
8exclude: org_springframework_boot_autoconfigure.idbc_DataSourceAutoConfiguration, org.springframewo
9 zipkin:
<pre>10 baseUrl: \${plato.services.zipkin.url:http://localhost:9411}</pre>
11 service:
12 name: \${spring.application.name}
13 sender:
<pre>14 type: \${plato.services.zipkin.sender.type:web}</pre>
15 sleuth:
16 sampler:
<pre>17 percentage: \${plato.services.sleuth.sampler.percentage:0.1}</pre>
18
19eureka:
20 instance:
21 prefer-ip-address: true
<pre>22 securePortEnabled: \${isSslEnabled:false}</pre>
23 client:
24 registerWithEureka: true
25 fetchRegistry: true
26# preferSameZone: true

NOTE: Every service should have spring-cloud-sleuth-zipkin dependency added in build

gradle file for the service to generate and send trace Id and span Id.

Compile group: 'org.springframework.cloud', name: 'spring-cloud-sleuth-zipkin', version: '2.1.2.RELEASE'.

Figure 15: Branch Common Services

Service Name	Span Name	LOOKDACK		
oblm-maintenance-services	∨ all	V 1 hour		
Annotation Query		Duration (µs) >=	Limit	Sort
For example: http.path=/foo/bar/ and o	cluster=foo and cache.miss	Ex: 100ms or 5s	10	Longest First
Find Traces				
Find fraces				
Showing: 10 of 10				JSON 4
Convicer: Diversity of the second				
Services: oblm-maintenance-services				
Services: oblm-maintenance-services				
Services: oblm-maintenance-services				
Services: obim-maintenance-services 58.997ms 9 spans bim-maintenance-services 37%				
Services: oblin-maintenance-services 58.997ms 9 spans blim-maintenance-services 37% m-batch-services 35 258.997m1 oblin-maintenan	ce-services x2 97.974ms emi-core-services x2	51.652ms		44 minute
Services: Oblim-maintenance-services 58.997ms 9 spans blim-maintenance-services 37% matchaservices 35 258.997m1 oblim-maintenan 56.606mc 9 enans	ce-services s2 97.974ms) emi-con-services s2	\$1.652ms		44 minute
Services: ethnomaintenance-services 58.997ms 9 spans bim-maintenance-services 37% matachservices 15 21 997ms ethnomaintenan 56.006ms 9 spans- 56.006ms 9 spans-	re-services x2 97 974ms) cms-core-services x2	51.652ms		44 minute
Services: obtermalmenance-services 58.997ms 9 spans Dim-maintenance-services 37% mainto-arrylers \$38.997m; obtimum/intenan 56.606ms 9 spans Dim-maintenance-services 37% Dim-maintenance-services 37%	ce-arrylers 22 97.974ml (ms-cons-arrylers 22 ce-arrylers 22 97.974ml (ms-cons-arrylers 22	51 652ms		44 minute
Services: othermalmenance-services 58.997ms 9 spans Jmm-maintenance-services 37% mahatchservices s535.997ms oblightenan 56.606ms 9 spans Jmm-maintenance-services 37% mahatchservices s5356.666ms oblightenantenan	se-services x2 97:574ms) sms-core-services x2 ce-services x2 97:357ms) sms-core-services x2	\$1.652ms 43.927ms		44 minute 4 minute
Service: etimenaintenanceservices 58.997ms 9 spans olim-maintenance-services 37% matchervices s5 258.997ms etimenaintenan 56.606ms 9 spans olim-maintenance-services 37% matchervices \$258.606ms etimenaintenan 51.743ms 9 spans	re-services x2 97.974ms) emi-core-services x2 co-services x2 97.347ms) emi-core-services x2	\$1.652ms 43.927ms		44 minute 4 minute





Figure 16: Branch Common Services Trace

		oblm-main services/br	tenance-service anch: 50ms	es.http:/ob	Im-maintenance-	×	
Duration: 653.981ms Expand All Collag	Services: 👔	Services: of	olm-maintenance-servio	ces,oblm-sweep	-services		
conc-branch-services x2 Lo	shim-hatch-services x2 Lobim-internation-se	Date Time	Relative Time	Annotation	Address		
		5/4/2021, 8:15:0	0 PM 258ms	Client Start	10.40.74.62:7203 (oblm-sweep-services)		
nices		136.79 5/4/2021, 8:15:0	0 PM 259ms	Server Start	10.40.74.62:7205 (oblm-maintenance-services)		547.185ms
oblm-batch-services	683.981ms : process-exception-log	5/4/2021, 8:15:0	0 PM 302.817ms	Server Finish	10.40.74.62:7205 (oblm-maintenance-services)		
oblm-integration-services	678ms : http:/oblm-integration-services/transa 45e	ctionlog/pro 5/4/2021, 8:15:0	0 PM 308ms	Client Finish	10.40.74.62:7203 (oblm-sweep-services)		
oblm-sweep-services oblm-maintenance-service		Кеу	Value				
oblm-maintenance-service		http.host	oblm-maintena	nce-services			
oblm-structure-services		http.method	GET				
sms-core-services		http.path	/oblm-mainten	ance-services/b	ranch	http:/cmc-brancl	-services/systemdates
sms-core-services		http.url	http://oblm-ma e=LMB	intenance-servi	ces/oblm-maintenance-services/branch?branchC	od 4	s i http:/sms-core-service/rbac
		spring.instance_	id whf00gld.in.ora	cle.com:oblm-si	veep-services:7203		
		mvc.controller.c	lass LmmTmBranchF	ParametersApiC	ontroller		
		mvc.controller.n	nethod getAll				
		spring.instance_	id whf00gld.in.ora	cle.com:oblm-m	aintenance-services:7205		
		Show IDs					

2.4.3.2 404 error

If there is 404 error, check if the zipkin-server.jar is running in the system where the application is deployed.

To check this execute the following command

netstat -ltnup | grep ':9411'

output should be like:

tcp6	0	0 :::9411	*	LISTEN	10892/iava
lopo	•	00111			10002/juvu

Here 10892 is the PID.

2.4.3.3 Unable to change zipkin default port number

Zipkin default port number is not editable. Hence, verify that the port 9411 is available to start Zipkin-server.jar file. Also check if the zipkin url is provided for the services in the PROPERTIES table.

SELECT * FROM PROPERTIES WHERE KEY LIKE '%zipkin%'

Figure 17: ELK Setup

_									
H ⁱ			zaci y ballaci						
	s	elect	* from Properties where key like '%z	ipkin%'					
	T								
	Query	Result	X						
1	- 💾	C 🔁	SQL All Rows Fetched: 30 in 0.674 seconds						
		A	Δ	A	A	A	A		
	1	∛ ID	V APPLICATION	∛ PROFILE	∛ LABEL	l∜ KEY	VALUE		
	1	0052	obly_integration_corrigon_bib	i dh a	i dh a	plate corriges giptin un	http://logalbogt.0411		
	-	0033	obim-incegracion-services-bib	Junc	Junc	praco.services.zipkin.dri	neep. // iocainose. 9411		
	2	9023	plato-api-gateway	idbc	idbc	plato.services.zipkin.url	http://localhost:9411		
			prace apr garrag	J	J	p=====================================			
	3	9024	plato-ui-config-services	jdbc	jdbc	plato.services.zipkin.url	http://localhost:9411		
	4	600		4 Mar 11	÷	- 1 - 4	h + + + + + + + + + + + + + + + + + + +		
	4	623	cmc-external-virtual-account-services	Japa	Japc	piato.services.zipkin.url	nttp://iocainost:9411		



2.5 Troubleshooting Logs using ELK stack

2.5.1 Setting up ELK

Download the Elastic search from https://www.elastic.co/downloads/elasticsearch

Kibana download https://www.elastic.co/downloads/kibana

Logstash download https://www.elastic.co/downloads/logstash

Default port for Elastic search- 9200

Default port for Kibana- 5601

Step to run ELK:

Run the elasticsearch.sh file present inside /scratch/software/ELK/elasticsearch-6.5.1/bin

• Edit network.host to "localhost" and port if necessary. This should be enough for it to run.

• Start: nohup bin/elasticsearch &

Configure Kibana to point the running instance of elastic search in kibana.yml file as below.

Figure 18: Logstash Configuration

```
# Kibana is served by a back end server. This setting specifies the port to use.
#server.port: 5601
# Specifies the address to which the Kibana server will bind. IP addresses and host names are both valid values.
# The default is 'localhost', which usually means remote machines will not be able to connect.
# The default is 'localhost', which usually means remote machines will not be able to connect.
# To allow connections from remote users, set this parameter to a non-loopback address.
server.host: "whf00peb"
# Enables you to specify a path to mount Kibana at if you are running behind a proxy.
# Use the 'server.rewriteBasePath' setting to tell Kibana if it should remove the basePath
# from requests it receives, and to prevent a deprecation warning at startup.
# This setting cannot end in a slash.
#server.basePath: ""
# Specifies whether Kibana should rewrite requests that are prefixed with
# 'server.basePath' or require that they are rewritten by your reverse proxy.
# This setting was effectively always 'false' before Kibana 6.3 and will
# default to 'true' starting in Kibana 7.0.
#server.rewriteBasePath: false
# The maximum payload size in bytes for incoming server requests.
#server.maxPayloadBytes: 1048576
# The Kibana server's name. This is used for display purposes.
#server.name: "your-hostname"
# The URL of the Elasticsearch instance to use for all your queries.
elasticsearch.url: "http://localhost:9200"
# When this setting's value is true Kibana uses the hostname specified in the server,host
```

Configuring Logstash consists of 3 steps:

- 1. **Input** This configuration is required to provide the log file location for the Logstash to read from.
- 2. **Filter** Filters in logstash is basically used to control or format the read operation(Line by line or Bulk read)



 Output- In this section we provide the running elastic search instance to send the data for persisting.

```
Figure 19: Kibana
```

```
logstash.conf
#Point to the application logs
input {
 beats {
    port => 5044
 }
3
#Provide the parsing logic to transform logs into JSON
filter {
# Adding @metadata needed for index sharding to Filebeat logs
 mutate {
   copy => {
     "[fields][app_name]" => "[@metadata][app_name]"
     "[fields][env]" => "[@metadata][envt]"
   }
 }
 #If log line contains tab character followed by 'at' then we will tag that entry as stacktrace
 if [message] =~ "\tat" {
    grok {
     match => ["message", "^(\tat)"]
     add_tag => ["stacktrace"]
    }
 }
```

```
#Grokking Spring Boot's default log format
  grok {
   match => [ "message", "%{TIMESTAMP_IS08601:timestamp}\s+%{LOGLEVEL:severity}\s+\[%{DATA:service},%{DATA:trace},%{DATA:span}
  }
  \ensuremath{\texttt{#Parsing}} out timestamps which are in timestamp field thanks to previous grok section
  date {
    match => [ "timestamp" , "yyyy-MM-dd HH:mm:ss.SSS" ]
  fingerprint {
    source => "message"
    target => "[@metadata][fingerprint]"
    method => "MD5"
    key => "test"
 }
 ruby {
   code => "event.set('[@metadata][prefix]', event.get('@timestamp').to_i.to_s(16))"
 }
}
#Ingest logs to Elasticsearch
output {
 elasticsearch {
    hosts => ["localhost:9200"]
    index => "%{[@metadata][app_name]}-%{[@metadata][envt]}-%{+YYYY.MM.dd}"
    document_id => "%{[@metadata][prefix]}%{[@metadata][fingerprint]}"
}
  stdout { codec => rubydebug }
```



2.5.2 Accessing Kibana

- Goto path ../kibana-7.8.1-linux-x86_64/config/kibana.yml
- Edit server.host: "0.0.0.0" for access outside host and server.port: <any port, defaults to 5601>
- Validate elasticsearch properties it defaults to localhost:9200
- Goto : http://host:port you should be able to see the Kibana console UI. Kibana needs elasticsearch to be UP as it creates indexes & fetches logs from it.
- Start: nohup bin/kibana &

Figure 20: Accessing Kibana

\leftarrow	\rightarrow	C 🖌	🛦 Not	secure	fsgbu-mu	m-638.snbompr	shared1.gbucdsint02b	oom.oraclevcn.c	om:5601/app/o	discover#/?_g=(filters:	!(),refreshInterval:(paus	e:!t,value:0),time:(Q 1	*
	Apps	M Gma	ail 🖸	undefine	d 🔀 OBL	M 14.3.0.0.4 Sc	Oracle Banking Da	a 🔀 NLS Gui	delines (Rul	🗙 Process to use Bug	Slack fsgbu-oblm-	O User Manual	**	🗄 R
≡	-	Discover												¢
file*	\sim			0					5	5,473,762 hits				
Q	Search fie	ld names						May 6, 2021 (a 00:00:00.000 - M	May 6, 2021 @ 23:59:59.99	9 Auto 🗸			
	Filter by th	/pe		0	4000000						-			
Selec	ed fields				3000000									
$\langle \phi \rangle$	source				10 2000000									
Availa	ble fields				1000000									
t	id				0									
t	index					00:00	03:00	06:00	09:00	12:00	15:00	18:00	21:00	
	score									@timestamp per 30 minutes				
t	_type				Time 🗸		_source							
	@timestam	p			> May 6, 3	021 @ 14:16:43.68	θ Otimestamp: May 6, 20	21 0 14:16:43.680	log.offset: 4,13	9,505 log.file.path: /scr	ratch/oblm/request-logs/obl	Ln-sweep-services_OBDX	02_LMB_2021-0	34-29.log
t	agent.ephe	meral_id					message: 2021-04-29 0	8:01:36.388 INFO	oblm-sweep-servic	es, DEFAULTENTITY, 4626ca22	aee77821,4626ca22aee77821,	true] [null] [null] [0	BDX02] [LMB]	8233
t	agent.hostr	ame					(seit-tuning) j o.t.o.	alse bost in: 100	76 148 18 bost a	had: 82:88:17:88:ab:8c ho	put.type: log fleids.app_r	name: opim Tields.env st bostpame: fschu-mum	: DEV ecs.ve	rsion: 1.8
t	agent.id						host.architecture: x8	6_64 host.os.versi	ion: 7.8 host.os.	family: host.os.name: 0	Tracle Linux Server host.or	s.kernel: 4.14.35-2047	.501.2.e17ue	k.x86_64
t	agent.name	2			> May 6	R21 @ 14-16-43 68	B. Obianatama Mari 6, 20	01 0 14.116.40 600		0	0.01.06 000 THEO Lable aver			
t	agent.type						services.DEFAULTENTITY	.4626ca22aee77821,	4626ca22aee77821.	.true] [null] [null] [080)	(02] [LMB] 8233 [(self	-v- (-tuning)'] o.f.o.s.lm	s.cache.Absti	ractTimerC
t	agent.versi	on					Retrieving [{}] from c	ache.branchParam-L	MB log.offset: 4	139,734 log.file.path:	/scratch/oblm/request-logs	/oblm-sweep-services_0	BDX02_LMB_20	21-84-29.1
t	ecs.version						fields.app_name: oblm	fields.env: DEV	input.type: log	host.id: f034aa86402146c0	a4370235346a5977 host.com	tainerized: false hos	t.ip: 100.76	.140.18
t	fields.app_r	ame					host.mac: 02:00:17:00	:ab:8c host.hostna	me: fsgbu-mun-63	8 host.architecture: x86	_64 host.name: fsgbu-mum-6	38 host.os.version: 7	.8 host.os.1	family:
t	fields.env				> May 6, 3	8021 0 14:16:43.68	θ @timestamp: May 6, 20	21 0 14:16:43.680	host.containeriz	ed: false host.ip: 100.76	5.140.18 host.mac: 02:00:1	7:00:ab:8c host.hostn	ame: fsgbu-m	um-638
t	host.archite	cture					host.architecture: x8	6_64 host.name: fr	sgbu-mum-638 host	t.os.kernel: 4.14.35-2047	.501.2.el7uek.x86_64 host.	os.platform: ol host.	os.version:	7.8
۲	host.contai	nerized					host.os.family: host	.os.name: Oracle	inux Server host	1.1d: 1034aa86402146c0a433	70235346a5977 agent.id: 00	enheneral id: 9/2129h	-761a61669712	921b_Afofe
t	host.hostna	ime					agencimane: Tsgou-mun	-oso agent.type:	agent.ve	agent.nost	name, rsyou-num-638 agent	.epiteller a1_10: 8021280	7-001u-4803-	oziu-4101e



2.6 Troubleshooting Logs Kafka issues

2.6.1 Setting up kafka

Install Kafka and Zookeeper which is shipped along with the OSDC Now first we need to start zookeeper and then kafka. Please flow steps mentioned here <u>https://kafka.apache.org/quickstart</u>

2.6.2 Check if kafka is running

Run cmd \$ netstat -tlnp | grep :9092 (9092 is default port of kafka)

Possible issue while starting kafka

- Kafka is not starting may be because zookeeper is not yet started run cmd \$ netstat -tlnp | grep :2181 (2181 is default port of zookeeper) if any services is not running on this port means zookeeper is down
- 2. Check if any permission issue is there for kafka log folder.

Create console producer and consumer for troubleshooting

here is a use full reference for that <u>http://cloudurable.com/blog/kafka-tutorial-kafka-from-</u> command-line/index.html

2.6.3 Some references that can be useful

https://docs.cloudera.com/documentation/kafka/latest/topics/kafka_faq.html



2.7 Troubleshooting Environmental Issues

This section contains the following subsections:

- 2.7.1 Possible issues while deploying services
- 2.7.2 Possible issues in login and screen launch

2.7.1 Possible issues while deploying services

This subsection describes the possible issues that may occur in the environment.

2.7.1.1 Service deployment is failing due to flyway

If the service deployment is failing due to flyway, verify that the object or record is already present and make changes in the flyway scripts accordingly.

You may check **flyway_schema_history** table of the respective schema for finding the flyway script entries.

2.7.1.2 Other possible issues

The other possible issue while deploying services could be multiple version of dependency jars present in the war file. For example,

"weblogic.application.naming.EnvironmentException: duplicate persistence units with name PLATO in scope cmc-customer-services-5.3.0.war."

2.7.2 Possible issues in login and screen launch

This subsection describes the possible issues that may occur while logging in and launching the screens.

2.7.2.1 Login page is not launching

If the login page is not launching, check if the app-shell war file is deployed. If it is deployed, make sure that the war file is up and running in the deployed managed server and try to login. In addition, check if you are logged in with the appshell URL according to the war file deployed.

Also, check if the required component-server wars like cmc-component-server, oboflocomponent-server etc are also deployed along with the app-shell.

For example, <u>http://whf00bjp.in.oracle.com:7403/app-shell/index.jsp</u> will load the login page of the application.



Figure 21: Login Page



2.7.2.2 Unable to login after launching the application

If you are not able to login after the application is launched, make sure that the plato-apigateway service, plato-ui-config service, sms-core-service, and common-core-services are up and running.

Figure 22: Services

PLATO-API-GATEWAY	n/a (1)	(1)	UP (1) - whf00bjo.in.oracle.com:plato-api-gateway:7007
PLATO-BATCH-SERVER	n/a (1)	(1)	UP (1) - whf00bjo.in.oracle.com:plato-batch-server:7013
PLATO-DISCOVERY-SERVICE	n/a (1)	(1)	UP (1) - whf00bjo.in.oracle.com:plato-discovery-service:7003
PLATO-O	n/a (1)	(1)	UP (1) - whf00bjo
PLATO-ORCH-SERVICE	n/a (1)	(1)	UP (1) - whf00bjo.in.oracle.com:plato-orch-service:7017
PLATO-UI-CONFIG-SERVICES	n/a (1)	(1)	UP (1) - whf00bjo.in.oracle.com:plato-ui-config-services:7009
SMS-CORE-SERVICES	n/a (1)	(1)	UP (1) - whf00bjo.in.oracle.com:sms-core-services:7011

2.7.2.3 Unable to login after restarting the services

If you are not able to login after restarting the services, make sure that the LDAP server is up and running, and check if the entered credentials are correct.

2.7.2.4 Retail Banking menus are not displayed after logging in

After you log in, if the Retail Banking menus are not displayed, map the functional activity codes in the table SMS_TM_ROLE_ACTIVITY. Once it is mapped, check if the corresponding role is assigned to your user id.

2.7.2.5 Screens are not launching after logging in

If you are not able to launch the screens after logging in, make sure that the respective services are up and running.

NOTE: Verify the VPN connection while trying to troubleshoot the issues related to page launching, etc.



3 Health Checks

Until we get heath check APIs implemented, the health need to be monitored using weblogic JVM managed server status and Eureka instance.

Figure 23: Health Checks

Application	AMIs	Availability Zones	Status
CMC-ACCOUNT-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-account-services:7005
CMC-ADVICE-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-advice-services:7005
CMC-BASE-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-base-services:7005
CMC-BRANCH-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-branch-services:7005
CMC-BUSINESSOVERRIDES-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-businessoverrides-services:7005
CMC-CHECKLIST-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-checklist-services:7005
CMC-COMMENTS-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-comments-services:7005
CMC-CURRENCY-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-currency-services:7005
CMC-CUSTOMER-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-customer-services:7005
CMC-DATASEGMENT-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-datasegment-services:7005
CMC-DOCUMENT-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-document-services:7005
CMC-EXTERNAL-CHART-ACCOUNT-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-external-chart-account-services:7005
CMC-OBCBS-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-obcbs-services:7005
CMC-OBRH-SERVICES	n/a (1)	(1)	UP (1) - whf00cdl.in.oracle.com:cmc-obrh-services:7005



3.1 Weblogic

3.1.1 Unable to login to weblogic console

Sometimes you are unable to login to weblogic console or console is down when trying to deploy or re-deploy services

This issue can be fixed by restarting weblogic domain from server. Perform the following steps:

- To stop the weblogic server, which is already running, go to path "/Oracle_Home/user_projects/domains/bin" and execute **sh** file with ".*I*" prefixing to it. For example, ./stopWebLogic.sh.
- 2. Once the server is stopped, try to start the server by executing below command, so that it can run in the background. For example, **./startWebLogic.sh &**.

л С	Ì	
Th	is site can't be reached	
Try:	 Checking the connection Checking the proxy and the firewall CONNECTION_REFUSED 	
R	teload	Details

Figure 24: Error Message

3.1.2 Unable to stop a service

If you are not able to stop a service, which is already running, try to bring down the managed server and remove the war file.



3.1.3 GC Overhead limit exceeded/OutOfMemoryException error

If there is an error like GC Overhead limit exceeded or OutOfMemoryException is thrown while starting the services, the following details need to be shared.

- Heap Dump
- Configuration of environment

For quick fix, try to restart the managed server or try to increase the memory allocated to the managed server.

Perform the following steps to increase the memory:

1. Click Servers.

Figure 25: Domain Structure

Change Center					
View changes and restarts					
Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.					
Domain Structure					
servicing_release					
Domain Partitions					
- Environment					
Servers					
■ Clusters					
Coherence Clusters					
Resource Groups					
Resource Group Templates					
Machines					
Virtual Hosts					
Virtual Targets					
Work Managers					
Concurrent Templates					
Resource Management					

 Select the managed server from which you are getting OutOfMemoryException or GC Overhead Limit exceeded, and click Server Start tab.

Figure 26: Managed Servers

Jetungs ioi																/
Configura	tion	Protocols	Logging	Debug	Monitoring	Control	Deployments	Services	Security	Notes						
General	Cluste	r Service	s Keysto	res SS	L Federation	n Services	Deployment	Migration	Tuning	Overload	Concurrency	Health Monitoring	Server Start	Web Services	Coherence	
Save																



3. Specify the memory (which needs to be increased) according to requirement in 512, 1024, 2048 etc., and restart the managed server to fix the issue.

Figure 27: Memory Update

Arguments:	 	 	
-Xmx2048m			
			11

3.1.4 Managed server is failed or not reachable

If the managed server is in failed or not reachable state, perform the following steps to restart the managed server:

1. Go to **Servers**, select **Control** tab, and then select the managed server.

Figure 28: Domain Structure

Change Center					
View changes and restarts					
Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.					
Domain Structure					
servicing_release					
Domain Partitions					
-Environment					
Servers					
Coherence Clusters					
Resource Groups					
Resource Group Templates					
Machines					
Virtual Hosts					
Virtual Targets					
Work Managers					
Concurrent Templates	_ [
Resource Management	-				



2. Click Shutdown.

Figure 29: Control Tab

Change Center	😭 Home Log Out Preferences 🔤 Record Help	Q		
View changes and restarts	Home >Summary of Servers			
Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.	Summary of Servers Configuration Control			
Domain Structure oblm2 A B-Domain Partitions B-Environment	Use this page to change the state of the servers in this WebLogic Serv wide administration port.	er domain. Control operations on Man	aged Servers require starting the N	ode Manager. Starting Mar
Servers Clusters Coherence Clusters	Q © Customize this table			
Resource Groups	Servers (Filtered - More Columns Exist)			
Machines	Start Resume Suspend V Shutdown V Restart St			
Virtual Targets Work Managers	Server When work completes Force shutdown pow	Machine	State	Status of Last Action
Concurrent Templates	AdminServer(admin)		RUNNING	None
I I Resource Management	Managed_server1	Machine_1	RUNNING	None
How do I 🗉	managed_server2	Machine_1	RUNNING	None
Start and stop servers	managed_server3	Machine_1	RUNNING	None
Start Managed Servers from the	managed_server4	Machine_1	RUNNING	None
Administration Console	managed_server5	Machine_1	RUNNING	None
Kestart Sol. Start Managed Servers in Admin mode	managed_server6	Machine_1	RUNNING	None
Start Managed Servers in a cluster Start Managed Servers in a cluster	Start Resume Suspend v Shutdown v Restart SSL			

3. After you bring down the server, click **Start** to restart the server.

3.1.5 weblogic.application.ModuleException error

If there is an error like "weblogic.application.ModuleException: Context path '/obremo-rpmmaintanence-services' is already in use by the module", make sure that the re-deploying service is removed properly. If the issue persists, try to restart the managed server.



3.2 Database

3.2.1 Configure Data Sources in WebLogic

To add the Data Sources, follow the below steps:

1. Go to Services, select Data Sources option.

Figure 30: Data Sources

ORACLE WebLogic Server Adr					
Change Center					
View changes and restarts					
Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.					
Domain Structure					
Deployments					
Messaging Data Sources					
Persistent Stores Foreign JNDI Providers					

2. Click on **New** button and add the data source providing the required details.

A Home Log Out Preferences 🔤 Record Help							
Home >Summary of Servers >Summary of JDBC Data Sources >PLATO >Summary of JDBC Data Sources							
Summary of JDBC Data Sources							
Configuration Monitoring							
A IDBC data source is an object bo	und to the INDI t	ree that provides database connectivity thro	ugh a pool of IDBC connections. Applications can look up a data source on the INDI tree and then borrow a database co				
This sector commenciate the 1000 de							
This page summarizes the JDBC da	ta source objects	that have been created in this domain.					
No. 1. 1. 11. 1.11							
Customize this table							
Data Sources (Filtered - More C	olumns Exist)						
New - Delete							
Generic Data Source	Type	INDI Name	Tarnets				
GridLink Data Source	1100	SHOTHUNE					
Multi Data Source	Generic	jdbc/ICL	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5, managed_server6				
Proxy Data Source	Generic	jdbc/LMB	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5				
LICP Data Source	Generic	jdbc/LMC	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5				
	Generic	jdbc/LMD	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5				
LMR	Generic	jdbc/LMR	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5, managed_server6				
LMX	Generic	jdbc/LMX	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5				
LRT	LRT Generic jdbr//LRT managed_server1, managed_server2, managed_server3, managed_server5						
PLATO	Generic	jdbc/PLATO	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5, managed_server6				
PLATOBATCH	Generic	jdbc/PLATOBATCH	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5, managed_server6				
PLATO_UI_CONFIG	Generic	jdbc/PLATO_UI_CONFIG	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5, managed_server6				
SMS	Generic	jdbc/sms	managed_server1, managed_server2, managed_server3, managed_server4, managed_server5, managed_server6				
New v Delete							

Figure 31: Summary of JDBC Data Sources



Figure 32: Create a New JDBC Data Source

Create a New IDBC Data Source						
Create a New JDbC Data Source						
Back Next Finish Cancel						
JDBC Data Source Properties						
The following properties will be used to identi * Indicates required fields	ify your new JDBC data source.					
What would you like to name your new JDBC d	data source?					
街 * Name:	PLATO					
What scope do you want to create your data so	ource in ?					
Scope:	Global 🗸					
What JNDI name would you like to assign to yo	our new JDBC Data Source?					
ig JNDI Name:						
jdbc/PLATQ						
What database type would you like to select?						
Database Type:	Oracle 🗸					
Home > Summary of Servers > Summary of IDBC Data Sources > PLATO > Summary of IDBC Data Sources						
Home >Summary of Servers >Summary of JDBC Data Sources >PLA	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Sources >PLA Create a New JDBC Data Source	ATO > Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Sources >PLA Create a New JDBC Data Source Back Next Finish Cancel	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Sources >PLF Create a New JDBC Data Source Back Next Finish Cancel Connection Properties	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Sources >PLF Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties.	ATO >Summary of JDBC Data Sources					
Home > Summary of Servers > Summary of JDBC Data Source Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Source Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name:	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Source >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server?	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Source Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name:	270 >Summary of JDBC Data Sources 27 OBLMDB whf00bga.in.oracle.com					
Home >Summary of Servers >Summary of JDBC Data Source >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name: What is the port on the database server used to connect to the	210 >Summary of JDBC Data Sources 27 OBLMDB whf00bga.in.oracle.com a database?					
Home >Summary of Servers >Summary of JDBC Data Source >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name: What is the port on the database server used to connect to the Port:	NTO >Summary of JDBC Data Sources 07 OBLMDB whf00bqa.in.oracle.com a database? 1521					
Home >Summary of Servers >Summary of JDBC Data Source >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name: What is the port on the database server used to connect to the Port: What database account user name do you want to use to creat	NTO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Sources >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name: What is the port on the database server used to connect to the Port: What database account user name do you want to use to creat Database User Name:	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Source >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name: What is the port on the database server used to connect to the Port: What database account user name do you want to use to creat Database User Name: What is the database account password to use to create datab	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Source >PL/ Create a New JDBC Data Source Back Next Finish Cance Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name: What is the port on the database server used to connect to the Port: What is the port on the database server used to connect to the Port: What database account user name do you want to use to create Database User Name: What is the database account password to use to create datab Password:	NTO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Source >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name: What is the port on the database server used to connect to the Port: What database account user name do you want to use to creat Database User Name: What is the database account password to use to create datab Password: Confirm Password:	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Sources >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name or IP address of the database server? Host Name: What is the port on the database server used to connect to the Port: What database account user name do you want to use to creat Database User Name: What is the database account password to use to create datab Password: Confirm Password: Additional Connection Properties:	ATO >Summary of JDBC Data Sources					
Home >Summary of Servers >Summary of JDBC Data Sources >PL/ Create a New JDBC Data Source Back Next Finish Cancel Connection Properties Define Connection Properties. What is the name of the database you would like to connect to Database Name: What is the name of IP address of the database server? Host Name: What is the port on the database server used to connect to the Port: What database account user name do you want to use to creat Database User Name: What is the database account password to use to create datab Password: Confirm Password: Additional Connection Properties: oracle.jdbc.DRCPConnectionClass:	NTO >Summary of JDBC Data Sources					

3.2.2 Day0 Scripts

Make sure that all the Day0 scripts available in the product package are run successfully.



4 Troubleshooting Application Workflows

On successful login, the Oracle Banking Origination dashboard screen appears depending on the user privileges.

Menu Item Search	9		
Core Maintenance		Application Search	Product Applications Near Expiry
Dashboard		Q 000APP000016594	FILTERS GBP 000 ALL NA >
File Management	×		C 25 Expiring
Financial Institution Onboarding			13 25 NXX 21 Days
Machine Learning	•		
Party Services	•		
Retail Banking	•		
Rule		My Applications 0	Conversion Analysis
Security Management	¥	Let Orlearding Action 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	FILTERS NA ALL MONTHLY >
Task Management	•		Me Team
Tasks	•		
Teller		No Data To Display	6.90% WIP Opened
			27
		Loan Offers Near Expiry T Stage Wise Loan Details T X	New Term Deposits
		FILTERS GBP 000 ALL NA > FILTERS GBP 000 ALL MONTI >	FILTERS GBP ALL MONTHLY >
		C 0 Expiring	
		Next 5 Days Next 10 Days Next 21 Days 419 Application Entry	

Figure 33: Oracle Banking Origination Dashboard

• User Role Issues

Role Profile includes access rights to the functional activities that are common to a group of users. A user can be linked to a Role Profile by which you give the user access rights to all the functional activities in the Role Profile.

Go to: Security Management > Role screen

Figure 34: Role Maintenance

Role Maintenance		μ^{ℓ} ×
New Copy	Unlock Close	
Role Code *	D	scription *
ADMIN_ROLE		efault role for initial login
Role Activity		
•	Functional Activity Code	Functional Activity Description
	CMC_FA_BRANCH_EOD_PROCESS	Branch EOD process
	SMS_FA_USER_NEW	User Create
✓	SMS_FA_ROLE_AMEND	Role Amend
✓	SMS_FA_ROLE_CLOSE	Role Close
✓	SMS_FA_ROLE_REOPEN	Role ReOpen
Page 1 (1-5 of a	t least 35 items) K < 1 2 3 4 5 6 > X	

Only authorized users can access the system with the help of a unique User Login ID and password. The user profile of a user contains the details of the user in four sections - User details, Status, Other details and User role branches.

Go to: Security Management > User screen

Figure 35:	Users	Maintenance
------------	-------	-------------

Users Maintenance			,* ×
New Copy Unlock Close			
UserDetails			
Litemane *	Ironin ID.*	Home Branch *	
CBLM03	OBUM03	LMB Q	
Status			
50005			
User Status *	Status Changed On	Is Supervisor *	Manaper ID *
6/30/8 v	Sep 10, 2020		DAADMINI
Start Date "	End Date San 30 2021		
	100 M 100 M		
Other Details			
Access to PI	Staff Customer Restriction Required	Customer ID	Emei ID
		٩.	obim03@gmail.com
Telephone Number	Home Phone Number	Mobile Number	Fax
WHTE	Eanguage code *		
User Role Branches			
Branch Code	Role Code	Raie Description	
	ADMIN_ROLE Q	Default role for initial login	
LMB Q	٩		
Page 1 of 1 (1-2 of 2 items) X < 1 > X			
user Applications			
			Select AI Applications
Application Name		Application Description	
OBLM Q		Oracle Banking Liquidity Management System	
LMX Q		OBLM Integration	
unc q		DBLM CashConcentration	
ା ୦୫୮୦ ଦ୍		Oracle Banking Interest and Charges System	
UMP Q		DBLM Pool	
Page 1 (1-5 of at least 14 items) K < 1 2 3 > ×			
Audt			Save Canol
Mew Role 🖋 View User 🖋 Users Maintenance 🦨			

NOTE: Make sure that the required Role and User Applications are mapped to the user.



4.1 First level issues

This subsection describes the possible issues that may occur during the basic investigation.

4.1.1 Error Message not shown

If there is any improper calls, check ERTB_MSGS table of the respective schema to understand the cause of the error. Open the Networks tab (F12), check the error code in the response.

SELECT * FROM ERTB_MSGS WHERE ERR_CODE='GCS_AUTH-03'

Figure 36: Error Message not shown



4.1.2 Setting Log file path

Log generation path needs to be defined in **PLATO_LOGGER_PARAM_CONFIG** table of PLATO schema.

select * from PLATO_LOGGER_PARAM_CONFIG;

Figure 37: Setting Log file path

	<pre>select * from plato_logger_param_config;</pre>					
Query Result ×						
📌 📇	📌 📇 🙀 🙀 SQL All Rows Fetched: 3 in 0.072 seconds					
	∲ ID	MODIFY_FIELD	PARAM_NAME	PARAM_VAL		
1	1	N	LOG_PATH	/scratch/weblogic/logs		
2	2	N	LOG_LEVEL	INFO		
3	3	N	LOG_MSG_WITH_TIME	Y		



4.1.3 Dynamic log generation issues

For generating dynamic service logs, you need to insert data to **PLATO_DEBUG_USERS** table as shown in below screenshot.

select * from PLATO_DEBUG_USERS;

Figure 38: Dynamic log generation issues

	<pre>select * from plato_debug_users;</pre>					
Quer	y Resu	lt ×				
📌 📇	6)	SQL All Rows	Fetched: 33 in 0.111 seconds			
	∯ ID	OEBUG_ENABLED	SERVICE_CODE	USER_ID		
1	95	Y	plato-orch-service	ABIVAN		
2	96	Y	plato-orch-service	ABIVAN2		
3	97	Y	plato-o	ABIVAN		
4	98	Y	plato-o	ABIVAN2		
5	99	Y	plato-alerts-management-services	ABIVAN		
6	100	Y	plato-alerts-management-services	ABIVAN2		

NOTE: Login to WINSCP and check server logs. Log files for each service will be generated based on the user_id, branch_code and date at the path provided in the plato_logger_param_config table.

Figure 39: Server logs

/scratch/weblogic/logs/		
Name	Size	Changed
bremo-rpm-projection-services_ABIVAN_000_2021-05-07.log	173 KB	5/10/2021 11:37:10 AM
bremo-rpm-cmn-applicantservices_ABIVAN_000_2021-05-07.log	96 KB	5/10/2021 11:37:09 AM
obremo-rpm-maintenance-services_ABIVAN_000_2021-05-07.log	285 KB	5/10/2021 11:37:08 AM
bremo-rpm-maintenance-services_ABIVAN_000_2021-05-10.log	69 KB	5/10/2021 11:37:07 AM
cmc-transactioncontroller-services_ABIVAN_000_2021-05-10.log	130 KB	5/10/2021 10:21:51 AM



4.1.4 Call is failing in Gateway

If any API call is failing in Gateway, hit the same API endpoint without passing through apigateway via postman.

Figure 40: Call is failing in Gateway



NOTE: Restart the specific services if required.

4.1.5 Code error in GCS side

If there is any error in GCS side codes, use java de-complier to debug the error.

4.1.6 404 error

The possible causes for 404 error are as follows:

- Check service is not running on Eureka
- Check if service is deployed in Weblogic

4.1.7 500 internal error

The possible causes for 500 internal error are as follows:

- Issue with Oracle Banking Microservices Architecture entries
- Issue with Eureka
- Service may not be up
- Issue with any peace of code

The server-side debugging is needed for the above-mentioned issues, if it is not captured in logs.



4.2 Transaction data verification

Follow the best practices mentioned below to avoid getting any errors:

- In the **IN** request and **OUT** response, verify that all the field data is going to service side.
- If there is any error related to SMS, check for the availability of SMS entries.
- Validate the endpoints and data.
- Validate the request headers passed during the API call.
- Verify that the data entered in the screen is accurate.

4.2.1 "Apply Now" is Failing in Product Catalogue

If "Apply Now" in Product Catalogue is failing, troubleshoot using the below points

- Check if conductor war and plato-orch-service war is deployed in Weblogic
- Check whether "PLATO-O" and "PLATO-ORCH-SERVICE" is registered in Eureka

PLATO-O	n/a (1)	(1)	UP (1) - plato-o:8001
PLATO-ORCH-SERVICE	n/a (1)	(1)	UP (1) - whf00dtm.in.oracle.com:plato-orch-service:7011

- Check whether the INITIATION workflow DSL is imported.
 - Front-End Menu: Tasks → Business Process Maintenance → Search for INITIATION workflow
- Check whether obremo-rpm-projection-services is up and running as this service is required during INITIATION(Apply Now)
- Check whether Sequence Generator service is up and running

SEQUENCEGENERATORSERVICE n/a (1) (1) UP (1) - whf00dtm.in.oracle.com:sequencegeneratorservice:7020

• Refer 2.2 Preliminary Check for UI section to see if any API call is failing



4.3 Party Module Integration Troubleshooting

This section describes the possible issues that may occur in Party Module integration. The possible issues and causes are described in the following subsections:

4.3.1 Existing Customer Details Fetch is failing

If in Customer Information data-segment, the existing customer details is not fetching, follow the below steps to

- 1. Refer 2.2 Preliminary Check for UI to see if any Party API is failing
- 2. Check Oracle Banking Routing Hub Audit Request to see if any Oracle Banking Routing Hub calls to Party Module has failed
 - a. Go to Core Maintenance → Routing → Service Consumers → RPM_ORIGINATION → Consumer Services tab → OBPY_GET_EXISTING_PARTY
 Note: If you do not find any Oracle Banking Routing Hub configuration named
 OBPY_GET_EXISTING_PARTY, that means, the Oracle Banking Routing Hub
 configurations are not fully imported. Import the Oracle Banking Routing Hub configuration available in the source folder.
 - b. From the Actions, click on Request Audit

Figure 41: Service Consumers

Service	e Consumers						$_{\mu^{k'}}\times$
RPN	I_ORIGINATIC	N > Consur	ner Serv	ices > OBPY_GET_E	EXISTING_PARTY		
Transf	formation Routing	9					
G	Add 🏼 🎦 Im	port search		٩			
Actio	ons Name		Status	Product Processor	Implementation	Service	
-	View	PARTY	ACTIVE	OBPY 14.4	obpy-party-services	getPartyDetails - /service/v1/getParty/{partyld}	
Pag	Edit	of 1 items) K	< 1	K K			
	Delete						
	Export						
	Request Audit]					

- c. Check the latest getPartyDetails Oracle Banking Routing Hub call
- d. Click on the Request Id and check the "Provider Response" to check for any errors



Figure 42: Request Audit

Request Audit (Transf	ormation: GET_EXISTING_PAR	TY)			×
Request Id	Provider		Provider Impleme	ntation	
Provider Service	Route		User Id		
Search					
Request Id Provi	der Provider Implementation	Provider Service	Route	Status	User Id
LKxZNjM OBPY	14.4 obpy-party-services	getPartyDetails	obpy-get-existing-	SUCCESS	ABIVAN
			party-details		

Figure 43: Request Audit Details

Request Audit Details				
Request Id				
LKxZNjMF6Wdtim442J8u blcTua6dTKguw4	cdMBncKWGatVhdd5ml	dVmXUjA0cdT6fcCQ1Uz\/	/G1ZCO6QdWmvLceW2	
Ø	•		•	
OBRH Request	Provider Request	Provider Response	OBRH Response	
Timestamp				
2021-05-10T12:42:31.352	+05:30			
Message				
{"headers":"{\n \"Access- Headers\" : [\"\", \"\"],\n OPTIONS, HEAD, PATCH\ \"no-store\"],\n \"Conte 07:12:23 GMT\"],\n \"Exp	Control-Allow-Credentia \"Access-Control-Allov '].\n \"Access-Control-, nt-Type\" : [\"applicatio pires\" : [\"-1\"],\n \"Ht	als\" : [\"true\"],\n \"Acce Methods\" : [\"GET, POS Allow-Origin\" : [\"\"],\n n/json\"],\n \"Date\" : [\' tpResponseCode\" : 200,\	ess-Control-Allow- 5T, PUT, DELETE, \"Cache-Control\" : ["Mon, 10 May 2021 n \"Pragma\" : [\"no-	

4.3.2 Customer Information Data-segment Dropdowns not Fetching

If in Customer Information data-segment, the existing customer details is not fetching, follow the below steps to

- 1. Refer 2.2 Preliminary Check for UI to see if any Party API is failing
- 2. Check Oracle Banking Routing Hub Audit Request to see if any Oracle Banking Routing Hub calls to Party Module has failed
 - a. Go to Core Maintenance → Routing → Service Consumers → RPM_ORIGINATION
 → Consumer Services tab → OBPY_MAINTENANCE
 Note: If you do not find any Oracle Banking Routing Hub configuration named
 OBPY_MAINTENANCE, that means, the Oracle Banking Routing Hub configurations are not fully imported. Import the Oracle Banking Routing Hub configuration available in the source folder.
 - b. From the "Actions", click on "Request Audit"
 - c. Check the latest getPartyMaintenance Oracle Banking Routing Hub call
 - d. Click on the Request Id and click the "Provider Response" to check for any errors



4.4 FLEXCUBE Host Integration Troubleshooting

This section describes the possible issues that may occur in FLEXCUBE Universal Banking Solution integration. The possible issues and causes are described in the following subsections:

4.4.1 Host Calls Failing

Host call failure may be due to various reasons ranging from improper Oracle Banking Routing Hub configuration to absence of maintenance in the Oracle FLEXCUBE Universal Banking environment. Host call may fail during Business Product Host Product listing, Interest or Charge Details data-segment fetch or during Oracle FLEXCUBE Universal Banking Account creation time. To find the root issue, follow the below steps

- 1. Check Oracle Banking Routing Hub Audit Request to see if any Oracle Banking Routing Hub calls to Oracle FLEXCUBE Universal Banking Module has failed
 - a. Go to Core Maintenance → Routing → Service Consumers → RPM_ORIGINATION → FCUBS
 Note: If you do not find any Oracle Banking Routing Hub configuration for Oracle FLEXCUBE Universal Banking, that means, the Oracle Banking Routing Hub configurations are not fully imported. Import the Oracle Banking Routing Hub

configurations are not fully imported. Import the Oracle Banking Routing Hub configuration available in the source folder.

b. From the Actions, click on Request Audit

Figure 44: Service Consumer

Service Consumers					
RPM_ORIGINATION > Service Provide	RPM_ORIGINATION > Service Providers > FCUBS 14.4				
Implementation					
🕂 Add 🛃 Import search	٩				
Actions Name	Description	Host	Port		
FCUDE Default	Default Implementation	whf00alo	7348		
Pa: Edit of 1 items) K < 1	к				
Delete					
Export					
Request Audit					



c. Check the latest Transformation for which you have performed the operation

Figure 45: Request Audit

Service Consumers	Request Audit	Request Audit (Implementation: FCUBS_Default)						2 ¹⁶ - 2	×
RPM_ORIGINATIO	Request Id	C	onsumer Service		Provider Service				
🕂 Add 🔁 Im	Transformation	R	oute		User Id				
Actions Name FCUBS_Defaul	Search							7348	
Page 1 of 1 (1-1	Request Id	Consumer Service	Provider Service	Transformation		Route	-		
	0j1zHum	Loan_Simulation	invokeReque st	Loan_Simulation	_Transform	Loan_Simulation	J		
	kXbFn6P	Get_Customer_Liability_Details	invokeReque st	Get_Customer_Li	ability_Details_Transform	Get_Customer_L	ia		
	myHGmn	Loan_Simulation	invokeReque st	Loan_Simulation	_Transform	Loan_Simulation	υ		
	ydL11PZ	Loan_Simulation	invokeReque st	Loan_Simulation	_Transform	Loan_Simulation	J		

- d. Click on the Request Id and check the "Provider Response" to check for any errors
- If there is no Oracle Banking Routing Hub call itself but still Host call is failing (especially for Account Creation), then failure might be in the workflow task level. In order to debug this scenario, follow the below steps
 - a. Using the Application Number, call the plato-orch-service search API (API details given below) using Postman

```
API UrI: <u>http://whf00dtm.in.oracle.com:7011/plato-orch-service/api/v1/extn/custom-actions/queries/tasks?offset=0&limit=100</u>
```



Headers:

Content-Type:application/json userld: appld:platoorch branchCode: entityld:DEFAULTENTITY



b. From the response, search for "subWorkflowld"



c. Use this subWorkflowId as parameter in the below API API Url: http://whf00dtm.in.oracle.com:7011/plato-orch-service/api/workflow/ad194dd5-738f-4ce3-b9b9-2a9f72bb59c6 Headers: Content-Type:application/json userId: appld:platoorch branchCode: entityId:DEFAULTENTITY
d. The response will show the actual error for HTTP task to fail.



5 Troubleshooting Deployment Errors/Exceptions

5.1 Solutions for Errors/Exceptions that can occur due to flyway while deployment

The Error Description is given below:

org.springframework.beans.factory.UnsatisfiedDependencyException: Error creating bean with name 'application': Unsatisfied dependency expressed through field 'flywayApplicationConfig'; nested exception is org.springframework.beans.factory.BeanCreationException: Error creating bean with name 'executeDomain' defined in class path resource [oracle/fsgbu/plato/flyway/FlywayConfig.class]: Bean instantiation via factory method failed; nested exception...SQL State : 42000

In the error, the bean-name can be any of the following:

- executeDomain
- executePlato
- executePlatoSec
- executePlatoUl
- executeSms
- executeCmc
- executeMidofcmc
- executePlatofeed
- executePlatobatch
- executePlatoorch

Solution:

1. At first for each case, it is to be checked that whether the service is pointing to the correct schema via the **plato-config-service**.



2. After checking that it is to be ensured that for that particular APPLICATION, the following entries are present in the PROPERTIES table in the plato schema.

BEAN	PROPERTY_SET NEED TO BE PRESENT
executeDomain	flyway.domain.db.*
executePlato	flyway.plato.db.*
executePlatoSec	flyway.platosec.db.*
executePlatoUI	flyway.platoui.db.*
executeSms	flyway.sms.db.*
executeCmc	flyway.cmc.db.*
executeMidofcmc	flyway.domain.db.*
executePlatofeed	flyway.platofeed.db.*
executePlatobatch	flyway.platobatch.db.*
executePlatoorch	flyway.platoorch.db.*

Depending on whether for the flyway db connection, JNDI name is being used or the JDBC URL and other details are used, each property set will look as follows:

CASE 1: USING JDBC

flyway.domain.db.username flyway.domain.db.password flyway.domain.db.jdbcUrl flyway.domain.db.driver-class-name flyway.domain.schemas flyway.domain.locations flyway.domain.locations flyway.domain.placeholderReplacement flyway.domain.ignoreMissingMigrations flyway.domain.outOfOrder



CASE 2: USING JNDI

flyway.domain.db.jndi flyway.domain.schemas flyway.domain.locations flyway.domain.placeholderReplacement flyway.domain.ignoreMissingMigrations flyway.domain.outOfOrder flyway.jndi.datasource.enabled

Make sure that in each case all the placeholders need to be present whichever are available in the scripts in the respective locations.

Error Description:

No value provided for placeholder: \${eureka.host}. Check your configuration!

In the above example, the error has occurred due to the absence of passing the following parameter in the properties table:

flyway.domain.placeHolders.eureka.host

Solution:

Similar to this, any placeholder for which the error occurs, that needs to be passed to the environment via the properties table or the command line arguments (as -D parameters).



6 Business Error Codes

The list of overrides/information/error codes that might be faced during usage of the application can be found in the table ERTB_MSGS of the corresponding service schema being operated on. For example, if you face an error in Business Product maintenance screen and you want to see the error code in the table, you should connect to your Business Product schema and search for that particular error code in the ERTB_MSGS table.

Figure 46: Error Code and Messages

	select * from E	RTB_MSGS;		
Query Result ×				
📌 📇 🙀 🙀 SQL Fetched 50 rows in 0.177 seconds				
	<pre> ERR_CODE </pre>	UANGUAGE	♦ MESSAGE	
1	RPM-BP-CMN-001	ENG	Exception Occurred while Parsing Date	
2	RPM-BPD-001	ENG	Expiry date should be greater than Start date	

