

# Oracle® Banking APIs

## Host Integration Guide



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## Purpose

This guide is designed to help acquaint you with the Oracle Banking Digital Experience application. This guide provides answers to specific features and procedures that the user need to be aware of the module to function successfully.

## Audience

This document is intended for the following audience:

- Customers
- Partners

## Documentation Accessibility

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## Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

## Conventions

The following text conventions are used in this document:

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

## Related Resources

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

- [Oracle Banking APIs Installation Manuals](#)

## Screenshot Disclaimer

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

## Acronyms and Abbreviations

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

**Table 1 Acronyms and Abbreviations**

Abbreviation	Description
OBAPI	Oracle Banking APIs



# 1

## Introduction

- [Overview \(OBAPI-FCUBS Integration\)](#)  
This document is intended to outline the integration of OBAPI (Oracle Banking APIs) with FCUBS (Oracle FLEXCUBE Universal Banking).
- [OBAPI Integration Model](#)
- [OBAPI Adapter Project Model](#)  
Above Integration model depicts the OBAPI adapter integration with core banking system, Integration can be accomplished by concrete adapter implementations.

### 1.1 Overview (OBAPI-FCUBS Integration)

This document is intended to outline the integration of OBAPI (Oracle Banking APIs) with FCUBS (Oracle FLEXCUBE Universal Banking).

OBAPI is the digital banking solution platform that enables single-view of a customer's entire banking world.

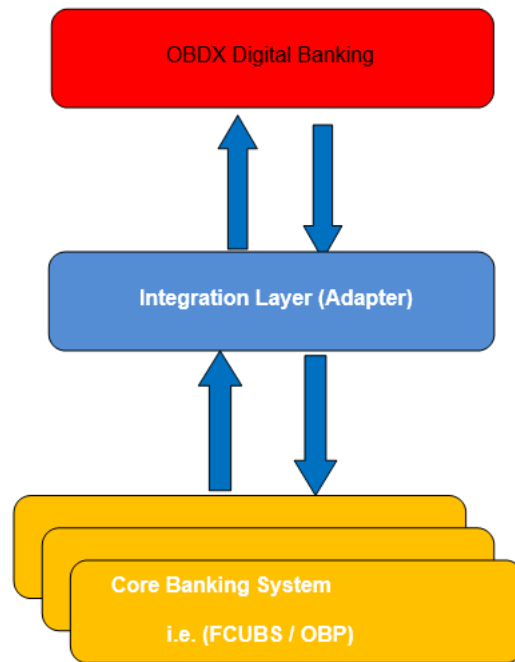
It ensures that the program is closely aligned to the business strategies identified and provides accelerated path towards realizing business value.

It provides the prerequisite operations to be performed on the customer banking world, which is exposed in the form of REST web service API's to decouple presentation and service layer. OBAPI needs to be integrated with one of core banking systems to retrieve the customer banking details and execute the set of operations on the core banking system as per the service requirement.

OBAPI has adapter layer to integrate with core banking operations. It provides a set of adapter specifications (Java Interfaces) which can be implemented for host specific service invocation. Adapter layer decouples the services from core banking operation. Any number of core banking system can be integrated with OBAPI by implementing adapter classes, Adapter layer is responsible for mapping service request /response with host specific request and response.

This document exhibits the integration between core system & OBAPI including the basic attributes involved in integration process.

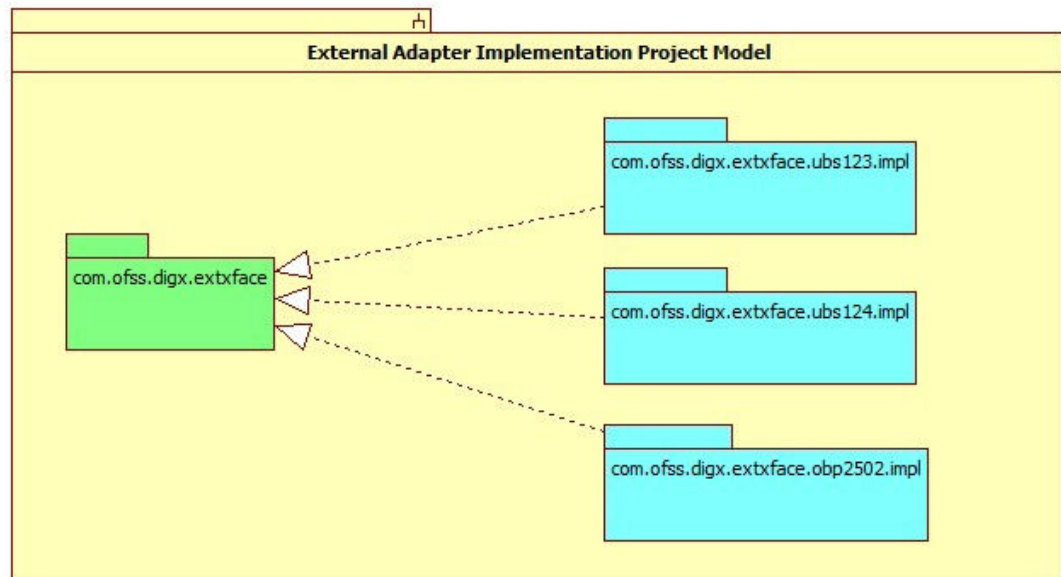
### 1.2 OBAPI Integration Model



## 1.3 OBAPI Adapter Project Model

Above Integration model depicts the OBAPI adapter integration with core banking system, Integration can be accomplished by concrete adapter implementations.

Following model illustrates OBAPI adapter specifications and its concrete adapter implementation relationship project model.



In above model, project `com.ofss.digx.extxface` contains all the adapter specifications (Java Interface) for external facing adapters. The concrete implementation classes of the adapter interfaces will reside in the host specific adapter implementation project.

Example: To integrate with FCUBS 12.4 core banking system, adapter interfaces should be implemented for host specific service invocation and concrete implementation adapter classes will reside in `com.ofss.digx.extxface.ubs124.impl` project.

# 2

## FCUBS Adapter Implementation

To process the request with FCUBS core banking system, OBAPI has set of adapter specifications which would be implemented for host specific services invocation.

Concrete implementation adapter classes need to be created by implementing respective adapters interface and interface defining methods should be implemented.

Concrete adapter defining methods may have two types of operation:

- Inquiry Operation
- Transactional Operation

Inquiry operation is process to interchange data between OBAPI and FCUBS core banking system without altering customer banking state. It queries on the host system to fetch needed information required for tracking, summarizing the details or processing the transactional operation.

Example: Fetch Customer detail, Accounts detail.

Transactional operation will request to host system for altering/creating end user banking states.

Example: Payments, Account Opening.

- [Guideline to Implement Adapter](#)
- [Inquiry Operation on FCUBS](#)  
To inquire data on core banking system, FCUBS provides a set of database view/synonyms object to inquire the required information.

### 2.1 Guideline to Implement Adapter

1. Adapter implementation class must implement the respective interface and provide implementations for all methods defined in the interface.
2. Any exception while invoking core banking services must be translated into OBAPI exception (`com.ofss.digx.infra.exceptions.Exception`) and host error code(s) should be mapped to an OBAPI error code.

### 2.2 Inquiry Operation on FCUBS

To inquire data on core banking system, FCUBS provides a set of database view/synonyms object to inquire the required information.

A connector schema is required which hosts the required views, synonyms, functions and procedures for querying data in FCUBS. OBAPI relies on a middleware API packaged as “com.ofss.extsystem.ubs” which provides host adapters that interact with the connector schema to fetch the required information. To invoke these host adapters, the static Java method

```
com.ofss.extsystem.ubs.business.extsystems.HostAdapterManager.processRequest(Host
```

`RequestDTO`) needs to be invoked from within OBAPI adapter implementation. The `HostRequestDTO` class must be provided with the required request information.

All the FCUBS middleware adapters are configured with unique a request id in the database table `MSTHOSTINTERFACE`. `HostAdapterManager` identifies the adapter class for given request id configured in `MSTHOSTINTERFACE` table and invoke the `processRequest()` method of respective adapter class.

Following steps are required to invoke the host adapter:

1. Create the Request DTO object and fill required fields.
2. Build host request by calling  
`com.ofss.extsystem.ubs.business.extsystems.HostAdapterHelper.buildHostRequest(RequestDTO)` method.
3. Invoke `HostAdapterManager.processRequest(HostRequestDTO)` with the `HostRequestDTO` created by invoking the method in step 2.

**Reference:**

```
HostRequestDTO hostRequest= null;

HostResponseDTO hostResponse = null;

AccountDetailsRequest AccountDetailsRequest = new
AccountDetailsRequest();

    AccountDetailsRequest.userContext = new UserContextDTO();

    AccountDetailsRequest.userContext.idEntity = "B001";

    AccountDetailsRequest.userContext.idTxn = "PAR";

    AccountDetailsRequest.userContext.idRequest =
"PARTYACCOUNTREL";

    AccountDetailsRequest.userContext.serviceVersion = 0;

    AccountDetailsRequest.userContext.refIdEntity = "B001";

    AccountDetailsRequest.userContext.userType = "EN1";

    AccountDetailsRequest.account = new AccountNoInputDTO();

    AccountDetailsRequest.account.idCustomer = partyId;

    AccountDetailsRequest.account.acctType = accountType;

    hostRequest =
HostAdapterHelper.buildHostRequest(AccountDetailsRequest);

try {

HostResponse = HostAdapterManager.processRequest (hostRequest);

    } catch (java.lang.Exception e) {

logger.log (Level.SEVERE, formatter.format.Message ("<exception
message with request parameter>"));
```

# 3

## OBAPI-FCUBS Configuration/ Installation

To inquire the banking information, FCUBS provides a set of database views/synonyms. These are created on a connector schema which is created at the time of installation of the product.

A datasource must be created on the application server where the application has been deployed. The name of the datasource must be specified in the jdbc.properties file for the property name `FCON.A1.JNDI.NAME`, `FCON.AP.JNDI.NAME` and `FCON.B1A1.JNDI.NAME`.

Below properties should be define in `config/jdbc.properties` file

```
FCAT.WEBSERVER.ID=ZZFCAT.APPSERVER.ID=ZZFCAT.ROUTER.DAEMON.NAME=ROUTERDISPLAY.
MESSAGE.
ID=NFCAT.LDB.DATABASE.NAME=ORACLE
FCON.A1.LDB.DRIVER=oracle.jdbc.driver.OracleDriverFCON.A1.LDB.
URL=%%DB_CONNECT_STRING%%FCON.A1.JNDI.NAME=B1A1FNDI.A1.ABCD=
FCON.AP.LDB.DRIVER=oracle.jdbc.
driver.OracleDriverFCON.AP.LDB.URL=%%DB_CONNECT_STRING%
%FCON.AP.JNDI.NAME=B1A1FNDI.AP.ABCD= B001.
A1=B1A1FNDI.B1A1.ABCD=FCON.B1A1.JNDI.NAME=B1A1FCON.B1A1.LDB.DRIVER=oracle.jdbc
.driver.OracleDriverFCON.
B1A1.LDB.URL=%%DB_CONNECT_STRING%%
```

- [Server Setup](#)
- [Deployment](#)

We have FCUBS deployable ear containing all the jar files required to invoke the FCUBS adapter.

### 3.1 Server Setup

### 3.2 Deployment

We have FCUBS deployable ear containing all the jar files required to invoke the FCUBS adapter.

Following deployable should be deployed on OBAPI server:

`obapi.extsystem.domain.ear`

It contains all the related libraries required to process FCUBS system request.

# 4

## Configuration for Integration of FCUBS Interaction with OBAPI Mailbox

Out of the box installation OBAPI provided with the mailbox to interact within OBAPI i.e. Back Office user of the banks in the OBAPI will be able to access the mail send by the customer.

If the OBAPI Mails by the customer need to be integrated with the FCUBS Interaction module then the below steps should be taken care of.

**Assumption:** Installation of OBAPI has been completed and configuration of all the entity requires in the system has been completed.

Execute below scripts in the OBAPI Admin Schema to configure entity specific integration of mailbox with interaction module in FCUBS.

```
Insert into DIGX_FW_CONFIG_ALL_O
(PROP_ID,PREFERENCE_NAME,PROP_VALUE,DETERMINANT_VALUE,CREATED_BY,CREATION_DATE
, LAST_UPDATED_BY, LAST_UPDATED_DATE)
values('MAILBOX_PROCESSOR','MailboxProcessor','com.ofss.digx.app.collaboration
.service.mailbox.message.mail.processor.RemoteMailboxProcessor','OBDX_BU1','su
peradmin',sysdate,'superadmin',sysdate);
```

```
Insert into DIGX_FW_CONFIG_ALL_O
(PROP_ID,PREFERENCE_NAME,PROP_VALUE,DETERMINANT_VALUE,CREATED_BY,CREATION_DATE
, LAST_UPDATED_BY, LAST_UPDATED_DATE)
values('MAIL_REPOSITORY_ADAPTER','RepositoryAdapterFactory','com.ofss.digx.d
omain.collaboration.entity.mailbox.message.mail.repository.adapter.RemoteMailR
epositoryAdapter,com.ofss.digx.domain.collaboration.entity.mailbox.message.mai
l.repository.adapter.LocalMailRepositoryAdapter','OBDX_BU1','superadmin',sysda
te,'superadmin',sysdate);
```

Highlighted values can be varied based on the entity configuration require to be integrated with FCUBS interaction module.



# 5

## Configuration for Attachments in OBAPI Mailbox or Interaction Module

By default the mailbox attachment will be integrated to OIPM. If the Bank wants to change this then below are the configuration steps.

1. If bank want to use local database to save uploaded document i.e. other than OIPM then below script need to be executed on OBAPI Admin schema. This will point content service to the local data base for mailbox attachment specifically.

```
UPDATE DIGX_FW_CONFIG_ALL_B SET  
PROP_VALUE='com.ofss.digx.domain.content.entity.repository.adapter.LocalContentRepositoryAdapter'  
WHEREPROP_ID = 'IM_CONTENT_REPOSITORY_ADAPTER'
```

2. If bank want to use OIPM server to manage uploaded document then below script need to be executed on OBAPI Admin schema. This will point content service to the OIPM server for mailbox attachment specifically.

```
UPDATE DIGX_FW_CONFIG_ALL_B SET  
PROP_VALUE='com.ofss.digx.domain.content.entity.repository.adapter.RemoteContentRepositoryAdapter'  
WHEREPROP_ID = 'IM_CONTENT_REPOSITORY_ADAPTER'
```

# 6

## Configurations for OBRH Integration

Use the following guidelines to integrate with OBRH from the OBAPI adapter.

### To call OBRH endpoint from adapter, add entry of

```
OBRHEndPoint(com.ofss.digx.extxface.impl.endpoint.OBRHEndPoint)
against your "interfaceId" in digx_fw_config_all_b for Category id as
"ExtXfaceConfig".
The "interfaceId" should be the unique service name defined in the OBRH for
specific consumer.
```

### To configure which serializer and deserializer should be called for your Request,

```
Add prop_id entry in digx_fw_config_all_b as
"com.ofss.digx.extxface.impl.endpoint.
OBRHEndPoint_<interfaceId>" and prop_value, as which Serializer Deserializer
should be used
(JSON or XML)
```

For JSON: "com.ofss.digx.extxface.impl.endpoint.serde.JsonSerDe" (this is the default class picked if no specific entry is made)

For XML: "com.ofss.digx.extxface.impl.endpoint.serde.XmlSerDe"

Category id is "ExtXfaceConfig".

OBRH is shipped with OBAPI in standalone way only if customer does not have any OBMA product installed. For customers with OBMA installation, OBRH of that setup must only be used.

- [Configurations for connecting to OBRH](#)
- [FCUBS OBRH Configuration](#)  
Execute the following script at OBAPI digx database and restart the managed server.

## 6.1 Configurations for connecting to OBRH

- [OBRH of OBMA setup](#)
- [OBRH \(Standalone\) of OBAPI setup](#)

### 6.1.1 OBRH of OBMA setup

1. **GENERATE\_ENCRYPTED\_OBRH\_PASSWORD**  
To configure and add credentials for obrh follow the steps mentioned in the below document with <DataSeedFlag> set to N.
  - **Oracle Banking Digital Experience Credential Store Setup Guide**  
Copy the obrh password displayed in the terminal for further steps.

**2. DIGX\_FW\_CONFIG\_ALL\_B**

Category Id	Prop_id	Prop_Value ( Default_value)
authenticationConfig	OBRH_ENCODING	BASE64 (Sends credentials in base 64) PLATO_ENCRYPTION (Encrypts credentials)
authenticationConfig	OBRH_EXPIRYTIME	\${OBRH_EXPIRYTIME}
authenticationConfig	OBRH_TOKEN_PATH	token
ExtXfaceConfig	com.ofss.digx.extxface.impl.endpoint.OBRHEndPoint_<interfaceId>	com.ofss.digx.extxface.impl.endpoint.serde.JsonSerDe ( JSON is default value, you can SerDe you want for this request)
ExtXfaceConfig	<interfaceId>	com.ofss.digx.extxface.impl.endpoint.OBRHEndPoint

**3. DIGX\_FW\_CONFIG\_VAR\_B**

Prop_id	Prop_Value ( Default_value)	ENV_ID
OBRH_HOST_IP	whf00lse.in.oracle.com	OBAPI
OBRH_HOST_PORT	7002	OBAPI
OBRH_EXPIRYTIME	300	OBAPI
CredentialPropertyStore	OBRH_USER_NAME	OBAPI
CredentialPropertyStore	OBRH_USER_PASSWORD	27753d4e463db94b64ab096fabc916ff24670adfa0b5769ad9

**4. DIGX\_FW\_CONFIG\_ADAPTER\_PROP\_B**

HOST_ID	TRANSACTION_TYPE	PROP_ID	PROP_VALUE (Default_value)
OBRH	ALL	APP_ID	CMNCORE
OBRH	ALL	USER_ID	OBAPI
OBRH	ALL	BRANCH_CODE	004
OBRH	ALL	SERVICE_CONSUMER	OBAPI
OBRH	ALL	TOKEN_APP_ID	SECSRV001

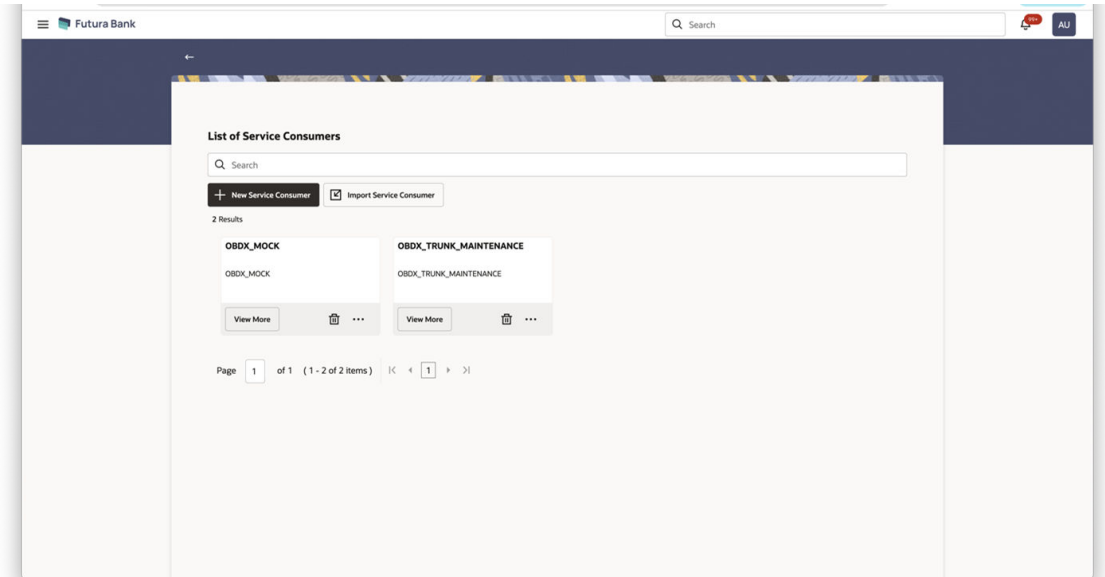
**5. DIGX\_FW\_CONFIG\_OUT\_RS\_CFG\_B**

Service Id	CONTEXT_URL	SERVICE_URL
tokenOBRH	http://\${OBRH_HOST_IP}:\${OBRH_HOST_PORT}	api-gateway/platojwtauth
serviceOBRH	http://\${OBRH_HOST_IP}:\${OBRH_HOST_PORT}	api-gateway/cmc-obrh-services/route/dispatch

Apart from above predefined properties, we have provision to add additional headers. Kindly add your additional headers as a key-value pair in newly added variable "headersMap" of "com.ofss.digx.extxface.impl.dto.ExternalSystemRequest". Refer OBRH User Manual for its usage.

## 6.1.2 OBRH (Standalone) of OBAPI setup

**Figure 6-1 OBRH (Standalone) of OBAPI setup**



```
update digx_fw_config_out_rs_cfg_b set auth_type='APIKEY' where service_id='tokenOBRH';
update digx_fw_config_out_rs_cfg_b set service_url='cmc-obrh-services/route/dispatch' where
service_id='serviceOBRH';
```

```
update digx_fw_config_var_b set prop_value='<OBRH MS Host>' where
prop_id='OBRH_HOST_IP'; update digx_fw_config_var_b set prop_value='<OBRH MS Port>'
where prop_id='OBRH_HOST_PORT';
```

```
update DIGX_FW_CONFIG_var_b set prop_value='<OBAPI MS Host>' where
prop_id='OBAPI.APP.HOST';
```

```
update digx_fw_config_var_b set prop_value='<OBAPI MS Port>' where
prop_id='OBAPI.APP.PORT'
```



### Note:

In case of OBRH/OBAPI cluster, a load balancer must be deployed and that host/port must be configured in above queries

Update SERVICE\_CONSUMER in DIGX\_FW\_CONFIG\_ADAPTER\_PROP\_B

Ensure API Key is generated from admin, Security > Security Keys > API Key. Restart MS

## 6.2 FCUBS OBRH Configuration

Execute the following script at OBAPI digx database and restart the managed server.

```
../installables/db/UBS/DIGX_FW_CONFIG_ALL_O.sql
```



**Note:**

'%ENTITY\_ID%' should be replaced with entity identifier (For example 'OBDX\_BU')

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