# Oracle® Banking Microservices Architecture Routing Hub Configuration User Guide





Oracle Banking Microservices Architecture Routing Hub Configuration User Guide, Release 14.7.2.0.0

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## **Preface**

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## Purpose

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

## **Audience**

This guide is intended for the customers and partners.

## **Documentation Accessibility**

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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.

## **Related Resources**

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

- Oracle Banking Common Core User Guide
- Oracle Banking Getting Started User Guide

### Conventions

The following text conventions are used in this document:

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

## 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
API	Application Programming Interface
JSON	Java Script Object Notation
XML	Extensible Markup Language
WSDL	Web Services Description Language



## **Basic Actions**

Table 2 Basic Actions

Action	Description
Submit	Click to complete the transaction after you specify all the input parameters for a particular transaction.
Cancel	Click to cancel the transaction input midway without saving any data.
Clear	Click to clear the transaction input data. The system displays a pop-up screen with confirmation to clear data. You can click <b>OK</b> to confirm or click <b>x</b> icon to retain the data.
Query	On completion of input of necessary parameters, click this button to fetch and display the details.
ок	Click to confirm the details in the pop-up screen.
Save	Click to save the details specified in the screen.
Exit	Click to close the screen and go to Home screen.

# Symbols and Icons

This guide has the following list of symbols and icons.

Table 3 Symbols and Icons - Common

Symbol/Icon	Function
J L	Minimize
י ר	
r 7	Maximize
LJ	
×	Close
Q	Perform Search
•	Open a list
<u></u>	Add a new record
K	Navigate to the first record
<b>&gt;</b> I	Navigate to the last record
1	Navigate to the previous record



Table 3 (Cont.) Symbols and Icons - Common

Symbol/Icon	Function
•	Navigate to the next record
O-	Refresh
	Click this icon to delete a row, which is already added.
<b>i</b>	Calendar
Û	Alerts
<u></u>	Import a file
Co	Edit a file



1

## Introduction

Oracle Banking Routing Hub enables seamless and standardized integrations between FSGBU Banking Products using configurations. This component is available as part of the product Infrastructure solution. A loose couple integration between banking products is possible with Oracle Banking Routing Hub.

**Consumer Application** (An application/product that needs to integrate with another product to retrieve information or post transactions) need not know following details while coding the integration.

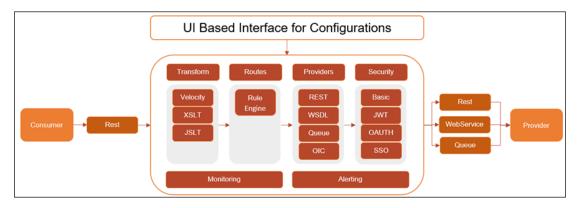
- Servicing Providers or Product Processors: Products which provides data to the Consumer Application when required or posts the transaction when initiated from a consumer application.
- Name of the Service: Logical name of the service example: Funds Transfer, Letter of Credit Initiation to fetch the details from Service Provider product or post a transaction.
- Messaging structure of Service: Structure of the message example: JSON, XML, multipart request.
- · Communication Protocol: Web services, Rest API, Queue, and OIC.

Integration can be achieved and modified anytime later through 'Oracle Banking Routing Hub' configurations. A consumer can also be integrated with different versions of a single Product processors if required.

This guide shows the maintenance of two product as given below.

- Oracle Service Consumer as Service Consumer
- External Product Processor as Service Provider

Figure 1-1 UI Based Interface for Configurations



## **Service Consumers**

This topic describes the systematic instructions to configure the service consumers.

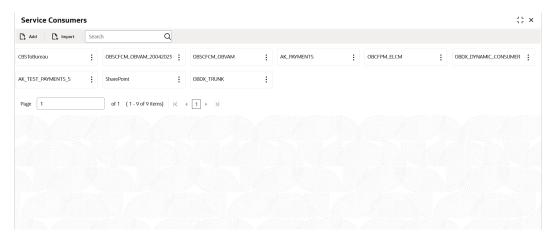
Service Consumer is an Oracle banking product which invokes Oracle Banking Routing Hub API for integration. Oracle Banking Routing Hub analysis, evaluate destination product processor and transform data into format as required by the destination product processor for service a request type

Specify User ID and Password, and login to Home screen.

- On Home screen, clickCore Maintenance. Under Core Maintenance, click Routing Hub.
- 2. Under Routing Hub, click Service Consumers.

The **Service Consumers** screen displays.

Figure 2-1 Service Consumers



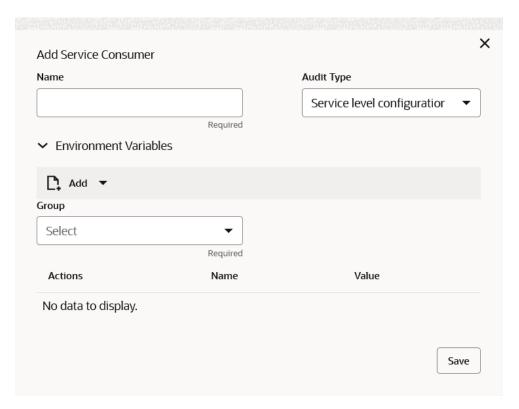
#### **Add Service Consumer**

In addition to importing Service Consumers, users can create Service Consumers manually using Add option..

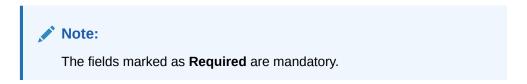
3. Click Add.

The Add Service Consumer screen displays.

Figure 2-2 Add Service Consumer



**4.** Specify the fields on **Add Service Consumer** screen.



For more information on fields, refer to the field description table.

Table 2-1 Add Service Consumer - Field Description

Field	Description
Name	Specify the unique service consumer name.
	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>



Table 2-1 (Cont.) Add Service Consumer - Field Description

Field	Description
Audit Type	<ul> <li>Select the Audit type from the dropdownlist. The available options are: <ul> <li>All Requests - All requests are logged in the OBRH and can be viewed later for debugging.</li> <li>Service level configuration - Option has been provided at consumer services for enabling audit of requests for specific Consumer Services. Audit type should be configured as "Service level configuration" and audit option at "Consumer Services" should be selected for Consumer Services which need to be audited. Monitoring dashboard does not provide the data for requests which are not being audited.</li> <li>None - Disables the audit completely. Audit logs cannot be reviewed later and monitoring dashboard does not provide the data</li> </ul> </li></ul>
Add	To add, refer to step 5. Select the group from the drop-down list. The available options are: Group Variable
Group	Select the group from the drop-down list.
Action	Displays the action. The user can edit or delete the header.
Name	Displays the name of the header.
Value	Displays the value of the header.

#### **Environment Variables**

The user must define the group of variables which can be accessed throughout the specific consumer's configuration. The syntax for accessing environment variables is below: \$env.Environment\_Group\_Name.Environment\_Variable\_Name

For example, \$env.COMMON.BRANCH\_CODE

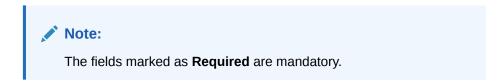
- **5**. To add **Environment Variables**, follow the below steps.
  - a. Click Add on the Add Service Consumers screen, and select Group from dropdown list to add the group.

The Add Environment Group screen displays.

Figure 2-3 Add Environment Group



b. Specify the fields on Add Environment Group screen and click OK.



For more information on fields, refer to the field description table.

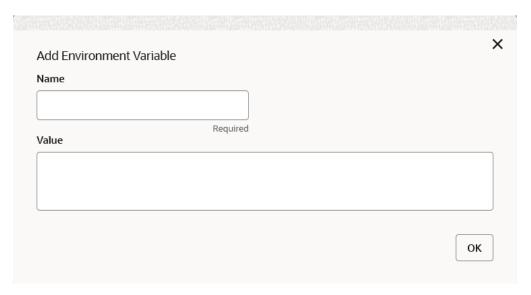
Table 2-2 Add Environment Group - Field Description

Field	Description
Name	Specify the name of the environment group.
	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>

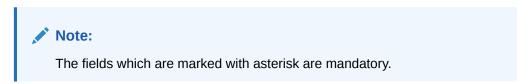
c. Click Add on Add Service Consumer screen and select Variable from dropdown list to add the variable.

The Add Environment Variable screen displays.

Figure 2-4 Add Environment Variable



d. Specify the fields on Add Environment Variable screen and click OK.



For more information on fields, refer to the field description table below.

Table 2-3 Add Environment Variable - Field Description

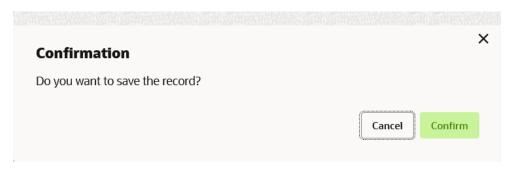
Field	Description
Name	Specify the name of the environment variable.
	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>
Value	Specify the value of the environment variable. The value can either be hardcoded or Velocity mapping.

6. Click **Save** to save the details.

The **Confirmation** screen displays.



Figure 2-5 Confirmation - Add Service Consumers



7. Click **Confirm** to save the record.

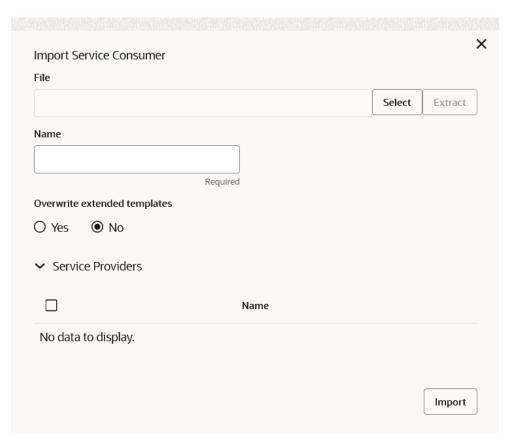
#### **Import Service Consumer**

The user can create a service consumer by importing the JSON file and manually selecting the service providers or select all providers that needs to be imported. The user can also import zip file in order to import all the configuration JSON files together.

8. Click Import.

The **Import Service Consumer** screen displays.

Figure 2-6 Import Service Consumer



9. Specify the fields on Import Service Consumer screen.

Note:

The fields marked as **Required** are mandatory.

For more information on fields, refer to the field description table.

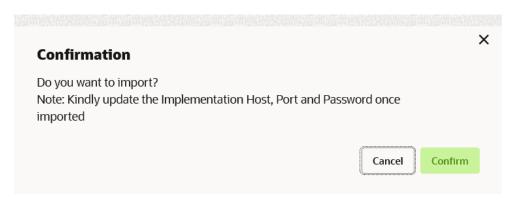
**Table 2-4** Import Service Consumer - Field Description

Field	Description
File	Select the file using <b>Select</b> .
	Note:  Allows only to select one file and accepts JSON and ZIP file.
Extract	Extracts the consumer name and service provider list from JSON file only and displays it in the respective elements.
Name	<ul> <li>Note:</li> <li>Name cannot be blank and required only for JSON file.</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>
Overwrite extended templates	Select the respective radio button to overwrite the extended templates.  The available options are:  Yes - This option overwrites the extended templates.
Comice Previden	No - This option retains the existing extended templates.  Displays the convice provider details.
Service Providers	Displays the service provider details.
Name	Displays the list of service providers names that are present in JSON file only.

**10**. Click **Import** to import the selected service consumer file.

The  ${\bf Confirmation}$  screen displays.

Figure 2-7 Confirmation - Import Service Consumer



11. Click **Confirm** to import the file.



Below data needs to be changed after importing provider configuration file:

- Implementation Host and Port
- Implementation Authentication Password

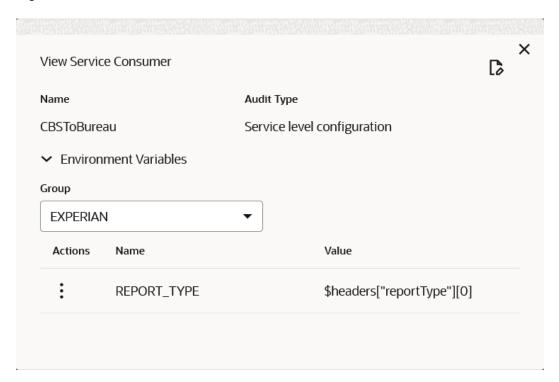
#### **View Service Consumer**

The user can view consumer details and can also switch to edit form by clicking on edit icon.

**12.** On the **Service Consumer** tile, click **Operation Menu** (3 dot icon), and select **View** from the dropdown list.

The View Service Consumer screen displays.

Figure 2-8 View Service Consumer



13. Click **Edit** button to edit the Service Consumer.

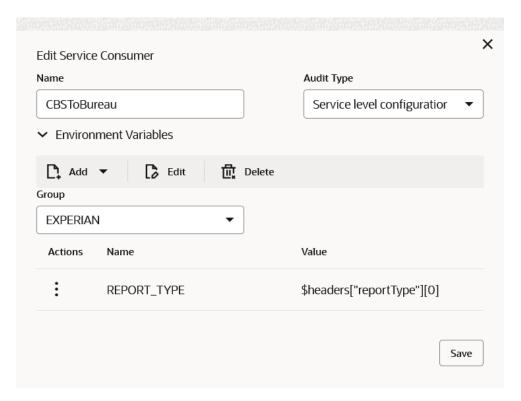
#### **Edit Service Consumer**

The user can modify the consumer details.

**14.** On the **Service Consumer** tile, click **Operation Menu** (3 dot icon), and select **Edit** from the dropdown list.

The Edit Service Consumer screen displays.

Figure 2-9 Edit Service Consumer



15. Click **Save** to save the modified consumer details.

The **Confirmation** screen displays.

Figure 2-10 Confirmation - Edit Service Consumer



16. Click Confirm.

#### **Delete Service Consumer**

The user can delete the Service Consumer.

17. On the Service Consumer tile, click Operation Menu (3 dot icon), and select Delete from the dropdown list.

The Confirmation screen displays.

Figure 2-11 Confirmation - Delete



**18.** Click **Confirm** to delete the service consumer.

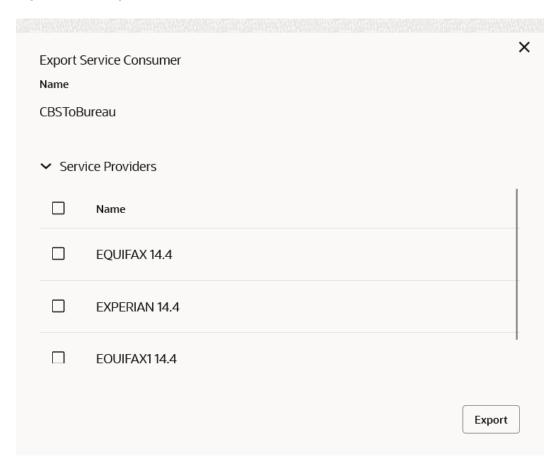
#### **JSON Export**

User can export the consumer configuration as JSON file. The option for Export is provided to move the configurations from one environment to another.

- 19. On Service Consumer tile, click Operation Menu (3 dot icon).
- **20.** On **Export** option, select **JSON** from the list.

The **Export Service Consumer** screen displays.

Figure 2-12 Export Service Consumer



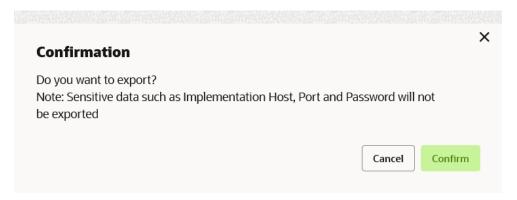


#### Note:

- The user has an option to select the service providers from the list which needs to be exported or can click on select all for all service providers.
- The JSON Export feature exports below data:
  - Selected service consumer
  - All consumer services
  - Selected service providers with services
  - All implementations of selected service providers with services (without Host, Port and Authentication Password)
  - All transformations
  - All routes
- **21.** Select the required service providers and click **Export**.

The Confirmation screen displays.

Figure 2-13 Confirmation - JSON Export



22. Click **Confirm** to export the service consumer in JSON file.

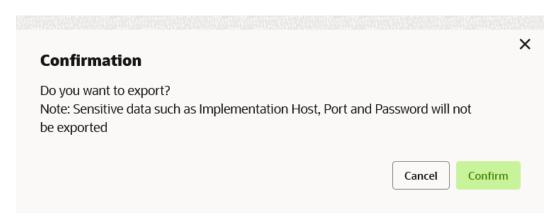
#### **SQL Export**

The user can export the consumer configuration as SQL file.

- 23. On Service Consumer tile, click Operation Menu (3 dot icon).
- **24.** On **Export** option, select **SQL** from the list.

The **Confirmation** screen displays.

Figure 2-14 Confirmation



Note:

The SQL Export feature exports entire configuration without Host, Port, and Authentication Password details.

25. Click **Confirm** to export the consumer configuration as SQL file.

#### Configuration

**26.** On **Service Consumer** tile, click **Operation Menu** (3 dot icon), and click **Configuration**. The **Configuration** screen displays.

Note:

Refer to **Configuration** topic for the screen and field description.

#### **Request Audit**

27. On Service Consumer tile, click Operation Menu (3 dot icon), and click Request Audit. The Request Audit screen displays.

Note:

Refer to Request Audit topic for the screen and field description.

## **Service Providers**

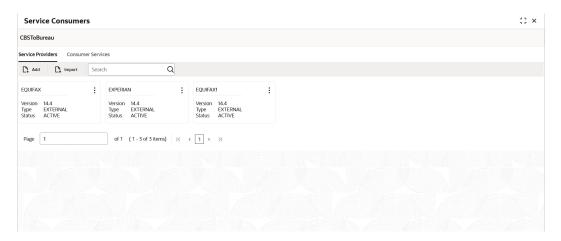
This topic describes the systematic instructions to configure the service providers.

The **Service Providers** are the product processors configure to process request send by Oracle Banking Routing Hub on behalf of service consumers. It comprises destination integration details.

1. On **Service Consumers** screen, click the required service consumer.

The Service Providers screen displays.

Figure 3-1 Service Providers



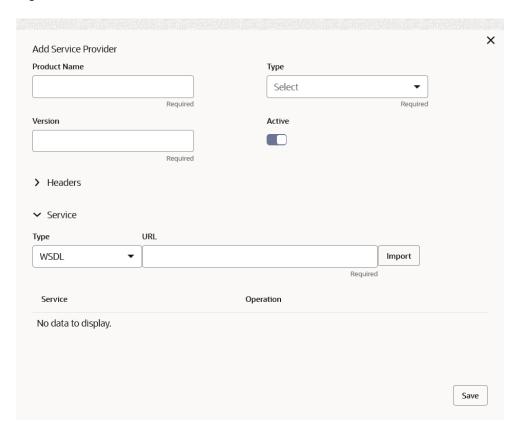
#### **Add Service Provider**

The user can create Service Provider manually.

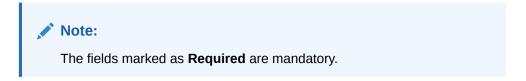
2. Click Add.

The Add Service Provider screen displays.

Figure 3-2 Add Service Provider



3. Specify the fields on Add Service Provider screen.



For more information on fields, refer to the field description table.

Table 3-1 Add Service Provider - Field Description

Field	Description
Product Name	Specify the product name of the service provider.
	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>



Table 3-1 (Cont.) Add Service Provider - Field Description

Field	Description
Туре	Select the type of service provider from drop-down list The available options are:  INTERNAL: Used for Oracle products  EXTERNAL: Used for non-Oracle products
Version	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>Only numeric or decimal values are allowed.</li> </ul>
Active	Predefined values are Active / Inactive If provider is marked as inactive, then all related routes will be stopped.
Add	To add, refer to the below steps.
Actions	Displays the action. The user can edit or delete the header.
Name	Displays the name of the header.
Value	Displays the value of the header.
Туре	Select the type of service from drop-down list. The available options are:  WSDL SWAGGER OTHERS
Name	Note:  This field appears only if the Type is selected as OTHERS.
Http Method	Select the HTTP method. The available options are:  GET POST PUT PATCH DELETE
	Note:  This field appears only if the <b>Type</b> is selected as <b>OTHERS</b> .



Table 3-1 (Cont.) Add Service Provider - Field Description

Field De	scription
	ecify the endpoint URL for the operation.
	Note:  This field appears only if the Type is selected as OTHERS.
URL Sp	ecify the service URL of the file location.
	Note: This field appears only if the Type is selected as WSDL and SWAGGER.
Import Cli	ck <b>Import</b> to extract the service information from URL.
	Note:  This field appears only if the Type is selected as WSDL and SWAGGER.
	ntext path of below formatted URL p://host:port/context-path/endpoint
<del></del>	
	ecify the Endpoint specific headers.  lue can either be hardcoded or can be Velocity mapping.
	Note:  This field appears only if the <b>Type</b> is selected as <b>OTHERS</b> .
	ecify the Endpoint specific query parameters. lue can either be hardcoded or can be Velocity mapping.
	Note:  This field appears only if the <b>Type</b> is selected as <b>OTHERS</b> .
Service Dis	splays the extracted service from the selected URL.
+	splays the extracted operation from the selected URL.



#### **Headers**

A product processor might require some standard headers to be passed along with the request. The user can specify the headers which are required by service endpoints for its all implementations but not present in swagger file.



Content-type header will be removed from Provider request if header value is NONE.

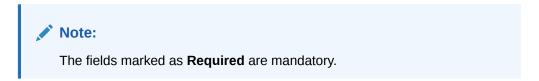
- 4. To add **Headers**, follow the below steps.
  - a. Under **Headers** section, click **Add**.

The **Add Header** screen displays.

Figure 3-3 Add Header



b. Specify the fields on Add Header screen.



For more information on fields, refer to the field description table.

Table 3-2 Add Header - Field Description

Field	Description
Name	Specify the name of the header.
Value	Specify the value of the header.



5. Click **OK** to save the details.

The **Confirmation** screen displays.

6. Click Confirm.

#### **Service**

#### WSDL:

The Web Services Description Language (WSDL) is an XML-based interface description language that is used for describing the functionality offered by a web service.

Both SSL and non-SSL WSDL URL are supported.



If there is a change in wsdl file, then same wsdl file need to be imported again to update the provided service information in Routing Hub.

#### SWAGGER:

Swagger is an Interface Description Language for describing RESTful APIs expressed using JSON.

Currently, Swagger 2.0 & OpenAPI 3.0 both are supported.



If there is a change in swagger file, then same swagger file need to be imported again in order to update the provided service information in Routing Hub.

#### OTHERS:

OTHERS option is selected for adding REST API details manually when provider does not have swagger file.



If there is a change in existing endpoint, then the same endpoint details need to be entered again with the new changes in order to update the existing provided service information in Routing Hub.

#### **Import Service Provider**

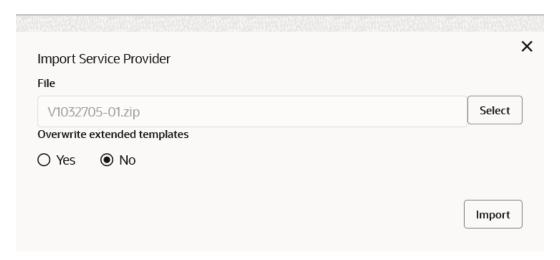
The user can create a service provider by importing the JSON file and also can import zip file in order to import all the configuration JSON files together (except parent level configuration JSON files).

#### 7. Click Import.

The Import Service Provider screen displays.

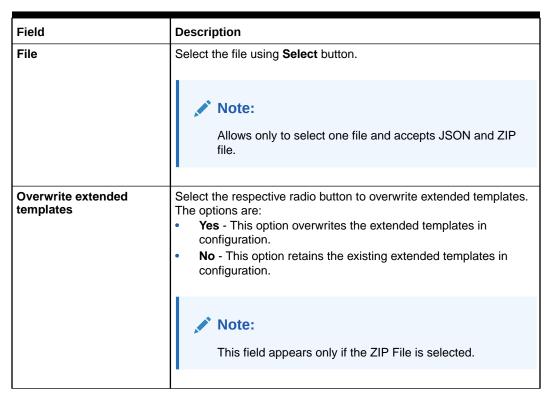


Figure 3-4 Import Service Provider



For more information on fields, refer to the field description table below.

**Table 3-3** Import Service Provider - Field Description



8. Click **Import** to import the selected file.

The Confirmation screen displays.



#### Note:

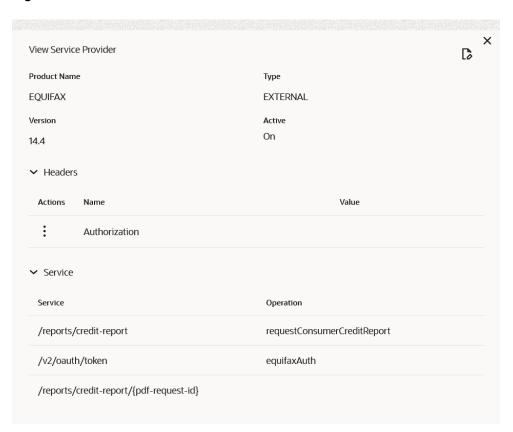
The following data needs to be changed after importing provider configuration file:

- Implementation Host and Port
- Implementation Authentication Password

#### **View Service Provider**

On Service Provider tile, click Operation menu (3 dots button), and click View.
 The View Service Provider screen displays.

Figure 3-5 View Service Provider



10. Click **Edit** button to edit the Service Provider.

#### **Edit Service Provider**

The user can modify the provider details.

On Service Provider tile, click Operation menu (3 dots button), and click Edit.
 The Edit Service Provider screen displays.



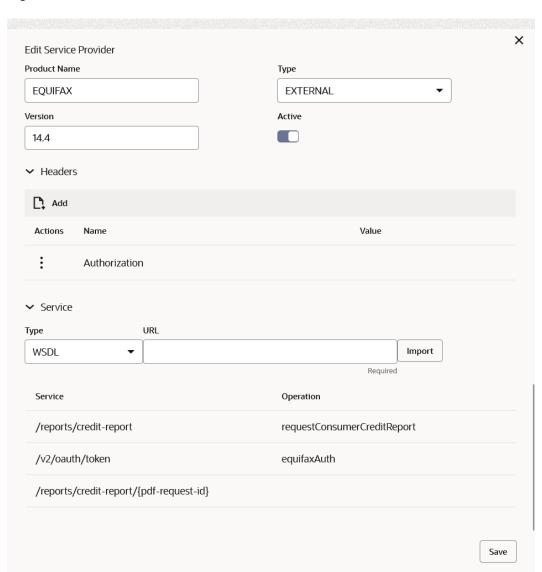


Figure 3-6 Edit Service Provider

12. Click **Save** once the edit is done.

The Confirmation screen displays.

#### **Delete Service Provider**

The user can delete the provider.

13. On Service Provider tile, click Operation menu (3 dots button), and click Delete.

The **Confirmation** screen displays.

Figure 3-7 Confirmation - Delete



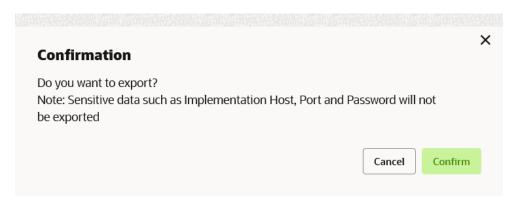
14. Click Confirm to delete the selected Service Provider.

#### **Export Service Provider**

The user can export the provider configuration as JSON file.

**15.** On **Service Provider** tile, click **Operation menu** (3 dots button), and click **Export**. The **Confirmation** screen displays.

Figure 3-8 Confirmation - Export





The below data cannot be exported:

- Implementation Host
- Implementation Port
- Implementation Authentication Password

The above data needs to be configured manually after importing the configuration file. Same has been mentioned in Import section.

**16.** Click **Confirm** to export the selected Service Provider.

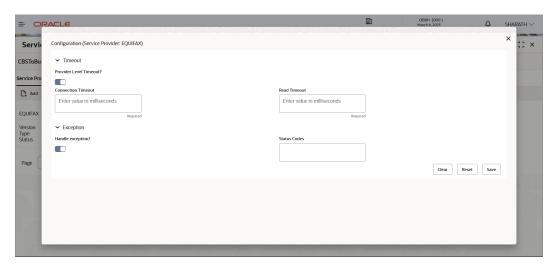
#### Configuration

End-user can configure the properties for failing the routing hub requests.

17. On Service Provider tile, click Operation menu (3 dots button), and click Configuration.

The **Configuration** screen displays.

Figure 3-9 Configuration



For more information on fields, refer to the field description table below

**Table 3-4 Configuration Service Provider - Field Description** 

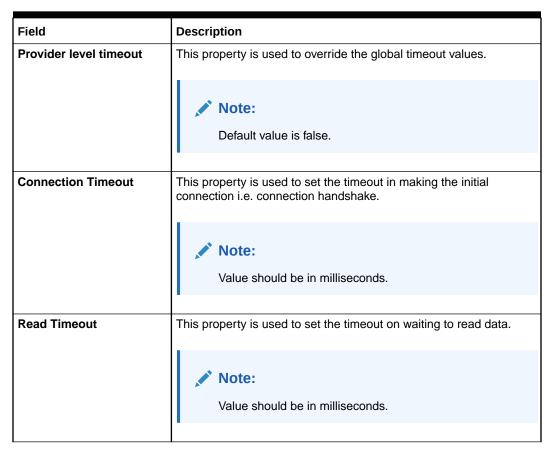




Table 3-4 (Cont.) Configuration Service Provider - Field Description

Field	Description
Handle exception	This property is used to fail the routing hub request for failed provider requests.
	Note:  Default value is false.
Status Codes	This property is used to fail routing hub request for specific status codes of failed provider requests. If not specified, then routing hub request will fail for all 4xx and 5xx status codes of failed provider requests.

#### **Request Audit**

**18.** On **Service Provider** tile, click **Operation menu** (3 dots button), and click **Request Audit**.

The Request Audit screen displays.



Refer to Request Audit topic for the screen and field description.

#### **Clear Cache**

The user can clear the SOAP client cache for the service providers.

19. On Service Provider tile, click Operation menu (3 dots button), and click Clear Cache.

4

# **Implementation**

This topic provides the systematic instructions to configure the implementation.

The implementation comprises of Eureka client instance, Host, Port, authentication, and implementation specific service details. Oracle Banking Routing Hub supports web services and Rest API.

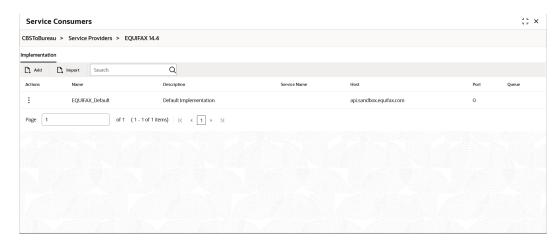


Default implementation is created whenever a new service provider is added.

1. On Service Provider screen, click on the required service provider tile.

The Implementation screen displays.

Figure 4-1 Implementation



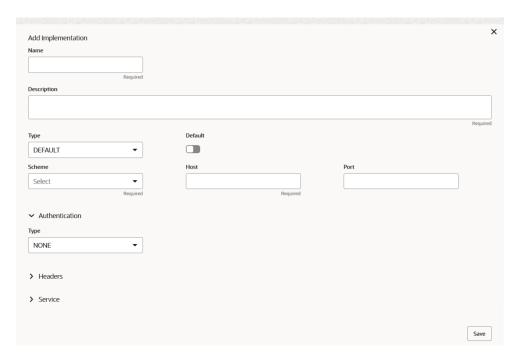
#### **Add Implementation**

The user can create the implementation manually.

2. Click Add.

The **Add Implementation** screen displays.

Figure 4-2 Add Implementation



**3.** Specify the fields on **Add Implementation** screen.



Table 4-1 Add Implementation - Field Description

Field	Description
Name	Specify the name of the implementation.  Note:  Enter 0 to maximum of 255 characters.  No numeric value at beginning and no space allowed.
	•

Table 4-1 (Cont.) Add Implementation - Field Description

Field	Description
Description	Specify the description of the implementation.  Note:  Enter 0 to 1000 characters.  No space allowed at beginning or ending of the characters.
Туре	Select the type of implementation from drop-down list The available options are:  • DEFAULT  • QUEUE  • OIC  DEFAULT type is for REST and SOAP API calls.
Default	Toggle the button if user wants to default. Each type can have one default implementation.
Eureka Instance	Eureka Instance is available only for internal providers and default type.  By default, Eureka Instance will be toggled ON for internal providers and OFF for external providers.  Note:  Api-gateway will be removed (if present) from the provider request url if Eureka Instance is toggled ON. And api-gateway will be added (if missing) in the provider request url if Eureka Instance is toggled OFF & Authentication type is selected as JWT_TOKEN or OAUTH_TOKEN.
Scheme	Select the scheme from drop-down list The available options are:
Service Name	If <b>Eureka Instance</b> is toggled ON and type is default, then only service name is required.



Table 4-1 (Cont.) Add Implementation - Field Description

Field	Description
Host	Specify the host.
	Note:  Host cannot be blank. Enter 0 to 255 characters. Space is not allowed.
	If <b>Eureka Instance</b> is toggled OFF and type is default, then only host and port is required.
Port	Specify the port number.
	<ul> <li>Note:</li> <li>Enter 0 to 6 characters.</li> <li>Enter only numeric value.</li> </ul> If Eureka Instance is toggled OFF and type is default, then
	only host and port is required.
Authentication	The below fields appear only if <b>Eureka Instance</b> is toggled <b>OFF</b> and Implementation <b>Type</b> is selected as <b>Default</b> .
Туре	Select the type of authentication from drop-down list. The available options are: BASIC JWT_TOKEN OAUTH_TOKEN SSO OAUTH_TOKEN_OIC
Username	Specify the name of the user.
	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>
Password	Specify the password.
Headers	The below fields appear only if the Implementation <b>Type</b> is selected as <b>Default</b> or <b>OIC</b> .
Add	Click this button to add header.
Actions	Displays the action. The user can edit or delete the header.
Name	Displays the name of the header.



Table 4-1 (Cont.) Add Implementation - Field Description

Field	Description
Value	Displays the value of the header.
Service	The below fields appear only if the Implementation <b>Type</b> is selected as <b>Default</b> or <b>OIC</b> .
Туре	Select the type of service from drop-down list. The available options are:  WSDL  SWAGGER  OTHERS
URL	Specify the service URL of the file location.
	Note:  This field appears only if the Type is selected as WSDL and SWAGGER.
Name	Specify the name of the operation.
	Note:  This field appears only if the <b>Type</b> is selected as <b>OTHERS</b> .
Http Method	Select the HTTP method. The available options are:  GET POST PUT PATCH DELETE
	Note:  This field appears only if the <b>Type</b> is selected as <b>OTHERS</b> .
Endpoint	Specify the endpoint URL for the operation.
	Note:  This field appears only if the <b>Type</b> is selected as <b>OTHERS</b> .



Table 4-1 (Cont.) Add Implementation - Field Description

Field	Description
Content path Prefix	Context path of below formatted URL. http://host:port/context-path/endpointGateway
Import	Click <b>Import</b> to extract the service information from URL and displays it in the Service list.
	Note:  This field appears only if the <b>Type</b> is selected as <b>WSDL</b> and <b>SWAGGER</b> .
Service Headers	Specify the Endpoint apositic headers
Service neaders	Specify the Endpoint specific headers.  Value can either be hardcoded or can be Velocity mapping.
	Note:  This field appears only if the <b>Type</b> is selected as <b>OTHERS</b> .
Service Query Params	Specify the Endpoint specific query parameters.
	Value can either be hardcoded or can be Velocity mapping.
	Note:  This field appears only if the <b>Type</b> is selected as <b>OTHERS</b> .
Add	Click this button to add the endpoint details in the Service list.
Service	Displays the extracted service from the selected URL.
Operation	Displays the extracted operation from the selected URL.

#### Authentication:

If External Product processor require authentication to connect to it, Oracle Banking Routing Hub provides standard authentication mechanism schemes like BASIC, JWT, OAUTH\_TOKEN, SSO.

# Note:

In case of no authentication, NONE needs to be set as Authentication Type. In case of identity propagation, SSO needs to be set as Authentication Type. In case of JWT, OAUTH\_TOKEN and OAUT\_TOKEN\_OIC, token will be cached by default.

#### **Services**

#### WSDL:

The Web Services Description Language (WSDL) is an XML-based interface description language that is used for describing the functionality offered by a web service.

Both SSL and non-SSL WSDL URL are supported.



If there is a change in wsdl file, then same wsdl file need to be imported again to update the provided service information in Routing Hub.

#### SWAGGER:

Swagger is an Interface Description Language for describing RESTful APIs expressed using JSON.

Currently, Swagger 2.0 & OpenAPI 3.0 both are supported.



If there is a change in swagger file, then same swagger file need to be imported again in order to update the provided service information in Routing Hub.

#### OTHERS:

OTHERS option is selected for adding REST API details manually when provider does not have swagger file.



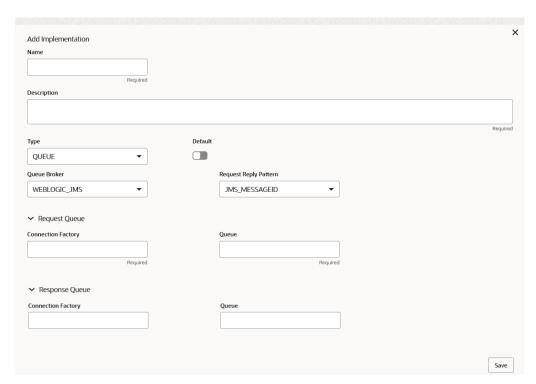
If there is a change in existing endpoint, then the same endpoint details need to be entered again with the new changes in order to update the existing provided service information in Routing Hub.

#### Queue

If the Implementation **Type** is selected as **Queue**,



Figure 4-3 Add Implementation - Queue



For **QUEUE** type, refer to the field description table below.

Table 4-2 Add Implementation - Queue - Field Description

Field	Description
Туре	Select the type of implementation from drop-down list The available options are:  • DEFAULT  • QUEUE  DEFAULT type is for REST and SOAP API calls.
Default	Select the toggle if the user wants to default.
Queue Broker	Select the queue broker from drop-down list. The available options are:  • WEBLOGIC_JMS
Request Reply Platform	Select the queue broker from drop-down list. The available options are:     JMS_MESSAGEID     JMS_CORRELATIONID JMS_MESSAGEID is default request-reply pattern.
Connection Factory	Specify the connection factory. Connection Factory is JNDI based connection factory name which is used to create connection for JMS client.
Queue	Specify the queue. Queue Name is JNDI based destination name.



Table 4-2 (Cont.) Add Implementation - Queue - Field Description

Field	Description
Connection Factory	Specify the connection factory. Response Connection Factory is needed when destination is going to respond back after processing the request.
Queue	Specify the queue. Response Queue Name is needed when destination is going to respond back after processing the request.

#### **Headers:**

External product processor might require some standard headers to be passed along with the request. User can specify the headers which are required by service endpoints for its all implementations but not present in swagger file.

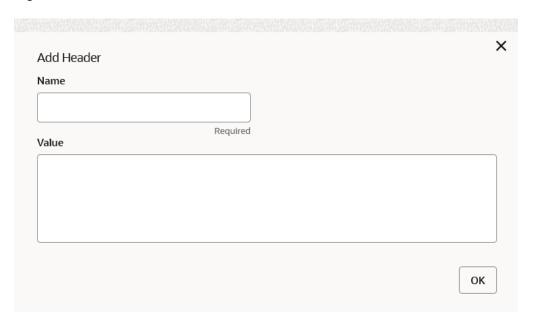


Content-type header will be removed from Provider request if header value is NONE.

- 4. Follow the below steps to add **Headers**.
  - a. Click Add under Header section.

The Add Header screen displays.

Figure 4-4 Add Header



b. Specify the fields on Add Header screen and click OK.



The fields marked as **Required** are mandatory.



For more information on fields, refer to the field description table.

Table 4-3 Add Header - Field Description

Field	Description
Name	Specify the name for the header.
Value	Specify the value for the header.

5. Click **OK** to save the details.

The **Confirmation** screen displays.

#### **Import Implementation**

The user can create an implementation by importing the JSON file. The user can also import zip file in order to import all the configuration JSON files together (except parent level configuration JSON files).

6. On Implementation screen, click Import.

The Import Implementation screen displays.

Figure 4-5 Import Implementation



For more information on fields, refer to the field description table.

Table 4-4 Import Implementation - Field Description

Field	Description
File	Click Select to select the file.  Note:  Allows only to select one file and accepts JSON and ZIP file.

7. Click **Import** to import the selected file.

The Confirmation screen displays.

The below data needs to be changed after importing provider configuration file:

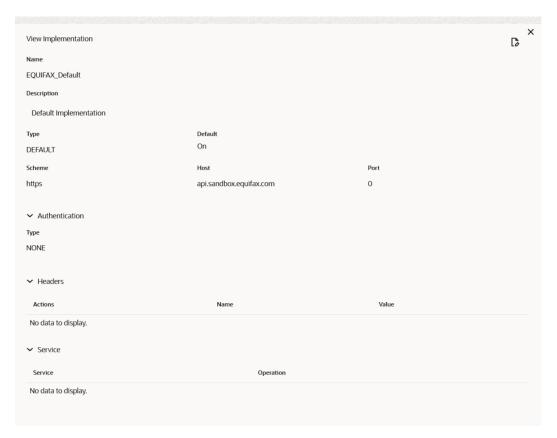
- Implementation Host and Port
- Implementation Authentication Password

#### **View Implementation**

The user can view implementation details and can also switch to edit form by clicking on edit icon.

8. On Implementation screen, click Operation menu (3 dots button) and click View. The View Implementation screen displays.

Figure 4-6 View Implementation



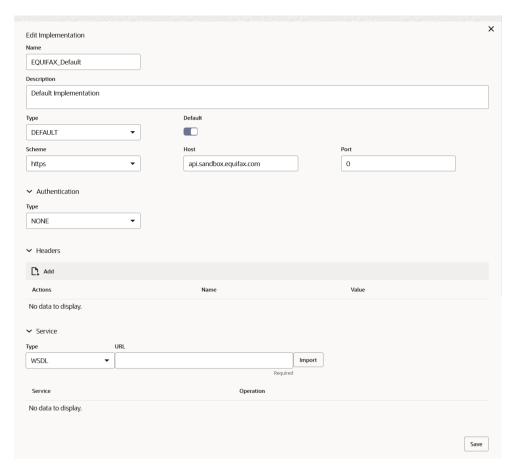
#### **Edit Implementation**

The user can modify the implementation details.

On Implementation screen, click Operation menu (3 dots button) and click Edit.
 The Edit Implementation screen displays.



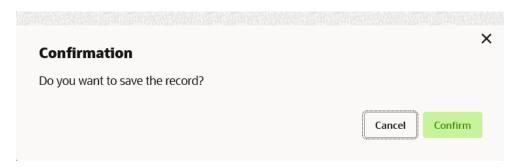
Figure 4-7 Edit Implementation



10. Click Save once the edit is done.

The Confirmation screen displays.

Figure 4-8 Confirmation



# **Delete Implementation**

The user can delete the implementation details.

11. On Implementation screen, click Operation menu (3 dots button) and click Delete.

The Confirmation screen displays.

Figure 4-9 Confirmation - Delete

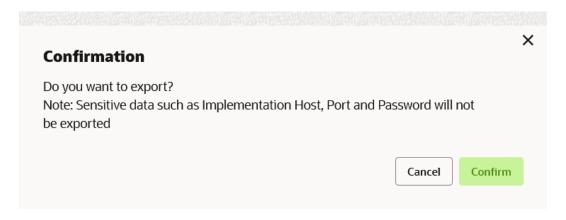


#### **Export Implementation**

The user can export the implementation configuration as JSON file.

**12.** On **Implementation** screen, click **Operation menu** (3 dots button) and click **Export**. The **Confirmation** screen displays.

Figure 4-10 Confirmation - Export Implementation



Below data cannot be exported:

- Implementation Host
- Implementation Port
- Implementation Authentication Password

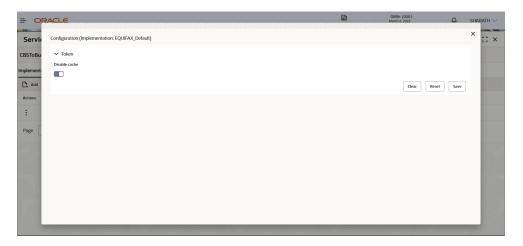
The above data needs to be configured manually after importing the configuration file. Same has been mentioned in Import section.

#### Configuration

End-user can configure the properties for failing the routing hub requests.

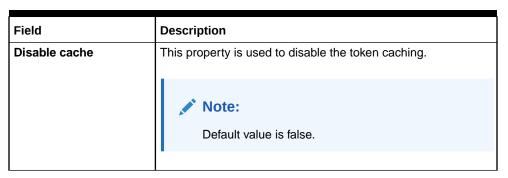
**13.** On **Implementation** tile, click **Operation menu** (3 dots button), and click **Configuration**. The **Configuration** screen displays.

Figure 4-11 Configuration



For more information on fields, refer to the field description table.

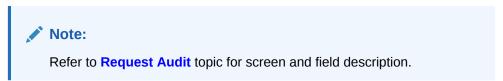
**Table 4-5 Configuration - Field Description** 



## **Request Audit**

**14.** On **Implementation** screen, click **Operation menu** (3 dots button) and click **Request Audit**.

The Request Audit screen displays.



#### **Clear Cache**

The user can clear the SOAP client cache.

**15.** On **Implementation** screen, click **Operation menu** (3 dots button) and click **Clear Cache**.

5

# **Consumer Services**

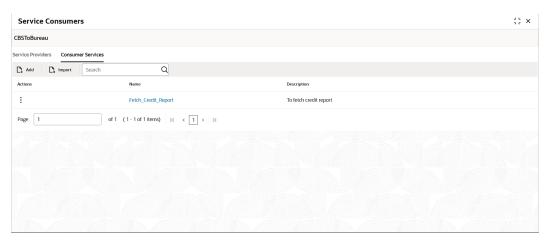
This topic describes the systematic instructions to configure the consumer services.

The **Consumer Services** defines the service ID, which sends from the service consumer. It also caters the transition and route definition. It comprises of source integration details.

1. On Service Consumers screen, click Consumer Services.

The **Consumer Services** screen displays.

Figure 5-1 Consumer Services



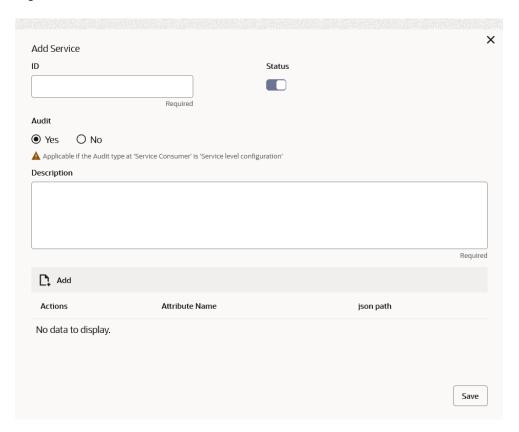
#### **Add Consumer Service**

The user can create Consumer Service manually.

2. On Consumer Services screen, click Add.

The Add Service screen displays.

Figure 5-2 Add Service



3. Specify the fields on Add Service screen.

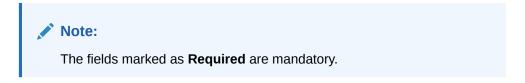


Table 5-1 Add Service - Field Description

Field	Description
ID	Specify the ID of the consumer service.
	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>
<u> </u>	
Status	Active / Inactive If consumer service is marked as inactive, then all related routes will be stopped.



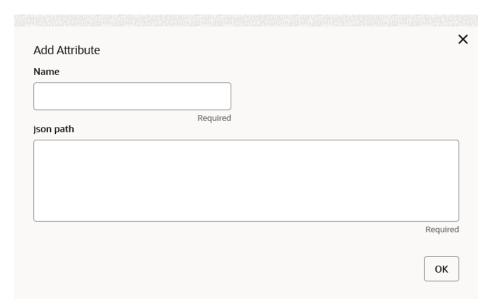
Table 5-1 (Cont.) Add Service - Field Description

Field	Description
Audit	Select the Audit option for the consumer service. The available options are: Yes - This option is for enabling the audit for consumer service. No - This option is for disabling the audit for consumer service.
	Note:  This option is only applicable if audit type at 'Service Consumer' is 'Service level configuration'
Description	Specify the description of the consumer service.
	<ul> <li>Note:</li> <li>Enter 0 to 1000 characters.</li> <li>No space allowed at beginning or ending of the characters.</li> </ul>
Add	To add, refer to the below step.
Actions	Displays the action. The user can edit or delete the header.
Attribute Name	Displays the name of the attribute.
json path	Displays the JSON path.

- 4. To add **Attributes**, follow the below steps.
  - a. Click Add.

The **Add Attribute** screen displays.

Figure 5-3 Add Attribute



**b.** Specify the fields on **Add Attribute** screen.

Note:
The fields marked as **Required** are mandatory.

For more information on fields, refer to the field description table.

Table 5-2 Add Header - Field Description

Field	Description
Name	Specify the name of the attribute.
josn path	Specify the json path.

Note:

Using \$.body, the user can access the request body.
 Syntax: \$.body.fieldName

Example: \$.body.branchCode

• Using \$.headers, the user can access the request headers. Syntax: \$.headers["fieldname "][0]

Example: \$.headers["branchCode"][0]

Using \$.env, the user can access the environment variables.
 Syntax: \$.env.group.variable

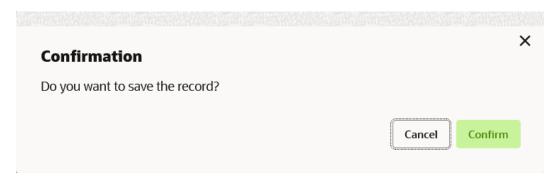
c. Click **OK** to save the attributes.



5. Click **Save** to save the details.

The **Confirmation** screen displays.

Figure 5-4 Confirmation



6. On Confirmation screen, click Confirm to add the service.

#### **Import Consumer Service**

The user can create a consumer service by importing the JSON file.

The user can also import zip file in order to import all the configuration JSON files together (except parent level configuration JSON files).

7. On Consumer Services screen, click Import.

The **Import Service** screen displays.

Figure 5-5 Import Service

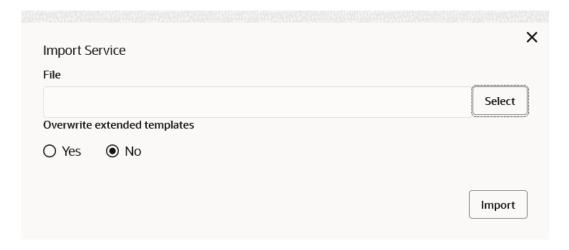




Table 5-3 Import Service - Field Description

Field	Description
File	Select the file using <b>Select</b> button.
	Note:  Allows only to select one file and accepts only JSON file.
Overwrite extended templates	Select the respective radio button to overwrite the extended templates.  The available options are:  Yes - This option overwrites the extended templates.  No - This option retains the existing extended templates.

8. Click **Import** to import the selected file.

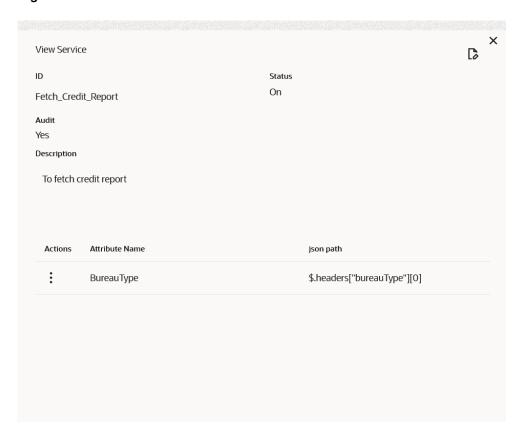
The Confirmation screen displays.

#### **View Consumer Service**

The user can view consumer service details and can also switch to edit form by clicking on edit icon.

On Consumer Service tile, click Operation menu (3 dots button), and click View.
 The View Service screen displays.

Figure 5-6 View Service



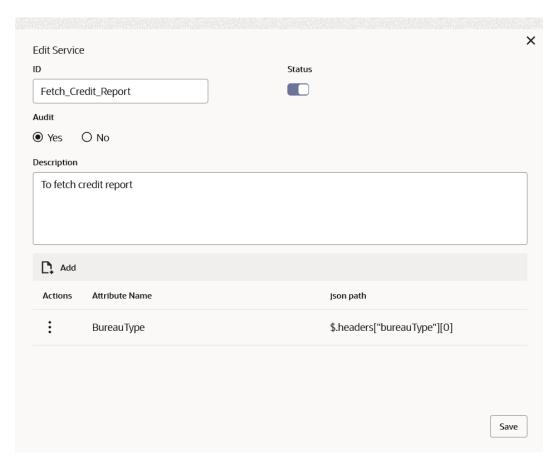


#### **Edit Consumer Service**

The user can modify the consumer service details.

On Consumer Service tile, click Operation menu (3 dots button), and click Edit.
 The Edit Service screen displays.

Figure 5-7 Edit Service



11. Click **Save** once the edit is done.

The Confirmation screen displays.

Figure 5-8 Confirmation - Edit



**Delete Consumer Service** 



The user can delete the consumer service.

12. On Consumer Service tile, click Operation menu (3 dots button), and click Delete.

The Confirmation screen displays.

Figure 5-9 Confirmation



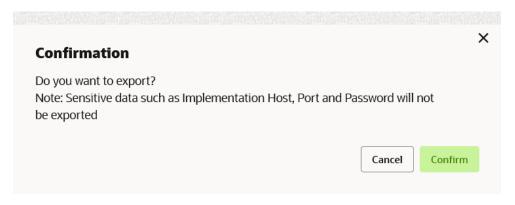
### **Export Consumer Service**

The user can export the consumer service configuration as JSON file.

**13.** On **Consumer Service** tile, click **Operation menu** (3 dots button), and click **Export**.

The **Confirmation** screen displays.

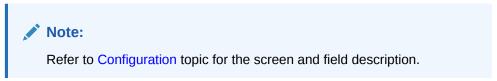
Figure 5-10 Confirmation - Export



#### **Consumer Service - Configuration**

**14.** On **Consumer Service** tile, click **Operation menu** (3 dots button), and click **Configuration**.

The **Configuration** screen displays.



#### **Consumer Service - Request Audit**

**15.** On **Consumer Service** tile, click **Operation menu** (3 dots button), and click **Request Audit**.

The **Request Audit** screen displays.



Refer to Request Audit topic for the screen and field description.



6

# **Transformation**

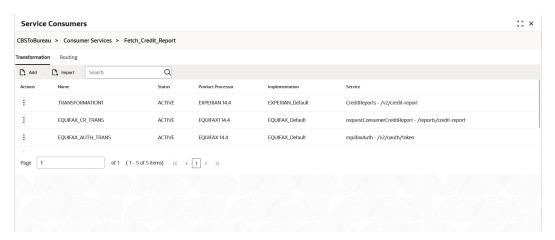
This topic describes the systematic instructions to configure the transformation.

The **Transformation** acts as assembling and transforming data from source to destination and vice-versa. This takes place under consumer service. This converts the data of service consumer into service provider.

1. On **Consumer Services** screen, click the required consumer service tile.

The **Transformation** screen displays.

Figure 6-1 Transformation



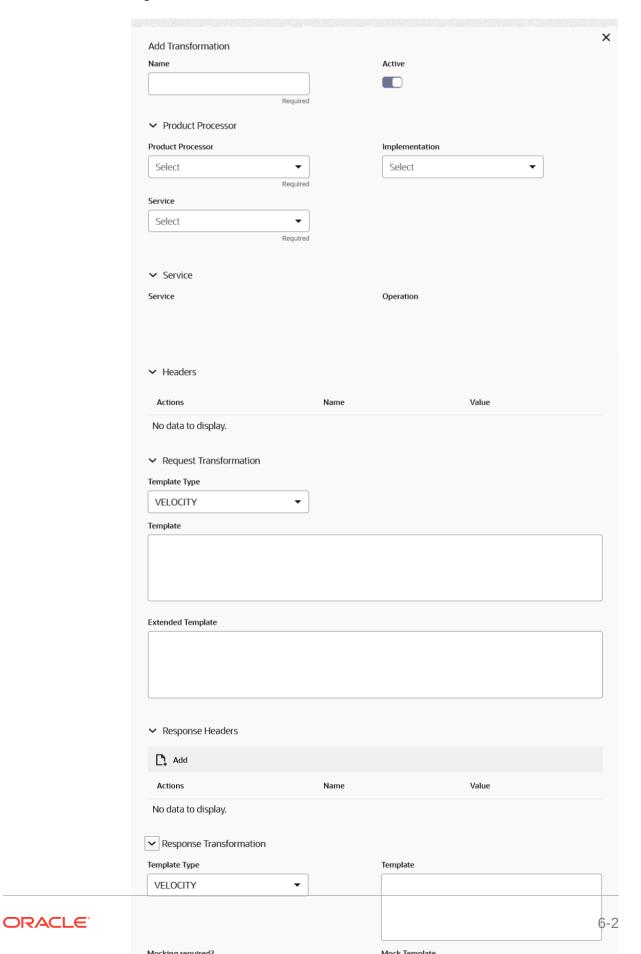
#### **Add Transformation**

The user can create transformation manually.

2. On Transformation screen, click Add.

The Add Transformation screen displays.

Figure 6-2 Add Transformation



3. Specify the fields on **Add Transformation** screen.



The fields marked as **Required** are mandatory.

Table 6-1 Add Transformation - Field Description

Field	Description
Name	Specify the name for the transformation.
	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>
Active	Active / Inactive If transformation is marked as inactive, then the user will not be able to select transformation in routing.
Product Processor	Displays the Product Processor details.
Product Processor	Select the product processor from the drop-down list.
Implementation	Select the implementation from the drop-down list.
Service	Select the service from the drop-down list.
Service	Displays the service details of the selected service.
Headers	Displays the header list relevant to the selected provider, implementation and service. User can change the header values. The value can either be hardcoded or can be Velocity mapping.
Path Params	Displays the path param list relevant to the selected service.  User can change the param values. Value can either be hardcoded or can be Velocity mapping.
Query Params	Displays the query param list relevant to the selected service. User can change the param values. Value can either be hardcoded or can be Velocity mapping.
Request Transformation	Displays the Request Transformation details.



Table 6-1 (Cont.) Add Transformation - Field Description

Field	Bassintian
Field	Description
Body Type	Select the body type for the Request Transformation from the drop-down list. The available options are: RAW FORM DATA BINARY
	Note:  This field appears only if the selected service is REST service.
Template Type	Select the template type for the Request Transformation from the drop-down list. The available options are:  VELOCITY  JSLT  XSLT
Template	Specify the template for the Request Transformation in which provider accepts. Refer to Transformation Type for syntax.
Extended Template	Specify the custom template in order to extend the kernel template. Refer to Extensibility and Transformation Type for syntax.
	Note:  This field appears only if the Body Type is selected as FORM DATA or BINARY.
Response Header	Specify the additional headers required to be part of Routing Hub response headers.  Value can either be hardcoded or can be Velocity mapping.
Response Transformation	Displays the response transformaton details.
Template Type	Select the template type for the Response Transformation from drop-down list. The available options are:  VELOCITY  JSLT  XSLT
Template	Specify the kernel template in which consumer accepts. Refer to Transformation Type for syntax.
Mocking required?	Select the toggle if the mocking is required for the Response Transformation or not.  If the toggle is <b>ON</b> , the Routing Hub will return the mocked template output (with extended template output if mentioned) to consumer without invoking provider API.



Table 6-1 (Cont.) Add Transformation - Field Description

Field	Description
Mock Template	Specify the kernel template for the Response Transformation in which the consumer accepts.  Refer Transformation Type for syntax.

4. Click Save to save the details.

The Confirmation screen displays.

5. Click **Confirm** to add the transformation.

#### **Import Transformation**

The user can create a transformation by importing the JSON file. The user can also import zip file in order to import all the configuration JSON files together (except parent level configuration JSON files).

6. On Transformation screen, click Import.

The Import Transformation screen displays.

Figure 6-3 Import Transformation

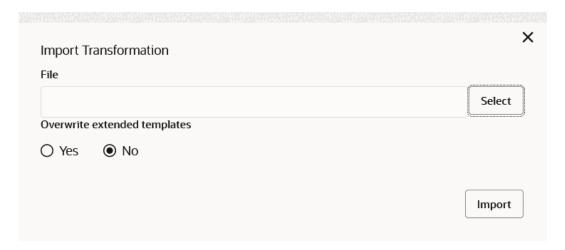


Table 6-2 Import Transformation - Field Description

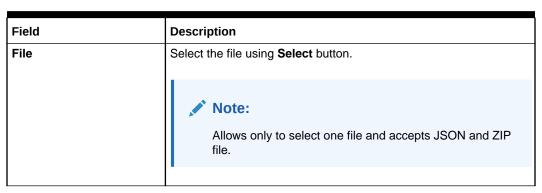




Table 6-2 (Cont.) Import Transformation - Field Description

Field	Description
Overwrite extended templates	Select the respective radio button to overwrite the extended templates. The available options are:  Yes - This option overwrites the extended templates.  No - This option retains the existing extended templates.

7. Click **Import** to import the selected file.

The Confirmation screen displays.

#### **View Transformation**

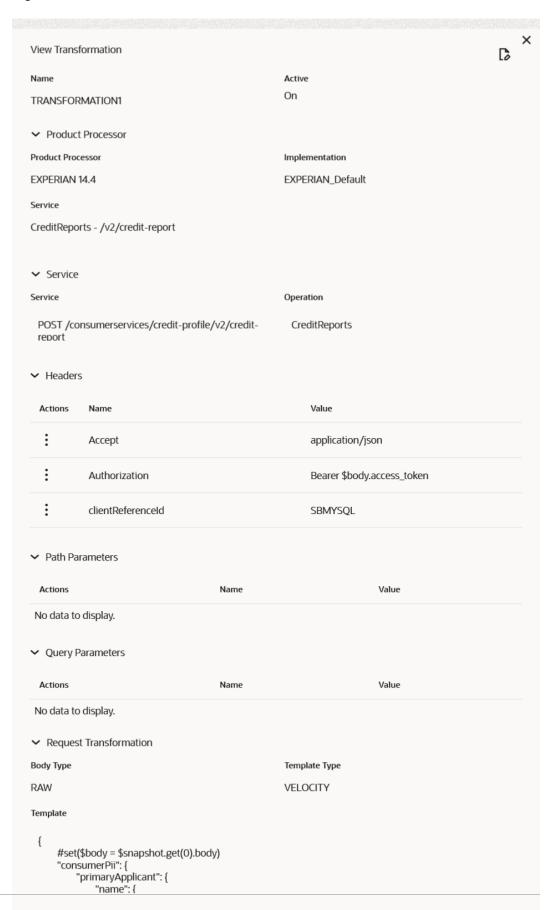
The user can view transformation details and can also switch to edit form by clicking on edit icon.

8. On Transformation list, click Operation menu (3 dots button), and click View.

The View Transformation screen displays.



Figure 6-4 View Transformation



Click **Edit** icon to edit the **Transformation**.

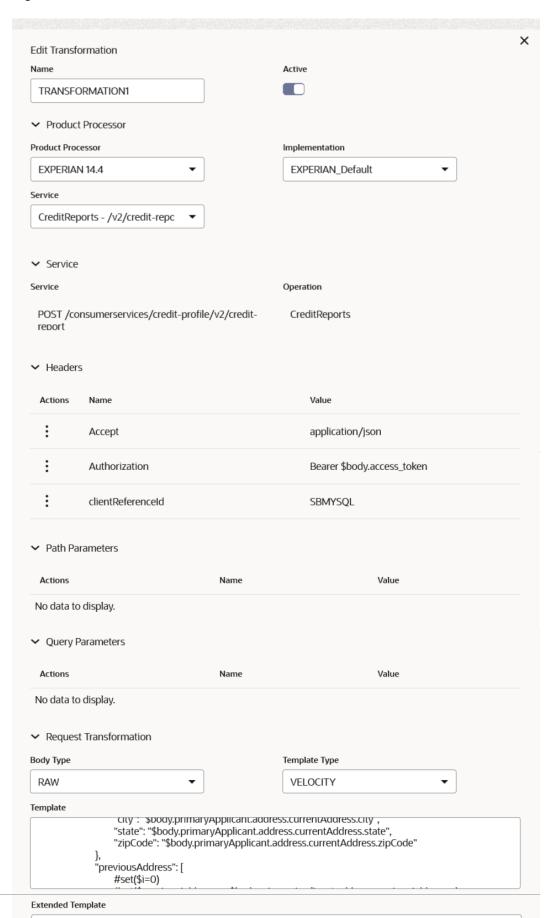
#### **Edit Transformation**

The user can modify the transformation details.

On Transformation list, click Operation menu (3 dots button), and click Edit.
 The Edit Transformation screen displays.



Figure 6-5 Edit Transformation





10. Click **Save** once the edit is done.

The **Confirmation** screen displays.

Figure 6-6 Confirmation



#### **Delete Transformation**

The user can delete the transformation.

On Transformation list, click Operation menu (3 dots button), and click Delete.
 The Confirmation - Delete screen displays.

Figure 6-7 Confirmation - Delete

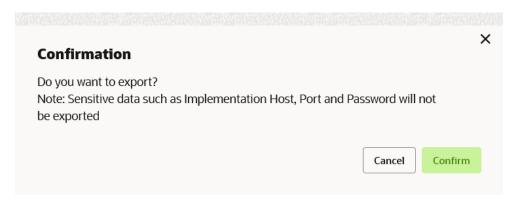


#### **Export Transformation**

The user can export the transformation configuration as JSON file.

**12.** On **Transformation** list, click **Operation menu** (3 dots button), and click **Export**. The **Confirmation** screen displays.

Figure 6-8 Confirmation - Export





# **Request Audit**

13. On Transformation list, click Operation menu (3 dots button), and click Request Audit.
The Request Audit screen displays.



Refer to Request Audit topic for screen and field description.



7

# Routing

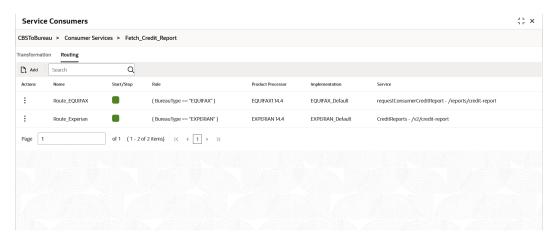
This topic describes the systematic instructions to configure the routing.

Routing defines no rule or rule-based route configuration. Route decide the actual request to be send to which service provider based on maintenance and evaluation.

1. On Consumer Services screen, click Routing.

The **Routing** screen displays.

Figure 7-1 Routing



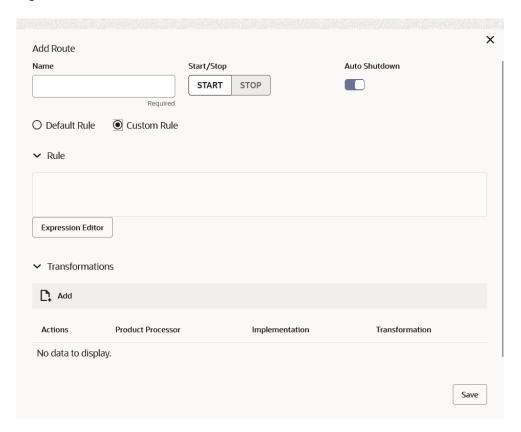
#### **Add Route**

The user can create routing manually.

2. On Routing screen, click Add.

The Add Route screen displays.

Figure 7-2 Add Route



3. Specify the fields on Add Route screen.

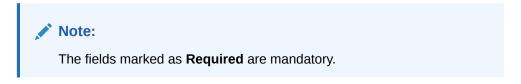


Table 7-1 Add Route - Field Description

Field	Description
Name	Specify the name for the route.
	<ul> <li>Note:</li> <li>Enter 0 to maximum of 255 characters.</li> <li>No numeric value at beginning and no space allowed.</li> </ul>
START / STOP	START / STOP If routing is marked as STOP, then consumer request fails at routing hub level only.



Table 7-1 (Cont.) Add Route - Field Description

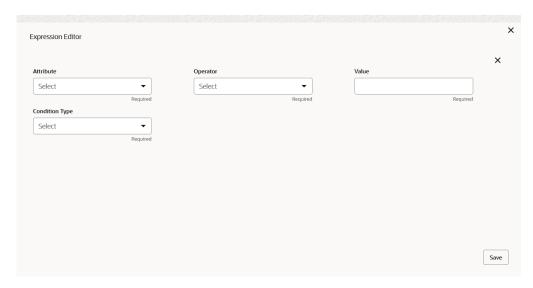
Field	Description
Auto Shutdown	ON / OFF If AutoShutdown flag is ON, then route state will be changed to STOP if route failure goes beyond the threshold failure limit based on the monitoring and alert configuration.
Rule Type	Select the rule type. The available options are: Default Rule Custom Rule
Expression Editor	Displays the expression that is formed through expression editor.
Add	To add, refer to the below steps.
Actions	Displays the action. The user can edit or delete the header.
Product Processor	Displays the product processor.
Implementation	Displays the implementation.
Transformation	Displays the transformation.

## **Add Custom Rule using Expression Editor**

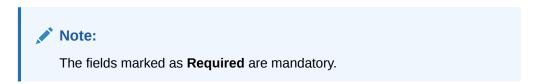
- 4. To add **Editor**, follow the below steps.
  - a. On Add Route screen, click Editor button.

The **Expression Editor** screen displays.

Figure 7-3 Expression Editor



**b.** Specify the fields on **Expression Editor** screen.



For more information on fields, refer to the field description table.

Table 7-2 Expression Editor - Field Description

Field	Description
Attribute	Select attribute relevant to consumer service from drop-down list.
Operator	Select the logical operators to form an expression from drop-down list.
Value	Specify the value.  Note:  Enter 0 to 255 characters.
Condition Type	Select the condition type from drop-down list.

c. Click **Save** to save the details.



String value should be quoted using single quotes ( ' ) Example: 'abc' List value should be comma separated values and quoted using single quotes ( ' ) Example: 'abc,xyz,1.23,true'

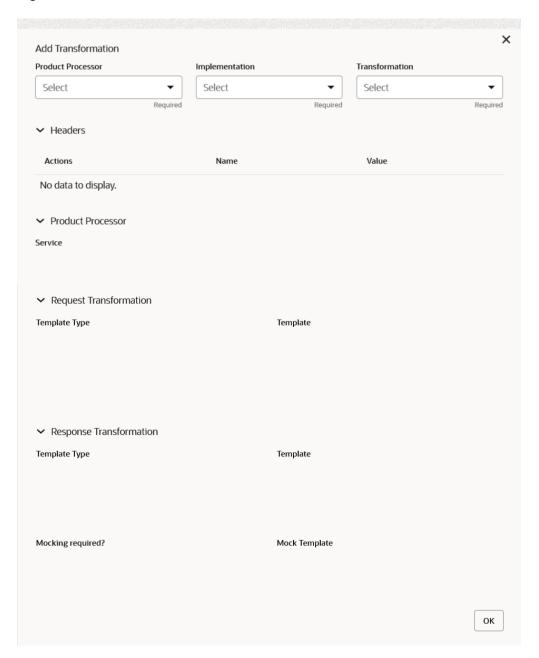
#### **Transformations**

The user can define the sequence of transformations for each routing in which request should be processed. Sequence of transformations in list can be changed by using drag-n-drop feature.

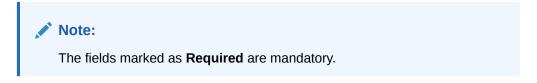
- **5.** To add **Transformations**, follow the below steps.
  - a. On Add Route screen, click Add.

The Add Transformation screen displays.

Figure 7-4 Add Transformation



**b.** Specify the fields on **Add Transformation** screen.



For more information on fields, refer to the field description table.

Table 7-3 Add Transformation - Field Description

Field	Description
Product Processor	Select the product processor from the drop-down list.
Implementation	Select the implementation from the drop-down list.
Transformation	Select the transformation from the drop-down list.
Action	Displays the action. The user can edit or delete the header.
Name	Displays the name of the header.
Value	Displays the value of the header.
Service	Displays the service of the product processor.
Template Type	Displays the template type for the request transformation.
Template	Displays the template for the request transformation.
Template Type	Displays the template type for the response transformation.
Template	Displays the template for the response transformation.
Mocking required?	Displays whether the mocking required for the response transformation or not.
Mock Template	Displays the mock template for the response transformation.

#### c. Click OK.

6. Click **Save** to save the details.

The **Confirmation** screen displays.

7. Click **Confirm** to add the routing details.

#### **View Route**

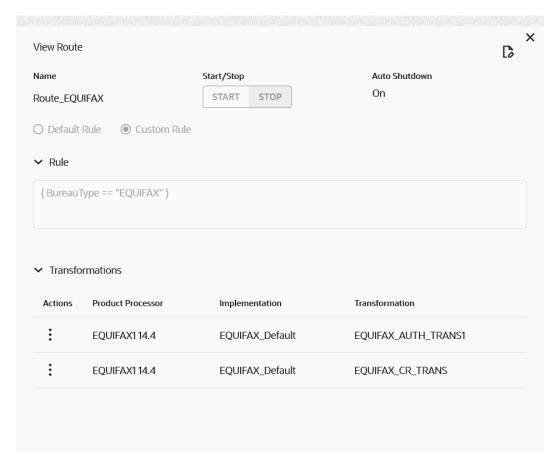
The user can view the routing details and can also switch to edit form by clicking on edit icon.

8. On Routing screen, click Operation menu (3 dots button), and click View.

The **View Route** screen displays.



Figure 7-5 View Route



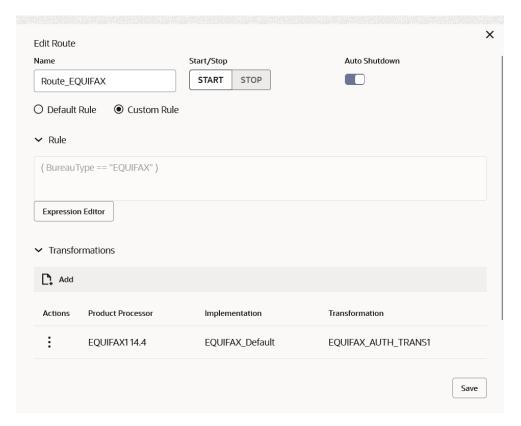
#### **Edit Route**

The user can modify the routing details.

On Routing screen, click Operation menu (3 dots button), and click Edit.
 The Edit Route screen displays.



Figure 7-6 Edit Route

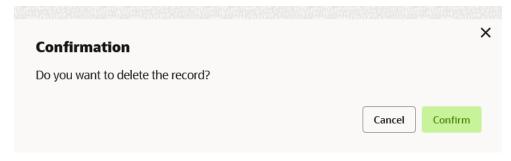


#### **Delete Route**

The user can delete the routing details.

On Routing screen, click Operation menu (3 dots button), and click Delete.
 The Confirmation screen displays.

Figure 7-7 Confirmation - Delete



**11.** Click **Confirm** to delete the selected routing.

#### **Routing - Configuration**

**12.** On **Routing** screen, click **Operation menu** (3 dots button), and click **Configuration**.

The Configuration screen displays.



Refer to Configuration topic for screen and field description.

## **Routing - Request Audit**

13. On Routing screen, click Operation menu (3 dots button), and click Request Audit. The Request Audit screen displays.



Refer to Request Audit topic for screen and field description.



# Request Audit - Log

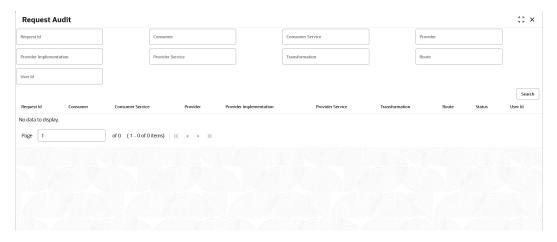
This topic describes the systematic instructions to check the audit log in Oracle Banking Routing Hub.

Specify **User ID** and **Password**, and login to **Home** screen.

- On Home screen, click Core Maintenance. Under Core Maintenance, click Routing Hub.
- 2. Under Routing Hub, click Request Audit.

The Request Audit - Log screen displays.

Figure 8-1 Request Audit - log



3. Specify the fields on Request Audit - log screen.



The fields marked as **Required** are mandatory.

For more information on fields, refer to the field description table.

Table 8-1 Request Audit - log - Field Description

Field	Description	
Request ID	Specify the request ID.	
Consumer	Specify the consumer.	
Consumer Service	Specify the consumer service.	
Provider	Specify the provider.	
Provider Implementation	Specify the provider implementation.	



Table 8-1 (Cont.) Request Audit - log - Field Description

Field	Description	
Provider Service	Specify the provider service.	
Transformation	Specify the transformation name.	
Route	Specify the route.	
User ID	Specify the user ID.	

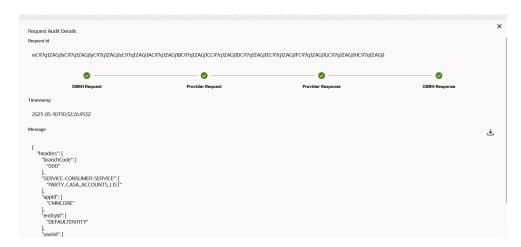
4. Click Search.

The list of request ID's displays with relevant details.

5. Click on the **Request ID** to view the step by step execution of request audit details.

The **Request Audit Details** screen displays.

Figure 8-2 Request Audit Details



For more information on fields, refer to the field description table.

Table 8-2 Request Audit Details - Field Description

Field	Description
Request ID	Displays the selected request ID.
OBRH Request	Displays the status of Routing Hub request.
Provider Request	Displays the status of provider request.
Provider Response	Displays the status of provider response.
OBRH Response	Displays the status of Routing Hub response.
Timestamp	Displays the date and time.
Message	Displays the message.



9

# Chaining

This topic provides the information about chaining of the transformation.

The end-user can define the sequence of transformations for each routing in which the request needs to be processed.

Chaining can be achieved by using the snapshot list. The snapshot list stores the response body and response headers whenever the transformation is processed. Therefore, the enduser can access the response body or headers of all processed transformations at any stage.

Syntax: \$snapshot.get(index).body or \$snapshot.get(index).headers



\$body and \$headers refers to the response body and headers of previous step.

Figure 9-1 Chaining

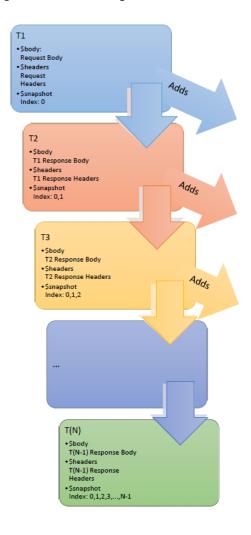


Table 9-1 Snapshot List

Index	Body	Headers
1	Request Body	Request Headers
2	T1 Response Body	T1 Response Headers
3	T2 Response Body	T2 Response Headers
4	T3 Response Body	T3 Response Headers
N	T(N-1) Response Body	T(N-1) Response Headers



10

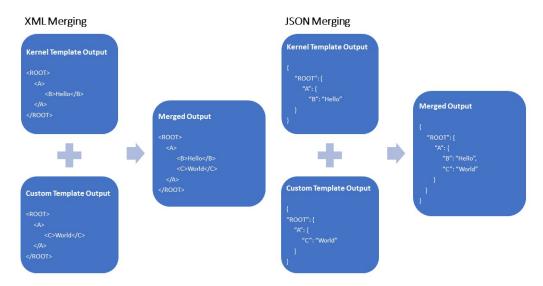
# Extensibility

Extensibility in Routing Hub refers to template extensibility and is achieved by specifying the extended templates for request and response kernel transformation templates. And as part of extensibility, Routing Hub merges the output of kernel template and custom template in terms of JSON / XML merging.

In case of request, Routing Hub will send the merged output as request payload to provider.

In case of response, Routing Hub will return the merged output as response back to consumer

Figure 10-1 Extensibility - Example



XML merging attributes

## 10.1 XML merging attributes

This topic contains the following subtopics:

- Identity Matcher
- Skip Matcher
- Override Action
- Complete Action
- Replace Action

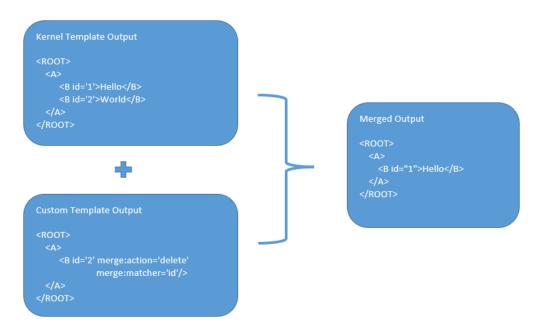
- Preserve Action
- Delete Action

## 10.1.1 Identity Matcher

Matcher attribute must be used when merge action has to be performed for specific element.

Syntax: merge:matcher='<ATTRIBUTE\_NAME>'

Figure 10-2 Identity Matcher

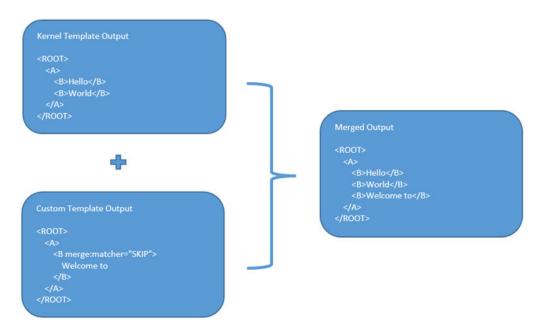


## 10.1.2 Skip Matcher

Skip matcher strategy is used to insert the elements forcefully without matching the original element and patch element.

Syntax: merge:action='SKIP'

Figure 10-3 Skip Matcher

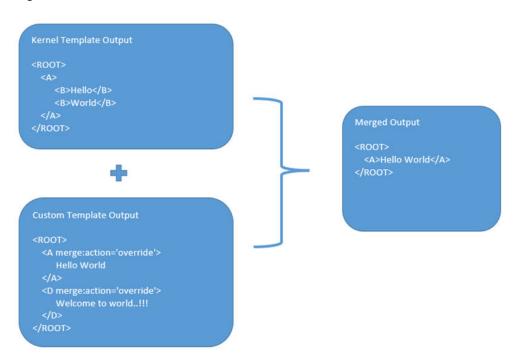


## 10.1.3 Override Action

Replaces the original element with the patch element only if it exists in kernel/mock template.

Syntax: merge:action='override'

Figure 10-4 Override Action

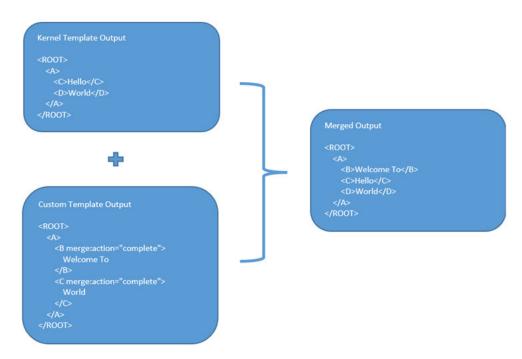


## 10.1.4 Complete Action

Copies the patch element only if it does not exist in kernel/mock template.

Syntax: merge:action='complete'

Figure 10-5 Complete Action

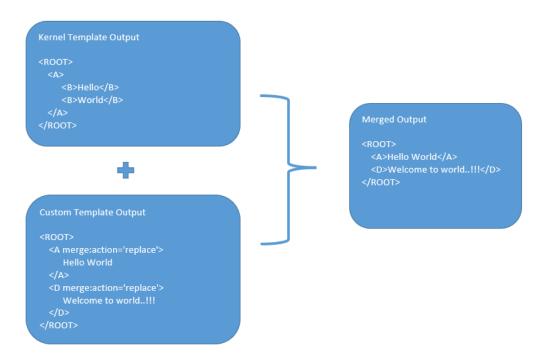


## 10.1.5 Replace Action

Replaces the original element with the patch element or creates the element if it does not exist in kernel/mock template.

Syntax: merge:action='replace'

Figure 10-6 Replace Action

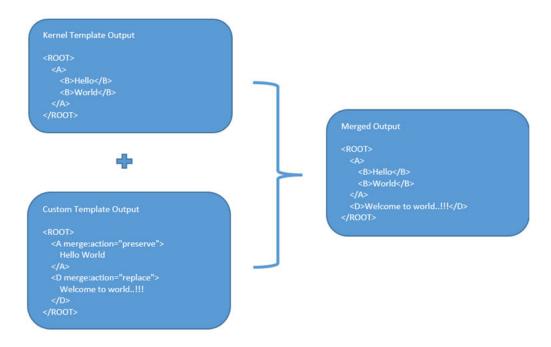


## 10.1.6 Preserve Action

No replace action is performed on the original element.

Syntax: merge:action='preserve'

Figure 10-7 Preserver Action

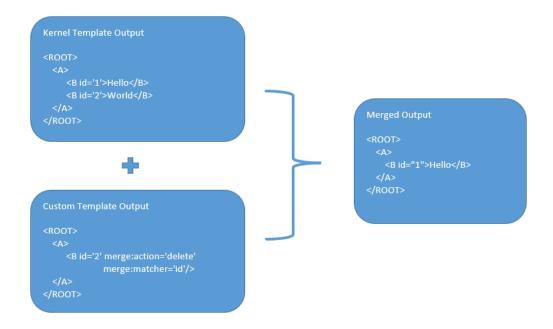


## 10.1.7 Delete Action

Deletes the original element.

Syntax: merge:action='delete'

Figure 10-8 Delete Action





11

# Audit Purging / Archiving

Purging/Archiving of audit data is done on the basis of retention policy.

This process uses plato-batch-server for Job execution.

The following steps are required to schedule purging/archiving job (routingHubAuditRetentionJob) once cmc-obrh-services and plato-batch-server is UP and RUNNING:

- On Home screen, click Task Management. Under Task Management menu, click Configure Tasks.
- 2. Select **Schedule** option.
- Select Task Name as routingHubAuditRetentionJob and Task Trigger Name will be generated automatically.
- 4. Specify the CRON expression to daily EOD.

In order to resolve table space issue of Audit table (CMC\_RH\_AUDIT\_EVENT\_LOG), Database Management Team has to configure database job which should be triggered after routingHubAuditRetentionJob. This database job can be redefining the table (DBMS\_REDEFINITION) after purging/archiving is done or other approach. So, the unused LOB segment space can be released. And in order to resolve table space issue of Audit history table (CMC\_RH\_AUDIT\_EVENT\_LOG\_HISTORY), Database Management Team has to configure database job to truncate table periodically basis.



# **Multipart Request**

This topic provides the sample template for the multipart request

## **Example 12-1** Multipart Request



# Configuration

This topic describes the systematic instructions to perform the configuration.

End-user can configure the properties w.r.t. monitoring, alert and export.

End-user can configure the same at System level and granular levels such as Consumer, Consumer Service and Routing.

The **Configuration** screen contains the following sections.

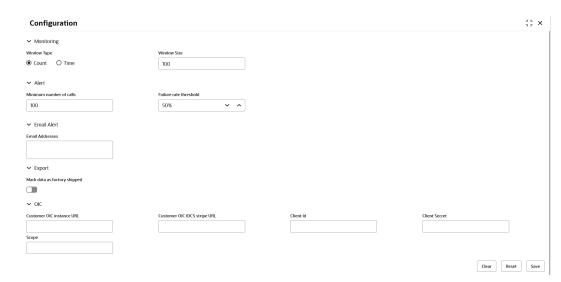
- Monitoring It has the features required by the breaker to store and aggregate the result
  of calls.
- Alert It has the features required for transitioning circuit breaker.
- **Email Alert** It has the feature required for mail notification.
- **Export** It has the properties that are required for exporting the configuration JSON and will be visible at system level only.

Specify **User ID** and **Password**, and login to **Home** screen.

- 1. On Home screen, click Core Maintenance. Under Core Maintenance, click Routing Hub.
- Under Routing Hub, click Configuration.

The **Configuration** screen displays.

Figure 13-1 Configuration



3. Specify the fields on **Configuration** screen.

Note:

The fields marked as **Required** are mandatory.

For more information on fields, refer to the field description table.

Table 13-1 Configuration - Field Description

Field	Description	
Window Type	Select the type of the window. The available options are:  Count: The count-based sliding window aggregates the outcome of the last N calls (Window Size).  Time: The time-based sliding window aggregates the outcome of the calls of the last N seconds (Window Size).	
Window Size	Specify the window size to record the outcome of the calls when the circuit breaker is closed.  For <b>Count</b> window type, The window size is N calls.  For <b>Time</b> window type, The window size has N seconds.	
Minimum number of calls	Specify the minimum number of calls. For example: If the minimum number of calls are 10, then at least 10 calls must be recorded before calculating the failure rate.	
	If only nine calls are recorded, the circuit breaker is not transitioned to open even if all nine calls are failed.	
Failure rate threshold	Specify the failure rate threshold in percentage. When the failure rate is equal or greater than the threshold, the circuit breaker transitions to open and starts short-circuiting calls.	
Email Addresses	Specify the E-mail address. The user can use semi-colon to add more email addresses.  Once the failure rate crosses the <b>Failure rate threshold</b> , a mail is sent to the end-user about the event.	
Mark data as factory shipped	Select the toggle to mark the exported configuration JSON as factory shipped JSON.  The end-user will not be able to modify or delete the certain data once imported.	
	By default, the toggle is OFF.	
Customer OIC instance URL	Specify the url of OIC instance.	
Customer OIC IDCS stripe URL	Specify the striped url of IDCS.	
Client Id	Specify the client identifier.	
Client Secret	Specify the client secret.	
Scope	Specify the intent of access.	

## Example:



**Table 13-2 Configuration - Field Entry Values** 

Field	Entry Values
Window Type	Count
Window Size	20
Minimum number of calls	10
Failure rate Threshold	50%

Configured properties will result as below:

After 10 (minimum number of calls) calls, routing would get shutdown if 50% (failure rate) of almost last 20 (window size) calls have failed. If the email address property is configured, then the end-user is notified as well.

- 4. Click Clear to clear all the specified details.
- 5. Click **Reset** to reset the details.
- 6. Click **Save** to save all the details.



# **Monitoring Dashboard**

Monitoring dashboard has been provided to System integrators and IT administrators to review the health of the integrations. It displays data using different type of widgets to help users to assess the performance of integrations and identify the areas that requires attention.

This dashboard requires 'routingHubAuditSummaryJob' job to be executed periodically using plato-batch-server.

TBelow are steps to schedule the job once cmc-obrh-services and plato-batch-server is UP and RUNNING:

- On Home screen, click Task Management. Under Task Management menu, click Configure Tasks.
- 2. Select Schedule option.
- Select Task Name as routingHubAuditRetentionJob and Task Trigger Name will be generated automatically.
- 4. Specify the CRON expression to daily EOD.

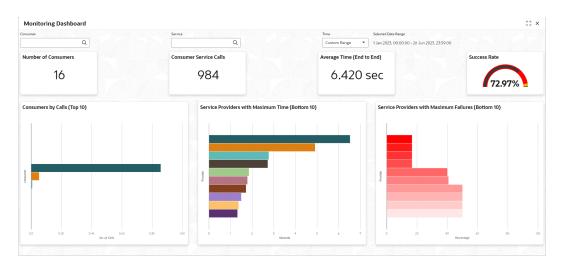
To resolve table space issue of Audit summary table, (CMC\_RH\_AUDIT\_SUMMARY), Database Management Team has to configure database job to truncate table periodically basis.



Monitoring Dashboard will also be not available if Audit logs are turned off.

 On Home screen, click Core Maintenance. Under Core Maintenance menu, click Routinh Hub. Under Routing Hub, click Monitoring Dashboard

Figure 14-1 Monitoring Dashboard



- **Number of Consumers:** This widget displays total number of consumers configured in the Oracle Banking Routing Hub.
- **Consumer Service Calls:** This widget displays total number of consumer services requested during chosen period.
- Average Time (End to End): This widget displays the average time (in seconds) taken to process successful requests, during chosen period.
- Success Rate: This widget provides an indicator of how many successful requests were made during chosen period.
- Consumers by Calls (Top 10): This widget provides a graphical display of the top 10 consumers based on requests they have made during chosen period. A link on the bar graph is provided to view further details of the Consumer.
- Service Providers with Maximum Time (Bottom 10): This widget provides a
  graphical display of bottom 10 providers based on the time taken to process
  requests, during s chosen period.
- Service Providers with Maximum Failures (Bottom 10): This widget provides a graphical display of bottom 10 providers based on failed requests, during s chosen period.

#### **Consumer Page**

The End-user can navigate to this page by either using the filter option provided on the landing page or by clicking on specific consumer service in "Consumer Service by Calls (Top 10)" chart.

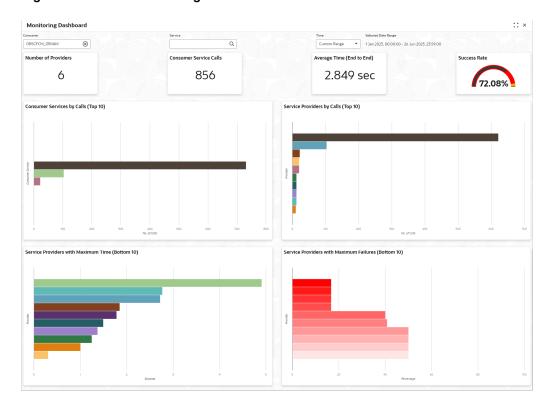


Figure 14-2 Consumer Page

This page displays following information:

- Number of Providers: This widget displays the total number of service providers configured in Oracle Banking Routing Hub for the selected consumer.
- **Consumer Service Calls:** This widget displays total number of consumer services requested by the selected consumer during chosen period.
- Average Time (End to End): This widget displays the average time (in seconds) taken to process successful requests made by the selected consumer, during chosen period.
- Success Rate: This widget provides an indicator of how many successful requests were made by the selected consumer during chosen period.
- Consumer Services by Calls (Top 10): This widget provides a graphical display of the top 10 consumers Services during chosen period. A link on the bar graph is provided to view further details of the Consumer Service.
- **Service Providers by Calls (Top 10):** Shows top 10 service providers based on the maximum requests which are requested chosen period.
- Service Providers with Maximum Time (Bottom 10): Shows bottom 10 providers based on the maximum time taken to process successful requests which are requested during chosen period.
- Service Providers with Maximum Failures (Bottom 10): Shows bottom 10 providers based on the maximum number of failed requests which are requested during chosen period.

#### **Consumer Service Page**

The End-user can navigate to this page by either using the filter option provided on the landing page or by clicking on specific consumer service in "Consumer Service by Calls (Top 10)" chart.

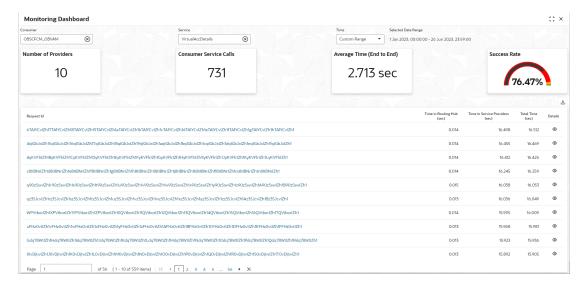


Figure 14-3 Consumer Service Page

- **Number of Providers:** This widget displays total number of service providers to which this request is routed to complete the integration.
- **Consumer Service Calls:** This widget displays total number of consumer services made during chosen period.



- Average Time (End to End): This widget displays the average time taken to process successful requests made during chosen period.
- **Success Rate:** Shows the percentage of successful requests which are made during chosen period.
- Request Details: The table displays the list of requests which are requested during chosen period. Following are the details which are provided for each request.

Component Name	Component Type
Request Id	This is system generated reference number for each request. Click on the Request Id displays audit log information of the request.
Time in Routing Hub (Sec)	This field displays the time taken by Routing Hub (in seconds) to route the request between Consumer Service and Providers.
Time in Service Providers (Sec)	This field displays the total time taken by Service provides (in seconds) to process the request.
Total Time (Sec)	This field displays the total time to process the request
Provider Service	Text box
Details	Displays the tabular view of the time taken by individual providers (in case of chaining of the request)

End-user can view request details by clicking on Request Id.

Figure 14-4 Request Audit Details



Component Name	Comments	
Number of Providers	Shows total number of service providers.	
Consumer Service Calls	Shows total number of consumer services requested during selected time.	



Component Name	Comments
Average Time (End to End)	Shows the average time taken to process successful requests which are requested during selected time.
Success Rate	Shows the percentage of successful requests which are requested during selected time.
Request Audit	Shows list of requests which are requested during selected time.



15

# **Transformation Type**

This topic provides the information about the transformation types.

#### Velocity

Velocity is a Java-based template engine. It is used to generate XML files, SQL, PostScript, and most other text-based formats.



In Routing Hub, velocity is used to generate JSON and XML files.

Using \$body, user can access request/response body.

Syntax: \$body.fieldName

**Example**: \$body.branchCode

Using \$headers, user can access request/response headers.

Syntax: \$headers["fieldName"][0]

Example: \$headers["branchCode"][0]

Using \$bodyAsString, user can access response body as string.

Syntax: \$bodyAsString

- Below are some available extension methods:
  - Date Conversion

**Syntax**: \$dateUtil.convert(inputDate, fromPattern, toPattern)

#### Parameters:

- inputDate String
- fromPattern String
- toPattern String

Returns: String

Refer to https://docs.oracle.com/javase/8/docs/api/java/text/SimpleDateFormat.html for different patterns

Default Value

Syntax: \$custom.defaultValue(inputValue, defaultValue)

#### Parameters:

- inputValue Object
- defaultValue String

Returns: Object

Null Check

**Syntax**: \$custom.isNull(inputValue)

Parameters:

inputValue - Object

Returns: Boolean
Random Number

**Syntax**: \$mathUtil.getRandom()

Returns: Object of Random class (java.util.Random)

Xml Tool

Syntax: \$xml.methodName()

Refer to https://velocity.apache.org/tools/3.1/apidocs/org/apache/velocity/tools/generic/XmlTool.html

Date Tool

**Syntax**: \$date.methodName()

Refer to https://velocity.apache.org/tools/3.1/apidocs/org/apache/velocity/tools/generic/DateTool.html

Json Tool

Syntax: \$json.methodName()

Refer to https://velocity.apache.org/tools/3.1/apidocs/org/apache/velocity/tools/generic/JsonTool.html

Math Tool

**Syntax**: \$math.methodName()

Refer to https://velocity.apache.org/tools/3.1/apidocs/org/apache/velocity/tools/generic/MathTool.html

Number Tool

**Syntax**: \$number.methodName()

Refer to https://velocity.apache.org/tools/3.1/apidocs/org/apache/velocity/tools/generic/NumberTool.html

Escape Tool

**Syntax**: \$esc.methodName()

Refer to https://velocity.apache.org/tools/3.1/apidocs/org/apache/velocity/tools/generic/EscapeTool.html

Serialization of object into its equivalent Json representation

Syntax: \$custom.toJson(src)

#### Parameters:

\* src - Object

Returns: String

Get additional field's value based on fieldname

**Syntax**: \$custom.getFieldValueById(jsonString, fieldname)

#### Parameters:

- isonString String
- fieldname String

Returns: String

Get list of additional fields based on fieldname prefix
 Syntax: \$custom.getAdditionalFieldSetByType(jsonString,prefixval)

#### Parameters:

- \* jsonString String
- \* prefixval String

Returns: String

• If issue occurred with hyphen in velocity template of Request or Response Transformation, then use get method.

#### Example:

#### **XSLT**

XSLT is a language for transforming XML documents into other XML documents, or other formats such as HTML for web pages, plain text or XSL formatting objects, which may subsequently be converted to other formats, such as PDF, PostScript and PNG.



In Routing Hub, XSLT is used to transform arbitrary XML to JSON.

#### **JSLT**

JSLT is a complete query and transformation language for JSON.

# Oracle Banking Routing Hub Integration Specification

This topic provides information about Oracle Banking Routing Hub Integration Specification.

- Token Generation
  - This topic provide information about the Token Generation.
- Synchronous Dispatch API Specification
   This topic provide information about the Synchronous Dispatch API Specification.
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- Asynchronous Dispatch Response API Specification
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- Template evaluation API Specification
   This topic provide information about the Template evaluation API Specification.

## 16.1 Token Generation

This topic provide information about the Token Generation.

PlatoJWTAuth endpoint signature -

- Path: /platojwtauth
- Headers:
  - appld : SECSRV001
  - Content-Type : application/json
- Request Body:

```
{
    "username": "",
    "password": ""
}
```

- Username and password is base64 encoding of plaintext.
- Response Body:

```
"token": "",
"userAlreadyLoggedIn": "Y",
"expires_in": 3180,
"home_entity_id": "DEFAULTENTITY",
"multi entity admin": "N",
```

```
"multi_entity_admin_locale": ""
}
```

Refer the below sample screenshots:

Figure 16-1 Headers

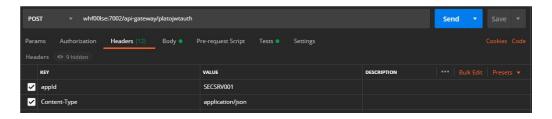


Figure 16-2 Request Payload

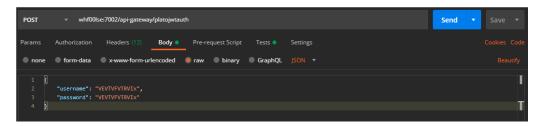


Figure 16-3 Response Payload

## 16.2 Synchronous Dispatch API Specification

This topic provide information about the Synchronous Dispatch API Specification.

Dispatch endpoint is the single entry-point for invoking the routes configured in Oracle Banking Routing Hub for services of a Service Consumer.

Dispatch Endpoint signature -

Method: POST / GET

Path: /route/dispatch

Headers:

appld : CMNCORE

entityId : DEFAULTENTITY



- userId : <user id>
- branchCode : <branch code>
- Authorization : Bearer <Token>
- SERVICE-CONSUMER : <name of service consumer>
- SERVICE-CONSUMER-SERVICE : <name of service consumer service>

#### Request Body:

 Any valid JSON/XML payload which shall act as input to the transformation template in request transformer.

#### Response Body:

```
{
  "data": {}
  "messages": {}
}
```

- If the route invocation succeeds, data JSON member would contain the transformed (optional) response of the provided service. If it is a provided web service and no response transformation template is supplied, XML Soap Body of response would be converted into JSON object and sent in data JSON member.
- If the route invocation fails due to misconfigured route or connection time out to ServiceProviderImpl or some other reason, relevant error messages would be sent in messages JSON member. In that case, data JSON member would be null or empty.

**Examples**: Refer the below screenshots of route dispatch for Service-Consumer **Oracle\_Service\_Consumer** and Service-Consumer Service **List\_Facilities**.

Figure 16-4 Headers





Figure 16-5 Request Payload



Figure 16-6 Response Payload on Successful Dispatch

Figure 16-7 Response Payload on Failed Dispatch

```
| Pretty | Raw | Preview | Visualize | JSON | Proview | JSON | Proview | JSON | Proview | Raw | Preview | Raw | Preview | Raw | Preview | Raw | Reports | Raw | Reports | Raw | Raw
```

# 16.3 Asynchronous Dispatch API Specification

This topic provide information about the Asynchronous Dispatch API Specification.

Dispatch endpoint is the single entry-point for invoking the routes configured in Oracle Banking Routing Hub for services of a Service Consumer.

Dispatch endpoint signature -

- Path: /route/dispatch
- Query Params:



isAsync : true

#### Headers:

appld : CMNCORE

entityId : DEFAULTENTITY

userId : <user id>

branchCode : <branch code>

Authorization : Bearer <Token>

- SERVICE-CONSUMER : <name of service consumer>
- SERVICE-CONSUMER-SERVICE : <name of service consumer service>

#### Request Body:

 Any valid JSON/XML payload which shall act as input to the transformation template in request transformer.

#### Response Body:

```
{
  "data": { "correlationId" : "" },
  "messages": {}
}
```

**Example**: Refer the below screenshots of route dispatch for Service-Consumer **Oracle\_Service\_Consumer** and Service-Consumer Service **List\_Facilities**.

Figure 16-8 Query Params

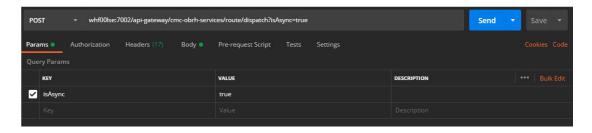


Figure 16-9 Headers

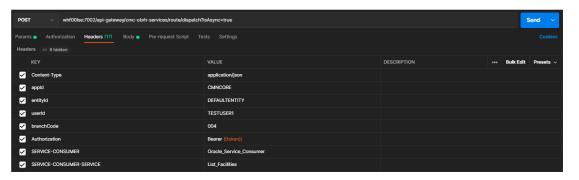




Figure 16-10 Request Payload

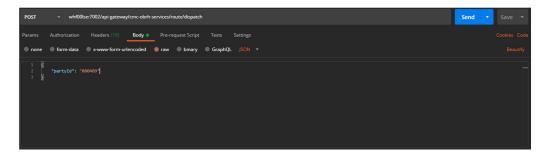


Figure 16-11 Response Payload

## 16.4 Asynchronous Dispatch Response API Specification

This topic provide information about the Asynchronous Dispatch Response API Specification.

Response endpoint signature -

- Path: /route/dispatchResponse/{Correlation-Id}
  - Correlation-Id will be coming from the response of dispatch endpoint.
- Headers:
  - appld : CMNCORE
  - entityId : DEFAULTENTITY
  - userId : <user id>
  - branchCode : <branch code>
  - Authorization : Bearer <Token>
- Response Body:

```
{
   "data": {}
```

```
"messages": {}
```

- If the route invocation succeeds, data JSON member would contain the transformed (optional) response of the provided service. If it's a provided web service and no response transformation template is supplied, XML Soap Body of response would be converted into JSON object and sent in data JSON member.
- If the route invocation fails due to misconfigured route or connection time out to ServiceProviderImpl or some other reason, relevant error messages would be sent in messages JSON member. In that case, data JSON member would be null or empty.

**Example**: Refer the below screenshots of route dispatch for Service-Consumer **Oracle\_Service\_Consumer** and Service-Consumer Service **List\_Facilities**.

Figure 16-12 Header



Figure 16-13 Response Payload when request is still processing

```
| Reders (17) | Test Results | Pretty | Raw | Preview | Visualize | JSON | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Visualize | JSON | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Visualize | JSON | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Visualize | JSON | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Visualize | JSON | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Time: 593 ms | Size: 91.8 | Save Response | Pretty | Raw | Preview | Prev
```



Figure 16-14 Response Payload when request is processed (on Successful Dispatch)



Figure 16-15 Response Payload when request is processed (on Failed Dispatch)

## 16.5 Template evaluation API Specification

This topic provide information about the Template evaluation API Specification.

Template evaluation endpoint will return the evaluated output of transformation template.

End-user can validate the template based on the returned output.

Template evaluation endpoint signature -

Method: POST

Path : /template/evaluate

Headers:

appld : CMNCORE

entityId : DEFAULTENTITY

userId : <user id>

branchCode : <branch code>

Authorization : Bearer <Token>

SERVICE-CONSUMER : <name of service consumer>

- SERVICE-CONSUMER-SERVICE : <name of service consumer service>
- SERVICE-TRANSFORMATION : <name of service transformation>

#### Query Parameters:

transformationType : REQUEST / RESPONSE / MOCK\_RESPONSE



#### Request Body:

 Any valid JSON / XML payload which shall act as input to the transformation template in request transformer.

#### Response Body:

```
{
  "data": {}
  "messages": {}
}
```



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