Oracle Utilities Customer Care and Billing Integration to Oracle Field Service

Configuration Guide

Release 24A

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Oracle Utilities Customer Care and Billing Integration to Oracle Field Service Configuration Guide, Release 24A

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Preface

Welcome to the Oracle Utilities Customer Care and Billing Integration to Oracle Field Service Configuration Guide.

The preface includes the following:

- Audience
- Documentation and Resources
- Documentation Accessibility
- Conventions
- Acronyms

Audience

This document is intended for anyone implementing the Oracle Utilities Customer Care and Billing Integration to Oracle Field Service.

Documentation and Resources

For more information regarding this integration, foundation technology and the edge applications, refer to the following documents:

Product Documentation

Topic	Description
Oracle Utilities Customer Care and Billing Integration to Oracle Field Service documentation	https://docs.oracle.com/en/industries/energy-water/integrations-index.html
Oracle Utilities Customer Care and Billing documentation	https://docs.oracle.com/en/industries/energy-water/ccb/index.html
Oracle Field Service documentation	https://docs.oracle.com/en/cloud/saas/field-service/index.html

Additional Documentation

Resource	Location
Oracle Support	Visit My Oracle Support at https://support.oracle.com regularly to stay informed about updates and patches. Refer to the *Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1)* on My Oracle Support to determine if support for newer versions of the listed products is included. For more information, refer to the Oracle Utilities Integrations page at http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm
Oracle Technology Network (OTN) Latest versions of documents	http://www.oracle.com/technetwork/index.html
Oracle University for training opportunities	http://education.oracle.com/

Documentation Accessibility

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

Access to Oracle Support
Oracle customers have access to electronic support for the hearing impaired. Visit: http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs

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.

Acronyms

The following terms are used in this document:

Term	Expanded Form
OFS	Oracle Field Service
OIC	Oracle Integration Cloud
DVM	Domain Value Map (Lookup)
CCB/OUCCB	Oracle Utilities Customer Care and Billing

Chapter 1

Introduction

This chapter provides an overview about the integration between Oracle Utilities Customer Care and Billing and Oracle Field Service using Oracle Integration Cloud. It focuses on software requirements, Oracle Integration Cloud, and business standpoint of the integration.

The chapter includes the following:

- Overview of the Integration
- About Oracle Utilities Customer Care and Billing
- About Oracle Field Service
- About Oracle Integration Cloud
- Software Requirements

Overview of the Integration

Oracle Utilities Customer Care and Billing Integration to Oracle Field Service helps to manage a fieldwork originated in the Oracle Utilities Customer Care and Billing solution in Oracle Field Service. The integration can be leveraged to create appointments and initiate/update/cancel activities in the field using the Oracle Field Service solution.

The major business flows revolve around activities, appointments, devices, and service points. The activities are created in Oracle Utilities Customer Care and Billing and sent to Oracle Field Service for the mobile worker to perform the activity. The field activity completion information is sent from Oracle Field Service to Oracle Utilities Customer Care and Billing where it is processed by Oracle Utilities Customer Care and Billing. In addition, the integration supports item/device verification, an ability to send interim status of a field activity and the related pick-up orders from Oracle Field Service to Oracle Utilities Customer Care and Billing. Create the related pick-up orders and Oracle Field Service queries for service point information from Oracle Utilities Customer Care and Billing in order to create an unrelated pickup order.
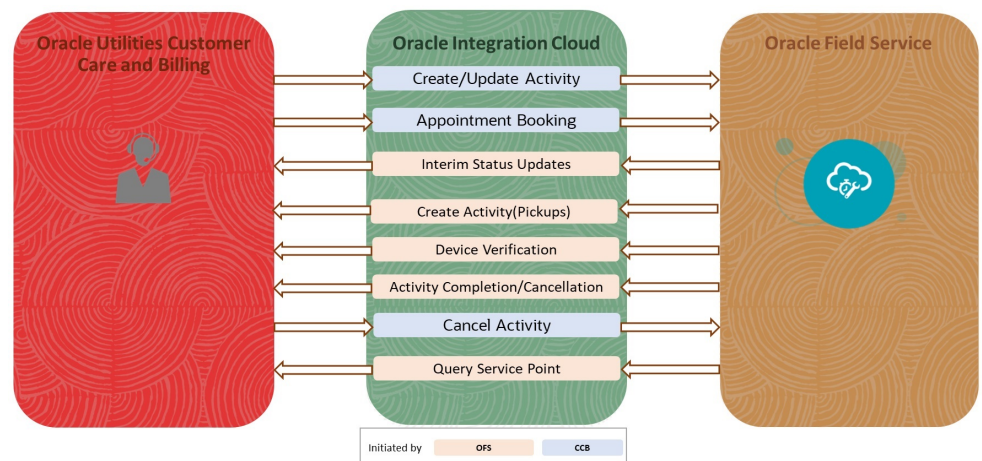
About Oracle Utilities Customer Care and Billing

Oracle Utilities Customer Care and Billing manages customer information associated with field activities and processes the associated billing. Typically processing begins when a customer logs a request, or field activity, for work. Oracle Utilities Customer Care and Billing communicates this field activity to Oracle Field Service as a work order/activity.

About Oracle Field Service

Oracle Field Service is built on time-based, self-learning, and predictive technology, empowering to solve business problems while evolving the field service organization. It has various modules to choose, such as forecasting, routing, capacity, mobility, collaboration, core manage, smart location, customer communication, and more. It leverages the performance pattern profiles to create optimal daily routes and schedules and continues to learn as employee work patterns change over time.

About Oracle Integration Cloud

Oracle Integration Cloud is a unified platform to integrate the applications, automate processes, and create applications.

Using the Process Builder the business processes can be rapidly designed, automated, and managed in the cloud. Using integrations connect the applications into a continuous business flow. The applications that are on cloud and on premises can be integrated using Oracle Integration Cloud. The lookups help to match application specific codes between the two applications.

Integration Insights and Stream Analytics helps to simplify and extract business metrics and create custom dashboards.

Software Requirements

The following software is required for the integration to work:

- Oracle Utilities Customer Care and Billing

- Oracle Integration Cloud

- Oracle Field Service

For specific application versions, refer to the *Oracle Utilities Customer Care and Billing Integration to Oracle Field Service Release Notes* included in this release. The documentation is available on Oracle Help Center at: https://docs.oracle.com/en/industries/energy-water/integrations-index.html

The latest supported platform information for various Oracle Utilities applications and integration products is available in the *Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1)* on My Oracle Support.

Chapter 2

Solution Architecture

This chapter provides an overview of the application architecture used by the integration, including:

- Solution Diagram
- Business Flows

Solution Diagram

The technical aspects involved in Oracle Utilities Customer Care and Billing Integration to Oracle Field Service are:

- It is an integration between Oracle Utilities Customer Care and Billing and Oracle Field Service.

- The integration layer is made up of integration processes deployed on Oracle Integration Cloud.

- It uses web services and REST APIs to facilitate communication between these two applications.

- In the Oracle Utilities Customer Care and Billing initiated processes, outbound messages are sent and Oracle Field Service uses REST API to receive the messages.

- In the Oracle Field Service initiated processes, events are triggered and Oracle Utilities Customer Care and Billing uses inbound web services (IWS) to receive the messages.

The integration patterns used in this solution are:

- Synchronous

- One-way Asynchronous

Synchronous

The synchronous integration process:

1. Receives request message from the source application.

2. Transforms the message from source format to the target format. Lookups are used for data translations.

3. Invokes the target application.

4. Transforms the message (after invoking the target application) from the target format back to the source format. It sends back an acknowledgment/synchronous response to the source application.

5. In case of any error, the global fault handler catches them and sends the transformed error message to the source application.

6. An optional email notification is sent to the respective users as configured.

The integration processes using this pattern are:

- Create/Update Activity (Oracle Utilities Customer Care and Billing initiated)

- Cancel Activity (Oracle Utilities Customer Care and Billing initiated)

- Appointment Window Request (Oracle Utilities Customer Care and Billing initiated)

- Device Verification (Oracle Field Service initiated)

- Query Service Point (Oracle Field Service initiated)
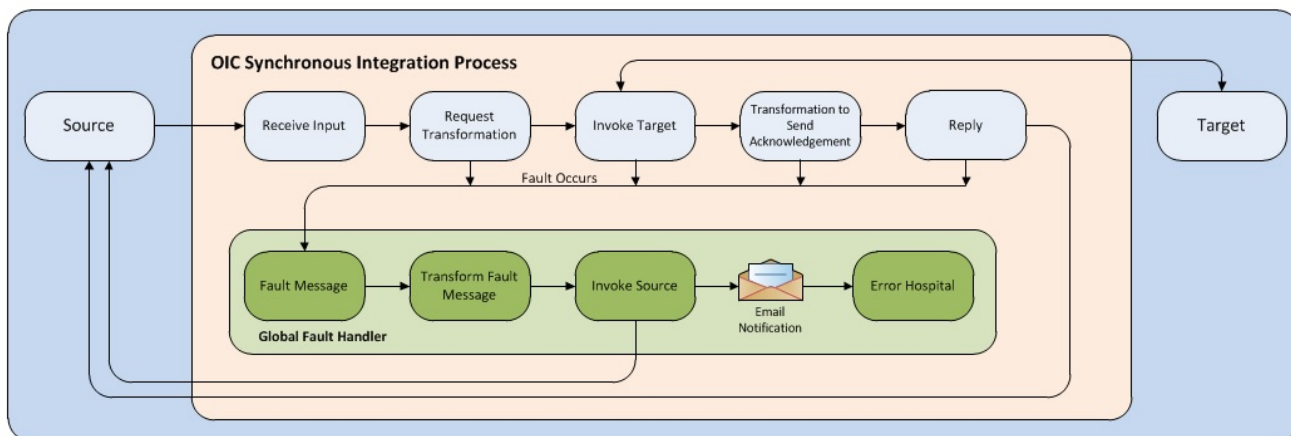
One-way Asynchronous

The one-way asynchronous integration process:

1. Receives request message from the source application.

2. Transforms message from the source to the target format. Lookups are used for data translations.

3. Invokes target application to send the request message.

4. In case of any error, the global fault handler catches them.

5. An optional email notification is sent to the respective users as configured.

6. The error instance can be re-submitted from Oracle Integration Cloud. Refer to the Error Handling section in Configuring Lookups, Error Handling, and Email Notifications for more details.
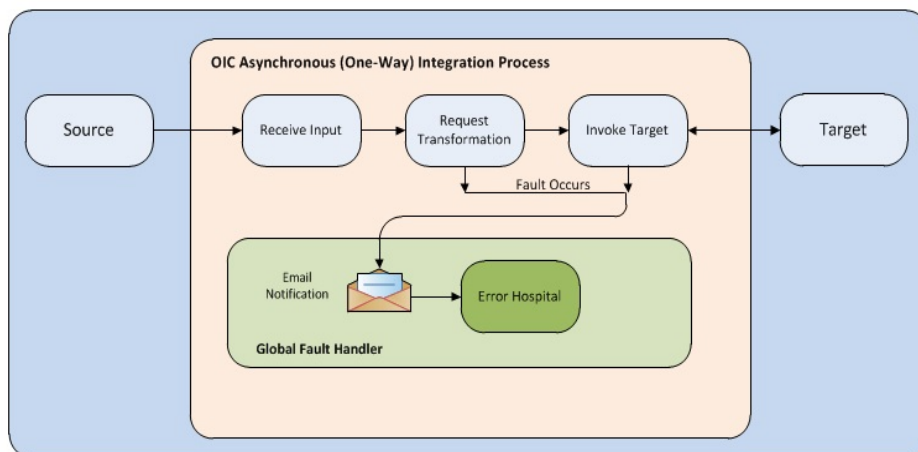
The integration processes using this pattern are:

- Create Activity (Oracle Field Service initiated)

- Activity Completion/Cancellation (Oracle Field Service initiated)

- Interim Activity Status (Oracle Field Service initiated)

Business Flows

The integration scope supports the following business processes:

- Create/Update Field Activity (Oracle Utilities Customer Care and Billing initiated)
- Cancel Field Activity (Oracle Utilities Customer Care and Billing initiated)
- Appointment Window Request (Oracle Utilities Customer Care and Billing initiated)
- Interim Activity Status (Oracle Field Service initiated)
- Device Verification (Oracle Field Service initiated)
- Create Activity (Oracle Field Service initiated)
- Activity Completion/Cancellation (Oracle Field Service initiated)
- Query Service Point (Oracle Field Service initiated)

Create/Update Field Activity (Oracle Utilities Customer Care and Billing initiated)

This integration process is used to accept request from Oracle Utilities Customer Care and Billing to create or update activities in Oracle Field Service. The information is sent synchronously from Oracle Utilities Customer Care and Billing, regardless of the activity type, and Oracle Field Service sends back a synchronous response.

The following diagram shows a graphical representation of the Create Update Field Activity integration process.
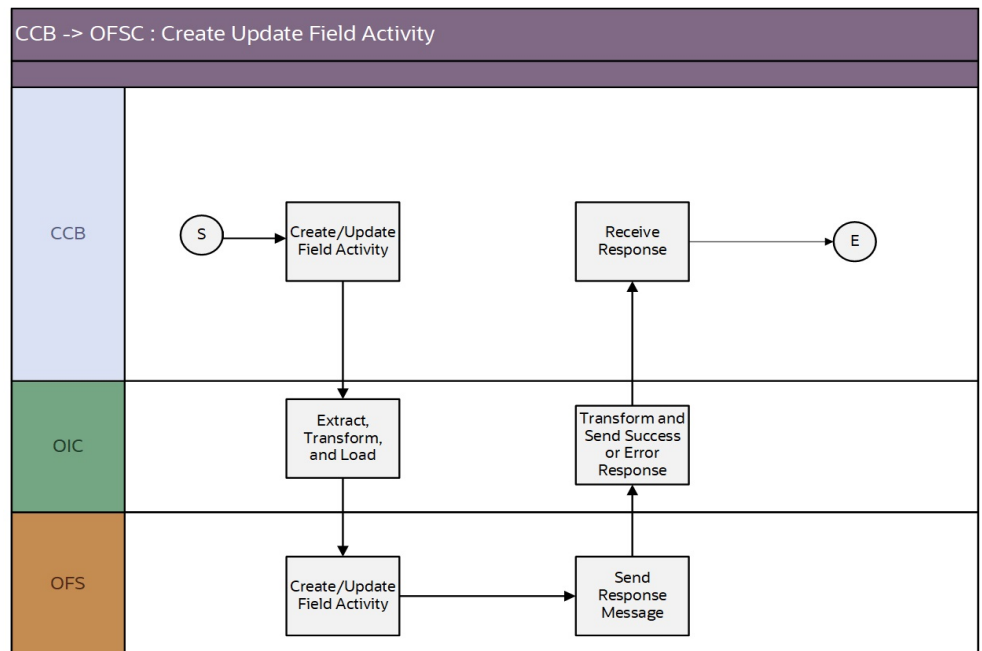
Business Processing

The integration process includes the following activities:

1. Oracle Utilities Customer Care and Billing sends the create/update field activity request to the Oracle Utilities CCB OFSC Activity CreateUpdate integration process deployed on Oracle Integration Cloud.

2. The Oracle Utilities CCB OFSC Activity CreateUpdate process transforms the create/updateactivity request message from Oracle Utilities Customer Care and Billing to the request message format in Oracle Field Service and invokes bulkUpdate API.

3. Oracle Field Service sends the success or failure response to the integration transformed and sent to Oracle Utilities Customer Care and Billing.

4. In case of any error response from Oracle Field Service, a business fault is thrown to Oracle Utilities Customer Care and Billing.

5. Any other errors are captured through the global fault handler and reported back to Oracle Utilities Customer Care and Billing.

6. An optional email notification with error details is sent to the users configured in the CCBOFSC_Email_ID lookup.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Customer Care and Billing and Oracle Field Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Oracle Utilities CCB OFSC Activity CreateUpdate
Integration Package Name	outl.ba.ccb_ofsc.01_24_1000.par
OFSC BO/Operation	Activity/Bulk Update Activity
OFSC API	bulkUpdate
CCB BO	C1-FASendOutMsg

Cancel Field Activity (Oracle Utilities Customer Care and Billing initiated)

This integration process is used to accept request from Oracle Utilities Customer Care and Billing to cancel activity in Oracle Field Service. The information is sent synchronously from Oracle Utilities Customer Care and Billing, regardless of the activity type, and Oracle Field Service sends back a synchronous response.

The following diagram shows a graphical representation of the Cancel Field Activity integration process.
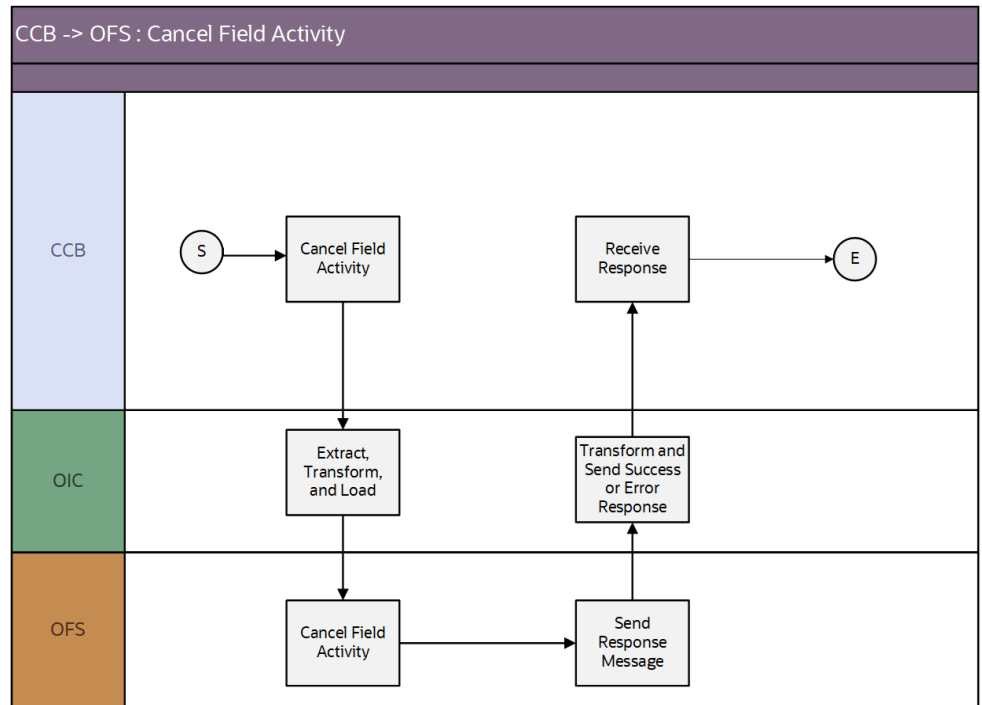
Business Processing

The integration process includes the following activities:

1. Oracle Utilities Customer Care and Billing sends the cancel field activity request to the Oracle Utilities CCB OFSC Activity Cancel integration process deployed on Oracle Integration Cloud.

2. The Oracle Utilities CCB OFSC Activity Cancel process transforms the request message from Oracle Utilities Customer Care and Billing to the request message format in Oracle Field Service and invokes bulkUpdate API.

3. Oracle Field Service sends the success or failure response to the integration transformed and sent to Oracle Utilities Customer Care and Billing.

4. In case of any error response from Oracle Field Service, a business fault is thrown to Oracle Utilities Customer Care and Billing.

5. Any other errors are captured through the global fault handler and reported back to Oracle Utilities Customer Care and Billing.

6. An optional email notification with error details is sent to the users configured in the CCBOFSC_Email_ID lookup.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Customer Care and Billing and Oracle Field Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Oracle Utilities CCB OFSC Activity Cancel
Integration Package Name	outl.ba.ccb_ofsc.01_24_1000.par
OFSC BO/Operation	Activity/Bulk Update Activity
OFSC API	bulkUpdate
CCB BO	C1-FACancelOutMsg

Appointment Window Request (Oracle Utilities Customer Care and Billing initiated)

This integration process provides a list of available appointments.

Oracle Utilities Customer Care and Billing sends the activity start and end date times from the **Appointment** portal and Oracle Field Service sends back the list of appointments available on those dates.

The following diagram shows a graphical representation of the Appointment Window Request integration process.
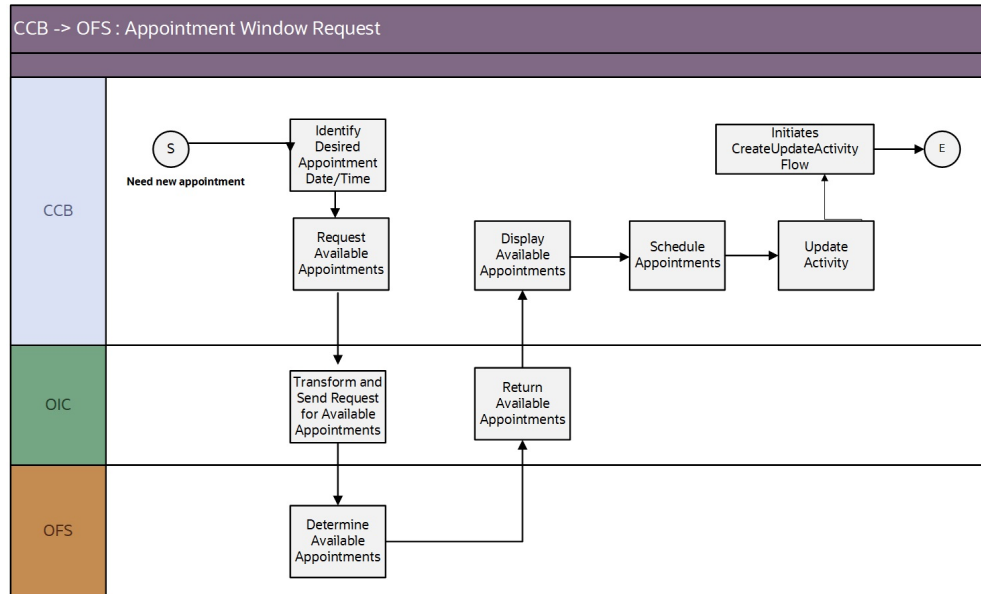
Business Processing

The integration process includes the following activities:

1. Oracle Utilities Customer Care and Billing sends the get available appointment request to Oracle Utilities CCB OFSC Appointment Get integration process deployed on Oracle Integration Cloud.

2. The Oracle Utilities CCB OFSC Appointment Get process transforms the request message from Oracle Utilities Customer Care and Billing to the request message format in Oracle Field Service and invokes the activityBookingOptions REST API with start and end date values.

3. Oracle Field Service sends the success or failure response to the integration.

4. The integration process transforms and sends the available timeslots only when it is not a 'Break' time and has some quota allocated to it and invokes Oracle Utilities Customer Care and Billing.

5. Any errors are reported back to Oracle Utilities Customer Care and Billing through the global fault handler.

6. An optional email notification with error details is sent to the users configured in the CCBOFSC_Email_ID lookup.

> **Note**: In Oracle Field Service make sure the employee-based activities have 'Break' in the time slot label.
>
> For example: Lunch Break, Second Lunch Break, and more

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Customer Care and Billing and Oracle Field Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Oracle Utilities CCB OFSC Appointment Get
Integration Package Name	outl.ba.ccb_ofsc.01_24_1000.par
OFSC API/Method	activityBookingOptions/GET
CCB BO	C1-GetAvailApptOutMsg

Interim Activity Status (Oracle Field Service initiated)

Oracle Field Service sends the interim activity status of the field activities to Oracle Utilities Customer Care and Billing.

The following diagram shows a graphical representation of the Interim Activity Status integration process.
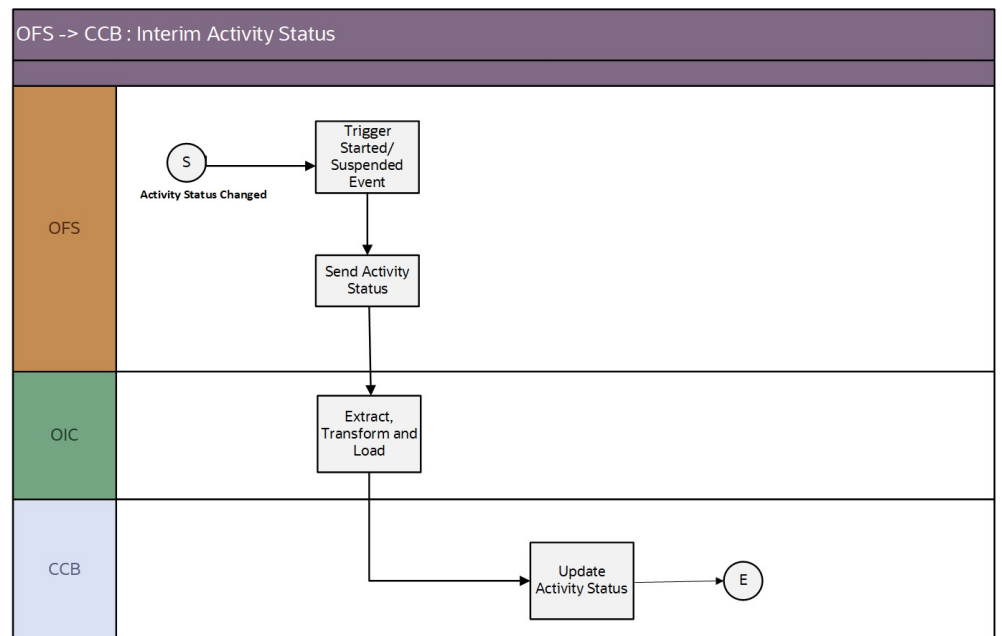
Business Processing

The integration process includes the following activities:

1. Oracle Field Service sends the interim activity status to the Oracle Utilities OFSC CCB Activity Interim Status integration process deployed on Oracle Integration Cloud.

2. Integration process transforms the message to Oracle Utilities Customer Care and Billing format and sends it to Oracle Utilities Customer Care and Billing.

3. Any errors are caught in the global fault handler.

4. An optional email notification with error details are sent to the users configured in the CCBOFSC_Email_ID lookup.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Customer Care and Billing and Oracle Field Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Oracle Utilities OFSC CCB Activity Interim Status
Integration Package Name	outl.ba.ccb_ofsc.01_24_1000.par
OFSC Events	Activity Started Activity Suspended Activity Not Done
CCB IWS	C1-FieldActivityMaintenance

Device Verification (Oracle Field Service initiated)

This integration process is used to verify if the item/device is present in Oracle Utilities Customer Care and Billing. Oracle Field Service synchronously sends the requests for device verification with the device's badge number or badge number and serial number or badge number, serial number, Meter ID Type, and Meter ID Number; and Oracle Utilities Customer Care and Billing sends back the details, such as device configuration type and verification status.

The following diagram shows a graphical representation of the Device Verification integration process.
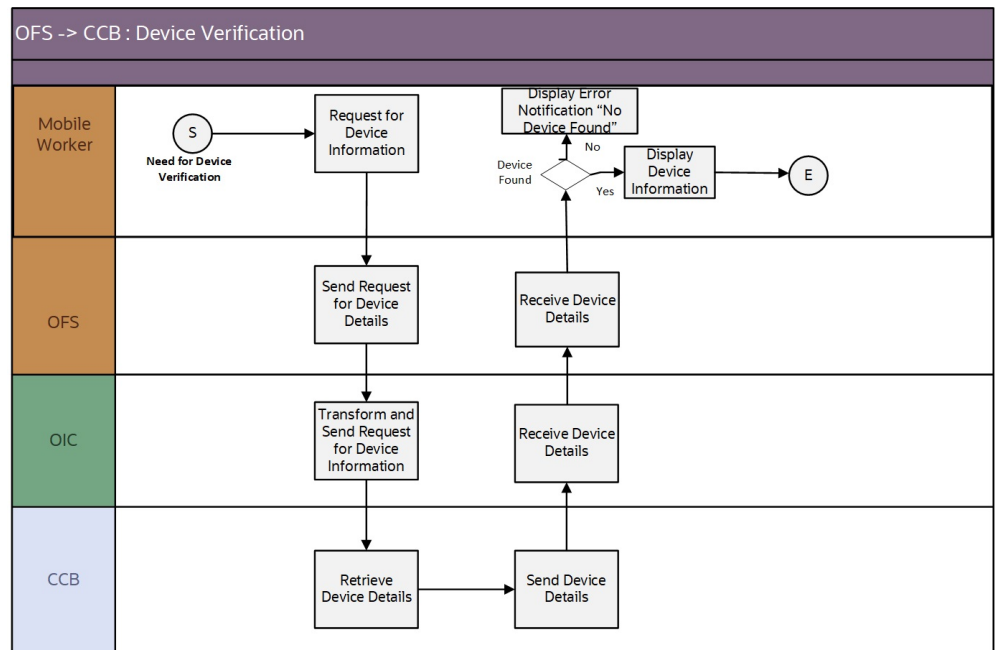
Business Processing

The integration process includes the following activities:

1. Oracle Field Service sends the device verification request to the Oracle Utilities OFSC CCB Device Verification integration process deployed on Oracle Integration Cloud.

2. The Oracle Field Service mobile worker has the option to request for device information using the badge number and serial Number. The serial number is optional.

3. The Oracle Utilities OFSC CCB Device Verification process transforms the request message from Oracle Field Service to the request message format in Oracle Utilities Customer Care and Billing and invokes the ValidateMeterItemResponse inbound service.

4. Oracle Utilities Customer Care and Billing sends the success or failure response to the integration transformed and sent to Oracle Field Service.

5. Any errors are handled by the custom plug-in hosted on Oracle Field Service. A pop-up blocker appears in Oracle Field Service with the respective error details.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Customer Care and Billing and Oracle Field Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Oracle Utilities OFSC CCB Device Verification
Integration Package Name	outl.ba.ccb_ofsc.01_24_1000.par
OFSC Entity	Custom Plugin
CCB IWS	ValidateMeterItemResponse

Create Activity (Oracle Field Service initiated)

This integration process is used to create an activity (related/unrelated pickup) in an external system. Oracle Field Service sends a request to create activity in Oracle Utilities Customer Care and Billing.

The following diagram shows a graphical representation of the Create Activity integration process.
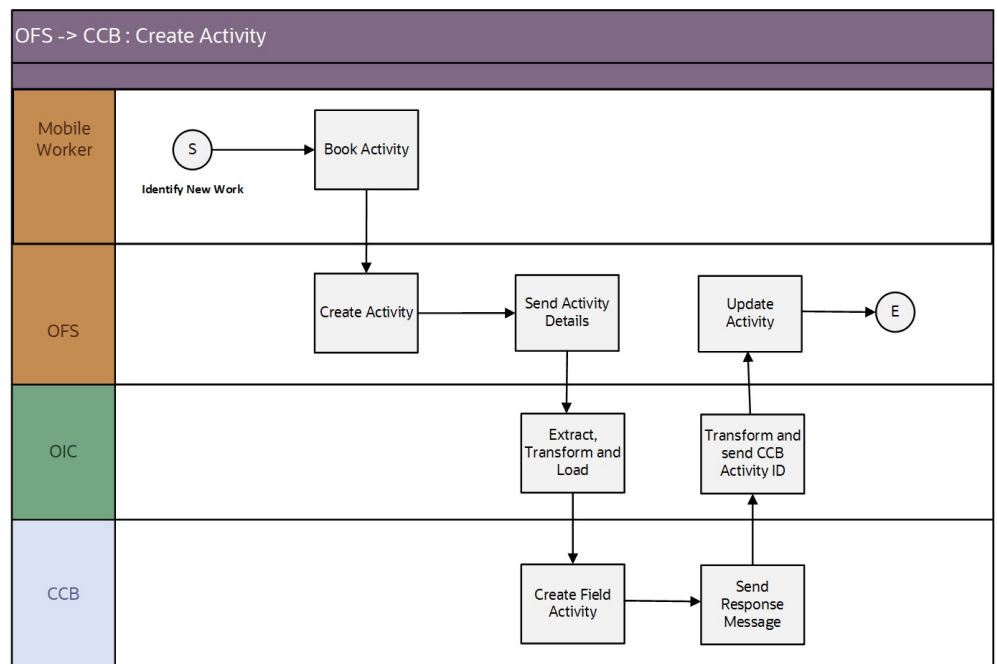
Business Processing

The integration process includes the following activities:

1. Oracle Field Service sends the create activity request to the Oracle Utilities OFSC CCB Activity Create integration process deployed on Oracle Integration Cloud.

2. The Oracle Utilities OFSC CCB Activity Create process checks for the product code and the activity status. If the product code is not equal to 'CCB' or if the activity is not in suspended state then it transforms the request message from Oracle Field

Service to the request message format in Oracle Utilities Customer Care and Billing and invokes the C1-AddFAandCustomerContact inbound web service.

3. The integration process transforms and sends the Oracle Utilities Customer Care and Billing response to Oracle Field Service Update Activity REST API.

4. Any errors are captured through the global fault handler.

5. An optional email notification with error details are sent to the users configured in the CCBOFSC_Email_ID lookup.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Customer Care and Billing and Oracle Field Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Oracle Utilities OFSC CCB Activity Create
Integration Package Name	outl.ba.ccb_ofsc.01_24_1000.par
OFSC Events	Activity Created
OFSC BO/Operation	Activity/Update Activity
OFSC API	UpdateActivity
CCB IWS	C1-AddFAandCustomerContact

Activity Completion/Cancellation (Oracle Field Service initiated)

This integration process is used to send the field activity completion/cancellation details from Oracle Field Service to Oracle Utilities Customer Care and Billing. Oracle Field Service sends the activity completion/cancellation details, along with the completion/ cancellation status, to complete/cancel the activity in Oracle Utilities Customer Care and Billing.

The following diagram shows a graphical representation of the Activity Completion/ Cancellation integration process:
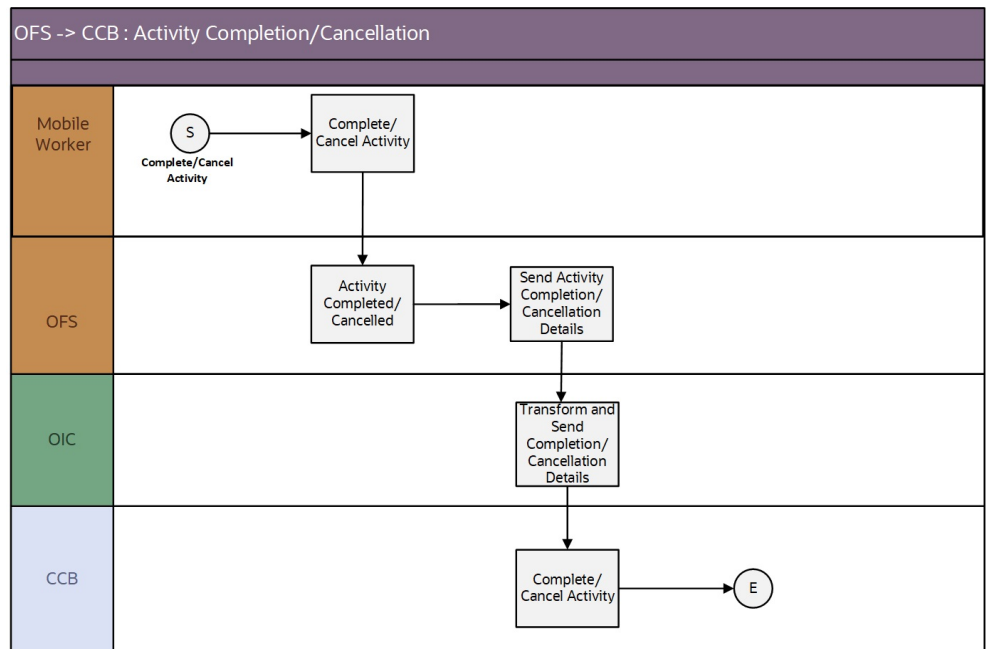
Business Processing

The integration process includes the following activities:

1. Oracle Field Service sends the activity completion details to the Oracle Utilities OFSC CCB Activity Complete integration process deployed on Oracle Integration Cloud.

2. The Oracle Utilities OFSC CCB Activity Complete process invokes Get Activity REST API and extracts the OFSC Activity details.

3. The integration process transforms the message from Oracle Field Service to the message format in Oracle Utilities Customer Care and Billing and invokes the C1FACompletionFieldWork Oracle Utilities Customer Care and Billing inbound web service.

4. Any errors are captured through the global fault handler.

5. An optional email notification with error details are sent to the users configured in the CCBOFSC_Email_ID lookup.

Technical Details

The following table describes the integration process and the respective Oracle Utilities Customer Care and Billing and Oracle Field Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Oracle Utilities OFSC CCB Activity Complete
Integration Package Name	outl.ba.ccb_ofsc.01_24_1000.par

Artifacts	Value
OFSC BO/Event	Activity/Activity Completed
	Activity/Activity Cancelled
OFSC BO/Operation	Activity/Get Activity
OFSC API	GetActivity
CCB IWS	C1FACompletionFieldWork

Query Service Point (Oracle Field Service initiated)

The integration process sends request from Oracle Field Service to Oracle Utilities Customer Care and Billing to identify a service point. Oracle Field Service crew sends either the address and city, or latitude and longitude, or postal code, or all of them to Oracle Utilities Customer Care and Billing. Oracle Utilities Customer Care and Billing performs the service point search based on the above criteria and sends back the list of service points and other details, such as service point type and service point source status.

The following diagram shows a graphical representation of the Query Service Point integration process.
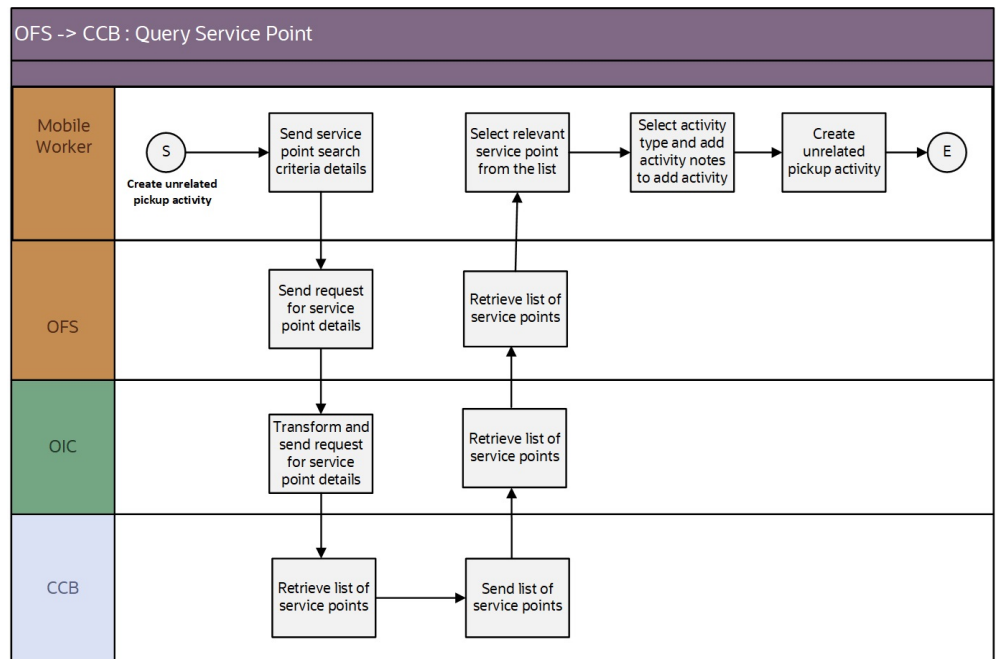
Business Processing

The integration process includes the following activities:

1. Oracle Field Service mobile worker requests for service point information to create an unrelated pickup activity.

2. Oracle Field Service sends the query service point request to the Oracle Utilities OFSC CCB ServicePoint Query integration process deployed on Oracle Integration Cloud.

3. The Oracle Utilities OFSC CCB ServicePoint Query process transforms the request message from Oracle Field Service to the request message format in Oracle Utilities Customer Care and Billing and invokes the C1ServicePointQuery inbound web service.

4. Oracle Utilities Customer Care and Billing sends the success or failure response to the integration transformed and sent to Oracle Field Service.

5. In case of success response, a list of service points is returned to Oracle Field Service.

6. Oracle Field Service mobile worker selects the relevant service point from the list, selects the activity type, and adds activity notes to create an activity.

7. This creates an unrelated pickup activity in Oracle Field Service and a text message with the Oracle Field Service activity ID is displayed on mobile screen.

8. If Oracle Utilities Customer Care and Billing Service invocation fails due to invalid input data, the global fault handler captures the invocation error and the error details are returned to Oracle Field Service using Unrelated Pickup custom plugin.

9. Other errors are handled by the Unrelated Pickup custom plug-in hosted on Oracle Field Service. A text message appears on Oracle Field Service mobile screen with the respective error details.

Technical Details

The following table describes the integration process and the respective Oracle Utilities Customer Care and Billing and Oracle Field Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Oracle Utilities OFSC CCB ServicePoint Query
Integration Package Name	outl.ba.ccb_ofsc.01_24_1000.par
OFSC Entry	Custom Plugin: UnrelatedPickup
CCB IWS	C1ServicePointQuery

Chapter 3

Configuring Oracle Utilities Customer Care and Billing

This chapter elaborates about the configuration of various data, messages and catalog for the integration used by Oracle Utilities Customer Care and Billing. It includes the following sections:

- System Configuration

System Configuration

To configure the Oracle Utilities Customer Care and Billing setup for the integration:

1. Login to Oracle Utilities Customer Care and Billing.

2. Set up message senders. Refer to the Message Senders section for details.

3. Set up outbound message types. Refer to the Outbound Message Types section for details.

4. Set up an external system. Refer to the External System section for details.

5. Setup a Service Provider. Refer to the Service Provider section for details.

6. Manage feature configuration. Refer to the Feature Configuration section for details.

7. Setup the Dispatch group. Refer to the Dispatch Group section for details.

8. Manage Catalog Service. Refer to Accessing XAI Inbound Service as Inbound Web Service (IWS) the Managing Catalog Services section for details.

9. Setup field activity types. Refer to the Field Activity Types section for details.

10. Generate certificates. Refer to the Adding Oracle Integration Cloud Certificates section for more details.

Message Senders

Create a new message sender for each integration process initiated from Oracle Utilities Customer Care and Billing.

To create a message sender:

1. Navigate to the **Message Sender** page from the **Admin** menu or from the **Search** menu.

2. Enter a unique message sender and its description.

3. Populate the following values:

    • Invocation Type - Real-time

    • Message Class - SOAPSNDR

    • Active - Select the checkbox.

    • MSG Encoding - UTF-8 message encoding

4. Select the **Context** tab and set values for the following context types:

    • HTTP Header - SOAPAction:"<operation name in the integration process wsdl>"

    • HTTP Login User - User ID to access the Oracle Integration for Cloud (OIC) flow

    • HTTP Password - Password to access the OIC flow

    • HTTP Method (POST/GET) - POST

    • HTTP Timeout - 60

    • HTTP Transport Method - SendReceive

    • HTTP URL 1 - Set the integration process URL to be accessed.

If the URL value does not fit, use the additional HTTP URL types to set the complete URL.

- SOAP Insert Timestamp (Y/N) - Y

- Sender Security Type - TEXT

Message sender configuration for integration services

Message Sender	Description	HTTP Header	HTTP URL
Create/Update Activity			
INT_OFSC_CUA	INT Create Update Activity-Message Sender-OFSC	SOAPAction:"OIC_OFSC_C1-FASND"	https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/OUTL-BA-CCB_OFSC_ACTVITY_CREUPD/1.0/
Get Appointment			
INT_OFSC_GA	INT Get Apppointment-Message Sender-OFSC	SOAPAction:"OIC_OFSC_ C1-GETAPPTS"	https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/OUTL-BA-CCB_OFSC_APPMT_GET/1.0/
Cancel Activity			
INT_OFSC_CA	INT Cancel Activity Message Sender - OFSC	SOAPAction:"OIC_OFSC_C1-FACAN"	https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/OUTL-BA-CCB_OFSC_ACTVITY_CANCEL/1.0

Outbound Message Types

The following outbound message types are provided for each integration process.

On the **Admin** menu, navigate to the **Outbound Message Type** page. You can also navigate from the **Search** menu.

Outbound message types for integration services

Integration Service	Outbound Message Type	Description	Outbound Message
Create/Update Activity	C1-FASND	Interface Field Activity	C1-FASendOutMsg
Get Appointment	C1-GETAPPTS	Get Available Appointment	C1-GetAvailApptOutMsg
Cancel Activity	C1-FACAN	Cancel Field Activity	C1-FACancelOutMsg

External System

To create a new external system to support the integration:

1. Navigate to the **External System** page from the **Admin** menu or from the **Search** menu.

2. Enter a unique external system and description.

   For example: Name = INT_OFSC_ES, Description = OFSC External System

3. Set the **Our Name in Their System** field to Oracle Utilities Customer Care and Billing.

4. Associate the outbound message types and message senders created to the external system.

   For each outbound message type, set the following:

   - Outbound Message Type - Outbound message type created for the respective integration service
   - Processing Method - Real-time
   - Message Sender - Set the message sender created for the integration service
   - Date/Time Format - XSD
   - Namespace Option - Standard Namespace

For more information about message senders and outbound message type for each integration service, refer to the Message Senders and Outbound Message Types sections respectively.

External system configuration for integration services

Example External System - INT_OFSC_ES

Integration Service	Outbound Message Type	Message Sender
CreateUpdate Activity	C1-FASND	INT_OFSC_CUA
Get Appointment	C1-GETAPPTS	INT_OFSC_GA
Cancel Activity	C1-FACAN	INT_OFSC_CA

Service Provider

Create a service provider with the respective external system.

To create a new service provider to support the integration:

1. From the **Admin** menu, navigate to the **Service Provider** page. You can also navigate from the **Search** menu.

2. Enter a unique **Service Provider** and **Description**.

   Example: Name = INT_OFSC_SP, Description = INT_OFSC Service Provider

3. Set **External System** to the external system created for the integration layer. For details about external system, refer to the External System section.

   Example: INT_OFSC_ES

4. Set **Person ID** to the Person representing this service provider. If it does not exist, create one in the **Person** page.

Feature Configuration

To create a new feature configuration:

1. Navigate to the **Feature Configuration** page from the **Admin** menu or from the **Search** menu.

2. Create a new feature configuration with Workforce Management as the **Feature Type** and enter required option types and values for the service provider you have configured for this integration.

3. Populate entries for the applicable options.

Option	Possible Values	Notes
Allow Forced Appointments	Y/N	Set to Y Use this option to indicate if forced appointments are supported.
Allow Manual Appointment	Y/N	Set to Y Use this option to indicate if a user is allowed to manually set up an appointment.
Allow Manual Appointment Cancellation	Y/N	Set to Y Use this option to indicate if a user is allowed to manually cancel an appointment.
Allow Multiple Reservations	Y/N	Set to N Use this option to indicate if booking appointments for multiple field activities is allowed.
Allow Narrowing Of Appointment Window	Y/N	Set to Y Use this option to indicate if the user is allowed to further narrow down a selected appointment window.
Allow Slot Group	Y/N	Set to Y

Option	Possible Values	Notes
Appointment Forced Characteristic Type	APPT FRC	APPT FRC When an appointment reservation is forced, a characteristic of this type is added to the field activity. Note that the field activity's FA type must also define this as a valid characteristic type.
Appointment Java Class Interface	com.splwg.wfmi.workforce.ExternalWFMSystem	This Java class implementation used to interface with the external system to support real time appointment interaction.
Default Days Of Available Appointment	10	Set it to 10 Determines the end date of the search period when choosing a dispatch group on the appointment page.
Hi-Low Review	Y/N	Set to Y Indicates if meter reads coming from the external system should be reviewed for Hi-Low failures and trended.
Intermediate Status to Prevent FA Cancel	ACTV	Used to identify FA Intermediate Status values that should prevent the system from automatically canceling a Field Activity.
Intermediate Status To Skip Message	CREX	Identifies FA Intermediate Status value used when a Field Activity is created by an external system or when other information for a field activity is updated by an external system.
Service Provider	INT_OFSC_SP	The service provider defined for your external system.
To Do Type for FA Response		Indicates the To Do type to use to create a To Do entry.
User Defined Criteria Field		Used on the **Appointment** page to add specific appointment selection criteria.
User Defined Result Field		Used on the **Appointment** page to add specific appointment selection result information.

Dispatch Group

A dispatch group is a logical group of representatives located at an operations area. When a field activity is created, the system assigns it to a dispatch group based on the type of activity, the type of service point, and the operations area that manages the service point.

Create a dispatch group to be used for field activities that are to be integrated with the other participating applications.

The code defined here must exactly match value for the property "ccb.dispatchgroup" defined in the CCBOFSC_ConfigProps DVM for Dispatch Group indicated.

Navigate to the **Dispatch Group** page from the **Admin** menu or from the **Search** menu. Ensure this dispatch group is linked to the above feature configuration.

Managing Catalog Services

The catalog service is used by Oracle Integration Cloud to communicate with the respective application. It is configured in Catalog URL in the Oracle Integration Cloud connection.

To configure the catalog service in Oracle Utilities Customer Care and Billing:

1. Login to Oracle Utilities Customer Care and Billing.

2. Navigate to the **Web Service Catalog** page either from the **Admin** menu or the **Search** menu.

   The external system and inbound web services are added to the catalog.

3. To get the catalog URL, append "webservices/builtin/ServiceCatalog?wsdl" to the Oracle Utilities Customer Care and Billing URL.

   For example: http(s)://<CCB_HOST>:<CCB_PORT>/<ContextRoot>/webservices/builtin/ServiceCatalog?wsdl

The following services to be added in the catalog:

Service Type	Service Name
External System	INT_OFSC_ES
Inbound Web Service	C1FACompletionFieldWork
Inbound Web Service	C1QueryServicePoint
XAI Inbound Service	C1FieldActivityMaintenance
XAI Inbound Service	ValidateMeterItemResponse
XAI Inbound Service	C1AddFAandCustomerContact

Note: For instructions to add an XAI Inbound Service to the web service catalog, refer to Accessing XAI Inbound Service as Inbound Web Service (IWS).

For more information about configuration, refer to the Oracle Utilities Customer Care and Billing documentation.

Field Activity Types

While setting up field activity types, make sure that a field activity cannot include more than 7 steps if it has to be completed by an external system.

Following is the list of supported Field Activity Types:

FA Type Description	Steps to be Configured
Connect SP	Step 1: Connect SP
Install Meter	Step 1: Connect SP Step 2: Install Meter
Remove Meter	Step 1: Remove Meter Step 2: Disconnect SP
Disconnect SP	Step 1: Disconnect SP

FA Type Description	Steps to be Configured
Read Meter	Step 1: Read Meter
Replace Meter	Step 1: Remove Meter Step 2: Install Meter
Replace Item	Step 1: Remove Item Step 2: Install Item
Install Item	Step1: Connect SP Step2: Install Item

Configuring Admin Data Tables

These are the global data values configured in Oracle Utilities Customer Care and Billing and can be used within the system for this integration.

The codes defined in these fields must exactly match values in the DVM/Lookups defined in integration layer.

Navigate to these pages from the **Admin** menu or from the **Search** menu.

Field Name	Description	Corresponding DVM/Lookup
Disconnect Location	When a service point is disconnected from the supply source, a disconnect location must be specified.	CCBOFSC_DisconnectLocation
Meter Read Instruction	When setting up a premise you may define instructions to be supplied to the individuals who read the meters located at the premise.	CCBOFSC_ServiceInstructions
Meter Read Warning	When setting up a premise you may define warnings to be supplied to the individuals who read the meters located at the premise.	CCBOFSC_ServiceWarnings
Meter Location	When you set up a metered service point you must define where the meter's service point is located on the property. A meter can be associated with the on-site installation location.	CCBOFSC_MeterLocation
Time of Use	Every meter register can be associated with a time of use code.	CCBOFSC_TOU

Field Name	Description	Corresponding DVM/Lookup
Unit of Measure	Every meter register must be associated with a unit of measure (read type) code.	CCBOFSC_UOM
Read Type	Use Read Type to define WHO made the read and HOW the read was made	OFSCCCB_ReadType
Meter Configuration Type	Every meter configuration must reference a meter configuration type. The meter configuration type indicates the valid (required or optional) unit of measure and time of use registers for the configuration.	CCBOFSC_MeterConfiguration Type
Country	Create a country code. The **Main** page is used to customize the fields and field descriptions that are displayed where addresses are used in the system. This ensures that all addresses conform to the customary address format and conventions of the particular country you have defined.	CCBOFSC_CountryCode
Field Activity Type	Create the types required by your business and populate the necessary information to define your set of field activity types required for your business.	CCBOFSC_ActivityType
Premise Type	Define the premise types used to categorize your premises	CCBOFSC_PremiseType
SP Type	Define a service point type	CCBOFSC_ServicePointType
Manufacturer	Create the required device Manufacturer code	CCBOFSC_Manufacturer
Model	Create the required model code	CCBOFSC_Model
Time Zone	When setting up as premise you may need to give the time zone value	CCBOFSC_TimeZone

Adding Oracle Integration Cloud Certificates

Add the Oracle Integration for Cloud (OIC) certificate to the Oracle Utilities Customer Care and Billing stores whereever applicable to send transactions to the Oracle Integration for Cloud layer.

Accessing XAI Inbound Service as Inbound Web Service (IWS)

To access XAI Inbound Service as an IWS service (to be added in the Web Service Catalog):

1. Navigate to **Feature Name (PMEMLCONFIG)** > **Feature Type (External Messages)**.

2. Add the **Support XAI Deployment via IWS** option and set the value to 'true'.

3. Redeploy the IWS services.

4. Reboot the Oracle Utilities Customer Care and Billing environment.

Chapter 4

Configuring Oracle Field Service

This chapter provides information about the necessary Oracle Field Service configurations. It focuses on the following:

- Integrating Using Oracle Integration Cloud
- Configuring Oracle Field Service

  Prerequisite: Make sure the accelerator related configurations are complete in Oracle Field Service before proceeding with these. Download the accelerator package from Oracle Technology Network.

  https://www.oracle.com/technetwork/indexes/samplecode/utilities-5068606.html

Integrating Using Oracle Integration Cloud

One of the ways of integrating the applications is through Oracle Integration Cloud. Oracle Integration Cloud creates an integration point in Oracle Field Service. When an event occurs in Oracle Field Service, it is sent to the appropriate application through Oracle Integration Cloud.

> **Note**: Configure this integration only to send events or data from Oracle Field Service to Oracle Integration Cloud.

To configure the applications:

1. Login to Oracle Field Service.

2. Click **Configuration** > **Outbound Integration**.

3. On the **Outbound Integration** page, click **Add New Channel**.

4. From the **Channel Type** drop down list, select **Integration Cloud Service**.

5. Enter the name/description of the application for which the integration is created.

   If multiple instances of an application are used, such as production and testing, create multiple access points for the application.

6. Enter the host name of the application for which the integration is created.

   For example: If the URL is "https://integration-a12345.integration.us2.oraclecloud.com/integration/flowsvc/ofsccloudadapter/NAME/v01/", then the host is: "integration-a12345.integration.us2.oraclecloud.com".

7. Enter the user name of the Oracle Integration Cloud user service.

   Make sure this user exists in Oracle Integration Cloud and has permissions to access the integration process endpoint.

8. Enter the password for the user name. The user name and password are used to authenticate Oracle Integration Cloud when Oracle Field Service starts sending events to Oracle Integration Cloud.

9. Confirm the password.

10. Click **OK**.

Configuring Oracle Field Service

This section provides information about the configurations in Oracle Field Service.

- Creating Time Slots
- Creating Work Skills
- Creating Capacity Categories
- Designating Buckets for Capacity or Quota Management
- Adding Quota to Bucket
- Configuring Plug-ins

Creating Time Slots

Time slots define the availability of crew who can book based on the customer priority.

To define a time slot:

1. Click **Configuration** > **Time slots**.

2. On the **Time slots** page, click **Add New**.

3. Enter the appropriate information in the following fields:

Option	Description
Name	Name of the capacity category. The name is displayed in the list and in the quota matrix. If the application is configured for multiple languages, input boxes appear for each language.
Label	Specify a label. It is used in the context of APIs and should conform to a standard naming convention.
Active	Select the check box to mark the capacity category as 'active'. Only active capacity categories are used in the quota matrix.
Status	Mark the capacity category as 'active'. Only active capacity categories are used in the quota matrix.
Time from	Start time
Time To	End time

4. Select the work skill type and click **Add**.

Creating Work Skills

To create a work skill:

1. Click **Configuration** > **Work skills**.

2. On the **Time slots** page, click **Add New**.

3. On the **Work skills** page, enter the details in the respective fields.

Option	Description
Name	Name of the capacity category. The name is displayed in the list and in the quota matrix. If the application is configured for multiple languages, input boxes appear for each language.
Label	Specify a label. It is used in the context of APIs and should conform to a standard naming convention.
Active	Select the check box to mark the capacity category as 'active'. Only active capacity categories are used in the quota matrix.

4. Click **Work skill conditions**.

5. Select the work skill created in step 3.

6. On the **Work Skill Conditions** page, from the drop-down box, select the work skill name created in step 4.

7. Select the required level as 1.

8. Select the preferable level as 1.

9. Click **Add New Condition**.

10. Select the **Activity Type** property and add the required activity types.

Creating Capacity Categories

A capacity category is a predefined set of work skills and/or work skill groups and time slots visible to a user booking the activities for the customers.

Based on the number of minutes available (Capacity = Initial quota allocation minus Used minutes), the user decides if enough time is available within a time slot to realistically promise a specific service window to the customer. This information is sent to the CSR via Capacity API. Capacity Categories are visible only if the Oracle Field Service Capacity Cloud Service module is used.

> **Note**: The Used Minutes value is calculated based on the exact time (in minutes) from start to end of a working day.

You must enable the Capacity Categories visibility profile permission for each user to access the Capacity Categories window:

- **Read-Only**: Select this option to display capacity categories in a view only mode.

- **Read/Write**: Select this option to let the user manage Capacity Categories in Oracle Field Service.

If the permissions are not configured for a user type, the activity types will not be visible to the users. Oracle Field Service maps the work skills to assign incoming activities to the resources. In general, many companies define quota for a work skill group rather than for an individual work skill. Example: Separate skills are required for installation, un-installing and maintenance of modems, but from a scheduling perspective, quota is defined for all the modem-related works group.

A capacity category can also consist of a single work skill and the minimum required level of the skill level. Example: A category can be created for all the customer-oriented work and a separate group for VIP customers or for highly difficult tasks. The two categories would contain the same work skills but the minimal qualification level in the VIP group is higher. Because of the categories and the multi-skill functionality, the same activity can match several rows in the quota table and can be added to the used capacity several times. The duration of this activity will be taken into account for all the capacity categories it matches.

The operations performed on a capacity category are:

- Creating a Capacity Category

- Modifying a Capacity Category

- Deleting a Capacity Category

- Adding/Editing Work Skills within a Capacity Category

- Adding/Editing Time Slots within a Capacity Category

Creating a Capacity Category

To create a capacity category to configure work skills, work skill groups, and time slots:

1. Click **Configuration** > **Capacity Categories**.

2. On the **Capacity Categories** page, click **Add New**.

3. On the **Add Capacity Category** page, enter the appropriate information in the fields.

   The following table describes the fields available on the **Add Capacity Category** page.

Option	Description
Name	Name of the capacity category. The name is displayed in the list and in the quota matrix. If the application is configured for multiple languages, input boxes appear for each language.
Label	Specify a label. It is used in the context of APIs and it must conform to a standard naming convention.
Active	Select to mark the capacity category as 'active'. Only active capacity categories are used in the quota matrix.

4. Click **Save**.

After creating the capacity category, add work skills, work skill groups, and time slots to the category.

Modifying a Capacity Category

To edit an existing capacity category:

1. Click **Configuration** > **Capacity Categories**.

2. On the **Capacity Categories** page, select the checkbox next to the capacity category to be modified.

3. Click the pencil icon in the **Name** column.

4. On the **Edit Capacity Categories** page, change the required fields.

5. Click **Save**.

Deleting a Capacity Category

To delete a capacity category when no longer needed:

1. Click **Configuration** > **Capacity Categories**.

2. On the **Capacity Categories** page, select the checkboxes next to the capacity categories to be deleted.

3. Click **Delete**.

4. Click **OK**.

Adding/Editing Work Skills within a Capacity Category

A capacity category can contain one or more work skills and each work skill must meet a minimum required level.

To add/edit work skills within a capacity category:

1. Click **Configuration**.

2. In the **General** section, click **Capacity Categories**.

3. On the **Capacity Categories** page, click the pencil icon in the **Work Skills** column to add/edit the capacity categories.

4. On the **Edit Work Skill** page, select a work skill and add the minimum level of the skill required in the corresponding text box.

   The default value is 1. When the minimum level of a work skill is defined, an activity matches a capacity category, if a required skill level for the activity skill is equal to or more than the level of the capacity category.

   > **Note**: If a capacity category contains a group of work skills, the activity matches the category if it requires at least one of work skills from the group.

   Recalculate activities after any edits or updates have been made to apply changes to pending and future activities in the system.

Adding/Editing Time Slots within a Capacity Category

A capacity category can contain one or more time slot associations.

To add/edit time slots within a capacity category:

1. Click **Configuration**.

2. In the **General** section, click **Capacity Categories**.

3. On the **Capacity Categories** page, click the pencil icon in the **Time Slots** column to add/edit the capacity category.

4. On the **Edit Time Slots** page, select a time slot.

5. Click **Save**.

Designating Buckets for Capacity or Quota Management

After adding a bucket, select whether to use it for capacity management or quota management. The selection is done on the **Resource Information** page.

1. Click the bucket name in the **Resource Tree**.

2. Select the **Quota Management** checkbox.

The routing profile, capacity categories, and time slots fields are displayed.

Adding Capacity Categories and Time Slots

If a bucket is designated as a capacity bucket used for quota calculation, the screen displays the capacity categories and time slots fields. The selections made here determine how the **Quota** section appears. Configuring capacity categories and time slots on a bucket-by-bucket basis is helpful when different regions and types of resources within these buckets require different skills and time slots.

To add capacity categories and time slots:

1. Click the bucket name in the **Resource Tree**.

2. Select the **Quota Management** check box.

The routing profile, capacity categories, and time slots appear.

3. Select the time slots used for quota management in this bucket.

4. Click the pencil icon next to the **Time Slots** field to edit the time slots.

5. On the **Edit Time Slots** box, select the time slots to be used for quota management for this bucket.

6. Click **Save**.

7. Select the capacity categories used for quota management in this bucket.

8. Click the pencil icon next to the **Capacity Categories** field.

9. On the **Edit Capacity Categories** window, select the capacity categories used for quota management for this bucket. Click **Save**.

10. Select the level at which quota is defined in this bucket (day, time slot, capacity category).

    This determines the visibility of the Day, Time slot, and Capacity Category tables in the Quota view.

11. Select the levels on which quota can be closed in this bucket.

    Note that quota can also be closed by work zone.

12. Select the levels for which maximum capacity should be estimated.

    Maximum capacity is the maximum number of minutes for activities booking. The application checks that the total duration of booked activities plus the total duration of other activities does not exceed maximum capacity.

13. Click **OK** to save the bucket information.

Adding Quota to Bucket

To add quota to bucket:

1. Navigate to **Bucket** > **Dispatch** > **Quota**.

2. Select **View filter by** > **Quota by Day**.

Capacity area	Wednesday, February 27th, 2019	
	Quota	Used
Meter Services		
OH Meter Services		

3. Provide quota per the day in minutes.

4. Select **Bucket** > **Dispatch** > **Quota**.

5. Select **View filter by** > **Time slots**.

6. Add the quota for each time slot in minutes.

Configuring Plug-ins

Oracle Field Service is a highly developed application that can be customized for the unique purposes and specialized business needs of organizations. That extensibility is achieved in part using plug-ins which can perform actions not found in the standard solution. Plug-ins appear as selectable links on the application. They open a new window, tab, or frame in a browser where an external HTML5 application is executed.

Prerequisite: Download the **Device_Verify_Plugins_op.xml** and **Unrelated_Pickup_Plugins_op.xml** files from Oracle Technology Network.

https://www.oracle.com/technetwork/indexes/samplecode/utilities-5068606.html

To configure a plug-in:

1. Navigate to **Configuration** > **Form & Plugins**.

2. Click **Import Plugin** on the top-right corner.

3. Select the **plugin.xml** file (downloaded from My Oracle Support) and click **Validation**.

4. Click **Import**.

5. Verify if the corresponding plug-ins are imported with the **VerifyDevice** and **UnrelatedPlugin** labels.

6. Modify **VerifyDevice** and **UnrelatedPlugin** at corresponding locations.

7. Navigate to **Plug-in Settings** > **Secure Parameter** and configure the following parameters.

Parameter	Value
url	Device Verification OIC activated URL
	Unrelated Plugin OIC activated URL
	Example: https://hostname:port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_CCB_DEVICE_VERIFY / 1.0/
	Note: Replace host and port values with the respective OIC details.
uname	User name of the OIC instance
pwd	Password of OIC instance

Chapter 5

Importing, Configuring, and Testing Integration Connections in Oracle Integration Cloud

This chapter explains the process for importing the connections, packages, and files needed for the integration and the configuration of these connections imported through the packages. After a successful import and configuration the chapter lists out steps to help test the connections. It includes the following sections:

- Importing the Oracle Integration Cloud Package from Oracle Cloud Marketplace

- Verifying the Package Import

- Configuring Connections in Oracle Integration Cloud

- Configuring Agent (if applicable)

- Setting up Certificates for Security

Importing the Oracle Integration Cloud Package from Oracle Cloud Marketplace

All integration points are shipped as part of single package (outl.ba.ccb_ofsc_fieldwork.1_0_0.par) file.

To import a pre-built integration from Oracle Cloud Marketplace:

1. Launch the Oracle Cloud Marketplace portal.

   https://cloudmarketplace.oracle.com/marketplace/en_US/homePage.jspx

2. Click **Applications**.

3. Browse through the list of applications and select the pre-built integration package to import.

   Alternatively, you can search for "Oracle Utilities" and select the **CCB-OFSC** integration option.

4. Click **GetApp**.

5. Review and accept the "Oracle Standard Terms and Restrictions".

6. Click **Next**. The My Oracle Support portal opens.

7. Download the integration package from My Oracle Support.

8. When prompted, select the server where the pre-built integration file should be uploaded.

   The pre-built integration is imported as a package file (.par) that is visible on the **Packages** page in Oracle Integration Cloud.

9. On the **Integrations** page, the individual integrations of the imported package file that are designated with a BUILT BY ORACLE message are displayed.

To import a package in Oracle Integration Cloud:

1. Login to Oracle Integration Cloud.

2. Navigate to **Integrations** > **Designer** > **Packages**.

3. Click **Import**.

4. Select the .par file downloaded from Oracle Cloud Marketplace.

5. Verify if the package is imported is successfully.

Verifying the Package Import

To verify the package import was successful:

1. Verify whether the following integrations are imported successfully.

   - Oracle Utilities CCB OFSC Activity CreateUpdate
   - Oracle Utilities CCB OFSC Appointment Get
   - Oracle Utilities OFSC CCB Activity Interim Status
   - Oracle Utilities OFSC CCB Device Verification
   - Oracle Utilities OFSC CCB Activity Create
   - Oracle Utilities CCB OFSC Activity Cancel

- Oracle Utilities OFSC CCB Activity Complete

- Oracle Utilities OFSC CCB ServicePoint Query

2. Verify if the following connections are in place.

- Oracle Utilities SOAP CCB for CCB-OFSC

- Oracle Utilities OFSC for CCB-OFSC

- Oracle Utilities REST OFSC Appmt for CCB-OFSC

- Oracle Utilities REST OFSC for CCB-OFSC

Note: Note that the connection names are changed from v19.1 for Oracle Utilities Customer Care and Billing and Oracle Field Service. CCB_CCBOFSC is changed to Oracle Utilities SOAP CCB for CCB-OFSC, OFSC_CCBOFSC to Oracle Utilities OFSC for CCB-OFSC, REST_CCBOFSC_DV to Oracle Utilities REST OFSC for CCB-OFSC and REST_CCBOFSC_APPT to Oracle Utilities REST OFSC Appmt for CCB-OFSC. Make sure to configure these connections since the flows refer them.

3. Make sure that the following look ups are imported successfully.

- CCBOFSC_Email_ID

- CCBOFSC_ConfigProps

- CCBOFSC_ActivityType

- CCBOFSC_CountryCode

- CCBOFSC_LifeSupport

- CCBOFSC_Manufacturer

- CCBOFSC_MeterLocation

- CCBOFSC_Model

- CCBOFSC_DisconnectLocation

- CCBOFSC_ServiceInstructions

- OFSCCCB_Appt_TimeSlots

- OFSCCCB_InterimStatus

- CCBOFSC_ServicePointType

- CCBOFSC_PremiseType

- OFSCCCB_TimeZone

- CCBOFSC_ServiceWarnings

- OFSCCCB_DeviceStatus

- OFSCCCB_ReadType

- CCBOFSC_MeterConfigurationType

- CCBOFSC_UOM

- CCBOFSC_TOU

- CCBOFSC_Remarks

- CCBOFSC_TimeZone

Configuring Connections in Oracle Integration Cloud

After the packages are imported and verified, the respective connections have to be configured.

This section describes the procedure to set up the connections.

- Configuring Oracle Utilities SOAP CCB for CCB-OFSC Connection
- Configuring Oracle Utilities REST OFSC for CCB-OFSC Connection
- Configuring Oracle Utilities OFSC for CCB-OFSC Connection
- Configuring Oracle Utilities REST OFSC Appmt for CCB-OFSC Connection

Configuring Oracle Utilities SOAP CCB for CCB-OFSC Connection

This connection is used to communicate with Oracle Utilities Customer Care and Billing using the Oracle Utilities adapter.

To configure the Oracle Utilities SOAP CCB for CCB-OFSC connection:

1. Add the Oracle Utilities Customer Care and Billing catalog to the **catalogURL** section.

2. On the **Security policy** tab, select the **User Name and Password** token policy.

3. On the **Connection** page, enter the user name and password.

4. Configure the Agent in the **Agent group** section if the Oracle Utilities Customer Care and Billing application is on-premise. Refer to the Configuring Agent (if applicable) section for more details.

5. After the connection is tested successfully, click **Save**.

Configuring Oracle Utilities REST OFSC for CCB-OFSC Connection

This connection is used to communicate with Oracle Field Service using the REST adapter. It is also used for the Device Verification flow triggered by Oracle Field Service.

Edit the Oracle Utilities REST OFSC for CCB-OFSC connection and test it to make sure it is successful. Click **Save**.

Configuring Oracle Utilities OFSC for CCB-OFSC Connection

This connection is used to communicate with Oracle Field Service using the OFSC adapter.

Configure the Oracle Utilities OFSC for CCB-OFSC connection with the required details:

1. Enter the API URL in the **Field Service Cloud API URL** field.

2. Enter the **Instance ID**.

3. From the **Security Policy** drop-down list, select **Basic Authentication**.

4. On the **Connection** page, enter the user name and password, and click **Test** at the upper-right corner.

5. After the connection is tested successfully, click **Save**.

Configuring Oracle Utilities REST OFSC Appmt for CCB-OFSC Connection

This connection is used to communicate with the ActivityBooking API of Oracle Field Service using the REST adapter. It is used in the Appointment Request flow inbound to Oracle Field Service.

Configure the Oracle Utilities REST OFSC Appmt for CCB-OFSC connection with required details:

1. In the **Connection Properties** section:

   a. From the **Connection Type** drop-down box, select **REST API Base URL**.

   b. Select the **TLS Version** as **TLSV1.2.**

   c. Enter **https://api.etadirect.com/rest/ofscCapacity/v1/** in the **Connection URL** field.

2. In the **Security** section:

   a. From the **Security Policy** drop-down list, select **Basic Authentication**.

   b. Enter the user name and password.

   c. Click **Test** at the upper-right corner.

3. After the connection is tested successfully, click **Save**.

Configuring Agent (if applicable)

Create an agent group in Oracle Integration Cloud and install agent on the on-premises server before creating/activating an integration in which messages are exchanged between the on-premises applications and Oracle Integration Cloud. The agent related configurations are needed only if the server points to an on-premises application.

This section includes:

- Possible Combinations
- Creating an Agent Group
- Downloading Agent Installer
- Installing On-Premises Agent

Possible Combinations

The possible combinations of an agent group are:

- Oracle Utilities Customer Care and Billing on-premises and Oracle Field Service

Creating an Agent Group

Create an agent group in Oracle Integration Cloud before running the agent installer. When the on-premises agent is installed in the environment, the on-premises agent is associated with the agent group identifier. Only one on-premises agent can be associated with an agent group.

For a single Oracle Integration Cloud instance, you can create up to five agent groups. Creating the agent group also creates the necessary queues required for message exchange.

To create an agent group:

1. Login to Oracle Integration Cloud.

2. On the **Home** page, click **Agents**.

3. Click **Create Agent Group**.

4. Enter the following information:

   • Agent Group Name

   • Identifier

      Note: The agent group name and identifier must be same.

   • Agent Type: "Connectivity Agent"

   • Description

5. Click **Create**.

Downloading Agent Installer

Download the agent installer from Oracle Integration Cloud and run the installer to install the on-premises agent in your local environment. During the installation, associate the agent with the Agent Group Identifier generated when creating an agent group in Oracle Integration Cloud.

For more information on agent installer, see https://docs.oracle.com/en/cloud/paas/integration-cloud/integrations-user/downloading-and-running-premises-agent-installer.html.

Installing On-Premises Agent

To install an on-premises agent:

1. Login to Oracle Integration Cloud.

2. On the **Home** page, click **Agents**.

3. Click **Download**.

4. Select **Connectivity Agent**.

5. Select **Save File** when prompted to save the file to a directory location on your on-on-premises host.

6. Navigate to that directory and unzip **oic_connectivity_agent.zip**.

7. Change the file permissions to be executable.

8. Download the Oracle Utilities Customer Care and Billing certificate. Upload it by running the following command from the agent home directory.

   ```
   keytool -import -file directoryPath/sample.crt -alias SampleCert -keystore <Agent_Home>/agenthome/agent/cert/keystore.jks
   ```

9. Modify **InstallerProfile.cfg** to include the following information.

   a. Provide the oic_URL value with the OIC SSL host name.

Example: https://OIC_host:OIC_port

b. Provide the agent_GROUP_IDENTIFIER. It should be the agent group created in Oracle Integration Cloud.

c. Set the proxy parameters if the connectivity agent is used with a proxy in the on-premises environment.

d. Set the JAVA_HOME property to the directory/folder where JDK is installed.

Note: Before running the connectivity agent installer, perform the steps listed in the following page. https://docs.oracle.com/en/cloud/paas/integration-cloud/utilities-adapters/you-begin-setting-oracle-utilities-adapter.html#GUID-7F770AD1-5B87-4C62-968A-3AB30D043835

e. Run the connectivity agent installer from the command prompt.

```
java -jar connectivityagent.jar
```

f. Provide the Oracle Integration Cloud credentials when prompted.

g. Wait for a successful installation message to appear.

After the installation is complete, an agent instance is created to interact with Oracle Integration Cloud.

To verify if the agent instance was created:

1. Navigate to the **Agents** page in Oracle Integration Cloud.

2. Check if the agent count for your **Agent Group** is increased by one.

3. Click the number to view the agent details.

For more details, refer to Oracle Integration Cloud documentation at https://docs.oracle.com/en/cloud/paas/integration-cloud-service/index.html.

Setting up Certificates for Security

Important! Please skip this section if there are valid CA certificates for the integration.

If there are no valid certificates for this integration, download the Oracle Utilities Customer Care and Billing certificates and upload them to Oracle Integration Cloud to handshake with Oracle Utilities Customer Care and Billing.

To download the Oracle Utilities Customer Care and Billing certificate:

1. Login to Oracle Utilities Customer Care and Billing.

2. Click the URL on the top-left corner.

3. On the **Security** tab, click **View Certificate**.

4. On the **Details** tab, click **Export**.

5. Save the certificate.

To upload the certificate to Oracle Integration Cloud:

1. Login to Oracle Integration Cloud with Admin credentials.

2. Navigate to **Settings** > **Certificates**.

3. On the **Certificate** window, click **Upload**.

4. Select **Certificate Type** as **Trust Certificate**.

5. Provide the **Certificate Alias Name**.

6. Select the certificate to upload.

7. Click **Upload**.

Chapter 6

Configuring Lookups, Error Handling, and Email Notifications

This chapter focuses on the lookups configuration, handling business and technical errors, and sending email notifications in this integration. It includes the following sections:

- Configuring Lookups
- Configuration Properties
- Error Handling
- Email Notifications

Configuring Lookups

The following table lists the lookups and integration processes where these lookups are used:

Lookup Name	Integration Name	Purpose
CCBOFSC_ConfigProps	• Oracle Utilities CCB OFSC Activity CreateUpdate • Oracle Utilities CCB OFSC Activity Cancel • Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB Activity Create • Oracle Utilities CCB OFSC Appointment Get • Oracle Utilities OFSC CCB Activity Interim Status • Oracle Utilities OFSC CCB ServicePoint Query • Oracle Utilities OFSC CCB Device Verification	Mainly used for configuring the properties with appropriate values.
CCBOFSC_ActivityType	• Oracle Utilities CCB OFSC Activity CreateUpdate • Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB Activity Create • Oracle Utilities CCB OFSC Appointment Get	Used to translate Oracle Utilities Customer Care and Billing Activity Type to Oracle Field Service Activity Type.
CCBOFSC_CountryCode	• Oracle Utilities CCB OFSC Activity CreateUpdate • Oracle Utilities OFSC CCB ServicePoint Query	Translates the Oracle Utilities Customer Care and Billing Country code to Oracle Field Service.
CCBOFSC_LifeSupport	Oracle Utilities CCB OFSC Activity CreateUpdate	Translates the Oracle Utilities Customer Care and Billing life support to Oracle Field Service.

Lookup Name	Integration Name	Purpose
CCBOFSC_Manufacturer	• Oracle Utilities CCB OFSC Activity CreateUpdate • Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB Device Verification	Translates the Oracle Utilities Customer Care and Billing Manufacturer to Oracle Field Service and vice versa.
CCBOFSC_MeterLocation	• CreateUpdate_Activity_CCBToOFSC • Complete_Activity_OFSCToCCB	Used to translate the Oracle Utilities Customer Care and Billing Meterlocation to Oracle Field Service and Vice versa.
CCBOFSC_Model	• Oracle Utilities CCB OFSC Activity CreateUpdate • Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB Device Verification	Translates the Oracle Utilities Customer Care and Billing Model to Oracle Field Service and Vice versa.
CCBOFSC_DisconnectLocation	• Oracle Utilities OFSC CCB Activity Complete	Translates the Oracle Utilities Customer Care and Billing Disconnection location to Oracle Field Service and Vice versa.
CCBOFSC_ServiceInstructions	• Oracle Utilities OFSC CCB Activity Complete	Translates the Oracle Utilities Customer Care and Billing Service instructions to Oracle Field Service and Vice versa.
OFSCCCB_Appt_TimeSlots	• Oracle Utilities CCB OFSC Appointment Get • Oracle Utilities CCB OFSC Activity CreateUpdate	Translates the Oracle Utilities Customer Care and Billing timeslots to Oracle Field Service time slots and vice versa.
OFSCCCB_InterimStatus	Oracle Utilities OFSC CCB Activity Interim Status	Translates the Oracle Utilities Customer Care and Billing status to Oracle Field Service.
CCBOFSC_ServicePoint Type	Oracle Utilities CCB OFSC Activity CreateUpdate	Translates the Oracle Utilities Customer Care and Billing Service point type to Oracle Field Service.

Lookup Name	Integration Name	Purpose
CCBOFSC_Email_ID	• Oracle Utilities CCB OFSC Activity CreateUpdate • Oracle Utilities CCB OFSC Activity Cancel • Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB Activity Create • Oracle Utilities CCB OFSC Appointment Get • Oracle Utilities OFSC CCB Activity Interim Status	Used to maintain the email address of 'from' (sender) and 'to' (receiver) fields.
CCBOFSC_PremiseType	Oracle Utilities CCB OFSC Activity CreateUpdate	Translates the Oracle Utilities Customer Care and Billing Premise type to Oracle Field Service.
OFSCCCB_TimeZone	• Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB ServicePoint Query • Oracle Utilities CCB OFSC Activity CreateUpdate	Used to maintain the Oracle Field Service time zones and their offsets.
CCBOFSC_ ServiceWarnings	• Oracle Utilities OFSC CCB Activity Complete	Translates the service warnings in Oracle Utilities Customer Care and Billing to service warnings in Oracle Field Service and vice versa.
OFSCCCB_DeviceStatus	• Oracle Utilities OFSC CCB Activity Complete	Translates the Oracle Field Service device status to Oracle Utilities Customer Care and Billing.
OFSCCCB_ReadType	• Oracle Utilities OFSC CCB Activity Complete	Translates the Oracle Field Service read type to Oracle Utilities Customer Care and Billing.

Lookup Name	Integration Name	Purpose
CCBOFSC_ MeterConfigurationType	• Oracle Utilities CCB OFSC Activity CreateUpdate • Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB Device Verification • Oracle Utilities OFSC CCB ServicePoint Query	Translates the Oracle Utilities Customer Care and Billing configuration type to Oracle Field Service and vice versa.
CCBOFSC_UOM	• Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB Device Verification	Translates the Oracle Utilities Customer Care and Billing unit of measure to Oracle Field Service and vice versa.
CCBOFSC_TOU	• Oracle Utilities OFSC CCB Activity Complete • Oracle Utilities OFSC CCB Device Verification	Translates the Oracle Utilities Customer Care and Billing time of use to Oracle Field Service and vice versa.
CCBOFSC_TimeZone	• Oracle Utilities OFSC CCB ServicePoint Query • Oracle Utilities CCB OFSC Activity CreateUpdate	Translates the Oracle Utilities Customer Care and Billing time zone to Oracle Field Service Time Zone.

Editing Lookups

To edit a lookup to add or update any value in it:

1. Login to Oracle Integration for Cloud.

2. Navigate to **Integrations** > **Designer** > **Lookups**.

3. Click the look up to edit.

4. Make the necessary changes.

5. Click **Save** and **Close**.

> **Note**: While editing a lookup, if the changes are not reflected during the runtime, make sure to deactivate and activate the integration that is using the edited DVM for the changes to reflect. Refer to the Activating Integration Flows section for more details.

Configuration Properties

CCBOFSC_ConfigProps.dvm contains the properties that can be defaulted in the integration. It also contains a flag to enable email notifications.

Property Name	Sample Value	Description	Used in Integration Process Name
send.email.flag	true/false	Used to configure optional email notification. If the value is set to true, email notification will be sent to the configured users.	All
ofsc.bucket	OHMeter	Used to configure the bucket name available in Oracle Field Service to assign the tasks.	Oracle Utilities CCB OFSC Activity CreateUpdate
ccb.system.id	CCB	Used to define Oracle Utilities Customer Care and Billing product code.	Oracle Utilities CCB OFSC Activity CreateUpdate Oracle Utilities OFSC CCB Activity Create
ofsc.system.id	OFSC	Used to define the Oracle Field Service product code.	Oracle Utilities OFSC CCB Activity Create
ccb.offset	-8.00	Used to provide offset for Oracle Utilities Customer Care and Billing timezone.	Oracle Utilities CCB OFSC Activity CreateUpdate Oracle Utilities OFSC CCB Activity Complete
ofsc.offset	-5.00	Used to provide offset for Oracle Field Service bucket timezone.	Oracle Utilities CCB OFSC Activity CreateUpdate
ccb.dispatchgroup	AIADSPGR	Used to define your organization's dispatch group. This must match the dispatch group defined in Oracle Utilities Customer Care and Billing.	Oracle Utilities OFSC CCB Activity Create
ccb.readsource	FWI	Used to define the source of the read	Oracle Utilities OFSC CCB Activity Complete
sp.maximumrowstoreturn	15	Used to provide offset for Oracle Field Service bucket timezone	Oracle Utilities CCB OFSC ServicePoint Query
ccb.activity.schedulewindow.duration.days	1	Used to configure no of days to add to the SLA window start time	Oracle Utilities CCB OFSC Activity CreateUpdate
ccb.includeabolishflag	C1YS	Retrieves all SPs from CCB	Oracle Utilities OFSC CCB ServicePoint Query

Error Handling

This section provides information about the different ways used to handle errors in the integration and also resubmitting the instances after rectifying the errors.

- Error Handling Ways
- Resubmitting the Error Instances in Oracle Integration Cloud

Error Handling Ways

In this integration, the errors are handled in different ways in Oracle Integration Cloud.

- Synchronous Flow Error Handling
- Asynchronous Flow Error Handling

Synchronous Flow Error Handling

As part of this error handler the errors are sent back to the respective source system in the same flow.

Technical Fault

This fault occurs when there is a data mismatch in DVM or any Xpath related error. On this error, the flow immediately goes to global fault handler and the fault is sent back to the respective system.

Remote Fault

This fault occurs when there is a connectivity issue. For example, the target system is down. When this error occurs the flow immediately goes to global fault handler and the fault is sent back to the respective system.

Business Fault

This fault occurs only when the error occurs in the target system due to invalid data. When this error occurs the fault is thrown to the respective source system.

Asynchronous Flow Error Handling

Technical Fault

This fault occurs when there is a data mismatch in DVM or any Xpath related error. When this error occurs, the flow immediately goes to global fault handler and an optional email to the respective user is sent.

Remote Fault

This fault occurs when the target system is down. When this error occurs, the flow immediately goes to global fault handler and an optional email is sent to the respective user.

Business Fault

This fault occurs only when the business fault occurs in the target system due to invalid data. When this error occurs the flow immediately goes to global fault handler and an optional email is sent to the respective user.

Resubmitting the Error Instances in Oracle Integration Cloud

In this integration, the flows initiated by Oracle Field Service are asynchronous flows, and the resubmit option is available only for asynchronous flows.

To resubmit the error instances in Oracle Integration Cloud:

1. Login to Oracle Integration Cloud.

2. Navigate to **Integrations** > **Monitoring** > **Errors**.

3. Select the integration to resubmit.

4. Click the **Resubmit** icon.

Email Notifications

This pre-built integration includes a configurable email notification.

To receive an email notification:

1. Login to Oracle Integration Cloud.

2. Navigate to **Integrations** > **Designer** > **Lookups**.

3. Edit the **CCBOFSC_ConfigProps** look up.

   a. Change the **send.email.flag** property value to 'true'.

4. Edit the **CCBOFSC_Email_ID** look up.

   a. In the **from** field, enter the email ID to receive an email from.

   b. In the **to** field, enter the email ID to send the email to.

   c. In the **Email_Id** field, provide the comma separated email IDs.

   Note: In the CCBOFSC_Email_ID lookup, do not edit the values provided under the **Recipient** column.

Chapter 7

Extension Libraries in Oracle Integration Cloud

The extension libraries provide a means to register and organize JavaScript for use in integrations. Library functions are automatically available for you to drag from the **Actions** palette to your orchestration integrations.

This integration includes the following extension libraries.

Extension Library	Function	Description	Used in Integration Process
CCBOFSC_ AddressFormat	CCBOFSC_ AddressFormat	Used to concatenate all address fields from Oracle Utilities Customer Care and Billing and map it to single address field in Oracle Field Service.	Oracle Utilities CCB OFSC Activity CreateUpdate Oracle Utilities OFSC CCB SetvicePoint Query
CCBOFSCAppt TimeSlots	CCBOFSC_Appt_ StartTime	Derives the start datetime value in XSD datetime format based on the values from Oracle Field Service input and the values configured in OIC lookups.	Oracle Utilities CCB OFSC Appointment Get
CCBOFSCAppt TimeSlots	CCBOFSC_Appt_ EndTime	Derive the end datetime value in XSD datetime format based on the values from Oracle Field Service input and the values configured in OIC lookups.	Oracle Utilities CCB OFSC Appointment Get
CCBOFSC_addOffsetTo DateTime	CCBOFSC_addOffsetTo DateTime	Appends the offset to the date time	Oracle Utilities OFSC CCB Activity Complete Oracle Utilities OFSC CCB Activity Create
CCBOFSC_AddDaysTo Date	CCBOFSC_AddDaysTo Date	Adds no of days to the given date	Oracle Utilities CCB OFSC Activity CreateUpdate

The same extension libraries can be accessed from the **Libraries** page in Oracle Integration Cloud.

For more information regarding extension libraries refer to the Oracle Integration Cloud documentation at https://docs.oracle.com/en/cloud/paas/integration-cloud-service/icsug/using-libraries-manage-functions-integrations.html.

Chapter 8

Customizations

This chapter describes options for customizing the integration to meet specific business requirements, including:

- [Adding New Mappings](#)

Adding New Mappings

To add a new mapping for custom elements created in the Oracle Integration Cloud application schema, the pre-built integration provides a customization template for all the integration flows.

This section provides the steps to add a new mapping using the import xsl.

To map any custom elements, add the extra element in both the source and target schema.

In this integration, Oracle Utilities Customer Care and Billing is the source and Oracle Field Service is the target.

To add custom mappings in Oracle Integration Cloud layer:

1. Login to Oracle Integration Cloud.

2. Identify the integration to add custom mappings.

3. Export the respective integration from Oracle Integration Cloud to your local machine.

4. Unzip the .iar file and identify the mapping/xsl file in which the custom mappings have to be added.

5. This integration has all mappers as import xsls. To add any new mapping, edit the respective mapper/xsl file.

> **Note**: Mappings cannot be added using the Mapper Design view.

6. In all integration mappings, a template is added under every complex element. Any custom elements under that complex element can be added directly in the template provided.

7. Add the mapping under the respective customization template. Save the changes.

8. In Oracle Integration Cloud, click the integration to add the mapping for an extra element, and then select the respective map activity.

9. Click **Import** and upload the updated mapper/xsl file.

10. Save and close and activate the integration to reflect the custom mappings.

Following is the list of integrations and the respective mappers/xsls with customization templates defined.

Every integration process (.iar) file has a folder structure after exporting and unzipping it. Mappings/xsls are found under the **Resources** folder.

For example:
\<integration_process_identifier_name>\icspackage\project\\<integration_process_identifier_name>\resources\\<processor_xxx>\\<resourcegroup_xxx>\\<req_xxx.xsl>

Integration process folder path/ mapping name	XSL file relative path
OUTL-BA-CCB_OFSC_ACTVITY_CREUPD OOFSC_01.00.0000\icspackage\project\ OUTL-BA-CCB_OFSC_ACTVITY_CREUPD_01.00.0000\resources\	

Integration process folder path/ mapping name	XSL file relative path
Request mapping	processor_498\resourcegroup_501\req_6e21ce b5522142739d746a495b257f99.xsl
Business fault	processor_640\resourcegroup_643\req_c9e77fc 916d947728ed47c196f551994.xsl
Business fault when Oracle Field Service activity is in final state	processor_645\resourcegroup_648\req_7da1cd 10a1b4400d85ca7cf721009b3f.xsl
Response mapping	processor_573\resourcegroup_576\req_6f07ad 5053cd4866ab3a170a4d5648c7.xsl
Remote fault	processor_197\resourcegroup_200\req_3ab49d 6f09b9493db74f036932dd6568.xsl
Sublangauage execution fault	processor_202\resourcegroup_205\req_5bbbb6 ae0ed04687809da282320ade85.xsl
Unhandled faults	processor_207\resourcegroup_210\req_41b929 3cd9904f33af9d758d8e7c8622.xsl
OUTL-BA-CCB_OFSC_APPMT_GET_01.00.0000\ icspackage\project\OUTL-BA-CCB_OFSC_APPMT_GET _01.00.0000\resources\	
Request mapping	processor_46\resourcegroup_49\req_72e08f41f 2e34c97a817c33dc7937d1d.xsl
Response mapping	processor_51\resourcegroup_54\req_7496a9fb 1ea74c35abecd817a1f5b4a9.xsl
Business Fault	processor_198\resourcegroup_201\req_a1f6e7a f41d245da829cdd49c4ce9beb.xsl
Remote fault	processor_203\resourcegroup_206\req_0240ab 6161a64c60a0d9a126f1f933b0.xsl
Sublangauage execution fault	processor_208\resourcegroup_211\req_a72e88 28d6dc444fa4d9fbf442260b28.xsl
Unhandled faults	processor_213\resourcegroup_216\req_909e24 62e3b04d9dbbc4f24860a75e7a.xsl
OUTL-BA-CCB_OFSC_ACTIVITY_CANCEL_1.00 .0000\icspackage\project\OUTL-BA-CCB_OFSC_ACTIVITY_CANCEL_01.0 0.0000\resources\	
Request mapping	processor_37\resourcegroup_40\req_a122c791 382a465fa27b52274869c19d.xsl
Response mapping	processor_20\resourcegroup_23\req_ecde23ee 5d59454b883bf3ccb5e4c78c.xsl
Business fault	processor_58\resourcegroup_61\req_4ab13098 ee4d44f8bf67ba9421bcf857.xsl

Integration process folder path/ mapping name	XSL file relative path
Business fault when Oracle Field Service activity is in final state	processor_381\resourcegroup_384\req_3ccb36 f3abfd494797c2e7842e0602d8.xsl
Remote Fault	processor_136\resourcegroup_139\req_faee4cc ec92f46e199a021843b1b66cf.xsl
Sublangauage execution fault	processor_171\resourcegroup_174\req_239b5d 7fd689497fac99b03a952c249d.xsl
Unhandled faults	processor_176\resourcegroup_179\req_166f43 ebea0a4bfd9f9ef8d57f551fe1.xsl
OUTL-BA-OFSC_CCB_ ACTIVITY _STAT_01.00.0000\icspackage\project\ OUTL-BA-OFSC_CCB_ ACTIVITY_STAT_01.00.0000\ resources\	
Request mapping	processor_27\resourcegroup_30\req_57844054 883c441a831e6a30d50a7e5f.xsl
OUTL-BA- OFSC_CCB_ACTIVITY_COMP_01.00.0 000\icspackage\project\OUTL-BA- OFSC_CCB_ACTIVITY_COMP 01.00.0000\resources\	
Request mapping	processor_305\resourcegroup_308\req_0a6a5d 3849ed4e3484f158fa8855c135.xsl
OUTL-BA- OFSC_CCB_ACTIVITY_ CREATE_01.00.0000\icspackage\project \OUTL-BA- OFSC_CCB_ACTIVITY_CREATE_01.0 0.0000\resources\	
Request mapping	processor_98\resourcegroup_101\req_e8e545d 3e9ca45f8add58fced4c94973.xsl
OUTL-BA- OFSC_CCB_DEVICE_ VERIFY_01.00.0000\icspackage\project\ OUTL-BA- OFSC_CCB_DEVICE_VERIFY_01.00.0 000\resources\	
Request mapping	processor_36\resourcegroup_39\req_971cbcf7 636147c8b068427f05a6e323.xsl
Response mapping	processor_19\resourcegroup_22\req_07c1225b bce74a2993ba952652e25d89.xsl
OUTL-BA- OFSC_CCB_SP_QUERY _01.00.0000\icspackage\project\OUTL- BA- OFSC_CCB_SP_QUERY_01.00.0000\ resources\	

Integration process folder path/ mapping name	XSL file relative path
Request mapping	processor_69\resourcegroup_72\ req_d9dbf0fb014b44e994581cd016380f95.xsl
Response mapping	processor_24\resourcegroup_27\ req_4f63c2fb805e4828811b0ce593332196.xsl

Chapter 9

Activating and Testing the Integration Flows

This chapter provides an overview of how integration flows are activated and tested. It includes the following sections:

- Prerequisites
- Activating Integration Flows
- Testing the Integration Flows

Prerequisites

Make sure the catalog in Oracle Utilities Customer Care and Billing is configured completely to activate an integration process.

Activating Integration Flows

To activate the integration flows:

1. Navigate to the integration to activate.

2. Drag the slider for that integration. When prompted to enable tracing, click **Yes** to view the instances.

3. Click **Activate**.

The integration takes time to get activated. The activated integration appears at the top of the integrations list.

Testing the Integration Flows

The following table lists the integration end point URLs and the respective applications in which these endpoints need to be configured. Configure the same and perform end-to-end testing.

Integration Name	End Point URL to be Configured	Application to be Configured
Oracle Utilities CCB OFSC Activity CreateUpdate	https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/OUTL-BA-CCB_OFSC_ACTVITY_CREUPD/1.0	Oracle Utilities Customer Care and Billing
Oracle Utilities OFSC CCB Activity Create	https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_CCB_ACTIVITY_CREA/1.0/	As Oracle Field Service is event based, there is no need to configure the integration endpoint URLs. Subscription for the event will be created once the respective integration is activated.
Oracle Utilities OFSC CCB Activity	https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/ofsccloudadapter/OUTL-BA-OFSC_CCB_ACTIVITY_COMP/1.0/	As Oracle Field Service is event based, there is no need to configure the integration endpoint URLs. Subscription for the event will be created once the respective integration is activated.
Oracle Utilities CCB OFSC Appointment Get	https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/OUTL-BA-CCB_OFSC_APPMT_GET/1.0/	Oracle Utilities Customer Care and Billing

Integration Name	End Point URL to be Configured	Application to be Configured
Oracle Utilities OFSC CCB Activity Interim Status	https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/OUTL-BA-OFSC_CCB_ACTIVITY_STAT/1.0/	As Oracle Field Service is event based, there is no need to configure the integration endpoint URLs. Subscription for the event will be created once the respective integration is activated.
Oracle Utilities OFSC CCB Device Verification	https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_CCB_DEVICE_VERIFY/1.0/	Oracle Field Service
Oracle Utilities CCB OFSC Activity Cancel	https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/rest/OUTL-BA-CCB_OFSC_ACTVITY_CANCEL/1.0/	Oracle Utilities Customer Care and Billing
Oracle Utilities OFSC CCB Service Point Query	https://OIC_Host:OIC_Port/ic/api/integration/v1/flows/rest/OUTL-BA-OFSC_CCB_SP_QUERY/1.0/	Oracle Field Service

Chapter 10

Monitoring and Troubleshooting

This chapter provides information about monitoring and troubleshooting the integration. It includes the following sections:

- Oracle Utilities Customer Care and Billing
- Oracle Integration Cloud

Oracle Utilities Customer Care and Billing

This section provides information about monitoring Oracle Utilities Customer Care and Billing.

Oracle Utilities Customer Care and Billing Error Logs

Monitoring the error logs is possible only in on-premises applications. Applications on cloud cannot access the error logs.

The following error logs can be monitored for Oracle Utilities Customer Care and Billing:

- Errors related to the online integration invocation from Oracle Utilities Customer Care and Billing are stored in the CCB_ENVIRONMENT_NAME/ logs/system folder.

  For example: V27_CCB_ORA_WLS/logs/system\

For more information about errors and notifications, see the Oracle Utilities Customer Care and Billing documentation.

Oracle Integration Cloud

This section focuses on the monitoring Oracle Integration Cloud and troubleshooting any issues that occur during the integration activation.

Monitoring Integration Flows

Integration flows are monitored using the following:

- Dashboard
- Cloud Logs

To monitor the integration flows from the Oracle Integration Cloud dashboard:

1. Login to Oracle Integration Cloud.

2. On the **Home** page, click **Monitoring**.

3. Select any of the following as required:

   - **Dashboards** - To monitor the complete dashboard of integration.
   - **Integrations** - To monitor each integration.
   - **Tracking** - To monitor instance and flow trace/activity stream of the integration.
   - **Error** - To monitor the integrations in 'error' state. Re-submit the asynchronous integration flows.

To monitor the integration flows using Oracle Integration Cloud logs:

1. Login to Oracle Integration Cloud.

2. On the **Home** page, click **Monitoring**.

3. On the navigation pane, click **Dashboards** to view the overall success/failure rate of the integration.

4. Navigate to the **Logs** menu.

5. In the right pane, click the link to show options for downloading the Oracle Integration Cloud logs or diagnostics logs.

6. In case of any issues, attach the diagnostic logs to a service request for help.

Troubleshooting

If an activation fails, the **Integrations** page displays an error message.

To troubleshoot the activation error:

1. Click **Download Diagnostic Logs** to download the logs for diagnosing the issue.

2. Select **Enable Tracing**.

   TRACE ENABLED is displayed next to ACTIVE.

Some of the sample cases are as follows:

- For any connectivity errors while activating the integration, make sure the trigger connection is successful. Test the connection and refresh the metadata, and then activate the integration.

- If the integration (Oracle Utilities Customer Care and Billing initiated flows) is activated for the first time, ensure the Oracle Utilities Customer Care and Billing catalog is configured accurately.