Oracle Utilities Customer Cloud Service Integration to Oracle Field Service Cloud

(Also applicable to Oracle Utilities Customer To Meter)

Configuration Guide

Release 20B

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Oracle Utilities Customer Cloud Service Integration to Oracle Field Service Cloud Configuration Guide, Release 20B

Contents

Preface

Welcome to the Oracle Utilities Customer Cloud Service Integration to Oracle Field Service Cloud Configuration Guide.

Audience

This document is intended for anyone implementing the integration of the following products with Oracle Field Service Cloud:

- Oracle Utilities Customer Cloud Service
- Oracle Utilities Customer To Meter

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 Cloud Service Integration to Oracle Field Service Cloud Configuration Guide	Refer to the Oracle Utilities applications documentation page: http://docs.oracle.com/cd/E72219_01/documentation.html
Oracle Utilities Customer To Meter documentation	
Oracle Utilities Customer Cloud Service documentation	
Oracle Field Service Cloud documentation	https://docs.oracle.com/en/cloud/saas/field-service/20b/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. Access the support site for the Edge Application Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1) or refer to the Oracle Utilities Integrations page at http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm How to configure catalog and message senders in Oracle Utilities Enterprise Cloud Services (Doc ID 2564697.1)
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
OFSC	Oracle Field Service Cloud
OIC	Oracle Integration Cloud
ICS	Integration Cloud Service
SOM	Oracle Utilities Service Order Management
DVM	Domain Value Map (Lookup)
C2M	Oracle Utilities Customer to Meter
CCS	Oracle Utilities Customer Cloud Service
SP	Service Point
CIS	Customer Information System

Chapter 1

Introduction

Important! This integration is applicable to both on-premises version of the solution (Oracle Utilities Customer To Meter (C2M)) and SaaS version (Oracle Utilities Customer Cloud Service (CCS)).

Oracle Utilities Customer Cloud Service is used to reference the product in the document.

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

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

Overview of the Integration

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

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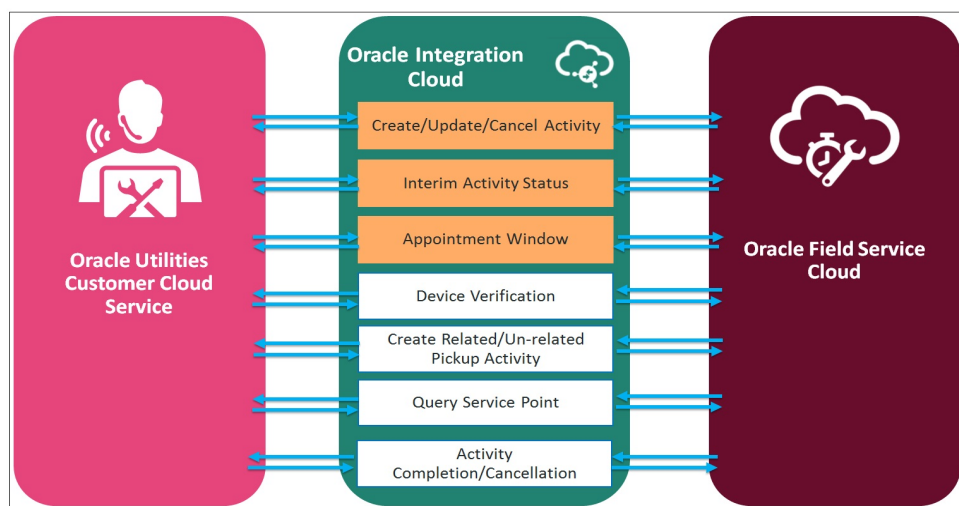
About Oracle Utilities Customer Cloud Service

It is a customer information system (CIS) combined with Oracle Utilities Meter Data Management System as one single solution. It has pre-built integration with head-end and AMI systems and captures data from multiple sources and has multi-channel communication. With smart meters, this solution is capable of managing any size of smart programs with varying maturity levels. Various flows such as meter, person, service agreement, service points, meter reading, meter configuration are performed in a single application.

About Oracle Field Service Cloud

Oracle Field Service Cloud 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 integrations can be quickly developed and activated between both the applications that live in the cloud; and the applications still live on premises. 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 application supported versions are:

- Oracle Utilities Customer To Meter - v2.7.0.3 and higher (on-premises). Integration works but the functionality will be limited.

- Oracle Utilities Customer Cloud Service - 20B or higher

- Oracle Integration Cloud - v20.2.2.0.0 or higher

- Oracle Field Service Cloud - 20B Service Update 11 or higher

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 Cloud Service Integration to Oracle Field Service Cloud are:

- An integration between Oracle Utilities Customer Cloud Service and Oracle Field Service Cloud.

- 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 the two applications.

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

- In the Oracle Field Service Cloud initiated processes, events are triggered and Oracle Utilities Customer Cloud Service 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.

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.
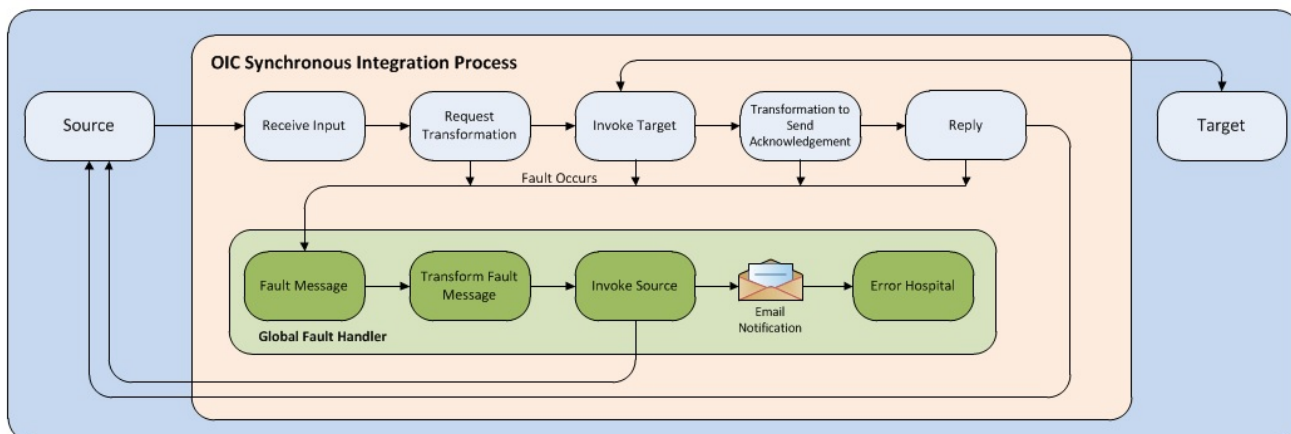
One-way Asynchronous

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. The error instance can be re-submitted from Oracle Integration Cloud. Refer to the Error Handling section in Chapter 6: Configuring Lookups, Error Handling, and Email Notifications for more details.
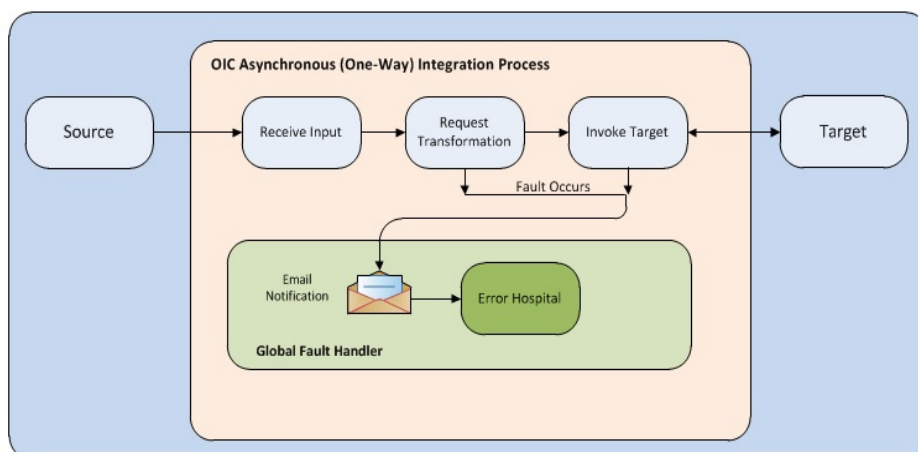
Business Flows

The integration scope supports the following business processes:

- Process Activity (Oracle Utilities Customer Cloud Service Initiated)
- Appointment Window Request (Oracle Utilities Customer Cloud Service Initiated)
- Interim Activity Status (Oracle Utilities Customer Cloud Service Initiated)
- Device Verification (Oracle Field Service Cloud Initiated)
- Create Activity (Oracle Field Service Cloud Initiated)
- Activity Completion/Cancellation (Oracle Field Service Cloud Initiated)
- Query Service Point (Oracle Field Service Cloud Initiated)

Process Activity (Oracle Utilities Customer Cloud Service Initiated)

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

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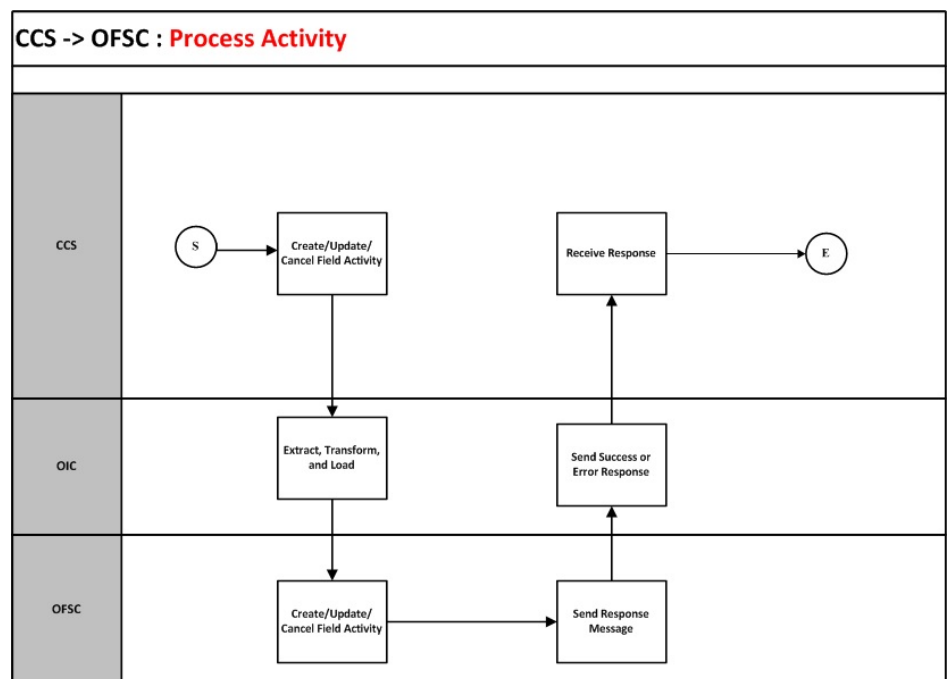
Business Processing

The integration process includes the following activities:

1. Oracle Utilities Customer Cloud Service sends the create/update/cancel activity request to the Process_Activity_SOMToOFSC integration process deployed on Oracle Integration Cloud.

2. The Process_Activity_SOMToOFSC process transforms the create/update/cancel activity request message from Oracle Utilities Customer Cloud Service to the request message format in Oracle Field Service Cloud and invokes bulkUpdate API.

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

4. Any errors are reported back to Oracle Utilities Customer Cloud Service through the global fault handler.

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

Technical Details

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

Artifacts	Value
Integration Process Name	Process_Activity_SOMToOFSC
Integration Package Name	oracle.util.somofsc.fieldwork
OFSC BO/Operation	Activity/Bulk Update Activity
OFSC API	bulkUpdate
CCS BO	D1-FieldActivityOBComm
	D1-ActivityModifyOBComm

Appointment Window Request (Oracle Utilities Customer Cloud Service Initiated)

This integration process provides a list of available appointments.

Oracle Utilities Customer Cloud Service sends the activity start and end date times from the **Appointment** portal and Oracle Field Service Cloud sends back the list of appointments available during that time window.

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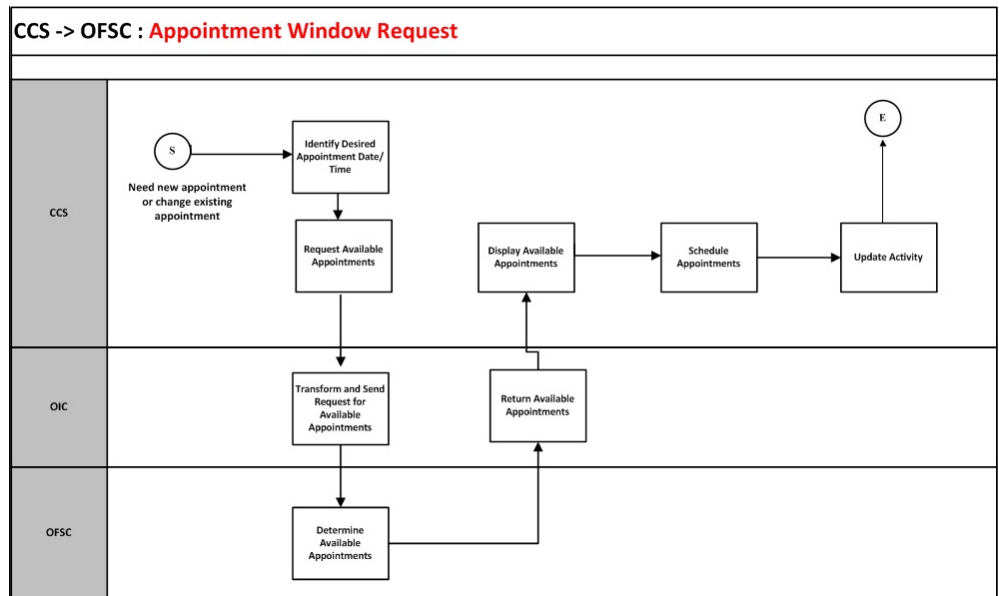
Business Processing

The integration process includes the following activities:

1. Oracle Utilities Customer Cloud Service sends the get available appointment request to Get_Appointment_SOMToOFSC integration process deployed on Oracle Integration Cloud.

2. The Get_Appointment_SOMToOFSC process transforms the request message from Oracle Utilities Customer Cloud Service to the request message format in Oracle Field Service Cloud and invokes the activityBookingOptions REST API.

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

4. Any errors are reported back to Oracle Utilities Customer Cloud Service through the global fault handler.

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

> **Note**: Make sure the fix for Bug 28474403 is applied on to the Oracle Utilities Customer Cloud Service environment. Also, in Oracle Field Service Cloud 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 Cloud Service and Oracle Field Service Cloud artifacts used in this integration process.

Artifacts	Value
Integration Process Name	Get_Appointment_SOMToOFSC
Integration Package Name	oracle.util.somofsc.fieldwork
OFSC API/Method	activityBookingOptions/GET
CCS BO	D1-ApptOBMessage

Interim Activity Status (Oracle Utilities Customer Cloud Service Initiated)

Oracle Utilities Customer Cloud Service synchronously sends the requests for the interim activity status of the field activities and Oracle Field Service Cloud sends back the status.

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 Utilities Customer Cloud Service sends the interim activity status request to the Get_ActivityStatus_SOMToOFSC integration process deployed on Oracle Integration Cloud.

2. Oracle Field Service Cloud sends the success or failure response to the integration that is transformed and sent to Oracle Utilities Customer Cloud Service.

3. Any errors are reported back to Oracle Utilities Customer Cloud Service through the global fault handler.

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

Technical Details

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

Artifacts	Value
Integration Process Name	Get_ActivityStatus_SOMToOFSC
Integration Package Name	oracle.util.somofsc.fieldwork
OFSC BO/Operations	Activity/Bulk Update Activity
	Activity/Get Activity
CCS BO	D1-InterimStatusRequest

Device Verification (Oracle Field Service Cloud Initiated)

This integration process is used to verify if the item/device/equipment is present in Oracle Utilities Customer Cloud Service. Oracle Field Service Cloud synchronously sends the requests for device verification with the device's badge number and Oracle Utilities Customer Cloud Service 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.
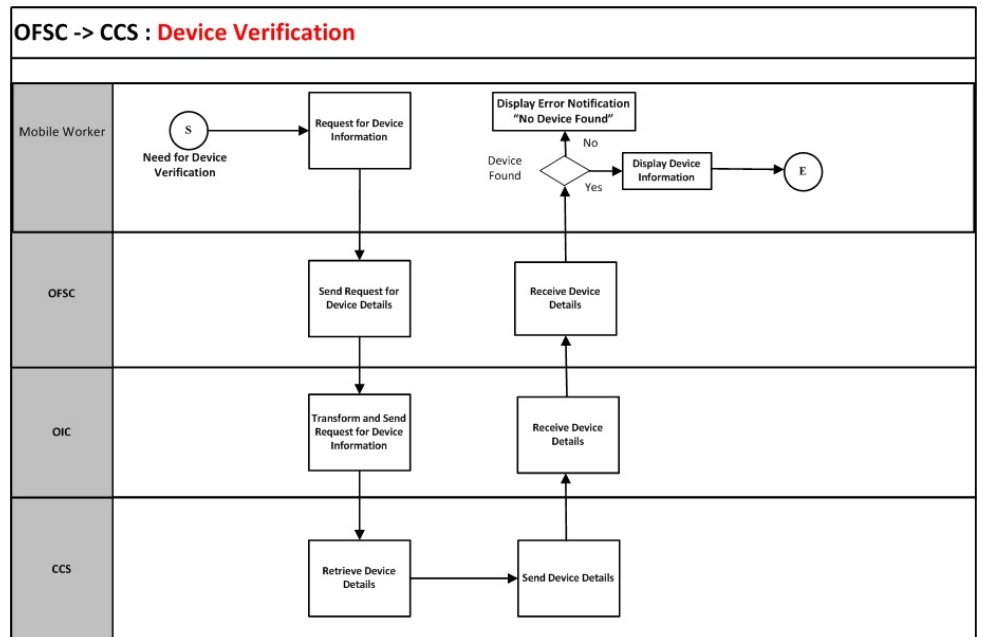
Business Processing

The integration process includes the following activities:

1. Oracle Field Service Cloud sends the device verification request to the Device_Verification_OFSCToSOM integration process deployed on Oracle Integration Cloud.

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

3. The Device_Verification_OFSCToSOM process transforms the request message from Oracle Field Service Cloud to the request message format in Oracle Utilities Customer Cloud Service and invokes either D1-DeviceVerificationService or D1-ItemVerificationService inbound web service if the device type is Meter/Equipment or Item respectively.

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

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

Technical Details

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

Process	Value
Integration Process Name	Device_Verification_OFSCToSOM
Integration Package Name	oracle.util.somofsc.fieldwork
OFSC Entity	Custom Plugin: Device Verification
CCS IWS	D1-DeviceVerificationService D1-ItemVerificationService

Create Activity (Oracle Field Service Cloud Initiated)

This integration process is used to create an activity in an external system. Oracle Field Service Cloud sends a request to create activity in Oracle Utilities Customer Cloud Service.

The same flow is used to create both related and unrelated pickup activities from Oracle Field Service Cloud.

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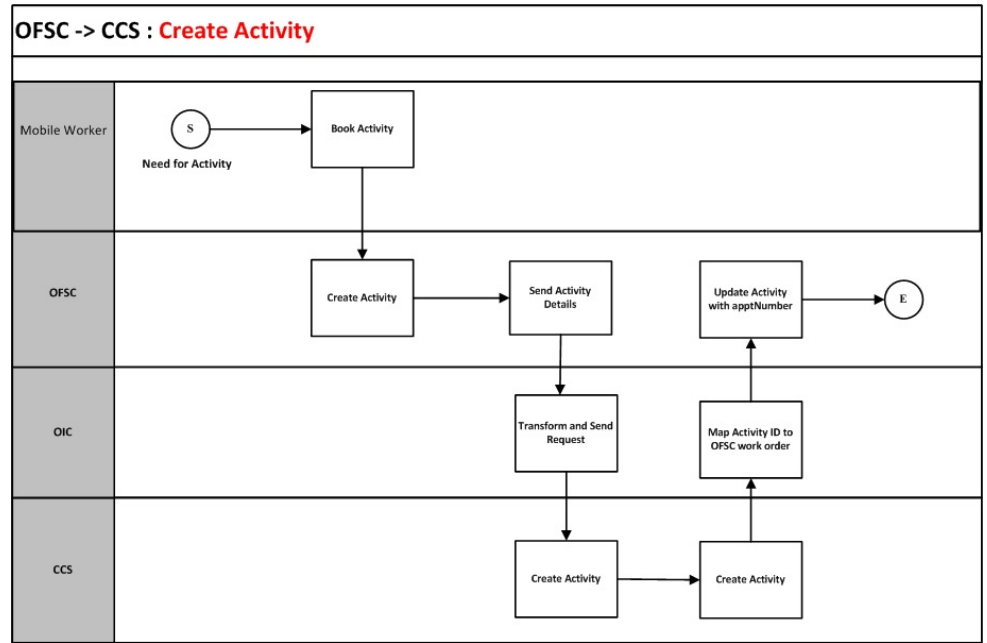
Business Processing

The integration process includes the following activities:

1. Oracle Field Service Cloud sends the create activity request to the Create_Activity_OFSCToSOM integration process deployed on Oracle Integration Cloud.

2. The Create_Activity_OFSCToSOM process transforms the request message from Oracle Field Service Cloud to the request message format in Oracle Utilities Customer Cloud Service and invokes the D1-FARequestSynchronous inbound web service.

3. The integration process sends the Oracle Utilities Customer Cloud Service Activity ID from Oracle Utilities Customer Cloud Service response to Oracle Field Service Cloud work order using Update_Patch.

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 SOMOFSC_Email_ID lookup.
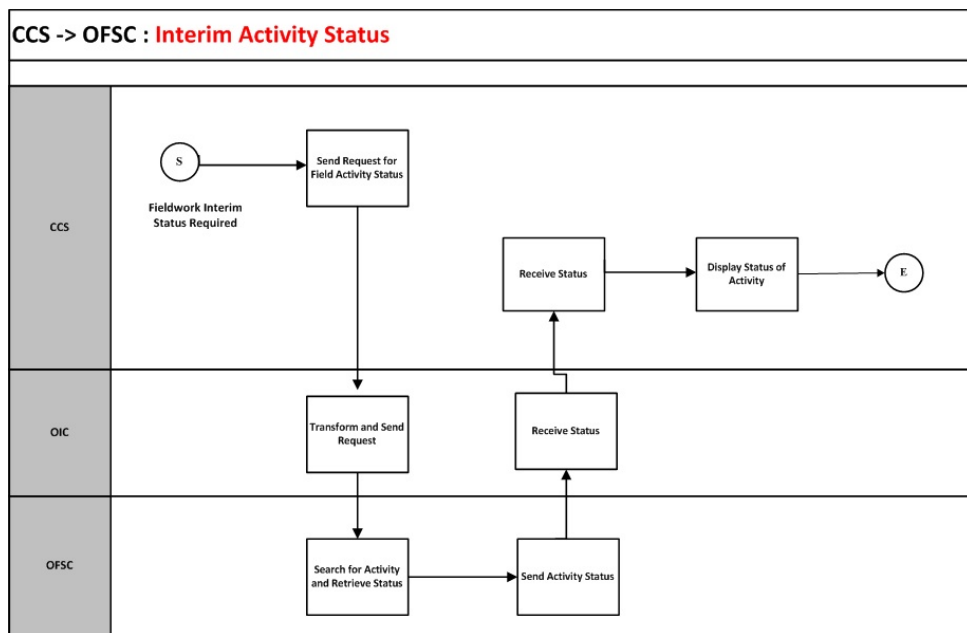
Technical Details

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

Artifacts	Value
Integration Process Name	Create_Activity_OFSCToSOM
Integration Package Name	oracle.util.somofsc.fieldwork

Artifacts	Value
OFSC BO/Events	Activity/Activity Created
	Activity/ Update Activity
CCS IWS	D1-FARequestSynchronous

Activity Completion/Cancellation (Oracle Field Service Cloud Initiated)

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

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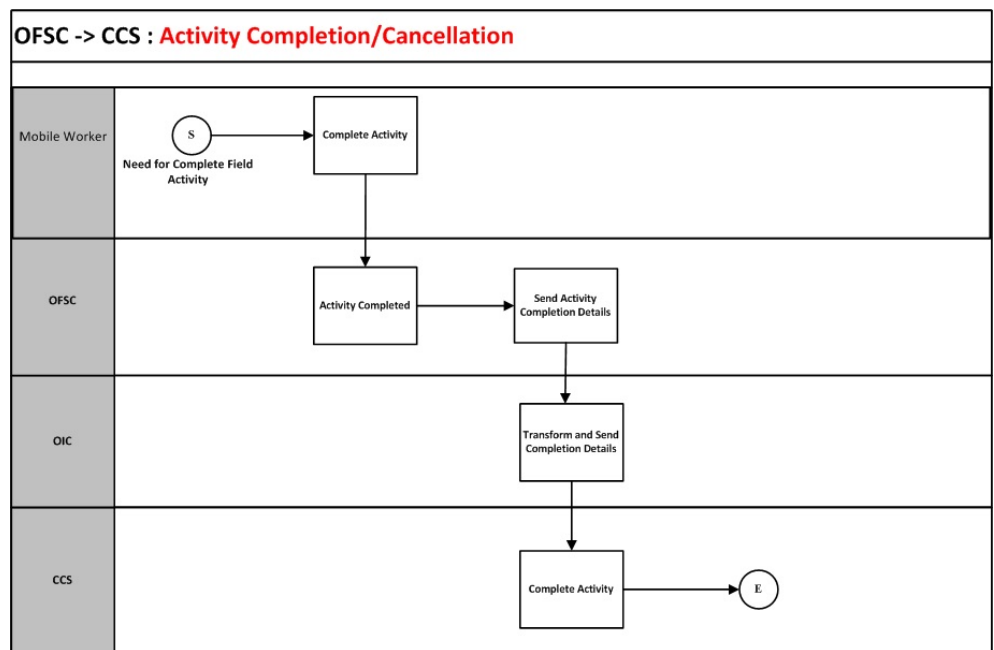
Business Processing

The integration process includes the following activities:

1. Oracle Field Service Cloud sends the activity completion details to the Complete_Activity_OFSCToSOM integration process deployed on Oracle Integration Cloud.

2. The Complete_Activity_OFSCToSOM process transforms the message from Oracle Field Service Cloud to the message format in Oracle Utilities Customer Cloud Service and invokes the D1-FieldActivityIBComm inbound web service.

3. When the Activity Not Done event is triggered, the data is not processed further from Oracle Integration Cloud to Oracle Utilities Customer Cloud Service. And, the

'Not Done' status update is handled in the Interim Activity Status (Oracle Utilities Customer Cloud Service Initiated) integration flow.

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 SOMOFSC_Email_ID lookup.

Technical Details

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

Artifacts	Value
Integration Process Name	Complete_Activity_OFSCToSOM
Integration Package Name	oracle.util.somofsc.fieldwork
OFSC API/Event	Activity/Activity Completed
	Activity/Activity Cancelled
	Activity/Activity Not Done
OFSC BO/Operation	Activity/Get Activity
CCS IWS	D1-FieldActivityIBComm

Query Service Point (Oracle Field Service Cloud Initiated)

The Query Service Point integration process is used to query the service point information.

The integration process sends request from Oracle Field Service Cloud to Oracle Utilities Customer Cloud Service to identify a service point. Oracle Field Service Cloud crew sends either the address and city, or latitude and longitude, or postal code, or all of them to Oracle Utilities Customer Cloud Service. Oracle Utilities Customer Cloud Service 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.
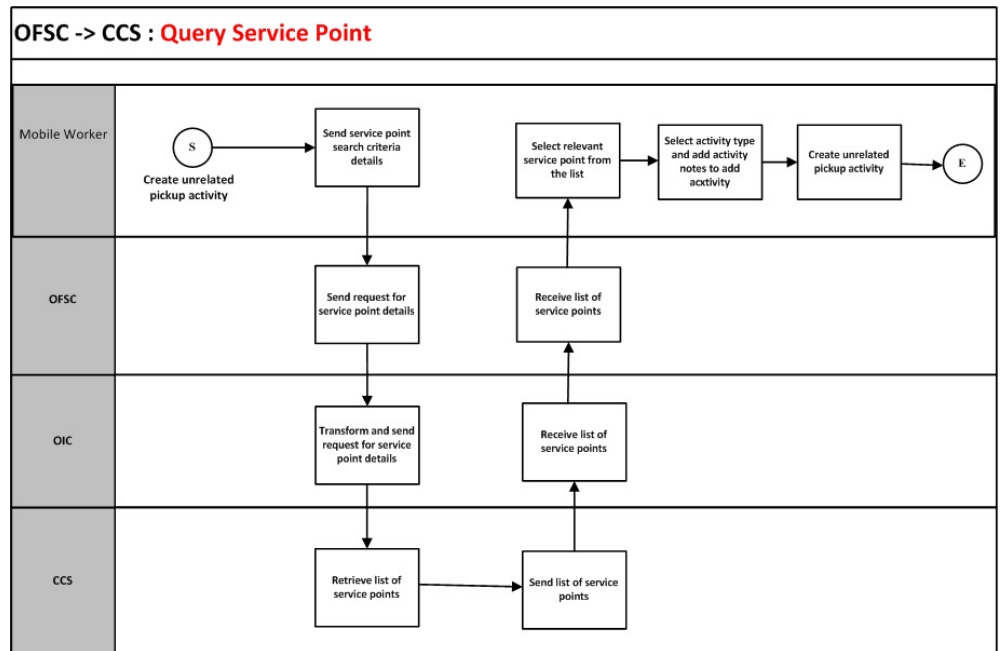
Business Processing

The integration process includes the following activities:

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

2. Oracle Field Service Cloud sends the query service point request to the Query_ServicePoint_OFSCToSOM integration process deployed on Oracle Integration Cloud.

3. The Query_ServicePoint_OFSCToSOM process transforms the request message from Oracle Field Service Cloud to the request message format in Oracle Utilities Customer Cloud Service and invokes the D1-FieldWorkSPQuery inbound web service.

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

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

6. Oracle Field Service Cloud 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 Cloud and a text message with the Oracle Field Service Cloud activity ID is displayed on mobile screen.

8. If Oracle Utilities Customer Cloud 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 Cloud using Unrelated Pickup custom plugin.

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

Technical Details

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

Artifacts	Value
Integration Process Name	Query_Service_OFSCToSOM
Integration Package Name	oracle.util.somofsc.fieldwork
OFSC Entity	Custom Plugin: Unrelated Pickup
CCS IWS	D1-FieldWorkSPQuery

Chapter 3

Configuring Oracle Utilities Customer Cloud Service

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

- Configuring Admin Data
- Adding Oracle Integration Cloud Certificates
- Managing Catalog Services

Configuring Admin Data

To configure the Oracle Utilities Customer Cloud Service setup for the integration:

1. Login to Oracle Utilities Customer Cloud Service.

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

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

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

5. Create an external application. Refer to the External Application section for details.

6. Complete the master configuration. Refer to the Master Configuration section for details.

7. Create activity types. Refer to the Activity Types section for details.

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

Message Senders

This section provides the message sender configuration details in Oracle Utilities Customer To Meter and Oracle Utilities Customer Cloud Service.

- Configuring Message Sender in Oracle Utilities Customer To Meter

- Configuring Message Sender in Oracle Utilities Customer Cloud Service

Configuring Message Sender in Oracle Utilities Customer To Meter

Create a new message sender for each integration service initiated from Oracle Utilities Customer To Meter.

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 OIC Activated Integration wsdl url>"

   - 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 Activated Integration end point URL by removing the ?wsdl from the URL.

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

- Message Namespace URI - Provide the namespace of the schema in the respective integration process.

- SOAP Insert Timestamp (Y/N) - Y

- Sender Security Type - TEXT

Important! Make sure the namespace does not include any extra spaces. Copy the namespaces into Notepad to check for any extra spaces.

Message sender configuration for integration services

Message Sender	Description	Message Namespace URI	HTTP Header	HTTP URL
Process Activity (create/update/cancel)				
INT_OFSC_PA	INT Process Activity-Message Sender-OFSC	http://xmlns.oracle.com/SRHUB/Message	SOAPAction:"ICS_OFSC_ProcessActivity	"https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/PROCESS_ACTIVITY_SOMTOOFSC/1.0/
Get Appointment				
INT_OFSC_GAP	INT Get appointment-Message Sender-OFSC	http://ouaf.oracle.com/outbound/D1-ApptOBMessage	SOAPAction: "OIC_OFSC_OIC_OFSC_GA	"https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/GET_APPOINTMENT_SOMTOOFSC/1.0/
Interim Status				
INT_OFSC_STA	INT Interim Status-Message Sender-OFSC	http://xmlns.oracle.com/SRHUB/Message	SOAPAction:"ICS_OFSC_GetStatus	"https://OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/GET_ACTIVITYSTATUS_SOMTOOFSC/1.0/

Configuring Message Sender in Oracle Utilities Customer Cloud Service

Create a new message sender for each integration service initiated from Oracle Utilities Customer Cloud Service.

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 OIC Activated Integration wsdl url>"

   - 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 Activated Integration end point URL by removing the ?wsdl from the URL.

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

Message sender configuration for integration services

Message Sender	Description	HTTP Header	HTTP URL
Process Activity (create/update/cancel)			
INT_OFSC_PA	INT Process Activity-Message Sender-OFSC	SOAPAction:"ICS_OFSC_ProcessActivity	@EXT_PUB@OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/PROCESS_ACTIVITY_SOMTOOFSC/1.0/
Get Appointment			
INT_OFSC_GAP	INT Get appointment-Message Sender-OFSC	SOAPAction:"OIC_OFSC_OIC_OFSC_GA	@EXT_PUB@OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/GET_APPOINTMENT_SOMTOOFSC/1.0/

Interim Status			
INT_OFSC_STA	INT Interim Status-Message Sender-OFSC	SOAPAction:"ICS_OFSC_Get Status	@EXT_PUB@OIC_Host:OIC_Port/ic/ws/integration/v1/flows/oracleutilities/GET_ACTIVITYSTATUS_SOMTOOFSC/1.0/

Outbound Message Types

To create a new outbound message type for each integration process:

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

2. Enter an outbound message type, description, and detailed description.

3. Select the outbound message business object created for a specific service.

Outbound message types for integration services

Integration Service	Outbound Message Type	Description	Business Object
Process Activity(create)	INT_OFSC_PA	INT Process Activity request to OFSC	D1-FAAddOBMsg
Get Appointment	INT_OFSC_GAP	INT Get appointment from OFSC	D1-ApptOBMessage
Interim Status	INT_OFSC_STA	INT Interim Status in OFSC	D1-InterimStatusRequest
Process Activity(update/cancel)	INT_OFSC_UA	INT Update Activity request to OFSC	D1-FAModifyOBMsg

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 C2M.

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 - Configured on sender

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
Process Activity(create)	INT_OFSC_PA	INT_OFSC_PA
Process Activity(update/cancel)	INT_OFSC_UA	INT_OFSC_PA
Get Appointment	INT_OFSC_GAP	INT_OFSC_GAP
Interim Status	INT_OFSC_STA	INT_OFSC_STA

External Application

Create an external application with the respective external system reference and add processing roles to invoke each integration service.

To create a new external application to support the integration:

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

2. Enter a unique external application and description.

   For example: Name = INT_OFSC_EA, Description = INT_OFSC External Application - Field Work System

3. Set the **Our Name in Their System** field to **C2M**.

4. Select the External System as <external system> created for this integration. For details about external system, refer to the External System section.

   For example: INT_OFSC_ES

5. Select **Utility Device ID Type** as **Badge Number**.

6. Click **Save**.

7. Under **Processing Method List**, add **Processing Method** for each integration service.

8. Associate the outbound message types and message senders to the external system. For each outbound message type, set the following:

   - **Processing Role** - Select the relevant processing role.

   - **Business Object** - Select the business object to generate the outbound message.

   - **Description** - Describe the processing method

   - **Status** - Active

- **Default Business Object** - Select the business object for the respective outbound message type.

- **Default Outbound Message Type** - Outbound message type for the respective integration service.

Integration Service	Processing Role	Description	Default Business object	Default Outbound Message Type
Process Activity(create)	Field Activity	INT OFSC Process activity Processing Role	D1-FieldActivityOBComm	INT_OFSC_PA
Appointment Request	Appointment Request	INT OFSC Appointment Processing Role	n/a	INT_OFSC_GAP
Interim Status	Interim Status Update	INT OFSC Interim Status Processing Role	n/a	INT_OFSC_STA
Process Activity(Update)	Update Activity	INT OFSC Update activity Processing Role	D1-ActivityModifyOBComm	INT_OFSC_UA
Process Activity(Cancel)	Cancelation Activity	INT OFSC Cancel activity Processing Role	D1-ActivityModifyOBComm	INT_OFSC _PA

Master Configuration

The master configuration has the necessary information to support this integration.

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

2. Select **Service Order Management Master Configuration**.

3. Click **+** next to **Service Order Management Master Configuration**.

4. In the **Master Configuration Details** zone, configure the following values.

   a. In the **Main** section:

      a. Field Work System = Refer to the external application created in the External Application section. <External Application name>

         For example: INT_OFSC_EA

      b. Near Schedule Meter Read Search (Days) = 5

   b. In the **Completion Event Exception Handling** section:

      a. To Do Type = Activity To Do Type

      b. To Do Role = System Default Role

      c. Maximum Retries = 2

      d. Retry Frequency = 00:05:00

   c. In the **Management Dashboard Configuration** section:

      a. Number of Days to Consider for Snapshot = 7

      b. Weekends/Holidays Inclusion in Activity Duration = Exclude from Activity Duration

      c.   Work Calendar = US Bank Work Calendar

      d.   Default Expected Activity Completion Time (Hours) = 3

d.   In the **Appointment Handling** section:

      a.   Appointment Slot Request (Hours) = 360

      b.   Default Appointment Handling System = \<External Application name\>
          Example: INT_OFSC_EA

e.   In the **Cut for Non-Payment Service Restrictions** section:

      a.   Life Support/Sensitive Load Option = Allow Cut Service

f.   In Override Expected Completion Time Configuration section:

      a.   Activity Type = SOM_FIELD_ACTIVITY_TYPE

      b.   Task Type = Read Meter

      c.   Expected Completion Time (Hours) = 60

g.   In the **Hours Beyond Expected Activity Completion Time** section:

      a.   On Time Completion Tolerance = 8

      b.   Late Completion Tolerance = 16

      c.   Very Late Completion Tolerance = 24

      d.   Normal In Progress Time = 8

      e.   Long In Progress Time = 16

      f.   Very Long In Progress Time = 24

h.   In the **Update Statistics** section:

      a.   Batch Control = D1-ACTAG

i.   In the **Chart Options** section:

      a.   Number of Historical Days to Include in Summary Charts = 12

j.   In the **Summary To Do Types** section:

To Do Type	To Do Role
Activity To Do Type	System Default Role
Inbound Communication To Do Type	System Default Role
Outbound Communication To Do Type	System Default Role

k.   In the **FA Cancelability Criteria** section:

      a.   FA Cancellable Script = Determine FA Cancellability

Interim Status	FA Cancellability
Canceled	Not Cancellable
Completed	Not Cancellable
Declined	Cancellable
Dispatched	Cancellable

Interim Status	FA Cancellability
Enroute	Not Cancellable
Error	Cancellable
On Hold	Cancellable
Started	Not Cancellable
Queued for Dispatch	Cancellable
Scheduled	Cancellable
Suspended	Cancellable

Note: The values configured in the above master configuration section are the sample values for reference.

Activity Types

An activity type defines the properties common to a specific type of activity.

To create an activity type:

1. Navigate to the **Activity Type** page from the **Admin** menu or from the **Search** menu.

2. Enter the activity type and its description as appropriate.

The activity type includes the following:

Activity Type	Description
Field Activity	Record Information: Business Object = Field Activity Type Related Transaction BO = Field Activity Activity Type Category = Field Activity To Do Information: Crew Request To Do Type = Activity To Do Type Crew Request To Do Role = System Default Role Appointment To Do Type = Appointment Notification Appointment To Do Role = System Default Role Field Cancellation To Do Type = Activity To Do Type Field Cancellation To Do Role = System Default Role Exception Handling: To Do Type = Activity To Do Type To Do Role =System Default Role Retry Frequency = 00:10:00 Maximum Retries = 2

The Field Task types are available as part of the following extendable lookup.

Business Object: D1-FieldTaskTypeLookup

Description: Field Task Type

The following activity types are supported in this integration:

- Turn on Pilot Light
- Service Investigation
- Trim Tree
- Disconnect SP at Device and Remove Device (Item)
- Item Exchange
- Connect SP at Item
- Meter Exchange
- Meter Read
- Disconnect SP at Meter and Remove Meter
- Connect SP
- Meter Install
- Disconnect Warning
- Maintain SP and Meter at Equipment

Adding Oracle Integration Cloud Certificates

Add the Oracle Integration for Cloud (OIC) certificate to the Oracle Utilities Customer Cloud Service stores where ever applicable to send transactions to the OIC layer.

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 Cloud Service:

1. Login to Oracle Utilities Customer Cloud Service.

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

    The external system and inbound web services mentioned in the table in step 3 are added to the catalog.

3. To get the catalog URL, append "webservices/builtin/ServiceCatalog?wsdl" to the on-premise application.

    Example: http(s)://<C2M_HOST>:<C2M_PORT>/<ContextRoot>/

webservices/builtin/ServiceCatalog?wsdl

If using Oracle Utilities Customer Cloud Service, the format should be: https://{host}:{port}/{tenant}/{domain}/{appName}/soap/api/iws/ServiceCatalog?WSDL

Following is the list of artifacts to be included in web service catalog:

Service Type	Service Name	Device Verification
External System	INT_OFSC_ES	INT_OFSC External System - Field Work System
Inbound Web Service	D1-DeviceVerificationService	Device Location Verification
Inbound Web Service	D1-FARequestSynchronous	Field Activity Synchronous Req Inbound
Inbound Web Service	D1-FieldActivityIBComm	Field Activity Inbound Communication
Inbound Web Service	D1-FieldWorkSPQuery	Field Work Service Point Query
Inbound Web Service	D1-ItemVerificationService	Item Verification

For more information about configuration, refer to the Oracle Utilities Customer Cloud Service documentation.

Chapter 4

Configuring Oracle Field Service Cloud

The necessary Oracle Field Service Cloud configuration information is available in the *Oracle Field Service Cloud Configurations for Oracle Utilities Customer Cloud Service to Oracle Field Service Cloud v20B* whitepaper at:

https://docs.oracle.com/cd/F33063_01/index.htm

Chapter 5

Importing, Configuring, and Testing Integration Connections

This chapter explains in details 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 (.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. Search for "Oracle Utilities Customer Cloud Service".

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

5. Click **GetApp**.

6. Review and accept "Oracle Standard Terms and Restrictions".

7. Click **Next**. MyOracle Support portal opens.

8. Download the integration package from MyOracle Support.

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

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

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

Important! This note is applicable only for existing customers. Make sure to take a backup of the existing package and lookups, and perform the cleanup before proceeding with the new package import. The cleanup includes deactivating the existing flows in this package and deleting the package, connections, lookups and libraries used in the integration.

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.

   • Process_Activity_SOMToOFSC

   • Get_Appointment_SOMToOFSC

- Get_ActivityStatus_SOMToOFSC

- Device_Verification_OFSCToSOM

- Create_Activity_OFSCToSOM

- Complete_Activity_OFSCToSOM

- Query_ServicePoint_OFSCToSOM

2. Verify if the following connections are in place.

- SOM_SOMOFSC

- OFSC_SOMOFSC

- REST_SOMOFSC_OB

- REST_SOMOFSC_APPT

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

- SOMOFSC_ActivityType.dvm

- OFSCSOM_Appt_Timeslots.dvm

- SOMOFSC_LifeSupport.dvm

- SOMOFSC_ConfigProps.dvm

- SOMOFSC_Email_ID.dvm

- SOMOFSC_CountryCode.dvm

- SOMOFSC_Model.dvm

- OFSCSOM_MeterStatus.dvm

- SOMOFSC_MeterLocation.dvm

- SOMOFSC_ServiceInstructions.dvm

- SOMOFSC_ServiceWarnings.dvm

- SOMOFSC_DisconnectLocation.dvm

- SOMOFSC_Manufacturer.dvm

- OFSCSOM_ActionCode.dvm

- SOMOFSC_MeterConfigurationType.dvm

- SOMOFSC_InterimStatus.dvm

- SOMOFSC_TimeZone.dvm

- OFSCSOM_StatusReason.dvm

- OFSCSOM_SQI.dvm

- OFSCSOM_TOU.dvm

- OFSCSOM_Decimals.dvm

- OFSCSOM_UOM.dvm

- OFSCSOM_ReadSequence.dvm

- OFSCSOM_Dials.dvm

- SOMOFSC_DeviceLocation.dvm

- SOMOFSC_MeasurementCondition.dvm
- SOMOFSC_Key.dvm

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 following connections:

- Configuring SOM_SOMOFSC Connection
- Configuring REST_SOMOFSC_OB Connection
- Configuring OFSC_SOMOFSC Connection
- Configuring REST_SOMOFSC_APPT Connection

Configuring SOM_SOMOFSC Connection

This connection is used to communicate with Oracle Utilities Customer Cloud Service/ Oracle Utilities Customer To Meter/Oracle Utilities Service Order Management using the Oracle Utilities adapter.

To configure the SOM_SOMOFSC connection:

1. Add the Oracle Utilities Customer Cloud Service/Oracle Utilities Customer To Meter/Oracle Utilities Service Order Management catalog to the **catalogURL** section.

   Note: In on-premises applications make sure that the catalog is in the following format:

   http(s)://<C2M_HOST>:<C2M_PORT>/<ContextRoot>/ webservices/builtin/ServiceCatalog?wsdl

   If using Oracle Utilities Customer Cloud Service, the format should be: https://{host}:{port}/{tenant}/{domain}/{appName}/soap/api/ iws/ServiceCatalog?WSDL

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

   Note: If using Oracle Utilities Customer Cloud Service, make sure to change the policy to "Basic Authentication".

3. In case of Oracle Utilities Customer To Meter on-premises, configure the agent in the connection.

   a. In the **Agent Group** section, click **Configure Agents**.

   b. Select the agent group from the list created in Creating an Agent Group.

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

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

Configuring REST_SOMOFSC_OB Connection

This connection is used to communicate with Oracle Field Service Cloud using the REST adapter. It is used in the Device Verification (Oracle Field Service Cloud Initiated) and Query Service Point (Oracle Field Service Cloud Initiated) flows triggered by Oracle Field Service Cloud.

Edit the REST_SOMOFSC_OB connection and test it to make sure it is successful. Click **Save**.

Configuring OFSC_SOMOFSC Connection

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

Configure the Oracle Field Service Cloud 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. Click **Test** at the upper-right corner.

   Note: Make sure to configure the client and client secret part of the username and password. Retrieve them by logging into the Oracle Field Service Cloud application.

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

Configuring REST_SOMOFSC_APPT Connection

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

Configure the REST_SOMOFSC_APPT connection with required details:

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

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

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

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

5. Configure the client ID and client secret in the Username and Password fields respectively from the Oracle Field Service Cloud application.

   Username should be in the following format: Client_id@instance id

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

7. 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 combination of an agent group is:

- Oracle Utilities Customer To Meter on-premises and Oracle Field Service Cloud

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-agentinstaller. 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 and upload by running the below command from 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.

        For 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 in the link below.
        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! Skip this section if there are valid CA certificates for the integration.

If there no valid certificates for this integration, download the Oracle Utilities Customer To Meter/Oracle Utilities Customer Cloud Service certificates and upload them to Oracle Integration Cloud to handshake with Oracle Utilities Customer To Meter/Oracle Utilities Customer Cloud Service.

To download the Oracle Utilities Customer To Meter/Oracle Utilities Customer Cloud Service certificate:

1. Login to Oracle Utilities Customer Cloud Service/Oracle Utilities Customer To Meter.

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, sending email notifications, and customizations in this integration. It includes the following sections:

- Configuring Lookups
- Error Handling
- Email Notifications

Configuring Lookups

The following table lists the lookups that are part of this integration.

Lookup Name	Integration Name	Purpose
OFSCSOM_ActionCode	Complete_Activity_OFSC ToSOM	Translates the OFSC status to corresponding SOM action Code
SOMOFSC_ActivityType	Complete_Activity_OFSC ToSOM

Get_Appointment_SOMT oOFSC

Process_Activity_SOMTo OFSC

Create_Activity_OFSCToS OM | Translates SOM Activity type to OFSC Activity type |
| SOMOFSC_ConfigProps | Complete_Activity_OFSC ToSOM

Get_Appointment_SOMT oOFSC

Process_Activity_SOMTo OFSC

Get_ActivityStatus_SOMT oOFSC

Create_Activity_OFSCToS OM | Used for configurable properties |
| SOMOFSC_ InterimStatus | Get_ActivityStatus_SOMT oOFSC | Translates activity status in OFSC to status in SOM/C2M/CCS |
| SOMOFSC_TimeZone | Process_Activity_SOMTo OFSC | Translates SOM time zone to OFSC time zone |
| SOMOFSC_ MeterConfigurationType | Process_Activity_SOMTo OFSC

Complete_Activity_OFSC ToSOM | Translates SOM meter configuration type to OFSC meter configuration type |
| SOMOFSC_ Manufacturer | Complete_Activity_OFSC ToSOM

Process_Activity_SOMTo OFSC | Translates SOM Manufacturer to OFSC Manufacturer |
| SOMOFSC_ DisconnectLocation | Process_Activity_SOMTo OFSC

Complete_Activity_OFSC ToSOM | Translates SOM disconnect location to OFSC disconnect location |

Lookup Name	Integration Name	Purpose
SOMOFSC_ ServiceWarnings	Process_Activity_SOMTo OFSC Complete_Activity_OFSC ToSOM	Translates SOM Service Warnings to OFSC Warnings
SOMOFSC_ ServiceInstructions	Complete_Activity_OFSC ToSOM Process_Activity_SOMTo OFSC	Translates SOM Service Instruction to OFSC Instruction
SOMOFSC_ MeterLocation	Process_Activity_SOMTo OFSC Complete_Activity_OFSC ToSOM	Translates SOM Meter Location to OFSC Meter Location and vice versa
OFSCSOM_MeterStatus	Complete_Activity_OFSC ToSOM	Translates SOM Meter Status to OFSC Meter Status and vice versa
SOMOFSC_Model	Process_Activity_ SOMToOFSC Complete_Activity_ OFSCToSOM	Translates SOM Meter Model to OFSC Meter Model and vice versa
SOMOFSC_ CountryCode	Process_Activity_ SOMToOFSC Create_Activity_ OFSCToSOM	Translates SOM Country Code to OFSC Country Code and vice versa
SOMOFSC_Email_ID	Process_Activity_ SOMToOFSC Complete_Activity_ OFSCToSOM Get_Appointment_ SOMToOFSC Create_Activity_ OFSCToSOM	Configures the email IDs of respective user
SOMOFSC_LifeSupport	Process_Activity_ SOMToOFSC	Translates the life support codes from SOM to OFSC
OFSCSOM_Appt_ Timeslots	Process_Activity_ SOMToOFSC Get_Appointment_ SOMToOFSC	Translates OFSC time slots to SOM time slots and vice versa
OFSCSOM_StatusReason	Complete_Activity_ OFSCToSOM	Translates OFSC cancel reason to SOM.StatusReason field

Lookup Name	Integration Name	Purpose
OFSCSOM_SQI	Complete_Activity_OFSC ToSOM	Maps the SOM SQI to OFSC SQI and vice versa.
	Device_Verification_OFSC ToSOM	
OFSCSOM_ ReadSequence	Complete_Activity_OFSC ToSOM	Transforms the SOM Read sequence to OFSC Read sequence and vice versa.
	Device_Verification_OFSC ToSOM	
OFSCSOM_TOU	Device_Verification_OFSC ToSOM	Maps SOM Time of Usage to OFSC Time of usage and vice versa.
	Complete_Activity_OFSC ToSOM	
OFSCSOM_UOM	Complete_Activity_OFSC ToSOM	Maps SOM Unit of Measure to OFSC Unit of Measure and vice versa.
	Device_Verification_OFSC ToSOM	
OFSCSOM_Decimals	Complete_Activity_OFSC ToSOM	Maps the SOM Decimals to OFSC Decimals and vice versa.
	Device_Verification_OFSC ToSOM	
OFSCSOM_Dials	Device_Verification_OFSC ToSOM	Maps the SOM Dials to OFSC Dials and vice versa
	Complete_Activity_OFSC ToSOM	
SOMOFSC_Key	Process_Activity_SOMTo OFSC	Maps the SOM Key to OFSC Key and vice versa
SOMOFSC_ DeviceLocation	Process_Activity_SOMTo OFSC	Maps the SOM Device Location to OFSC Device Location and vice versa
	Complete_Activity_OFSC ToSOM	
SOMOFSC_ MeasurementCondition	Process_Activity_SOMTo OFSC	Maps the SOM Measurement Condition to OFSC Measurement Condition and vice versa

Editing Lookups

To edit a lookup:

1. Login to Oracle Integration for Cloud.

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

3. Select the look up to edit.

4. Make the necessary changes.

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

Configuration Properties

SOMOFSC_ConfigProps 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
ofsc.bucket	OHMeter	Configures the bucket name available in Oracle Field Service Cloud to assign the tasks.	Process_Activity_SOMToOFSC
email.flag	false/true	Configures optional email notification. If the value is set to true, email notification will be sent to the configured users.	Create_Activity_OFSCToSOM Process_Activity_SOMToOFSC Complete_Activity_ OFSCToSOM Get_ActivityStatus_ SOMToOFSC Get_Appointment_ SOMToOFSC
source.system	C2M	Defines Oracle Utilities Customer Care and Billing product code	Process_Activity_SOMToOFSC Complete_Activity_ OFSCToSOM
pickuporder.apptneeded	N	Defines if the appointment is necessary or not for pickup order/ book activity	Create_Activity_OFSCToSOM
som.externalsystem	INT_OFSC_ES	Defines the external system created in CCS/C2M/SOM	Create_Activity_OFSCToSOM
som.statusreasonusage	INCOMPLETE	Defines the status reason usage	Complete_Activity_ OFSCToSOM
sp.maximumrowstoreturn	15	Configures the number of SPs to be returned in each transaction of SP query, from SOM	Query_ServicePoint_ OFSCToSOM
som.includeabolishflag	D1YS	Retrieves all SPs from SOM	Query_ServicePoint_ OFSCToSOM

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 due to the limitation of Oracle Integration Cloud.

- Synchronous Flow Error Handling
- Asynchronous Flow Error Handling

Synchronous Flow Error Handling

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

Technical Fault

This fault occurs when there is a data mismatch 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 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 business fault occurs in the target system due to invalid data. When this error occurs the fault is sent back to the respective system as part of immediate response.

Asynchronous Flow Error Handling

Technical Fault

This fault occurs when there is a data mismatch 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 Cloud are asynchronous flows, and the resubmit option is available only for asynchronous flows.

To resubmit the error instances in Oracle Field Service Cloud:

1. Login to Oracle Field Service Cloud.

2. Navigate **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 **SOMOFSC_ConfigProps** look up.

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

4. Edit the **SOMOFSC_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 SOMOFSC_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
SOMOFSC_addressFormat	SOMOFSC_addressFormat	Concatenates all address fields from C2M/CCS and map it to single address field in OFSC.	Process_Activity_ SOMToOFSC Query_ServicePoint_ OFSCToSOM
SOMOFSC_ DateTimeConversion	SOMOFSC_DateTimeZone Conversion	Converts datetime value from one time zone to another timezone.	Process_Activity_ SOMToOFSC Complete_Activity_ OFSCToSOM
SOMOFSC_DateTimeZone Conversion	SOMOFSC_DateTimeZone Conversion	Converts date timezone value from one date timezone to other date timezone.	Create_Activity_OFSCTo SOM Complete_Activity_OFSC ToSOM
SOMOFSC_ AppointmentSlots	SOMOFSC_Appt_ StartTime	Derives the start datetime value in XSD datetime format based on the values from OFSC input and the values configured in OIC lookups.	Get_Appointment_ SOMToOFSC
SOMOFSC_ AppointmentSlots	SOMOFSC_Appt_EndTime	Derives the end datetime value in XSD datetime format based on the values from OFSC input and the values configured in OIC lookups.	Get_Appointment_ SOMToOFSC

Extension Library	Function	Description	Used in Integration Process
SOMOFSC_ CountNoOfOccurances	SOMOFSC_ NoOfOccurances	It counts the number of occurrence of the strings comma and space.	Create_Activity_ OFSCToSOM

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 the elements available in the Oracle Integration Cloud application schema, the pre-built integration provides a customization template for all the integration flows.

The supported cases are:

- Case1: In the Oracle Utilities Customer Cloud Service application schema, elements exist but are not mapped in the Oracle Integration Cloud pre-built integration.

- Case2: In Oracle Field Service Cloud, the properties exist but are not mapped in the Oracle Integration Cloud pre-built integration.

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

In this integration, Oracle Utilities Customer Cloud Service is the source and Oracle Field Service Cloud 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. 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.

Integration Name	Location of XSL File
PROCESS_ACTIVITY_ SOMTOOFSC	PROCESS_ACTIVITY_SOMTOOFSC_01.00.0000 \icspackage\project\PROCESS_ACTIVITY_SOM TOOFSC_01.00.0000\resources\processor_430\res ourcegroup_433\req_d6b0de6e354d44cf8e0768249b 5fa66c.xsl
	PROCESS_ACTIVITY_SOMTOOFSC_01.00.0000 \icspackage\project\PROCESS_ACTIVITY_SOM TOOFSC_01.00.0000\resources\processor_469\res ourcegroup_472\req_2c143905deba4c4891091d048 bfcbc28.xsl
	PROCESS_ACTIVITY_SOMTOOFSC_01.00.0000 \icspackage\project\PROCESS_ACTIVITY_SOM TOOFSC_01.00.0000\resources\processor_474\res ourcegroup_477\req_ae404868fb9e4907a86975bbdb 75e1fa.xsl
	PROCESS_ACTIVITY_SOMTOOFSC_01.00.0000 \icspackage\project\PROCESS_ACTIVITY_SOM TOOFSC_01.00.0000\resources\processor_464\res ourcegroup_467\req_29b57e613bbe4c8eb28508669 51ce1da.xsl
DEVICE_VERIFICATION_ OFSCTOSOM	DEVICE_VERIFICATION_OFSCTOSOM_01.00. 0000\icspackage\project\DEVICE_VERIFICATIO N_OFSCTOSOM_01.00.0000\resources\processor _177\resourcegroup_180\req_05949e2168eb499d90 27b4aea4fd370b.xsl
	DEVICE_VERIFICATION_OFSCTOSOM_01.00. 0000\icspackage\project\DEVICE_VERIFICATIO N_OFSCTOSOM_01.00.0000\resources\processor _19\resourcegroup_22\req_9de4224508dc47c49bea 25adef82afcb.xsl
	DEVICE_VERIFICATION_OFSCTOSOM_01.00. 0000\icspackage\project\DEVICE_VERIFICATIO N_OFSCTOSOM_01.00.0000\resources\processor _197\resourcegroup_200\req_7d0bb46fb32b450996 9797a1d3576012.xsl
	DEVICE_VERIFICATION_OFSCTOSOM_01.00. 0000\icspackage\project\DEVICE_VERIFICATIO N_OFSCTOSOM_01.00.0000\resources\processor _44\resourcegroup_47\req_f5c009a3b2bb47d881aaf 31b65a269db.xsl

Integration Name	Location of XSL File
	DEVICE_VERIFICATION_OFSCTOSOM_01.00.0000\icspackage\project\DEVICE_VERIFICATION_OFSCTOSOM_01.00.0000\resources\processor_264\resourcegroup_267\req_a1f6ce0a3b5a423791d6ea625cd7cb0d.xsl
	DEVICE_VERIFICATION_OFSCTOSOM_01.00.0000\icspackage\project\DEVICE_VERIFICATION_OFSCTOSOM_01.00.0000\resources\processor_350\resourcegroup_353\req_95cb7603192e4bda85d7a8c6632574f6.xsl
CREATE_ACTIVITY_OFSCTOSOM	CREATE_ACTIVITY_OFSCTOSOM_01.00.0000\icspackage\project\CREATE_ACTIVITY_OFSCTOSOM_01.00.0000\resources\processor_417\resourcegroup_420\req_9f90c963e5d94ff98b38b2ab22107d63.xsl
COMPLETE_ACTIVITY_OFSCTOSOM	COMPLETE_ACTIVITY_OFSCTOSOM_01.00.0000\icspackage\project\COMPLETE_ACTIVITY_OFSCTOSOM_01.00.0000\resources\processor_509\resourcegroup_512\req_358b3cdb3d5745fb8e082acdde659bb2.xsl
GET_APPOINTMENT_SOMTOOFSC	GET_APPOINTMENT_SOMTOOFSC_01.00.0000\icspackage\project\GET_APPOINTMENT_SOMTOOFSC_01.00.0000\resources\processor_80\resourcegroup_83\req_3636a98aa4a44cae8cdb99ef4f5d5f55.xsl
GET_ACTIVITYSTATUS_SOMTOOFSC	GET_ACTIVITYSTATUS_SOMTOOFSC_01.00.0000\icspackage\project\GET_ACTIVITYSTATUS_SOMTOOFSC_01.00.0000\resources\processor_18\resourcegroup_21\req_93d5d20a9bbc4a51800246d1af17262c.xsl
	GET_ACTIVITYSTATUS_SOMTOOFSC_01.00.0000\icspackage\project\GET_ACTIVITYSTATUS_SOMTOOFSC_01.00.0000\resources\processor_35\resourcegroup_38\req_3b615b7222fc48648a2a594ee69c797a.xsl
	GET_ACTIVITYSTATUS_SOMTOOFSC_01.00.0000\icspackage\project\GET_ACTIVITYSTATUS_SOMTOOFSC_01.00.0000\resources\processor_65\resourcegroup_68\req_ea1951b8286e459a92eab6c39b42d525.xsl
	GET_ACTIVITYSTATUS_SOMTOOFSC_01.00.0000\icspackage\project\GET_ACTIVITYSTATUS_SOMTOOFSC_01.00.0000\resources\processor_82\resourcegroup_85\req_2770ed549fbe410eb3f0f7d87a56f2a5.xsl

Integration Name	Location of XSL File
QUERY_SERVICEPOINT_ OFSCTOSOM	QUERY_SERVICEPOINT_OFSCTOSOM_01.00.0 000\icspackage\project\QUERY_SERVICEPOINT _OFSCTOSOM_01.00.0000\resources\processor_3 6\resourcegroup_39\req_8acd527b3f724df0a3c783e e1a1b6ce2.xsl
	QUERY_SERVICEPOINT_OFSCTOSOM_01.00.0 000\icspackage\project\QUERY_SERVICEPOINT _OFSCTOSOM_01.00.0000\resources\processor_8 7\resourcegroup_90\req_0b406d5cf3734306b7f5afd 49ec8c0d6.xsl

Chapter 9

Activating and Testing the Integration Flows

This section 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 Cloud Service 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 end point URLs for respective applications in which these endpoints need to be configured. Configure the same and perform an end-to-end testing.

Integration Name	End Point URL to be Configured	Application to be Configured
Process_Activity_SOMToOFSC	https://hostname:port/ic/ws/integration/v1/flows/oracleutilities/PROCESS_ACTIVITY_SOMTOOFSC/1.0	C2M/CCS
Create_Activity_OFSCToSOM	https://hostname:port/ic/api/integration/v1/flows/ofsccloudadapter/CREATE_ACTIVITY_OFSCTOSOM/1.0/notify	As OFSC 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.
Complete_Activity_OFSCToSOM	https://hostname:port/ic/api/integration/v1/flows/ofsccloudadapter/COMPLETE_ACTIVITY_OFSCTOSOM/1.0/notify	As OFSC 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.
Get_Appointment_SOMToOFSC	https://hostname:port/ic/ws/integration/v1/flows/oracleutilities/GET_APPOINTMENT_SOMTOOFSC/1.0/	C2M/CCS
Get_ActivityStatus_SOMToOFSC	https://hostname:port/ic/ws/integration/v1/flows/oracleutilities/GET_ACTIVITYSTATUS_SOMTOOFSC/1.0/	C2M/CCS

Integration Name	End Point URL to be Configured	Application to be Configured
Device_Verification_OFSCToSOM	https://hostname:port/ic/api/integration/v1/ flows/rest/ DEVICE_VERIFICATION_OFSCTOSOM/1.0/	OFSC
Query_ServicePoint_OFSCToSOM	https://hostname:port/ic/api/integration/v1/ flows/rest/ QUERY_SERVICEPOINT_OFSCTOSOM/1.0/	OFSC

Chapter 10

Monitoring and Troubleshooting

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

- Oracle Utilities Customer Cloud Service
- Oracle Integration Cloud

Oracle Utilities Customer Cloud Service

This section provides information about monitoring Oracle Utilities Customer Cloud Service.

Oracle Utilities Customer Cloud Service 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 Cloud Service:

- Errors related to the online integration invocation from Oracle Utilities Customer Cloud Service are stored in the CCS_ENVIRONMENT_NAME/ logs/ or C2M_ENVIRONMENT_NAME/logs/system folder.

  For example: V27_C2M_ORA_WLS/logs/system\

For more information about errors and notifications, see the Oracle Utilities Customer To Meter 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.

- In this 20A release the SOMOFSC_ADDRESSFORMAT library is changed. Make sure to delete the existing library before importing new package which gives the new library along with package. If you are existing customer of 19.1 ensure before applying the new package the existing CCS-OFSC package is backed up and the required artifacts removed from Oracle Integration Cloud.

Appendix A

Known Issues

This appendix focuses on the known issues in this integration and in the respective applications.

- Oracle Field Service Cloud
- Oracle Utilities Customer Cloud Service

Oracle Field Service Cloud

The known issues pertaining to Oracle Field Service Cloud in this integration are:

- While trying to update the datetime from Oracle Utilities Customer Cloud Service after moving an activity to a resource in Oracle Field Service Cloud, the activity is still with the resource and not moved to the bucket. It should be moved back to the bucket and is a known limitation in this integration.

Oracle Utilities Customer Cloud Service

The known issues pertaining to Oracle Utilities Customer Cloud Service in this integration are:

- The appointment time slots are returned only for "From" and "To" dates specified in Oracle Utilities Customer Cloud Service Appointment Request.

- The Oracle Utilities Customer Cloud Service field activity cannot be canceled when the reopened activity in Oracle Field Service Cloud is in "pending" status.

- While rescheduling a canceled appointment in the **Appointment Booking** page, the expected result should be "No update is sent to the external system". But, the actual result is "FA sync request is created".

- The read sequence in the **Reading Details** page is not in proper order in the message sent to Field work system as part of device verification.

- For any configuration changes, make sure to run "flushAll" multiple times. Flush might not reflect the changes immediately since it refreshes one pod at a time. In case of any issue, login from different browsers and issue flush cache multiple times.

Appendix B

Validation Algorithms

This appendix focuses on the algorithms in inbound communication and completion events.

- Inbound Communication
- Completion Events

Inbound Communication

The inbound communication algorithm details are as follows:

Algorithm	Validations	Lifecycle
D1-VALCOMTP	Communication Type should be populated.	Validate
D1-OBCOMST	Activity ID is populated in inbound communication.	
	Outbound communication identification	
D1-RESSPDVC	Service Point populated in inbound communication	
	Device ID should be present	
	Existing Badge Number from inbound should match outbound communication	
	New Badge Number to be populated	
	Activity not a pass through one to be validated	
D1-VALIDDCT	Device Configuration Type on Service Point needs to match that received from inbound communication	
D1-EVDEFCAN	Activity Type needs should be populated	
	Outbound communication should be populated	
D1-EVALRESP	Validate whether SOAP fault is present	

Completion Events

The completion events in this integration are as follows:

Activity Type	Completion Events	Required	Algorithm	Description
Install Meter	Install Device Completion Event	Yes	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised
			D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device

Activity Type	Completion Events	Required	Algorithm	Description
Install Meter	Create FA IMD Completion Event	Yes	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device
	Update SP - Field Work Completion	No	D1-VALCESPD	Validates that the Service Point ID and at least one of the following fields has been provided: Service Point Warning, Service Point Instructions, or Service Point Instruction Details
	Update Device - Field Work Completion	No	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised
			D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised
			D1-UPDDVCCI (executed)	checks that the badge number / device ID combination in the completion information matches the device data recorded in the system. If there is a discrepancy, the algorithm throws an error
	Connect Meter - Field Work Completion	No	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.

Activity Type	Completion Events	Required	Algorithm	Description
Read Meter	Create FA IMD Completion Event	Yes	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.
	Update SP - Field Work Completion	No	D1-VALCESPD	Validates that the Service Point ID and at least one of the following fields has been provided: Service Point Warning, Service Point Instructions, or Service Point Instruction Details.
	Update Device - Field Work Completion	No	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised.
			D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-UPDDVCCI (executed)	checks that the badge number / device ID combination in the completion information matches the device data recorded in the system. If there is a discrepancy, the algorithm throws an error.
Exchange Meter	Remove Device - Field Work Completion	Yes	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.
	Install Device - Field Work Completion	Yes	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised.
			D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.

Activity Type	Completion Events	Required	Algorithm	Description
Exchange Meter	Install Device - Field Work Completion	Yes	D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.
	Create FA IMD Completion Event	Yes	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.
	Update SP - Field Work Completion	No	D1-VALCESPD	Validates that the Service Point ID and at least one of the following fields has been provided: Service Point Warning, Service Point Instructions, or Service Point Instruction Details.
	Update Device - Field Work Completion	No	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised.
			D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-UPDDVCCI (executed)	Checks that the badge number / device ID combination in the completion information matches the device data recorded in the system. If there is a discrepancy, the algorithm throws an error.
Item - Connect SP at Device	Connect SP - Field Work Completion	Yes	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised.
	Update SP - Field Work Completion	No	D1-VALCESPD	Validates that the Service Point ID and at least one of the following fields has been provided: Service Point Warning, Service Point Instructions, or Service Point Instruction Details.
	Update Item - Field Work Completion	No	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised.

Activity Type	Completion Events	Required	Algorithm	Description
Item - Connect SP at Device	Update Item - Field Work Completion	No	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCEDUPD	Validates existing and new badge number, manufacturer, model.
Disconnect SP at Meter and Remove Meter	Disconnect SP at Device-Field Comp	Yes	D1-VALCESPDL	Validates that the Service Point ID and Disconnect Location have both been provided. If not an error will be raised.
	Create FA IMD Completion Event	Yes	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.
	Remove Device - Field Work Completion	Yes	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.
	Update SP - Field Work Completion	No	D1-VALCESPD	Validates that the Service Point ID and at least one of the following fields has been provided: Service Point Warning, Service Point Instructions, or Service Point Instruction Details.
	Update Device - Field Work Completion	No	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised.
			D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.

Activity Type	Completion Events	Required	Algorithm	Description
Disconnect SP at Meter and Remove Meter	Update Device - Field Work Completion	No	D1-UPDDVCCI (executed)	Checks that the badge number / device ID combination in the completion information matches the device data recorded in the system. If there is a discrepancy, the algorithm throws an error.
Disconnect SP at Device and Remove Device	Disconnect SP at Device-Field Comp	Yes	D1-VALCESPDL	Validates that the Service Point ID and Disconnect Location have both been provided. If not an error will be raised.
	Remove Item - Field Work Completion	Yes	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.
	Update SP - Field Work Completion	No	D1-VALCESPD	Validates that the Service Point ID and at least one of the following fields has been provided: Service Point Warning, Service Point Instructions, or Service Point Instruction Details.
	Update Item - Field Work Completion	No	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised.
			D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCEDUPD	Validates existing and new badge number, manufacturer, model.
Item - Exchange Device	Remove Item - Field Work Completion	Yes	D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.

Activity Type	Completion Events	Required	Algorithm	Description
Item - Exchange Device	Install Item - Field Work Completion	Yes	D1-VALCESP	Validates that a Service Point ID has been provided in the completion details, if not an error is raised.
			D1-VALCEDVC	Ensures that either a Device ID is populated in either the new or existing Device portions of the Completion Event schema. If no Device ID is found an error is raised.
			D1-VALCERD	Validates that the Reading Date Time is provided and at least one entry exists in the Reading Detail List for either the New Device or Existing Device.
Trim Tee	Pass-Through Field Completion Results		D1-VALFACI	Validates the Field Activity Completion Information is populated.
Service Investigation	Update SP - Field Work Completion	No	D1-VALCESPD	Validates that the Service Point ID and at least one of the following fields has been provided: Service Point Warning, Service Point Instructions, or Service Point Instruction Details.
Turn on Pilot Light	Pass-Through Field Completion Results	Yes	D1-VALFACI	Validates the Field Activity Completion Information is populated.