Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resources Management System

Configuration Guide

Release 24B

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Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resources Management System Configuration Guide, Release 24B

Contents

Preface

Welcome to the Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resources Management System Configuration Guide for release 24B. Use this information to learn what you need to configure the integration between Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System using Oracle Integration Cloud.

The preface includes the following:

Audience

This document is intended for anyone implementing the Oracle Utilities Digital Asset Cloud Service integration with Oracle Utilities Grid Edge Distributed Energy Resources Management System.

Documentation and Resources

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

Product Documentation

Topic	Location
Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resources Management System documentation	https://docs.oracle.com/en/industries/energy-water/integrations-index.html
Oracle Utilities Network Management System documentation	https://docs.oracle.com/en/industries/energy-water/network-management-system/
Oracle Utilities Grid Edge Distributed Energy Resources Management System documentation	https://docs.oracle.com/en/industries/energy-water/digital-asset-cloud-service/

Additional Documentation

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

Documentation Accessibility

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

Access to Oracle Support

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

Conventions

The following text conventions are used in this document:

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

Acronyms

The following terms are used in this document:

Term	Expanded Form
OUDACS/DACS	Oracle Utilities Digital Asset Cloud Service
GE-DERMS/DERMS	Oracle Utilities Grid Edge Distributed Energy Resources Management System
OIC	Oracle Integration Cloud
IWS	Inbound Web Service
DRMS	Demand Response Management System
LEC	Oracle Utilities Live Energy Connect
OUAI	Oracle Utilities Analytics Insights

Chapter 1

Overview

This chapter provides an overview of the integration between Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System using Oracle Integration Cloud. It also provides information about software requirements, participating applications, and supported business processes of the integration.

The chapter includes the following:

Overview of the Integration

The Oracle Utilities Digital Asset Cloud Service integration to Oracle Utilities Grid Edge Distributed Energy Resources Management System facilitates the exchange of information related to a customer's controllable device(s) during program enrollment or unenrollment, program event participation and device score used for event planning.

About Oracle Utilities Digital Asset Cloud Service (DACS)

Oracle Utilities Digital Asset Cloud Service provides the core functionality for utilities to create, run, and maintain demand response and distributed energy resource programs.

It comprises the following functional areas:

- **Asset and Device Management**: Maintenance of controllable assets, such as "smart" thermostats, electric vehicle chargers, storage batteries, and other types of devices.
- **Program Enrollment/Unenrollment**: Identifying specific customers that are eligible for particular programs, and establishing relationships between the customers, the programs, and if appropriate, device locations where one or more controllable devices are (or have been) installed.
- **Program Management**: Creation and maintenance of Demand Response Programs to which customers can subscribe and which allows utilities to temporarily alter the settings of specific devices in their homes as a response to periods of high demand.
- **Program Subscriptions**: Maintenance of a customer's program subscriptions that represent the customer's enrollment in a program and device registration. Program subscriptions link the customer to a program and device location where controllable devices are installed.
- **Demand Response Event Management**: Identification and reservation of a customer's controllable devices in response to usage demand.

About Oracle Utilities Grid Edge Distributed Energy Resources Management System (DERMS)

Oracle Utilities Grid Edge Distributed Energy Resources Management System (DERMS) is built on Oracle Utilities Network Management System (NMS), adding incremental support to the NMS platform for the management of behind the meter demand response resources.

Oracle Utilities Grid Edge Distributed Energy Resources Management System can:

- Initiate control signals to devices inside customer homes, such as smart thermostats.
- Provide strategy templates to be used for the forecasting of various scenarios during event management. It provides event functions that help grid operators manage and review the forecasted impact of an event. This includes the ability to

nominate, approve, or reject an event; monitor or cancel an ongoing event, and audit historical events.

- Support automatic generation of event stages (blocks of field device activity) for configured objectives. Stages are built based on cost scores and reduction forecasts received from external applications used to help monitor and manage the Demand Response programs.

Here, the role of Oracle Utilities Network Management System is to facilitate the modeling of individual demand response devices down to the customer service point and/or aggregated to load transformers to support NMS-driven optimization. In conjunction with NMS, the DERMS component can help optimize electrical networks both operationally and commercially.

About Oracle Integration Cloud (OIC)

Oracle Integration Cloud is a cloud-based integration application designed to integrate cloud and on-premises applications, automate business processes, gain insight into your business processes, develop visual applications, process files, and exchange business documents with a B2B partner.

With the Process Builder business processes can be rapidly designed, automated, and managed in the cloud. Continuous business flows are quickly created by connecting and integrating applications that live in the cloud and/or on-premise.

Domain Value Map or lookups are available to match application specific codes between the applications.

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

Software Requirements

The following software is required for the integration to work:

- Oracle Utilities Digital Asset Cloud Service
- Oracle Utilities Grid Edge Distributed Energy Resources Management System
- Oracle Integration Cloud

For specific application versions, refer to the *Oracle Utilities Digital Assets Cloud Service Integration to Oracle Utilities Grid Energy Distributed Energy Resources Management System Release Notes* included in this release.

The documentation mentioned is available on Oracle Help Center.

Prerequisites

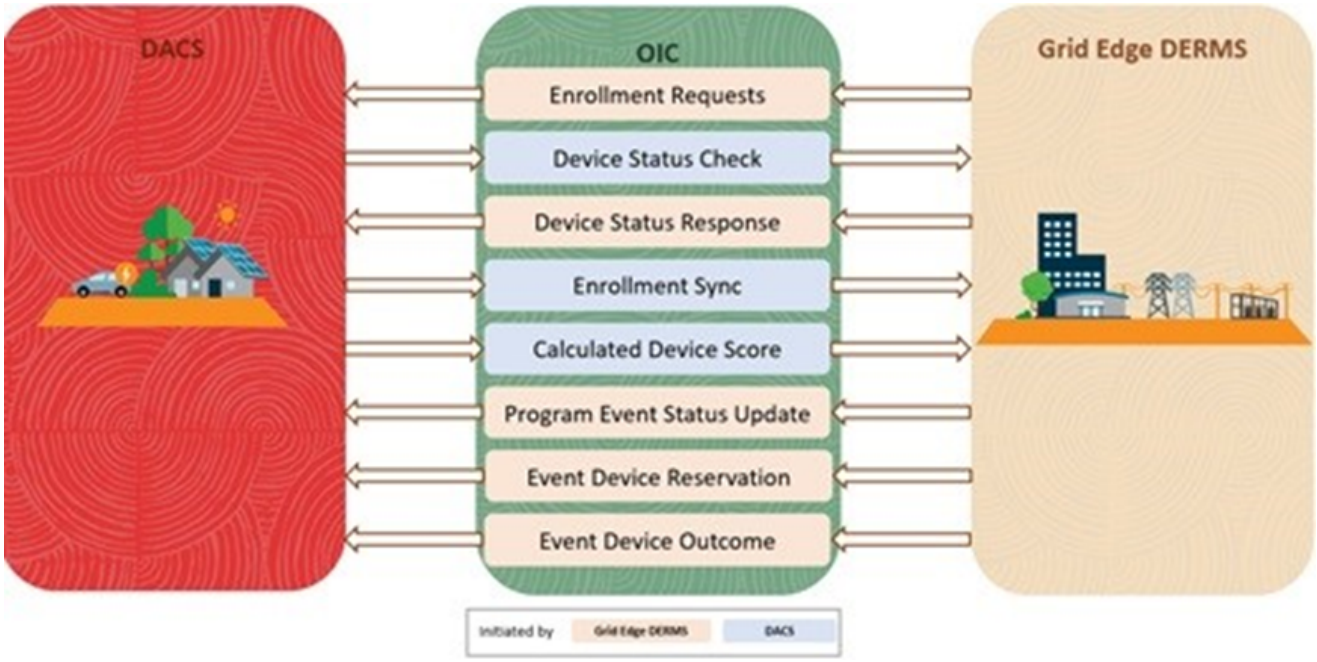
Make sure all participating applications are installed, set up, and working properly.

Customer Information must be synchronized from the Customer Information System or Oracle Utilities Customer Care and Billing to the following applications:

- Oracle Utilities Digital Asset Cloud Service
- Oracle Utilities Grid Edge Distributed Energy Resources Management System

Supported Business Processes

The following diagram illustrates the supported business processes of this integration:



The integration can be leveraged to:

- Send enrollment requests for customer owned devices from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service. This initiates the controllable device's enrollment process in Oracle Utilities Digital Asset Cloud Service.
- Send controllable device status check request initiated from Oracle Utilities Digital Asset Cloud Service and receive the most recent controllable device status response from Oracle Utilities Grid Edge Distributed Energy Resources Management System.
- Synchronize customer, controllable device(s), and program subscription information on successful enrollments, unenrollment, and device replacements from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Grid Edge Distributed Energy Resources Management System.
- Periodically transfer the device score values calculated from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Grid Edge Distributed Energy Resources Management System for event planning.

- Send scheduled event and stage information from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service. Oracle Utilities Grid Edge Distributed Energy Resources Management System also sends the succeeding event-stage status updates to Oracle Utilities Digital Asset Cloud Service.
- Send device reservation information, which are the selected controllable devices participating in an upcoming scheduled event, from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service.
- Send device outcome for all participating devices in an event from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service.

Chapter 2

Solution Architecture

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

- Solution Overview
- Solution Diagram
- Integration Flows

Solution Overview

The technical aspects involved in the integration between Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System are:

- The integration layer consists of integration processes deployed on Oracle Integration Cloud.
- The integration processes interact with other applications using the following adapters:
  - Oracle Utilities Adapter interacts with the DACS REST APIs and NMS Grid Edge DERMS REST APIs.
  - REST Adapter interacts with Oracle Cloud Infrastructure Object Storage REST APIs.
  - FTP Adapter interacts with Oracle Utilities Digital Asset Cloud Service On Premise Server to list, get, and rename files in the server.
- Two types of email notifications can be configured in this integration:
  - **Business email notifications**:

    These notifications are used in file processing flows.

    Configure the following properties in lookup **OUTL-BRTDACS_DRMS_ConfigProps** to enable or disable notifications:

    - Property name `notification.email.process.complete.flag` to 'true' to receive an email notification when the process is completed or partially processed. By default, this is set to 'true'.
    - Property name `notification.email.process.nofile.flag` to 'true' to receive an email notification when no file is found in the source location. By default, this is set to 'true'.

    The recipient(s) of these email notification are configured in the `to.process.notification` recipients of lookup **OUTL-BRT-DACS_DRMS_Email_ID**. These are sent to the application business users.
  - **Technical error email notifications**:

    These notifications are sent when a technical fault is encountered. Some examples are authentication error, connection issues or server unavailable.

    In the **OUTL-BRT-OUAI_DACS_DRMS_ConfigProps** lookup, configure the property name `notification.email.error.flag` to 'true' to receive email notification when errors are encountered. By default, this is set to 'true'.

    The recipient(s) of the email notification sent out for technical errors is configured in the `to` recipients of lookup **OUTL-BRTDACS_DRMS_Email_ID**. These are sent to the application administrator(s).

    Note: Email notifications are optional but are enabled by default.
- Lookup **OUTL-BRTDACS_DRMS_ConfigProps** is used to define the default values needed by the integration flows. Make sure the properties in the lookup are configured.

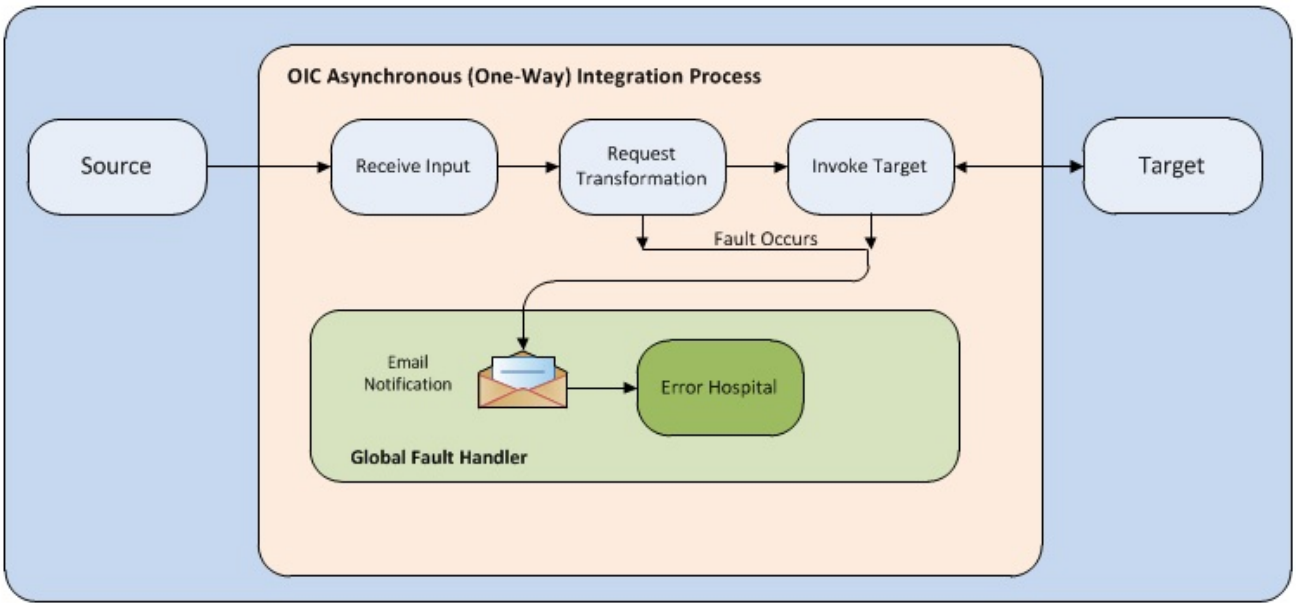
- Integration related DVM lookups are used for translation of values from one application to the other. Make sure these DVM lookups are configured.
- In the Oracle Utilities Digital Asset Cloud Service initiated processes, batch processes are used to send the outbound messages or to create file(s) and upload to the content server defined for an external application to pull for processing. Oracle Utilities Digital Asset Cloud Service uses REST inbound web services (IWS) to receive messages.
- In the Oracle Utilities Grid Edge Distributed Energy Resources Management System initiated processes, events are triggered to send the outbound messages and files, if applicable. Oracle Utilities Grid Edge Distributed Energy Resources Management System uses REST APIs to receive the messages and files, if applicable.
- For Scheduled Integration processes related to file transfer, make sure the dependent application extract processes are ran first so the files are already available in the content server for the integration process to pick up.
- The integration uses One-way Asynchronous pattern.

One-way Asynchronous

The one-way asynchronous integration process:

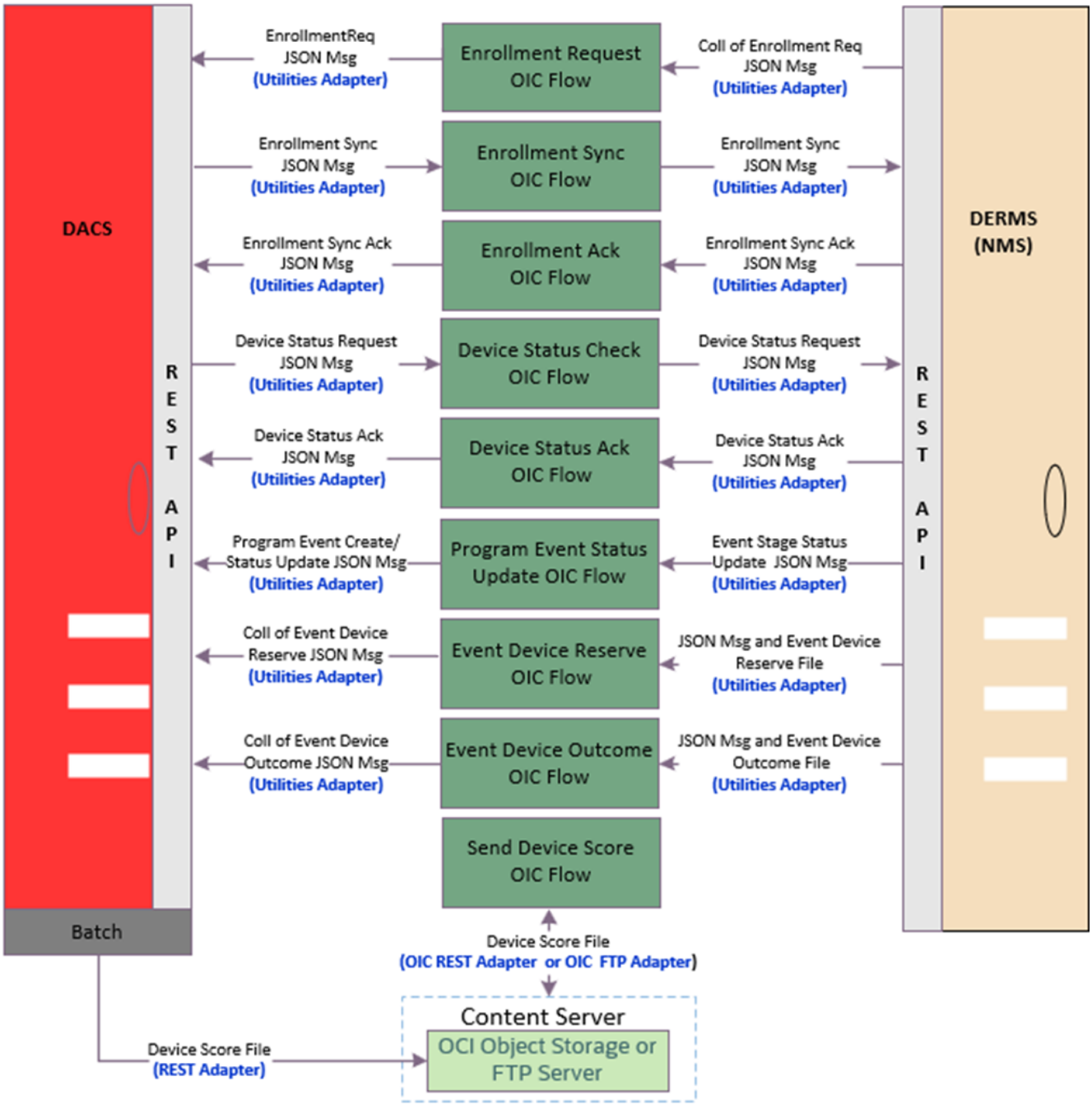
1. Receives request message from the source application.
2. Transforms message from the source to the target format. Lookups are used for data translations, if applicable.
3. Invokes target application to send the request message.
4. In case of any error, the global fault handler catches the error.
5. An optional email notification is sent to the respective users as configured.

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



Solution Diagram

The following solution diagram shows the integration between Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System:



Integration Flows

The integration supports the following processes:

- Enrollment Request (DERMS Initiated)
- Enrollment Sync Process
  - Enrollment Sync (DACS Initiated)
  - Enrollment Sync Acknowledgment (DERMS Initiated)
- Device Status Check and Acknowledgment
  - Device Status Check (DACS Initiated)
  - Device Status Check Acknowledgment (DERMS Initiated)
- Event Device Reservation (DERMS Initiated)
- Program Event Status Update (DERMS Initiated)
- Send Device Score (DACS Initiated)
- Event Device Outcome (DERMS Initiated)
- Common Error Handler (OIC Initiated)

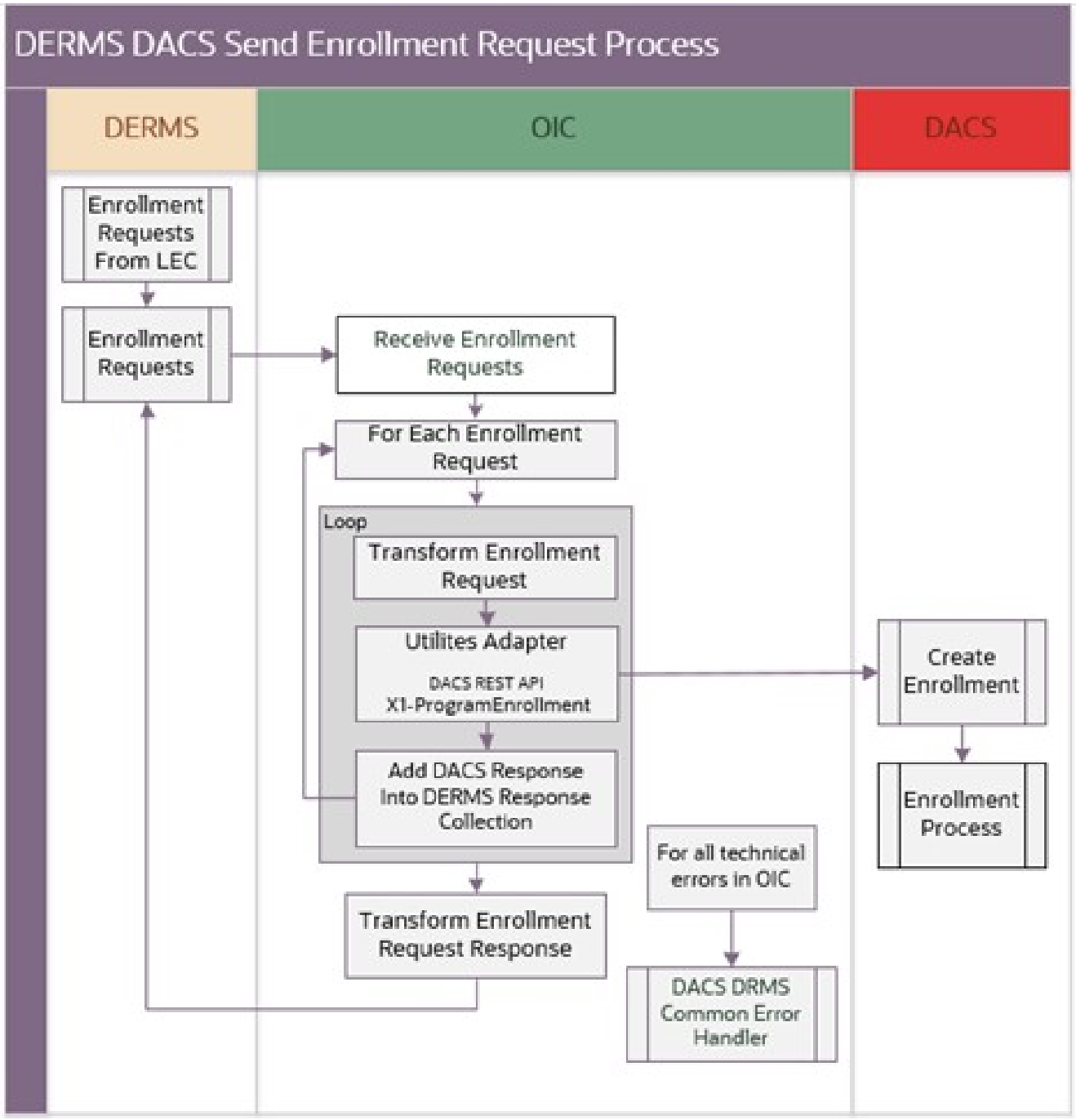
Enrollment Request (DERMS Initiated)

When customers enroll their smart controllable device(s) in a program through the head-end system provider or aggregator/vendor, such as Ecobee or Google Nest, the enrollment requests are sent to Oracle Utilities Live Energy Connect.

This integration process sends the enrollment request that Oracle Utilities Grid Edge Distributed Energy Resources Management System received from Oracle Utilities Live Energy Connect to Oracle Utilities Digital Asset Cloud Service.

The integration then sends the list of responses for each enrollment request back to Oracle Utilities Grid Edge Distributed Energy Resources Management System when the process is completed.

The following diagram shows a graphical representation of the Enrollment Request integration process.



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST API and performs the following activities:

1. The process is triggered when it receives a request message from Oracle Utilities Grid Edge Distributed Energy Resources Management System. The incoming

request message can contain multiple enrollment requests, but the DACS REST API can only accept a single enrollment request.

2. The integration loops through each incoming request:
    - Transforms the enrollment request payload from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service format.
    - Invokes the Program Enrollment DACS REST endpoint to create the enrollment in Oracle Utilities Digital Asset Cloud Service in PENDING status.
    - Response per enrollment request coming from Oracle Utilities Digital Asset Cloud Service are collected and later returned to Oracle Utilities Grid Edge Distributed Energy Resources Management System. If an error is encountered, the process continues to the next enrollment request.
        - If the enrollment is successfully created, it will store the enrollment ID in the response collection to Oracle Utilities Grid Edge Distributed Energy Resources Management System.
        - If Oracle Utilities Digital Asset Cloud Service returns an ERROR, store the error in the response collection to Oracle Utilities Grid Edge Distributed Energy Resources Management System.
3. After all the records are processed, it transforms the Oracle Utilities Digital Asset Cloud Service response into the Oracle Utilities Grid Edge Distributed Energy Resources Management System response payload.
    - It will set the overall **ackType** field in the response with the following code:
        - **SUCCESS**, if all enrollment responses from Oracle Utilities Digital Asset Cloud Service have the SUCCESS value in the **responseCode** field.
        - **FAILURE**, or ERROR if at least one **responseCode** within the enrollment responses from Oracle Utilities Digital Asset Cloud Service contains one of those values.
    - It will send the responses collected from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Grid Edge Distributed Energy Resources Management System.
4. For technical faults encountered in the process, such as Oracle Utilities Digital Asset Cloud Service unavailable, the integration will set the overall **ackType** to "FAILURE".
    - If it encounters a technical error while processing an enrollment request, but can continue processing the collection, the error details will be captured inside the response back to Oracle Utilities Grid Edge Distributed Energy Resources Management System and an error email notification is sent out on the first time the error is encounter.
    - If it faults and cannot continue processing the collection, Oracle Integration Cloud will try to send a response back to Oracle Utilities Grid Edge Distributed Energy Resources Management System with the details and will also send an email notification with the error details via a common error handler to the users configured in the 'to' recipients of lookup **OUTL-BRT-DACS_DRMS_Email_ID**.
    - If Oracle Integration Cloud is trying to send a failure response to Oracle Utilities Grid Edge Distributed Energy Resources Management System, and it fails, it will

send an email notification with the error details via a common error handler to the users configured in the 'to' recipients of lookup **OUTL-BRT-DACS_DRMS_Email_ID**.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU DERMS DACS Enrollment Request
Integration Process Identifier	OUTL-BA-DRMS_DACS_ENROLLRQ
Integration Project Name	OU DACS DERMS
Source Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DRMS
trigger	• DERMS Service Name: NMS-DACSOutbound • openAPIUrl: https://{host}:{port}/nms-drms/ • outbound/openapi.json • OperationId: enroll • Method: POST • URI: /enroll-to-dacs
Target Connection (Oracle Utilities Adapter)	OU REST DACS for DACS-DRMS
invoke	• Web Service Name: X1-ProgramEnrollment • Computed URL: https://{host}:{port}/{tenant}/{domain}/ccs/rest/apis/cross/digitalAssets/programEnrollments • Method: POST • URI:/enroll
Local Integrations	OU DACS DERMS CommonErrorHandler
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications.	• OUTL-BRT-DACS_DRMS_ConfigProps • OUTL-BRT-DACS_DRMS_Email_ID • OUTL-BRT-DACS_DRMS_ EnrollmentStatus • OUTL-BRT-DACS_DRMS_AssetSpec • OUTL-BRT-DACS_DRMS_AssetType

Enrollment Sync Process

When customers enroll, unenroll, or replace their smart controllable device(s) in a program successfully in Oracle Utilities Digital Asset Cloud Service, the enrollment information is sent to Oracle Utilities Grid Edge Distributed Energy Resources Management System.

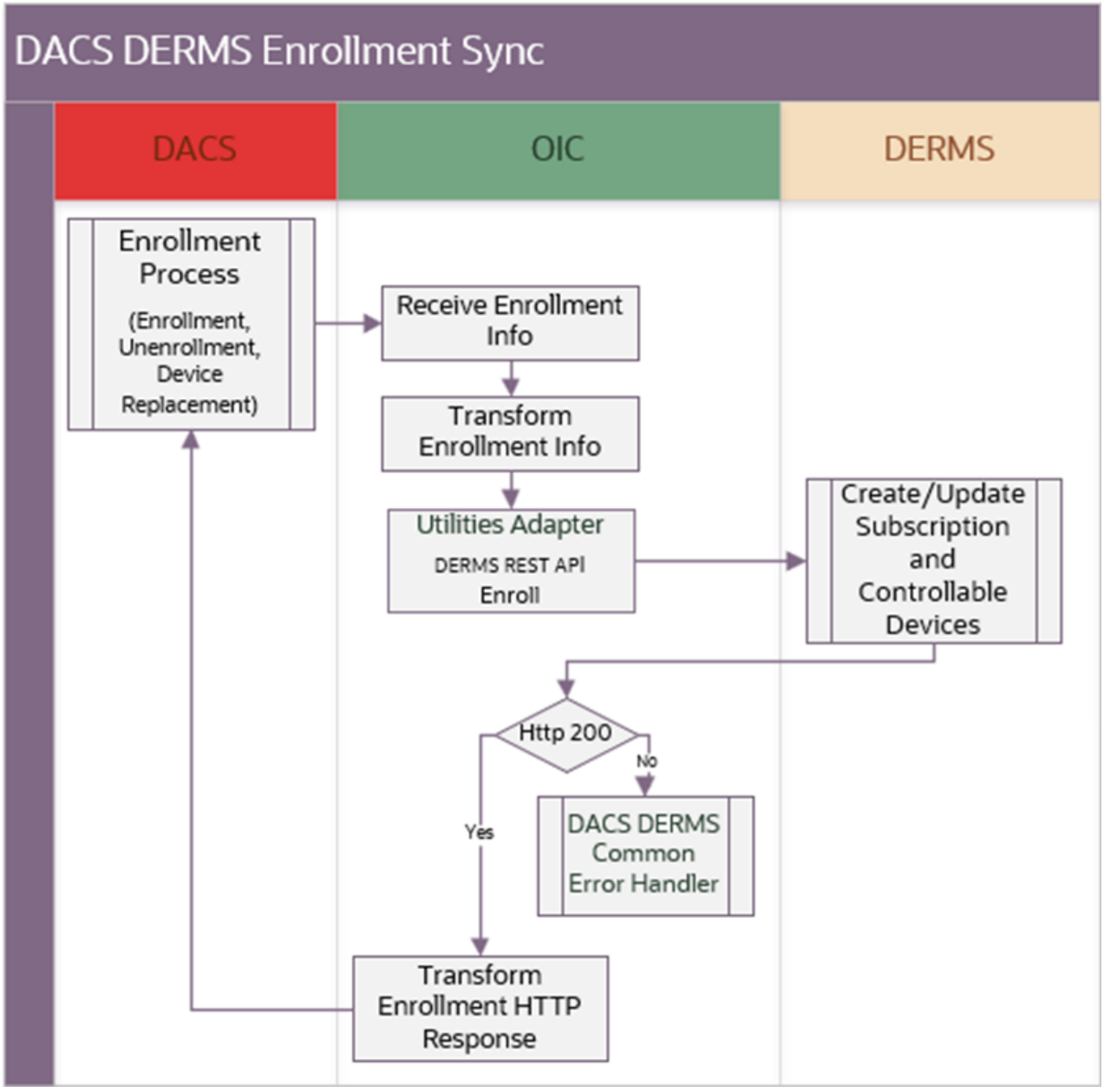
This integration process synchronizes the enrollment information from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Grid Edge Distributed Energy Resources Management System. The integration then sends an acknowledgment back to Oracle Utilities Digital Asset Cloud Service.

The enrollment synchronization and acknowledgment are handled by the following Oracle Integration Cloud integration flows:

- Enrollment Sync (DACS Initiated)
- Enrollment Sync Acknowledgment (DERMS Initiated)

Enrollment Sync (DACS Initiated)

The following diagram shows a graphical representation of the Enrollment Sync integration process:



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST API and performs the following activities:

1. The process is triggered when it receives a request from Oracle Utilities Digital Asset Cloud Service.
2. Transform the payload to Oracle Utilities Grid Edge Distributed Energy Resources Management System format.
3. Invoke the Oracle Utilities Grid Edge Distributed Energy Resources Management System enrollment service endpoint.
4. If the REST service returns:
    - Status 200 (OK),
        - Enrollment Sync integration will finish the initial request by returning the incoming "syncRequestId" into the response "externalId".
    - Error Status, such as 400 or 500,
        - Throws a fault back to Oracle Utilities Digital Asset Cloud Service and an error email notification with the error details is sent via the common error handler.
5. For any errors encountered in this process:
    - An error email notification with error details is sent via the common error handler.
    - The process will return a fault to Oracle Utilities Digital Asset Cloud Service.
    - The integration flow will stop processing.

Technical Details

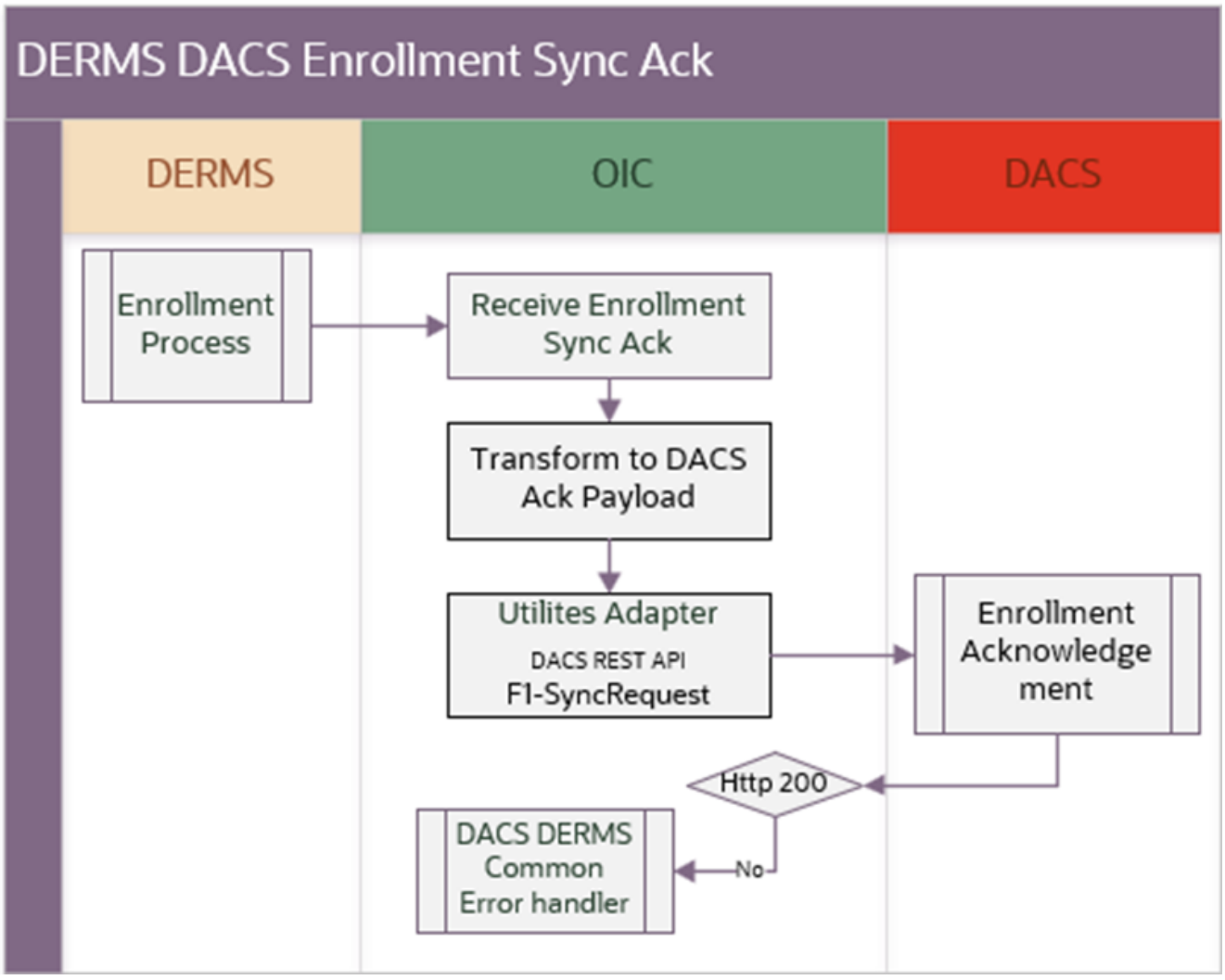
The following table describes the integration processes and the respective Oracle Utilities Digital Assets Cloud Service and Oracle Utilities Distributed Energy Resources Management System artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU DACS DERMS Enrollment Sync
Integration Process Identifier	OUTL-BA-DACS_DRMS_ENROLL_SYNC
Integration Project Name	OU DACS DERMS
Source Connection (Oracle Utilities Adapter)	OU REST DACS for DACS-DRMS
trigger	Outbound Message Type: X1-NMSDASMSG (Synchronize Digital Asset (NMS))
Target Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DRMS

Artifacts	Value
invoke	• DERMS Service Name: NMS-DACSInbound • openAPIUrl: https://{host}:{port} /nms-drms/rest/v1/openapi.json • OperationId: enroll • Method: POST • URI: /enroll
Local Integrations	OU DACS DERMS CommonErrorHandler
Lookup	• OUTL-BRT-DACS_DRMS_ConfigProps • OUTL-BRT-DACS_DRMS_Email_ID • OUTL-BRT-DACS_DRMS_Routing

Enrollment Sync Acknowledgment (DERMS Initiated)

The following diagram shows a graphical representation of the Enrollment Sync Acknowledgment integration process:



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST API and performs the following activities:

1. The process is triggered when it receives the Oracle Utilities Grid Edge Distributed Energy Resources Management System enrollment sync acknowledgment.
2. Transforms the enrollment acknowledgment payload to Oracle Utilities Digital Asset Cloud Service format.
3. Invokes Oracle Utilities Digital Asset Cloud Service Sync Request Update REST endpoint to send the acknowledgment.
4. For any errors encountered in this process:
   - An error email notification with error details is sent via the common error handler.
   - The integration flow will stop processing.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Digital Assets Cloud Service and Oracle Utilities Distributed Energy Resources Management System artifacts used in this integration process:

Artifacts	Value
Integration Process Name	OU DERMS DACS Enroll Sync Ack
Integration Process Identifier	OUTL-BA-DRMS_DACS_SYNC_ACK
Integration Project Name	OU DACS DERMS
Target Connection (Oracle Utilities Adapter)	OU REST DACS for DACS-DRMS
invoke	• Web Service Name: F1-SyncRequest • Computed URL: https://{host}:{port}/{tenant}/{domain /ouaf/rest/apis/common/sync/syncRequest • Method: PATCH • URI: /{syncRequestId}
Lookup	• OUTL-BRT-DACS_DRMS_ConfigProps • OUTL-BRT-DACS_DRMS_Email_ID

Device Status Check and Acknowledgment

This integration process sends a device status check from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Grid Edge Distributed Energy Resources Management System to retrieve the most recent communication status for the device. Oracle Utilities Grid Edge Distributed Energy Resources Management System then gets the device status from Oracle Utilities Live Energy Connect.

When Oracle Utilities Grid Edge Distributed Energy Resources Management System gets the device status from Oracle Utilities Live Energy Connect, it sends and

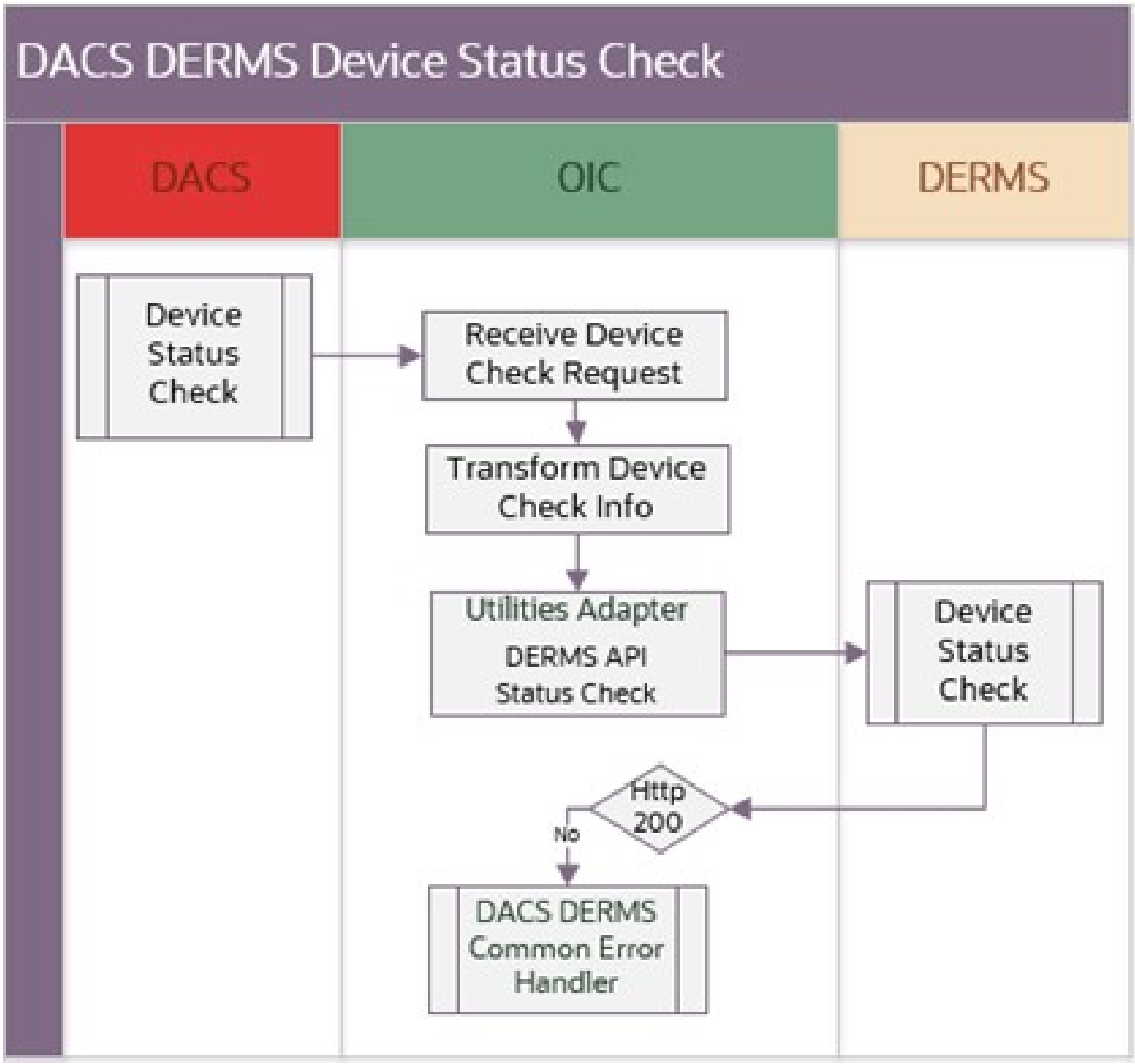
asynchronous response back to Oracle Utilities Digital Asset Cloud Service for the corresponding device status check request.

Device status check request and response are asynchronous processes:

- Device Status Check (DACS Initiated)
- Device Status Check Acknowledgment (DERMS Initiated)

Device Status Check (DACS Initiated)

The following diagram shows a graphical representation of the Device Status Check integration process:



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST API and performs the following activities:

1. The process is triggered when it receives a request from Oracle Utilities Digital Asset Cloud Service.
2. The payload is transformed to the Oracle Utilities Grid Edge Distributed Energy Resources Management System format.
3. Invokes the Oracle Utilities Grid Edge Distributed Energy Resources Management System Status Check REST Service.
4. If the REST service returns:
   - Status 200 (OK), end the process.
   - Error Status, such as 400 or 500, an error email notification with the error details is sent via common error handler. The process returns a fault to Oracle Utilities Digital Asset Cloud Service.

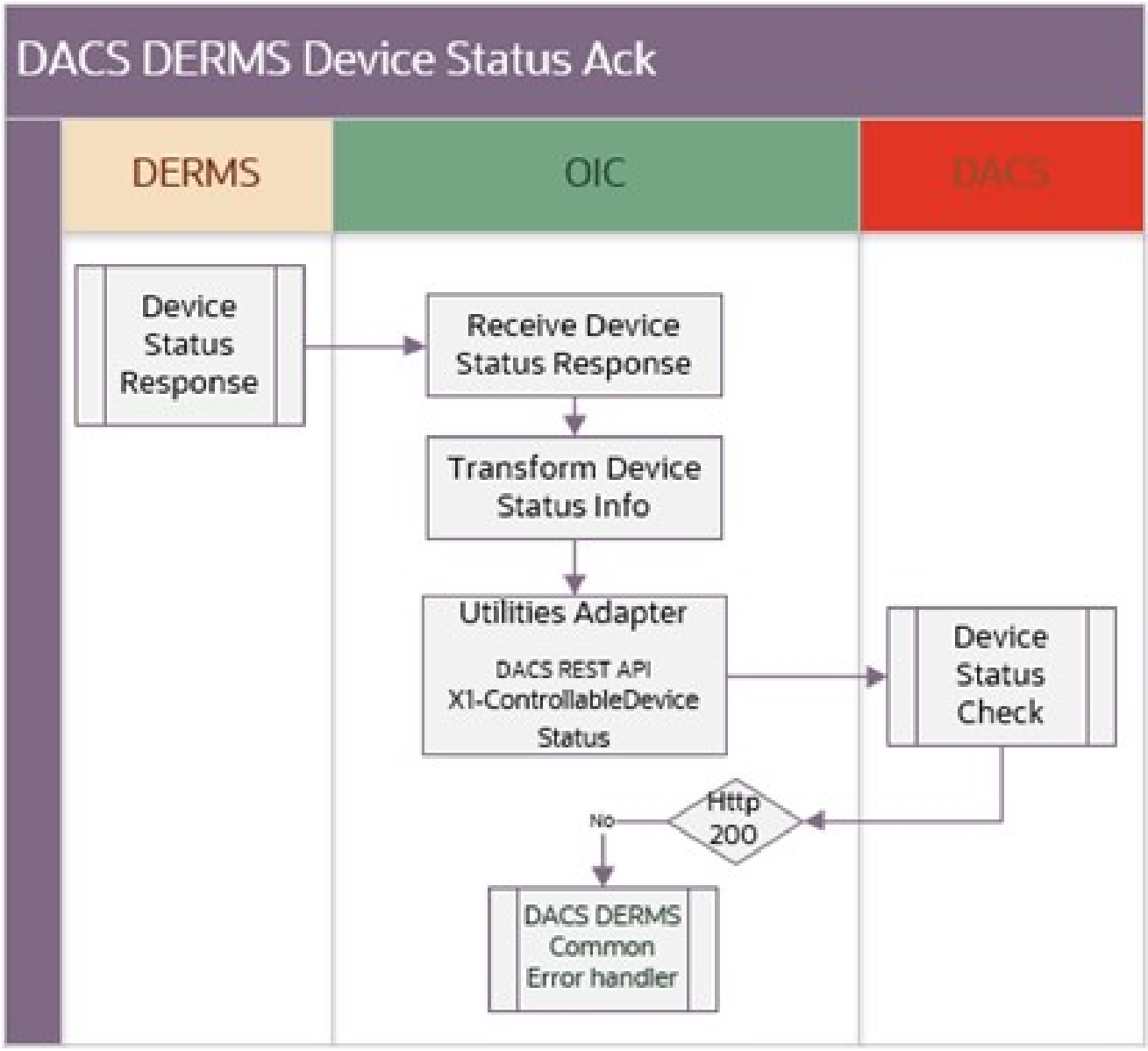
Technical Details

The following table describes the integration processes and the respective Oracle Utilities Digital Assets Cloud Service and Oracle Utilities Distributed Energy Resources Management System artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU DACS DERMS Device Status Check
Integration Process Identifier	OUTL-BA-DACS_DRMS_DEVICE_STATUS
Integration Project Name	OU DACS DERMS
Source Connection (Oracle Utilities Adapter)	OU REST DACS for DACS-DRMS
trigger	Outbound Message Type: X1-CTRLDVCS (Controllable Device Status Check)
Target Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DRMS
invoke	• DERMS Service Name: NMS-DACSInbound • openAPIUrl: https://{host}:{port} /nms-drms/rest/v1/openapi.json • OperationId: statusCheck • Method: POST • URI: /status-check
Local Integrations	OU DACS DERMS CommonErrorHandler
Lookup	• OUTL-BRT-DACS_DRMS_ConfigProps • OUTL-BRT-DACS_DRMS_Routing

Device Status Check Acknowledgment (DERMS Initiated)

The following diagram shows a graphical representation of the Device Status Check Response integration process:



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST AP and performs the following activities:

1. The process is triggered when it receives the device status from Oracle Utilities Grid Edge Distributed Energy Resources Management System.
2. The payload is transformed to the Oracle Utilities Digital Asset Cloud Service format.
3. Invokes the Oracle Utilities Digital Asset Cloud Service postControllableDeviceStatus REST Service using the Utilities Adapter.

4. If the REST service returns:
    - Status 200 (OK), the process returns a response to Oracle Utilities Grid Edge Distributed Energy Resources Management System with the Oracle Utilities Digital Asset Cloud Service boStatus in the Oracle Utilities Grid Edge Distributed Energy Resources Management System responseCode and a SUCCESS ackType.
    - Error Status, such as 400 or 500, the process returns a response to Oracle Utilities Grid Edge Distributed Energy Resources Management System with a FAILURE ackType.
5. For any errors encountered in this process:
    - An error email notification with error details is sent via the common error handler.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Digital Assets Cloud Service and Oracle Utilities Distributed Energy Resources Management System artifacts used in this integration process.

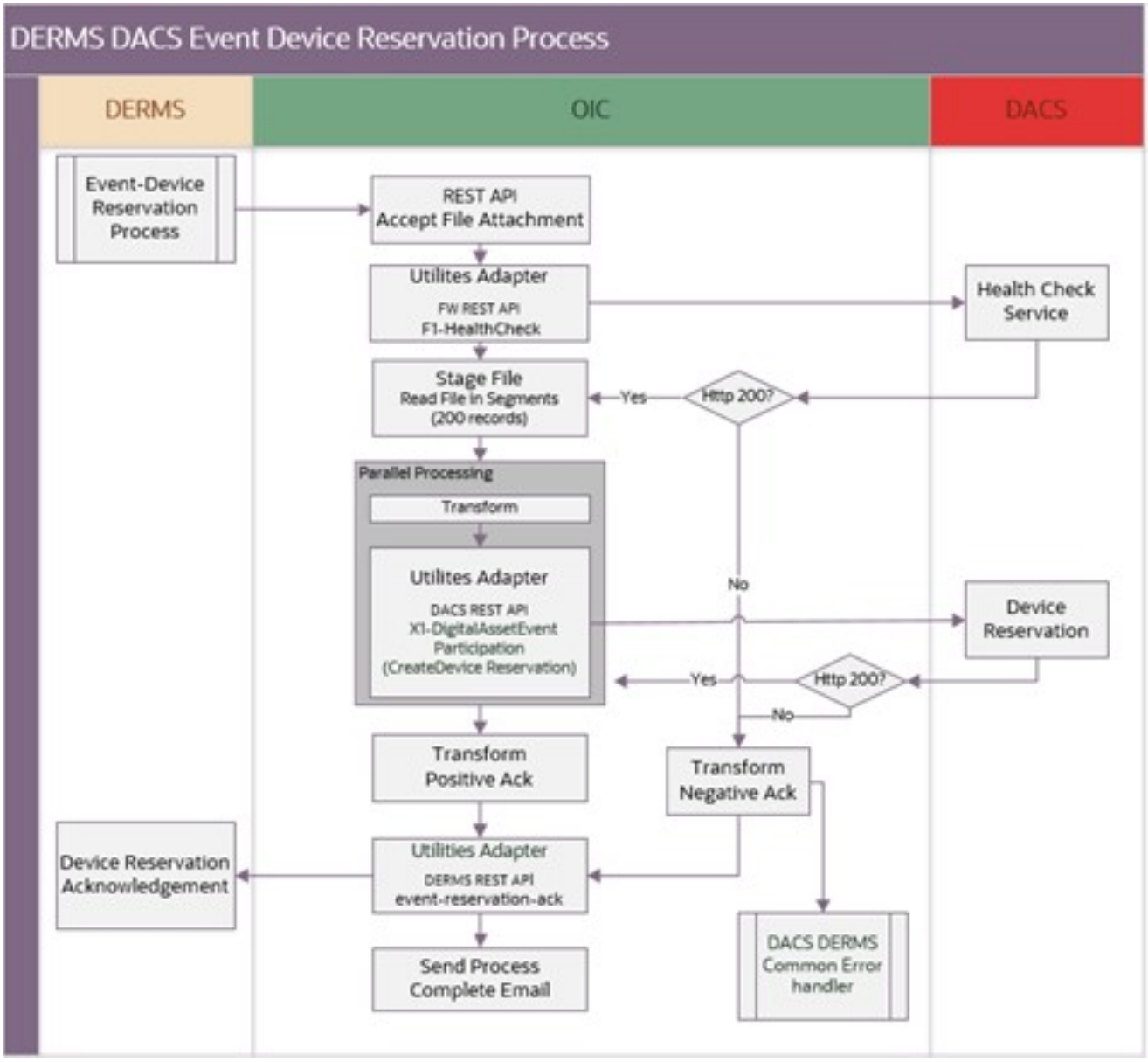
Artifacts	Value
Integration Process Name	OU DERMS DACS Device Status Ack
Integration Process Identifier	OUTL-BA-DACS_DRMS_DEVICE_STATUS
Integration Project Name	OU DACS DERMS
Source Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DRMS
trigger	• DERMS Service Name: NMS-DACSOutbound • openAPIUrl: https://{host}:{port}/nms-drms/outbound/openapi.json • OperationId: deviceStatusCheckAck • Method: POST • URI: /status-check-ack-to-dacs
Target Connection (Oracle Utilities Adapter)	OU REST DACS for DACS-DRMS
invoke	• Web Service Name: X1-CtrlDvcStatusCheckResp • Computed URL: https://{host}:{port}/{tenant}/ • {domain}/ouaf/rest/apis/cross/digitalAssets/controllableDeviceStatus • Method: POST • URI: /response
Local Integrations	OU DACS DERMS CommonErrorHandler
Lookup	OUTL-BRT-DACS_DRMS_ConfigProps

Event Device Reservation (DERMS Initiated)

When controllable devices are selected to participate in an upcoming event, Oracle Utilities Grid Edge Distributed Energy Resources Management System notifies Oracle Utilities Digital Asset Cloud Service of the devices reserved for the specific event.

This integration process sends the devices reserved for the event to Oracle Utilities Digital Asset Cloud Service. It then sends an acknowledgment back to Oracle Utilities Grid Edge Distributed Energy Resources Management System when the process is completed or encountered an error.

The following diagram shows a graphical representation of the Event Device Reservation integration process.



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST API and performs the following activities:

1. The process is triggered when Oracle Utilities Grid Edge Distributed Energy Resources Management System invokes the REST endpoint to send the device reservation information for a specific stage or program event to Oracle Utilities Digital Asset Cloud Service. The message received is a json payload with a csv file attachment. The json message contains the stage information and the csv file contains the devices participating in the stage.
2. Prior to sending the file, the integration invokes F1-HealthCheckRest Rest endpoint to check if the Oracle Utilities Digital Asset Cloud Service environment is up and accessible.
    - If the REST service returns HTTP status 200, DACS is accessible and proceed to Step 3.
    - Else:
        - Transforms Negative Acknowledgment message. Send 'FAILURE' ackType to Oracle Utilities Grid Edge Distributed Energy Resources Management System so it can auto retry the failed message according to the MAX_RETRIES setting in their DRMS_PARAMENTERS table.
        - Invokes DERMS Event Reservation Acknowledgment REST endpoint.
3. Uses Stage File operation “ReadFileinSegments” to read the file in segments of 1000 records with parallel processing option.
    - Transforms the stage and device reservation payload from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service format.
    - Invokes the Program Event Participation-Reserve Device DACS REST endpoint to pass the Program Event Device Reservation information to Oracle Utilities Digital Asset Cloud Service.
        - If any of the REST service invocation returns an HTTP Error status:
            - Transforms Negative Acknowledgment message. Send 'FAILURE' ackType to Oracle Utilities Grid Edge Distributed Energy Resources Management System so it can auto retry the failed message according to the MAX_RETRIES setting in their DRMS_PARAMENTERS table.
            - Invokes Oracle Utilities Grid Edge Distributed Energy Resources Management System Event Reservation Acknowledgment REST endpoint.
        - When all the records are successfully created in Oracle Utilities Digital Asset Cloud Service:
            - Transforms Positive Acknowledgment message. Send 'SUCCESS' ackType to Oracle Utilities Grid Edge Distributed Energy Resources Management System.
            - Invokes Oracle Utilities Grid Edge Distributed Energy Resources Management System Event Reservation Acknowledgment REST endpoint.

4. After all the records in the file are processed:
    - A process completed email notification is sent to the users defined in `to.processnotification` recipients in lookup **OUTL-BRT-DACS_DRMS_Email_ID**.
5. For any errors encountered in this process:
    - An error email notification with error details is sent via the common error handler OIC process to the users defined in 'to' recipients in lookup **OUTL-BRT-DACS_DRMS_Email_ID**.
    - The integration flow will stop processing.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU DACS DERMS CommonErrorHandler
Integration Process Identifier	OUTL_BA_DRMS_DACS_EVT_DVCRESV
Integration Project Name	OU DACS DERMS
Source Connection (REST Adapter - Trigger)	OU REST for DACS-DRMS
Target Connection (Oracle Utilities Adapter)	OU REST DACS for DACS-DRMS
invoke	• DACS Web Service Name: X1-ProgramEventParticipation • Computed URL: https://{host}:{port}/{tenant}/{domain}/ccs/rest/apis/cross/service/programEventParticipation • Method: POST • URI: /reserveDevice
Target Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DRMS
invoke	• DERMS Service Name: NMS-DACSInbound • openAPIUrl: https://{host}:{port}/nms-drms/rest/v1/openapi.json • Method: POST • URI: /event-reservation-ack
Local Integrations	• OU DACS DERMS • CommonErrorHandler

Artifacts	Value
Lookup	• OUTL-BRT-DACS_DRMS_ConfigProps • OUTL-BRT-DACS_DRMS_Email_ID • OUTL-BRT-DACS_DRMS_EventType • OUTL-BRT-DACS_DRMS_Routing

Program Event Status Update (DERMS Initiated)

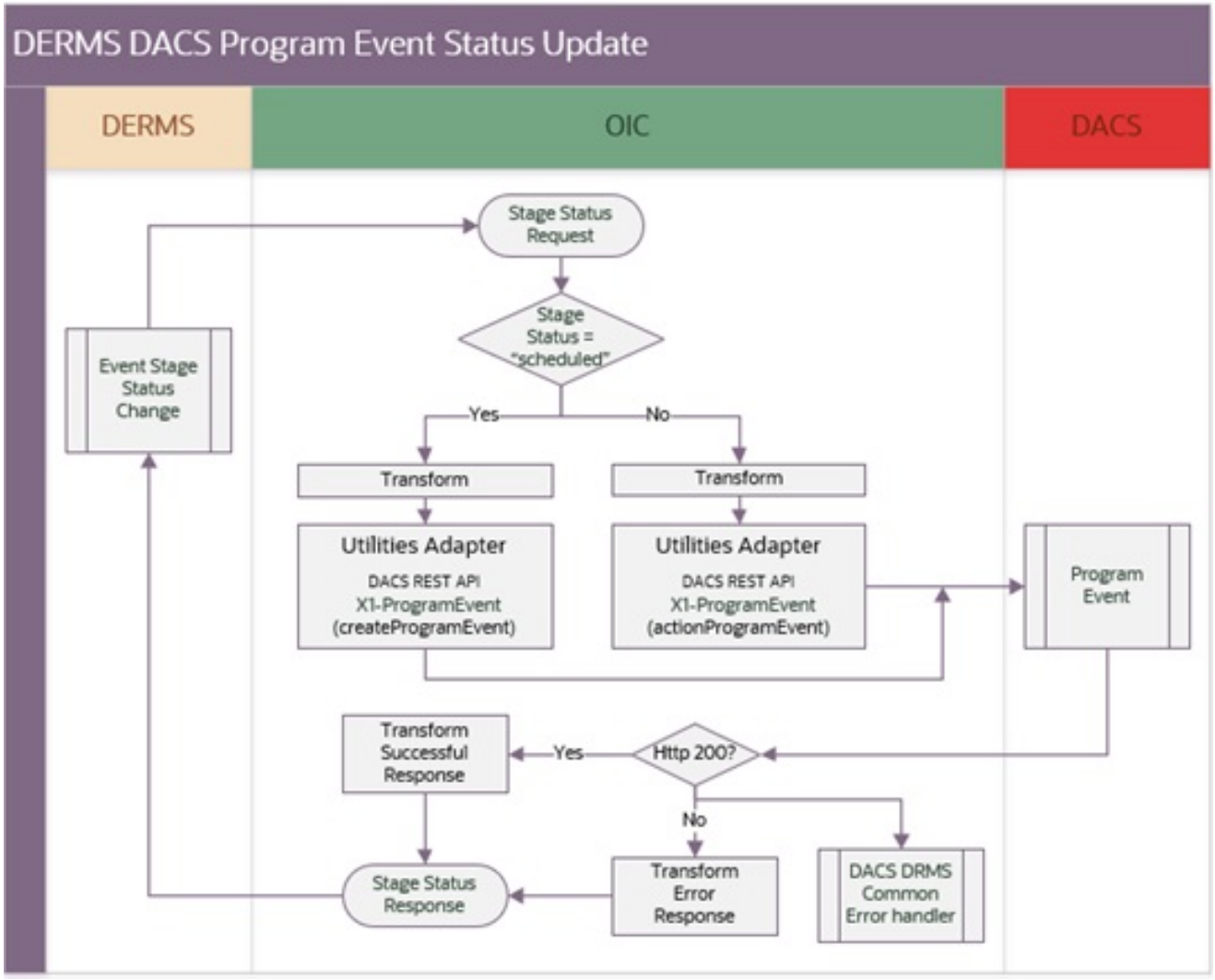
When Oracle Utilities Grid Edge Distributed Energy Resources Management System creates an event, it can have multiple stages in it where each stage consists of a specific time frame for a specific program. Each stage is equivalent to a Oracle Utilities Digital Asset Cloud Service program event.

When the event transitions to SCHEDULED status, Oracle Utilities Grid Edge Distributed Energy Resources Management System sends an outbound message for each stage in the event to Oracle Utilities Digital Asset Cloud Service for program event creation.

When an event stage status transitions to a different status in Oracle Utilities Grid Edge Distributed Energy Resources Management System, the status update information is also sent to Oracle Utilities Digital Asset Cloud Service.

> **Note:** Not all status updates are sent out from DERMS. This can be configured in the DRMS Parameters Table, attribute name OIC_NOTIFY_STAGE_STATUSES.

The following diagram shows a graphical representation of the Program Event Stage Status integration process.



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST API and performs the following activities:

1. The process is triggered when Oracle Utilities Grid Edge Distributed Energy Resources Management System invokes REST endpoint to send the stage information and status to Oracle Utilities Digital Asset Cloud Service. The message received is a JSON payload.
2. Transforms the payload from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service format.
3. Depending on the incoming stage status, Oracle Integration Cloud invokes one of the following operations from Program Event on the DACS REST endpoint:
   - Map to createProgramEvent for a “scheduled” status value.
   - Map to actionProgramEvent for all other values.

4. For any errors encountered in this process:
    - An error email notification with error details is sent via the common error handler Oracle Integration Cloud process to the users defined in 'to' recipients in lookup **OUTL-BRT-DACS_DRMS_Email_ID**.
    - Return a negative response to Oracle Utilities Grid Edge Distributed Energy Resources Management System.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU DERMS DACS ProgramEvent Stage Status Update
Integration Process Identifier	OUTL-BA-DRMS_DACS_STAGE_STAT_UPD
Integration Project Name	OU DACS DERMS
Source Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DRMS
trigger	• Service Name: NMS-DACSOutbound • openAPIUrl: https://{host}:{port}/nms-drms/outbound/openapi.json • Method: POST • URI: /stage-status-to-dacs
Target Connection (Oracle Utilities Adapter)	OU REST DACS for DACS-DRMS
invoke	• DACS Web Service Name: X1-ProgramEvent • Computed URL: https://{host}:{port}/{tenant}/{domain}/ ouaf/rest/apis/cross/service/programEvent • Method: POST • *createProgramEvent* URI: / • *actionProgramEvent* URI: /lifecycle
Local Integrations	OU DACS DERMS CommonErrorHandler
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications.	• OUTL-BRT-DACS_DRMS_ConfigProps • OUTL-BRT-DACS_DRMS_EventType • OUTL-BRT-DACS_DRMS_StageStatus

Send Device Score (DACS Initiated)

Oracle Utilities Digital Asset Cloud Service computes and maintains the device score for each controllable device enrolled in a program and sends the information periodically to Oracle Utilities Grid Edge Distributed Energy Resources Management System through a file extract. The calculation depends on factors, such as equipment specifications, monthly/annual capacity, device participation history, and more.

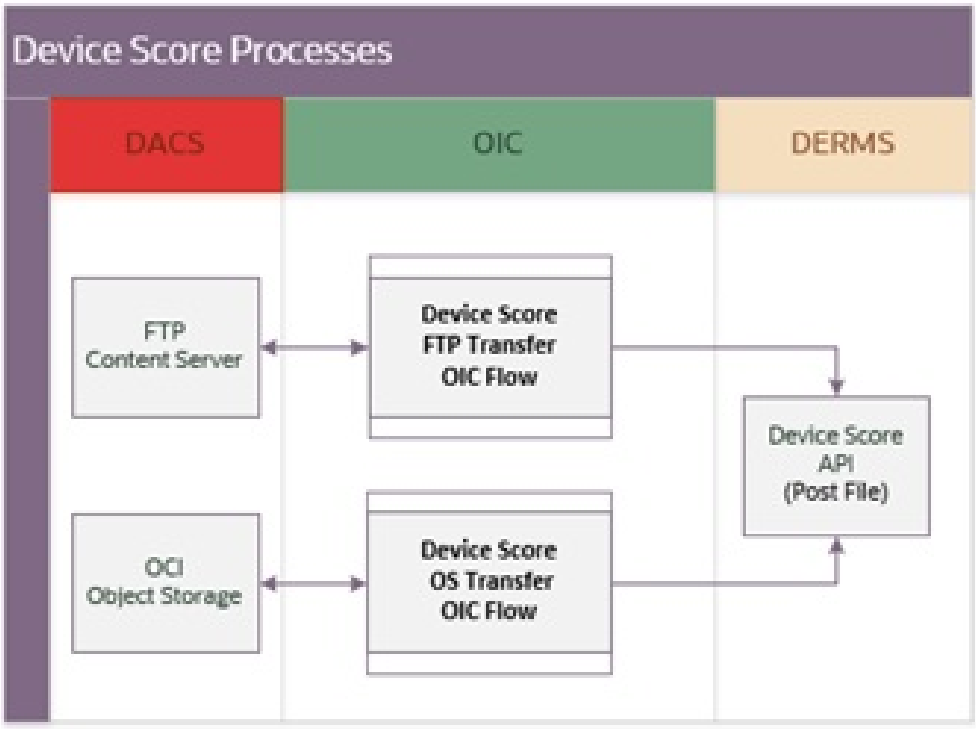
This integration process transfers the device score from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Grid Edge Distributed Energy Resources Management System to facilitate its eligibility evaluation during event planning.

Oracle Utilities Digital Asset Cloud Service can place the file in an On Premise FTP Server or in an Oracle Integration Cloud Object Storage location and Oracle Utilities Grid Edge Distributed Energy Resources Management System receives the files through a REST web service.

The device score file transfer is handled by the following Oracle Integration Cloud integration flows depending on the file transfer preference:

- Device Score FTP Transfer (DACS Initiated)
- Device Score OS Transfer (DACS Initiated)

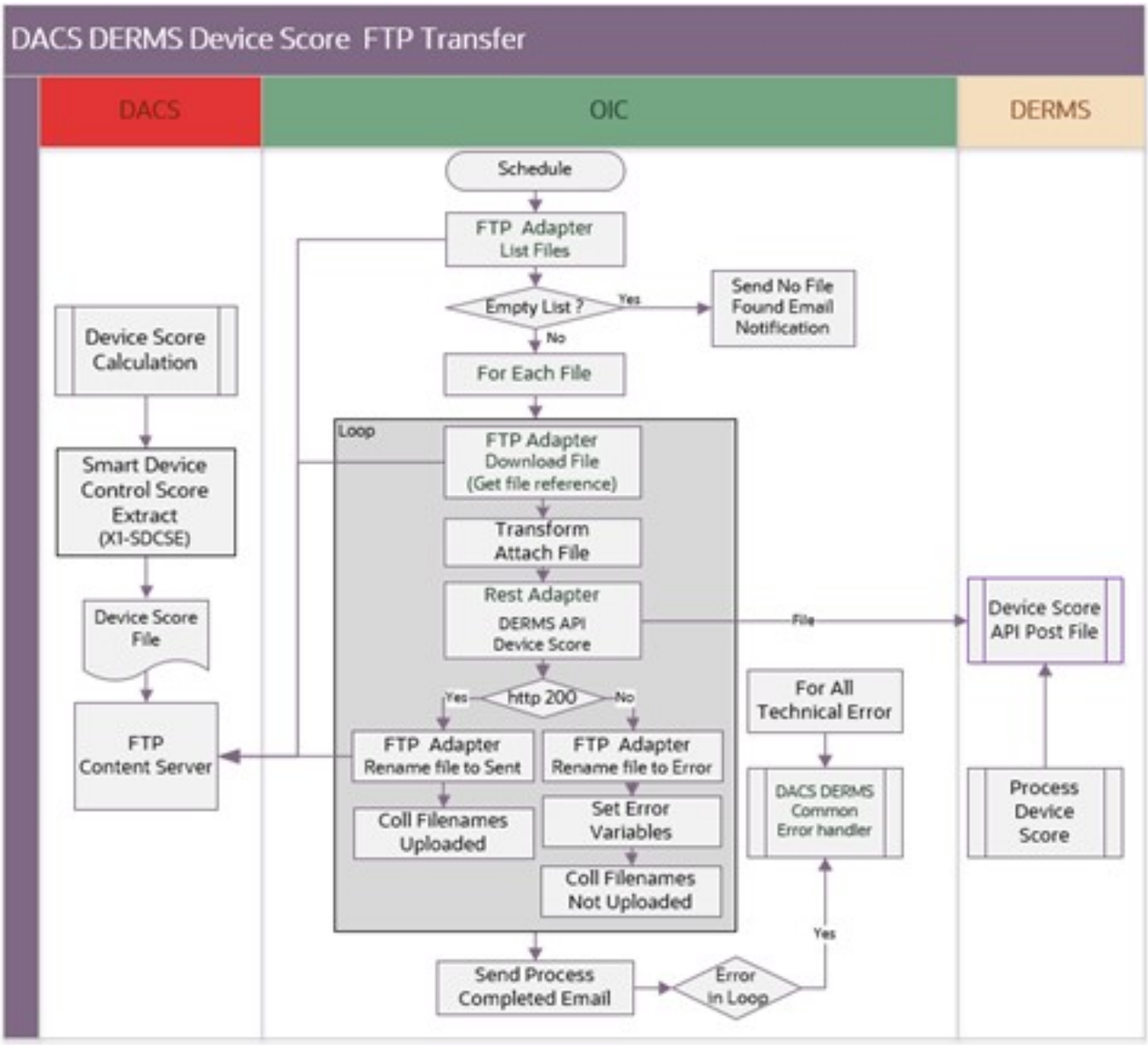
The following diagram shows the Device Score related processes:



Device Score FTP Transfer (DACS Initiated)

This integration process retrieves the device score data file(s) from an FTP content storage location where Oracle Utilities Digital Asset Cloud Service uploads files and sends it to Oracle Utilities Grid Edge Distributed Energy Resources Management System through a REST API call.

The following diagram shows a graphical representation of the Device Score Transfer integration process from an FTP Server:



Processing Details

This is a scheduled integration process deployed on Oracle Integration Cloud and performs the following activities:

1. The process is triggered by a schedule or it can also be triggered manually.
    - Define the integration schedule for this process and make sure the Smart Control Device Score Extract Job (X1-SDCSE) schedule in Oracle Utilities Digital Asset Cloud Service is always run first, so the file is available to be processed by the integration.
    - A couple of the default values used in this integration are defined in the **OUTLBRT-DACS_DRMS_ConfigProps**. Make sure to define the properties needed for this integration.

2. It invokes the FTP adapter to list files from the Oracle Utilities Digital Asset Cloud Service on-premises location obtained from the file path set in the `dacs.dvcScore.ftp.input.directory` property. It will retrieve files matching the prefix set in the `dacs.dvcScore.extract.filename.prefix` property.

   Note: The value dacs.dvcScore.extract.filename.prefix should match the beginning of the parameter filename in Oracle Utilities Digital Asset Cloud Service Batch X1-SDCSE.

   - If no file is found and `notification.email.process.nofile.flag` is *true* (by default it is false), it will send a no file found email notification to `to.process.notification` recipients defined in lookup **OUTL-BRT-DACS_DRMS_EMAIL_ID** and the process will stop.
   - If files are found, go to the next step.

3. For each file, do the following:
   - Invoke the FTP Adapter with Download File operation to get the actual file to process.
   - Invoke DERMS Device Score REST API and send the file as a binary attachment.
     - If Oracle Utilities Grid Edge Distributed Energy Resources Management System returns an HTTP 200 or 202, invoke the FTP adapter to rename the source file obtained from the server by adding the prefix set in the `dacs.prefixtag.fileuploaded` property and the next file in the list is processed.
4. After the successful transfer of all files, if the notification.email.process.complete.flag is true, a Process Complete email notification is sent to to.process.notification recipients defined in lookup **OUTL-BRT-DACS_DRMS_Email_ID**.
5. Error Handling.

   For any errors encountered in this process:
   - Invoke the FTP Adapter to rename the source file obtained from the server by adding the prefix set in property `dacs.prefixtag.filenotuploaded`.
   - An error email notification with error details is sent via the common error handler Oracle Integration Cloud process to the users defined in `to` recipients in lookup **OUTL-BRT-DACS_DRMS_Email_ID**.
   - If the error happens while processing the list of files, the Process Complete email notification is also sent out containing the summary of files transferred and not transferred.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System artifacts used in this integration process.

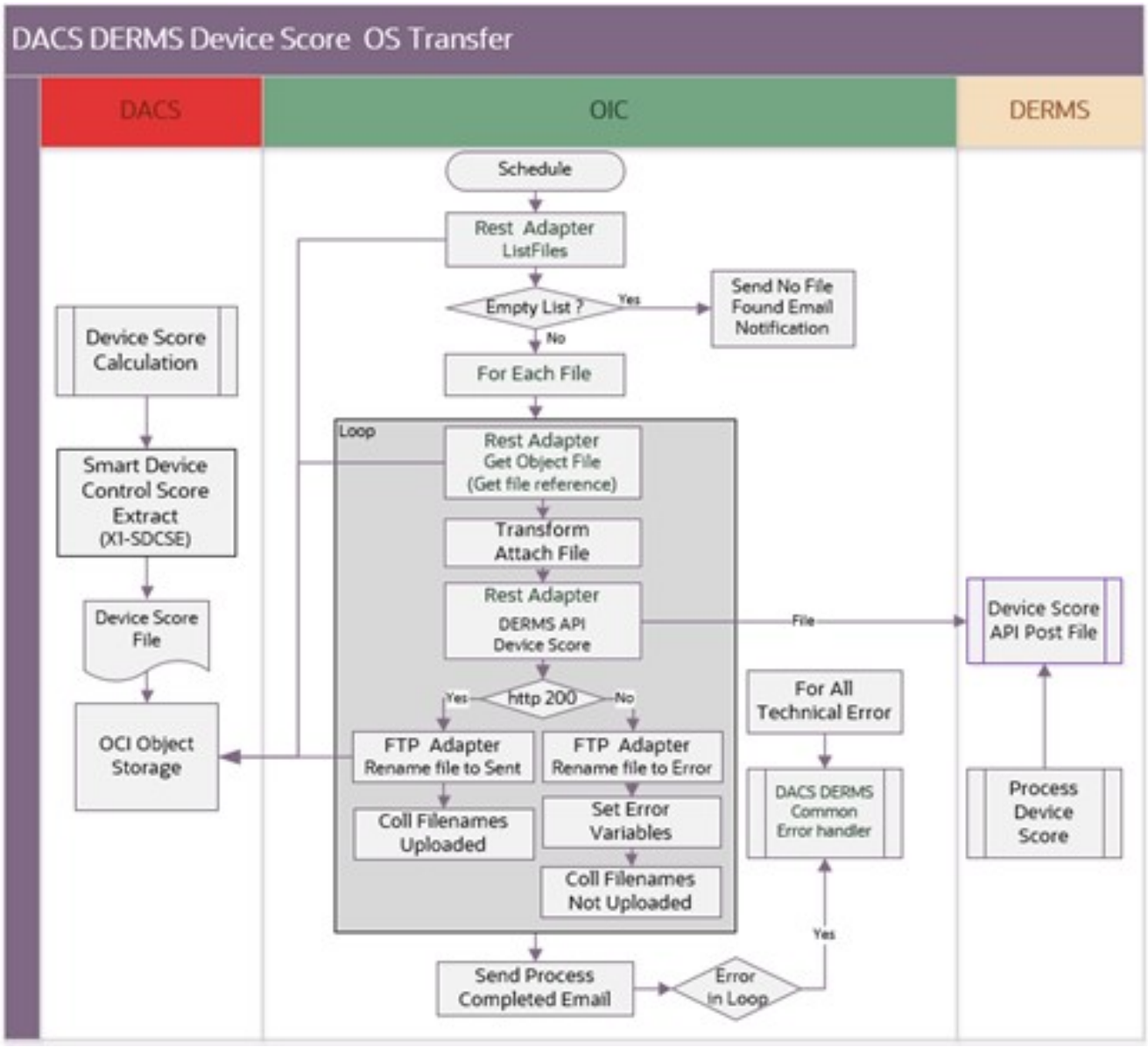
Artifacts	Value
Integration Process Name	OU DACS DERMS Device Score FTP Transfer
Integration Process Identifier	OUTL-BA-DRMS_DACS_SEND_DVCSCORE

Artifacts	Value
Integration Project Name	OU DACS DERMS
Source Connection (FTP Adapter)	OU FTP DACS for DACS-DRMS
Target Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DRMS
invoke	• DERMS Service Name: NMS-DACSInbound • openAPIUrl: https://{host}:{port} /nms-drms/rest/v1/openapi.json • OperationId: deviceScore • Method: POST • URI: /device-score/{file-name}
Local Integrations	OU DACS DERMS Common Error Handler
Lookup	• OUTL-BRT-DACS_DRMS_ConfigProps • OUTL-BRT-DACS_DRMS_Email_ID

Device Score OS Transfer (DACS Initiated)

This integration process retrieves the device score data file(s) from an Oracle Integration Cloud Object Storage location where Oracle Utilities Digital Asset Cloud Service uploads files and transfer it Oracle Utilities Grid Edge Distributed Energy Resources Management System through a REST API call.

The following diagram shows a graphical representation of the Device Score Transfer integration process from an Oracle Integration Cloud Object Storage:



Processing Details

This is a scheduled integration process deployed on Oracle Integration Cloud and performs the following activities:

1. The process is triggered by a schedule or can also be triggered manually.
    a. Define the integration schedule for this process and makes sure the Smart Control Device Score Extract Job (X1-SDCSE) schedule in Oracle Utilities Digital Asset Cloud Service is always run first, so the file is available to be processed by the integration.
    b. A couple of the default values used in this integration are defined in the **OUTL-BRT-DACS_DRMS_ConfigProps**. Make sure to define the properties needed for this integration.

2. It invokes the Object Storage - List Objects REST API to get the list of files found in the Oracle Utilities Digital Asset Cloud Service Object Storage bucket, set in the properties dacs.dvcScore.bucketname and dacs.namespace. It will retrieve files matching the prefix set in property dacs.dvcScore.extract.filename.prefix.

   Note: The value dacs.dvcScore.extract.filename.prefix should match the beginning of the parameter file name in Oracle Utilities Digital Asset Cloud Service Batch XAI DCSESDCSE.

   - If no file is found and notification.email.process.nofile.flag is true (by default it is false), it will send a no file found email notification to to.process.notification recipients defined in lookup **OUTL-BRT-DACS_DRMS_EMAIL_ID** and the process will stop.
   - If files are found, proceed to the next step.

3. For each file, do the following:

   a. Invoke the Object Storage: Gets Object REST API to get the actual file to process.

   b. Invoke DERMS Device Score REST API and sends the file as a binary attachment.

      - If Oracle Utilities Grid Edge Distributed Energy Resources Management System returns an HTTP 200 or 202, it invokes the REST API RenameObject to rename the source file obtained from the server by adding the **prefix set** in property dacs.prefixtag.fileuploaded and the next file in the list is processed.

4. After the successful transfer of all files, if the notification.email.process.complete.flag is *true*, a Process Complete email notification is sent to to.process.notification recipients defined in lookup **OUTL-BRT-DACS_DRMS_Email_ID**.

5. Error Handling.

   For any errors encountered in this process:

   - Invoke the REST API RenameObject to rename the source file obtained from the server by adding the prefix set in property *dacs.prefixtag.filenotuploaded*.
   - An error email notification with error details is sent via the common error handler Oracle Integration Cloud process to the users defined in `to` recipients in lookup **OUTL-BRT-DACS_DRMS_Email_ID**.
   - If the error happens while processing the list of files, the Process Complete email notification is also sent out containing the summary of files transferred and not transferred.

Technical Details

The following table describes the integration processes and the respective Oracle Cloud Infrastructure Object Storage and Oracle Utilities Grid Edge Distributed Energy Resources Management System artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU DACS DERMS Device Score OS Transfer
Integration Process Identifier	OUTL-BA-DRMS_DACS_SEND_DVCSCOREC

Artifacts	Value
Integration Process Identifier	OUTL-BA-DRMS_DACS_SEND_DVCSCOREC
Integration Project Name	OU DACS DERMS
Source Connection (REST Adapter)	OU REST DACS Object Storage for DACS
Target Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DERMS
invoke	• DERMS Service Name: NMS-DACSInbound • openAPIUrl: https://{host}:{port} /nms-drms/rest/v1/openapi.json • OperationId: deviceScore • Method: POST • URI: /device-score/{file-name}
Local Integrations	OU DACS DERMS Common Error Handler
Lookup	• OUTL-BRT-DACS_DRMS_ConfigProps • OUTL-BRT-DACS_DRMS_Email_ID

Event Device Outcome (DERMS Initiated)

Customers enrolled in an active program are called upon to participate in program events for a specific duration.

After events have completed, Oracle Utilities Grid Edge Distributed Energy Resources Management System receives the actual outcome of all devices' event participation from Oracle Utilities Live Energy Connect (LEC).

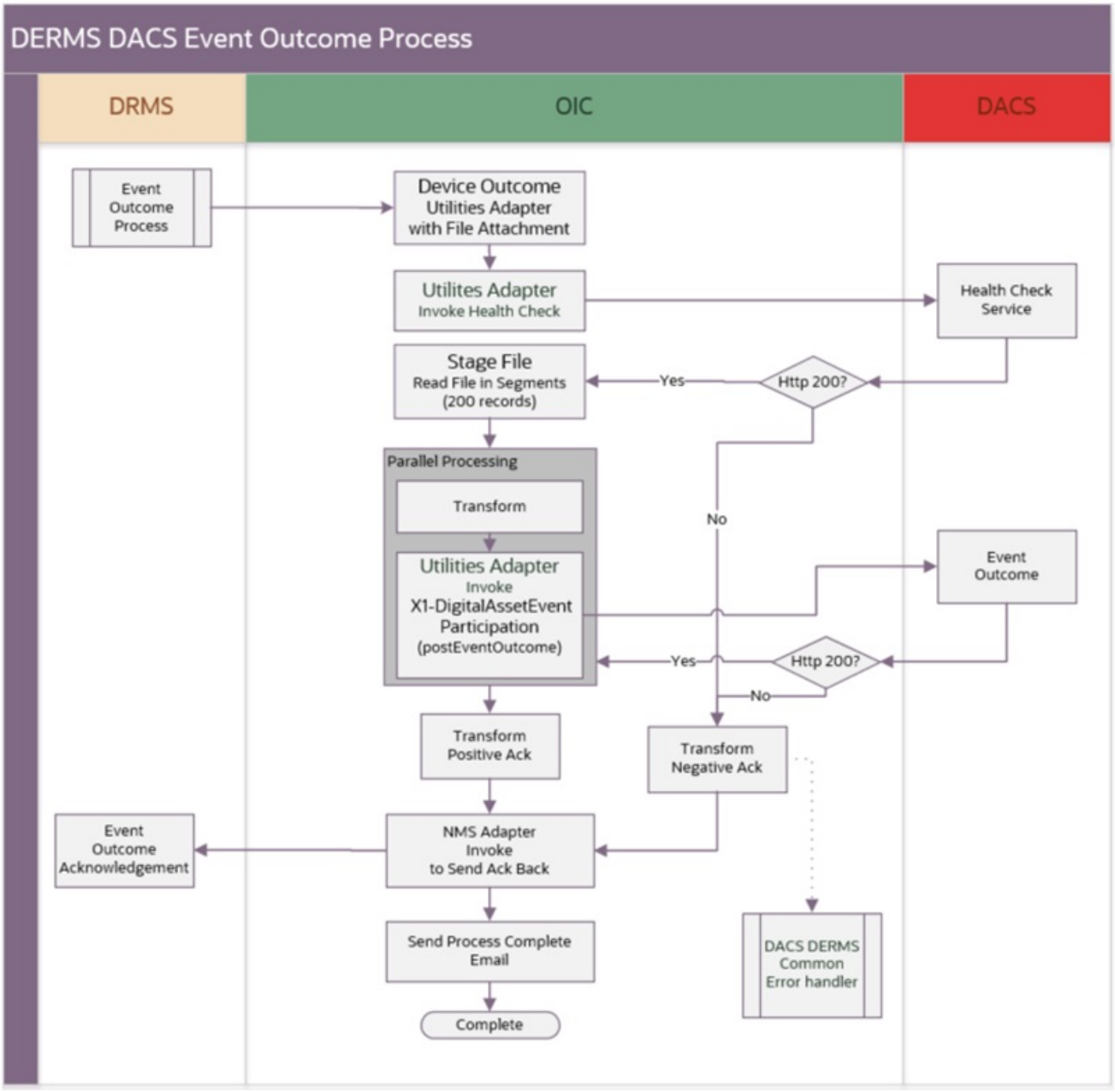
Oracle Utilities Grid Edge Distributed Energy Resources Management System aggregates and sends both Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Analytics Insights the post event outcome for all controllable devices called to participate in an event or events through a file extract.

The data in the file can be from one or multiple events. Each device that is called to participate in an event will have one record in the file. Example, if a service point has 2 devices linked to in and both participated in an event, then each device will have one outcome record in the file.

Once the file is ready, Oracle Utilities Grid Edge Distributed Energy Resources Management System sends the JSON outbound message with the file attachment.

The integration process sends the post event outcome file from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service and sends an acknowledgment back to Oracle Utilities Grid Edge Distributed Energy Resources Management System when the process is completed or encountered an error.

The following diagram shows a graphical representation of the Event Device Outcome integration process.



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST API and performs the following activities:

1. The process is triggered when Oracle Utilities Grid Edge Distributed Energy Resources Management System invokes the REST endpoint to send the post event outcome information to Oracle Utilities Digital Asset Cloud Service. The message received is a json payload with a CSV file attachment.

2. Before sending the file, the integration invokes F1-HealthCheckRest Rest endpoint to check if the Oracle Utilities Digital Asset Cloud Service environment is up and accessible.
    - If the REST service returns HTTP status 200, Oracle Utilities Digital Asset Cloud Service is accessible and proceed to Step 3.
    - Else,
        - Transforms Negative Acknowledgment message. Send 'FAILURE' ackType to Oracle Utilities Grid Edge Distributed Energy Resources Management System, so Oracle Utilities Grid Edge Distributed Energy Resources Management System can auto retry the failed message according to the MAX_RETRIES setting in their DRMS_PARAMENTERS table.
        - Invokes Oracle Utilities Grid Edge Distributed Energy Resources Management System Event Outcome Acknowledgment REST endpoint
3. Uses Stage File operation "ReadFileinSegments" to read the file in segments of 200 records with parallel processing option and loops through each incoming request:
    - Transforms the event outcome request payload from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Digital Asset Cloud Service format.
    - Invokes the Program event participation post event outcome Oracle Utilities Digital Asset Cloud Service rest endpoint to update event outcome from the participated device reservation. The event outcome status will be changed accordingly.
    - It is expected that Oracle Utilities Digital Asset Cloud Service will not return any business faults but handle these with a To-Do task instead.
4. After processing all records, a positive post event outcome acknowledgment is invoked to Oracle Utilities Grid Edge Distributed Energy Resources Management System.
5. For any errors encountered in this process:
    - An error email notification with error details is sent via the common error handler.
    - A negative Acknowledgment with 'FAILURE' ackType is sent to Oracle Utilities Grid Edge Distributed Energy Resources Management System so Oracle Utilities Grid Edge Distributed Energy Resources Management System can auto retry the failed message according to the MAX_RETRIES setting in their DRMS_PARAMENTERS table.
    - The integration flow will stop processing.

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Grid Edge Distributed Energy Resources Management System and Oracle Utilities Analytics Insights artifacts used in this integration process.

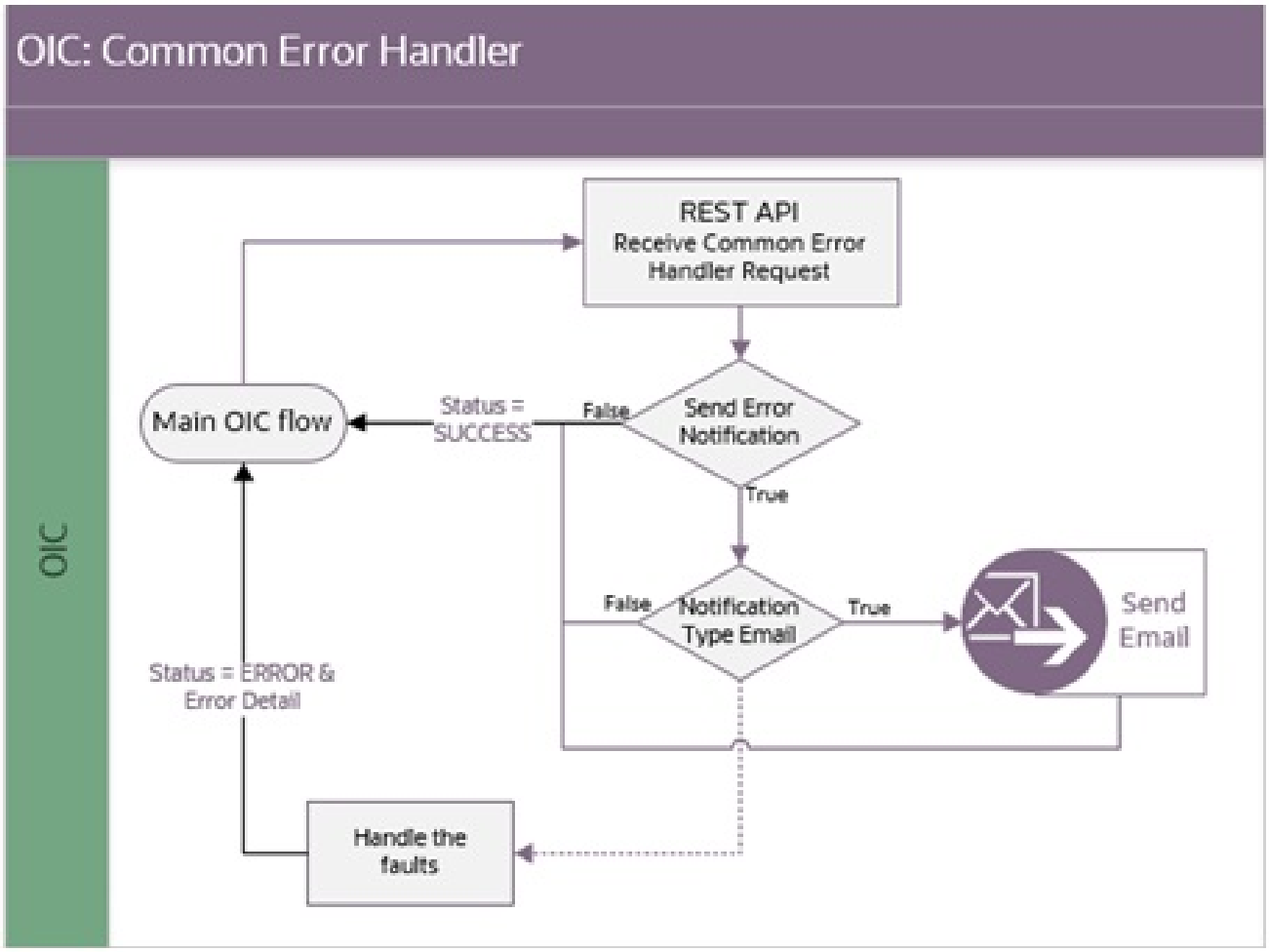
Artifacts	Value
Integration Process Name	OU DERMS DACS Event Outcome Transfer

Artifacts	Value
Integration Process Identifier	OUTL-BA-DRMS_DACS_EVT_OUTC_TRNFR
Integration Project Name	OU DACS DERMS
Source Connection (REST Adapter-Trigger)	OU REST DRMS for DACS-DERMS
Target Connection (Oracle Utilities Adapter)	OU REST DACS for DACS-DERMS
invoke	• DACS Web Service Name: X1-ProgramEventParticipation • Computed URL: https://{host}:{port}/{tenant}/{domain}/rest/apis/cross/service/programEventParticipation • Method: POST • URI: / postEventOutcome
Target Connection (Oracle Utilities Adapter)	OU REST DRMS for DACS-DRMS
invoke	• DERMS Service Name: NMS-DACSInbound • openAPIUrl: https://{host}:{port} /nms-drms/rest/v1/openapi.json • OperationId: deviceOutcomeAck • Method: POST • URI: /device-outcome-ack
Local Integrations	OU DACS DRMS Common Error Handler
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications.	OUTL-BRT-DACS_DRMS_ConfigProps OUTL-BRT-DACS_DRMS_Email_ID OUTL-BRT-DACS_DRMS_EventOutcome OUTL-BRT-DACS_OUAI_Routing

Common Error Handler (OIC Initiated)

This integration process is used to send email notification in case of errors in Oracle Integration Cloud.

The following diagram shows a graphical representation of the Common Error Handler integration process:



Processing Details

The integration process deployed on Oracle Integration Cloud is exposed as a REST API and performs the following activities:

1. This process is invoked internally by other Oracle Integration Cloud flows when a technical error occurs in any of the main integration flow.
2. The request message received is processed based on the `notification.email.error.flag` and `notification.type.email` property names in the **OUTL-BRT-DACS_DRMS_ConfigProps** lookup. If both are set to true, then an email notification will be sent on error.

Technical Details

The following table describes the integration processes and the respective artifacts used in this integration process:

Artifacts	Value
Integration Process Name	OU DACS DERMS Common Error Handler
Integration Process Identifier	OUTL-BA-DACS_DRMS_ERROR
Integration Project Name	OU DACS DERMS
Source Connection	local integration
trigger	/receiveMessage
Lookup	OUTL-BRT-DACS_DRMS_ConfigProps OUTL-BRT-DACS_DRMS_Email_ID For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications.

Chapter 3

Configuring Oracle Utilities Digital Asset Cloud Service

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

- Configuring Admin Data
- Scheduling Batch Jobs
- Managing Web Service Catalog
- Adding Oracle Integration Cloud Certificates

For more information about Oracle Utilities Digital Asset Cloud Service, refer to the Oracle Utilities Digital Asset Cloud Service documentation on Oracle Help Center.

Configuring Admin Data

This section describes the admin data setup in Oracle Utilities Digital Asset Cloud Service related to the integration. The **Admin** menus can be configured to be grouped alphabetically or by functional groups. The descriptions that follow will include both groupings.

Message Senders

Create a new or update an existing real-time message sender for each Oracle Utilities Digital Asset Cloud Service Outbound Message used for the integration.

To create a message sender:

1. In the **Admin** menu navigate to **[M or Integration]** > **Message Sender** > **Add**.
2. Enter a unique message sender and its description.
3. Populate the following values:
   - **Message Sender**: Sender name in Oracle Utilities Digital Asset Cloud Service
   - **Description**: Sender's description
   - **Invocation Type**: Real-time
   - **Message Class**: RTJSONSNDR (Sender for real-time HTTP / JSON messages)
   - **Active**: Select the check box.
   - **MSG Encoding**: UTF-8 message encoding
4. Select the **Context** tab and set values for the following context types:
   - **HTTP Header**: application/json
   - **HTTP Login User**: User ID to access OIC
   - **HTTP Login Password**: Password to access OIC
   - **HTTP Method (POST/GET)**: POST
   - **HTTP Timeout**: 300

- **HTTP Transport Method**: SendReceive
- **HTTP URL 1**:

  Sample format:

  ```
  https://[oic.oraclecloud.com]/ic/api/integration/v2/flows/
  oracleutilities/project/[projectName]/[oicprocessflow]
  ```

Sample Message Sender Setup For This Integration

Message Sender	Description	Endpoint URL
DRMS_DvcStatChk	Send device status check to DERMS	`https://inst1.oraclecloud.com/ic/api/integration/v1/flows/oracleutilities/OUTL-BA-DACS_DRMS_DEVICE_STATUS/1.0/deviceStatusCheck`
DRMS_EnrlSync	Send Enrollment to DERMS	`https://inst1.oraclecloud.com/ic/api/integration/v1/flows/oracleutilities/OUTL-BA-DACS_DRMS_ENROLL_SYNC/1.0/enroll`

Note: The Integration URL is obtained in the Oracle Integration Cloud (OIC). Log in to OIC, go to the DACS DERMS project and select the integration to invoke from DACS. Go to actions and select Run details; click the metadata URL and you will get the endpoint URL.

External System

Create a new or update an existing external system to support the Distributed Energy Resources Management System.

To create an external system:

1. In the **Admin** menu navigate to **[M or Integration]** > **External System** > **Add**.
2. Enter a unique **External System** and its **Description**.
3. Add the following outbound message types to the external system. For each outbound message type, set the following:
   - **Outbound Message Type**
     - **Controllable Device Status Check**: Use the X1-CTRLDVCS (Controllable Device Status Check) outbound message type
     - **Synchronize Digital Asset**: Use the X1-NMSDASMSG (Synchronize Digital Asset (NMS)) outbound message type
   - **Processing Method**: Real-time
   - **Message Sender**: Set the corresponding message sender for the outbound message
   - **Date/Time Format**: XSD
   - **JSON Conversion Method**: Base JSON conversion

Inbound Web Service (IWS)

The following REST inbound web services are delivered for this integration:

- X1-ProgramEnrollment
- X1-ControllableDeviceStatus
- X1-ProgramEventParticipation
- X1-ProgramEvent

The full URI component for the REST inbound web service is configurable.

The Oracle Utilities Digital Asset Cloud Service documentation provides instructions about the one-time setup. Refer to the Documentation and Resources section in Configuring Oracle Utilities Digital Asset Cloud Service for information about documentation resources.

Master Configuration

This section describes the master configuration details for the integration. The following Master Configurations can be found from the **Admin menu** > **[M or General]** > **Master Configuration**.

- Cross Product Master Configuration
- Digital Asset Integration Master Configuration
- Seeder Sync Request Master Configuration
- Master Data Synchronization Master Configuration

Cross Product Master Configuration

The Cross Product master configuration is used in a Oracle Utilities Customer to Meter (C2M) implementation. The External System define here is used for all communications between Oracle Utilities Customer Care and Billing and Oracle Utilities Meter Data Management applications, such as sync requests, Service Order Management (SOM) queries, and so on.

Digital Asset Integration Master Configuration

The Digital Asset master configuration is used to synchronize digital asset customer information to Oracle Utilities Grid Edge Distributed Energy Resources Management System.

To create a Digital Asset Integration master configuration:

1. In the NMS Integration Parameters section, populate the following:
   - **External System**: DERMS External System
   - **Sync Request Outbound Message Type**: X1-NMSDASMSG (Synchronize Digital Asset (NMS))
   - **Program Subscription Types Eligible for Sync**: Configure one or more program subscription types that are eligible for sync to NMS-DERMS.
2. Save the configuration details.

Seeder Sync Request Master Configuration

The Seeder Sync master configuration identifies the ongoing synchronization request business object and key reference view for the maintenance object specified in the synchronization request.

Master Data Synchronization Master Configuration

The Seeder Sync master configuration identifies the ongoing synchronization request business object and key reference view for the maintenance object specified in the synchronization request.

Head End System

Create a new or update an existing head end system for each external energy aggregator interfaced to Oracle Utilities Live Energy Connect.

To create a head end system:

1. In the **Admin** menu navigate to **[H or Digital Asset Management]** > **Head End System** > **Add**.
2. Enter a unique head end system and its description.
3. Specify the external system created for Oracle Utilities Grid Edge Distributed Energy Resources Management System.
4. Add a processing method for processing role Device Status Check. On the processing method, set the following:
   - **Default Business Object:** X1-CtrlDvcStatusCheckComm (Controllable Device - Device Status Check)
   - **Default Outbound Message Type**: Controllable Device Status Check

Controllable Asset Specification

Specifications describe design details and functional performance criteria for a set of controllable assets. This can include manufacturer, model, and other information specified for the assets.

Create new or update existing controllable asset specification for each combination of head end system, make and model.

To create a specification:

1. In the Main menu, navigate to **[Asset Management]** > **Specification** > **Add**.
2. Select **Specification Business Object**: Controllable Asset Specification (X1-ControllableAssetSpec)
3. Enter a unique specification and its description.
4. Enter the Asset Type for the controllable asset.
5. Enter the Manufacturer, Make, and Head End System.

Program

Programs represent specific demand response programs in which customers can participate and let their utility service provider temporarily take control of specific devices in their homes in response to periods of high demand.

> **Note:** You can create new demand response programs, or update the existing ones.

To create a program:

1. In the Main menu navigate to **[Digital Asset Management]** > **Program** > **Add**.
2. Select **Program Type** associated with the program. Program types define certain parameters and attributes of a class of programs.
3. Enter a unique description.
4. Enter the Program External Id. The Program ID or Code used by external systems.
5. Enter other relevant information as needed.

Activity Type

Create a new or update an existing activity type for the Controllable Device Status Check activity.

To create an activity type:

1. In the **Admin** menu, navigate to **[A or Communication]**.
2. Add or edit the **Controllable Device Status Check** activity and its description. Refer to the embedded help for more information.

Communication Type

Create a new or update an existing communication type for the following Communication Types:

- Controllable Device: Device Status Check
- Controllable Device: Device Status Check Response

To create a communication type:

1. In the **Admin** menu navigate to **[C or Communication Type]**.
2. Enter a unique communication type and its description. Refer to the embedded help for more information.

Service Task Type

Create a new or update an existing service task type for the following Service Task Type Business Objects:

- Digital Asset Enrollment Request Task Type
- Digital Asset Unenrollment Request Task Type

To create a service task type:

1. In the **Admin** menu navigate to **[S or General]**.

2. Enter a unique service task type and its description. Refer to the embedded help for more information.

Sync Request Process

The Sync Request Process is used to synchronize customer enrollment and unenrollment data from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Grid Edge Distributed Energy Resources Management System. Maintenance Object - Audit algorithms are responsible for instantiating subscription based sync request records.

To configure a Maintenance Object:

1. In the **Admin** menu, navigate to **[M or Database]** > **Maintenance Object** > **Search**.
2. Navigate to the following Maintenance Objects and configure the following:
    - **Usage Subscription (D1-US)**: Under the **Maintenance Object - Options** tab, add the "Sync Request BO" MO Option with an option value "X1-NMSDigitalAssetCustSync (NMS Digital Asset Customer Sync Request)". Plug in the F1-GCHG-CDCP (Generic Change Data Capture) MO audit algorithm. When a change is detected on a program subscription, this algorithm is responsible for instantiating the sync request.
    - **Contact (D1-CONTACT)**: Plug in the X1-CNTCDCDA (Contact Change Data Capture (Digital Asset Subscription Based)) MO audit algorithm. When a change is detected on a contact associated to an eligible program subscription, this algorithm is responsible for instantiating the sync request.
    - **Device (D1-DEVICE)**: Plug in the X1-DVCCDCDA (Device Change Data Capture (Digital Asset Subscription Based)) MO audit algorithm. When a change is detected on a controllable device associated to an eligible program subscription, this algorithm is responsible for instantiating the sync request.
    - **Service Point (D1-SP)**: Plug in the X1-LOCCDCDA (Location Change Data Capture (Digital Asset Subscription Based)) MO audit algorithm.When a change is detected on a device location associated to an eligible program subscription, this algorithm is responsible for instantiating the synchronization request.

Scheduling Batch Jobs

Run the following Oracle Utilities Digital Asset Cloud Service batch processes:

- Enrollment - Sync Request Monitor Process
- Device Score Batch Processes

Enrollment - Sync Request Monitor Process

Sync Request Monitor Process is the batch process to run the sync request to send enrollment out from Oracle Utilities Digital Asset Cloud Service.

- **F1-SYNRQ - Sync Request Monitor Process:** It is a generic batch process that is used for different synchronization processes. It includes parameters that can be used to control which synchronization request to process.

Batch Parameters	Parameter Description	Value
maintenanceObject	Sync Request maintenance object	F1-SYNC REQ
isRestrictedByBatchCode	The value of true restrict processing to sync requests whose current state is linked to this batch code.	True
restrictToBusinessObject	Enter a business object code here to limit the process to sync requests linked to this business object.	X1-NMSDigitalAssetCustSync
restrictToBOStatus	Enter a status code to limit the process to sync requests in this state.	PENDING

Device Score Batch Processes

These batch processes calculate and send out the device score to Oracle Utilities Grid Edge Distributed Energy Resources Management System. Schedule the following batch jobs in the order they are listed below:

- **X1-CALAS - Calculate Asset Score**: This batch process monitors controllable assets that are currently installed on a device location and enrolled in a device control program. It triggers the calculation of device's score based on its previous program event participation, as well as other factors set on a program score calculation rule.

Batch Parameters	Parameter Description	Value
maintenanceObject	Sync Request maintenance object	W1-ASSET
isRestrictedByBatchCode	The value of true restrict processing to sync requests whose current state is linked to this batch code.	False
restrictToBusinessObject	Enter a business object code here to limit the process to sync requests linked to this business object.	X1-Controllable Asset
restrictToBOStatus	Enter a status code to limit the process to sync requests in this state.	INSTALLED

- **X1-SDCSE - Smart Device Control Score Extract**: This batch process creates the device score extract file.

Batch Parameters	Parameter Description	Value
maintenanceObject	Sync Request maintenance object	F1-SYNC REQ
isRestrictedByBatchCode	The value of true restrict processing to sync requests whose current state is linked to this batch code.	True
restrictToBusinessObject	Enter a business object code here to limit the process to sync requests linked to this business object.	X1-NMSDigitalAssetCustSync
restrictToBOStatus	Enter a status code to limit the process to sync requests in this state.	PENDING

Managing Web Service Catalog

The web service catalog is used by Oracle Integration Cloud to communicate with the respective application. It is used to identify the services that should be retrieved by the Oracle Utilities Adapter. It is configured in the **Catalog URL** in the Oracle Integration Cloud connection.

To configure the catalog in Oracle Utilities Digital Asset Cloud Service:

1. Log in to Oracle Utilities Digital Asset Cloud Service.
2. Navigate to **Admin** > **[W or Integration]** > **Web Service Catalog**. Alternatively, you can search for the **Web Service Catalog** page from the **Search** menu.
3. Select **REST Web Service Class**.
4. Add the following REST inbound web services to the catalog.

Service Type	Service Name	Description
Inbound Web Service	F1-HealthCheckREST	Health Check
Inbound Web Service	F1-SyncRequest	Master Data Synchronization
Inbound Web Service	X1-ControllableDeviceStatus	Controllable Device Status
Inbound Web Service	X1-ProgramEnrollment	Program Enrollments
Inbound Web Service	X1-ProgramEvent	Program Event
Inbound Web Service	X1-ProgramEventParticipation	Program Event Participation

5. If applicable, for outbound messages, add the External System that was set up previously.

For more information about configuration, refer to the Oracle Utilities Work and Asset Cloud Service documentation available at Oracle Help Center.

Adding Oracle Integration Cloud Certificates

Add the Oracle Integration for Cloud certificate to the Oracle Utilities Digital Asset Cloud Service stores wherever applicable to send transactions to the Oracle Integration Cloud layer.

For more information about configuration, refer to the Oracle Utilities Digital Asset Cloud Service documentation available at Oracle Help Center.

Chapter 4

Configuring Oracle Utilities Grid Edge Distributed Energy Resources Management System

This chapter focuses on configuring the Oracle Utilities Grid Edge Distributed Energy Resources Management System parameters related to the integration.

- Configuring DRMS Parameters in Oracle Utilities Grid Edge Distributed Energy Resources Management System

For more information about Oracle Utilities Grid Edge Distributed Energy Resources Management System, refer to the Oracle Utilities Network Management System (NMS) documentation available at Oracle Help Center.

Configuring DRMS Parameters in Oracle Utilities Grid Edge Distributed Energy Resources Management System

Configure the following DRMS parameters in Oracle Utilities Grid Edge Distributed Energy Resources Management System to establish the communication between Oracle Utilities Grid Edge Distributed Energy Resources Management System and Oracle Integration Cloud, as well as for controlling other parameters related to the integration.

DRMS Parameters

The DRMS parameters can be populated from:

- The Grid Edge DERMS Application > Tools Selection > DERMS Configuration Parameters User Interface (UI) or
- Using the SQL files to load the DRMS_Parameters table.

Oracle Integration Cloud (OIC) Endpoint URL

Oracle Utilities Grid Edge Distributed Energy Resources Management System invokes the endpoint URL to send outbound messages to Oracle Integration Cloud.

Attribute	Value
OIC_STATUS_ACK_URL (Device Status Check Ack Flow)	https://hostname:port /ic/api/integration/v2/flows/oracleutilities/project/OUTL-BA-DACS_DERMS/OUTL-BA-DRMS_DACS_DEV_STAT_ACK/1.0/status-check-ack-to-dacs
OIC_RESERVE_DEVICE_URL (Event Device Reservation Flow)	https://hostname:port /ic/api/integration/v2/flows/oracleutilities/project/OUTL-BA-DACS_DERMS/OUTL_BA_DRMS_DACS_EVT_DVCRESV/1.0/reserveDevice
OIC_ENROLL_URL (Enrollment Request Flow)	https://hostname:port /ic/api/integration/v2/flows/oracleutilities/project/OUTL-BA-DACS_DERMS/OUTL-BA-DRMS_DACS_ENROLLRQ/1.0/enroll-to-dacs
OIC_ENROLL_ACK_URL (Enroll Sync Ack Flow)	https://hostname:port /ic/api/integration/v2/flows/oracleutilities/project/OUTL-BA-DACS_DERMS/OUTL-BA-DRMS_DACS_SYNC_ACK/1.0/sendEnrollAck
OIC_DEVICE_OUTCOME_DACS_URL (Event Device Outcome Process Flow)	https://hostname:port /ic/api/integration/v2/flows/oracleutilities/project/OUTL-BA-DACS_DERMS/OUTL-BA-DRMS_DACS_EVT_OUTC_TRNFR/1.0/eventOutcome

Attribute	Value
OIC_STAGE_STATUS_CHANGE_URL (Program Event Status Update Flow)	https://hostname:port /ic/api/integration/v2/flows/oracleutilities/project/OUTL-BA-DACS_DERMS/OUTL-BA-DRMS_DACS_PEVNT_STAT_UPD/1.0/statusUpdate

Oracle Integration Cloud (OIC) Security Credentials

Oracle Utilities Grid Edge Distributed Energy Resources Management System uses these credentials to connect to Oracle Integration Cloud.

Attribute	Value
Populate the following when using OAuth Client Credential to access OIC.	
config.auth.token.url	URL for requesting OAuth token to be used for outgoing requests. If this parameter is not specified, then the basic http authentication will be used.
config.auth.token.scope	The scope value used when requesting OAuth token to be used for outgoing requests.
config.auth.token.user	Client ID User for requesting OAuth token to be used for outgoing requests.
config.auth.token.pwd	Client Secret Password for requesting OAuth token to be used for outgoing requests. This parameter should be encrypted. For testing, this can be plain text.
config.auth.timeout	OAuth communication timeout (seconds)
Populate the following when using Basic Authentication to access OIC.	
OIC_USER	Define the OIC username.
OIC_Password	Define the OIC password.

DERMS Security Credentials to Receive REST Messages

Oracle Utilities Grid Edge Distributed Energy Resources Management System uses these credentials to receive REST messages.

Attribute	Value
NMS_URL	The NMS URL to receive REST Messages.

Attribute	Value
Populate the following when using OAuth to receive REST messages.	
config.auth.jwk	Either URL for requesting token signing certificate from OAuth server or the certificate itself. If this parameter is not specified, then incoming requests with bearer token authentication will be rejected with error 401 (Unauthorized). In production environments, it is recommended to configure the certificate itself instead of URL.
config.auth.allow.user	Username used for validating OAuth tokens in incoming requests. It should match the principal or (if principal not provided) subject in the received token.
config.auth.allow.scope	Scope value used for validating OAuth tokens in incoming requests. It should match one of the scope values in the received token.
Populate the following when using Basic Authentication receive REST Messages.	
NMS_USER	NMS user. This can be encrypted using the WLS key.
NMS_PASS	NMS password. This can be encrypted using the WLS key.

Other Attributes Related to the Integration

Attribute	Value
DERMS_SITE	Site ID passed in the messages to OIC as drmsInstanceId.
MAX_FILE_RECORDS	Maximum number of records to write in a file for Event Device Reservation and Event Device Outcome. Default value is 1000.
MAX_RETRIES	Set the value to the number of retries DERMS will perform upon receiving a technical fault or negative acknowledgment. **Note**: The drms_outbound_messages database table holds the outbound messages to be resent when the ack status = 'FAIL' and the num_retries is less than the configured MAX_RETRIES value. If you want to resend a failed message that has already retried the maximum number of times, update the num_retries record back to 0. If you need to resend a successful message for any reason, also update the status to 'FAIL'.

Attribute	Value
OIC_NOTIFY_STAGE_ STATUSES	Stage Status updates to send to Digital Asset Cloud Service (DACS). • Default statuses sent: SCHEDULED,CANCELED,IN_PROGRESS,COMPLETED • Valid values: PLANNED,SCHEDULED, IN_PROGRESS, COMPLETED ,CANCELED,FORCED_CANCELED
USE_OUAI_REDUCTION_ FCAST	This flag determines if the OUAI-based reduction forecast has to be used. Default: false

Chapter 5

Importing, Configuring, and Testing Integration Connections

This chapter explains how to import an Oracle Accelerator Project (which imports the connections, integrations, lookups, and libraries) into an Oracle Integration Cloud instance. It also explains the configuration info of the imported connections, agents, and security certificates.

It includes the following sections:

Importing the Oracle Accelerator Project from Oracle Cloud Marketplace

All integration points are shipped as part of a single accelerator project (.car) file.

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

1. Launch the Oracle Cloud Marketplace portal.
2. Click **Applications**.
3. Search for "Utilities Digital Asset Cloud Svc. to Distributed Energy Resource Mgmt. System".
4. In **Filter by Region/Country**, select the **North America** checkbox.
5. Select the pre-built integration project.
6. Click **GetApp**.
7. Review and accept "Oracle Standard Terms and Restrictions".
8. Click **Next**. My Oracle Support portal opens.
9. From the integration artifacts table, click the link to download the DACS-DERMS Business Accelerator Project (.car) file: OUTL-BA-DACS_DERMS-01.24.2000.car.
10. Perform the following steps before importing the new Accelerator Project (.car) file into your Oracle Integration Cloud instance.
    a. Take a backup of the existing customized integrations and lookups.
    b. Perform cleanup by deactivating and deleting the existing flows, connections, lookups, libraries used in the integration and the (.par) project file.

    Note: If your previous pre-built integration was package based (.par file), you will see the following:

    - The package is visible on the **Design-Packages** page in your Oracle Integration Cloud instance.
    - The individual integration flows are visible on the **Design-Integrations** page. Each integration flow is designated with an Accelerator and BUILT BY ORACLE message displayed.
11. In the **Navigation** pane, click **Projects**.
12. Click **Add**.
13. Select **Import Project**, then drag-and-drop the (.car) file downloaded from Oracle Cloud Marketplace.

    Note: Make sure to select the **Anyone can edit, view, and monitor** checkbox.
14. The new project will show up in the list but with a status of **Configured** due to the connections not being completed yet.
15. Click **Project Edit** and follow the verification and configuration steps documented in the following sections.
16. If all configurations are complete, activate the integration by:
    - Clicking **Activate** in the **Design** page.
    - Or activate the latest deployment plan in the **Deploy** page.

Verifying the Project Import

To verify the project was imported successfully, go to the **OU DACS DERMS** project:

1. In the **Integrations** section of the project, verify that the following integrations (version 1.24.2000) were imported successfully.
   - OU DERMS DACS Enrollment Request
   - OU DACS DERMS Enrollment Sync
   - OU DERMS DACS Enroll Sync Ack
   - OU DACS DERMS Device Status Check
   - OU DERMS DACS Device Status Ack
   - OU DACS DERMS Device Score FTP Transfer
   - OU DACS DERMS Device Score OS Transfer
   - OU DERMS DACS Program Event Status Update
   - OU DERMS DACS Event Device Reserve
   - OU DERMS DACS Event Device Outcome Process
   - OU DACS DERMS Common Error Handler
2. In the **Connections** section of the project, verify that the following connections are imported successfully.
   - OU REST DACS for DACS-DERMS
   - OU REST DRMS for DACS-DERMS
   - OU REST for DACS-DERMS
   - OU FTP DACS for DACS-DERMS
   - OU REST DACS Object Storage for DACS-DERMS
3. In the **Lookups** section of the project, make sure that the following lookups are imported successfully.
   - OUTL-BRT-DACS_DRMS_AssetType
   - OUTL-BRT-DACS_DRMS_AssetSpec
   - OUTL-BRT-DACS_DRMS_ConfigProps
   - OUTL-BRT-DACS_DRMS_Email_ID
   - OUTL-BRT-DACS_DRMS_EventType
   - OUTL-BRT-DACS_DRMS_Routing
   - OUTL-BRT-DACS_DRMS_EnrollmentStatus
   - OUTL-BRT-DACS_DRMS_EventOutcome
   - OUTL-BRT-DACS_DRMS_DeviceLocationStatus
   - OUTL-BRT-DACS_DRMS_StageStatus

Configuring Connections in Oracle Integration Cloud

After the project is imported and verified, configure the respective connections.

This section describes the procedure to configure the following:

- OU REST DACS for DACS-DERMS Connection
- OU REST DERMS for DACS-DERMS Connection
- OU REST for DACS-DERMS Connection
- OU FTP DACS for DACS-DERMS Connection
- OU REST DACS Object Storage for DACS-DERMS Connection

OU REST DACS for DACS-DERMS Connection

This connection is used to communicate with Oracle Utilities Digital Asset Cloud Service catalog using the Utilities adapter.

To configure the connection:

1. Add the Oracle Utilities Digital Asset application catalog URL in the **Catalog URL** field.
   - For Oracle Utilities Digital Asset Management on-premises application, the catalog format is:

     `https://{host}:{port}/{context}/rest/ouaf/openapi/iws/catalog`

     Example: `https://dacsHost:port/ouaf/rest/ouaf/openapi/iws/catalog`
   - For Oracle Utilities Digital Asset Cloud Service, the catalog format is:

     `https://{host}:{port}/{tenant}/{domain}/{appName}/rest/openapi/iws/catalog`

     Example: `https://dacsHost:port/tenantName/test/dac/rest/openapi/iws/catalog`
2. In the **Security** section, select the applicable security policy to access the application.

   Note: See Create Oracle Utilities Adapter Connection in the Oracle Utilities Adapter documentation for more information on the supported security policies.
3. Once connected to Oracle Utilities Digital Asset Management on-premise application, configure the agent.
   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, click **Test** at the upper-right corner.
5. Once the connection has been tested successfully, click **Save**.

OU REST DERMS for DACS-DERMS Connection

This connection is used to communicate with Oracle Utilities Grid Edge Distributed Energy Resources Management System application service using the Utilities adapter.

To configure this connection:

1. Add the Oracle Utilities Grid Edge Distributed Energy Resources Management System catalog URL in the Catalog URL field.

   Catalog format: `https://{host}:{port}/nms-drms/rest/v1/catalog`

   Example: `https://dermshost:port/nms-drms/rest/v1/catalog`

2. In the **Security** section, select the applicable security policy to access the application.

   Note: See Create Oracle Utilities Adapter Connection in the Oracle Utilities Adapter documentation for more information on the supported security policies.

3. Once connected to the Oracle Utilities Digital Asset Management on-premise application, configure the agent:

   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 username and click **Test** at the upper- right corner to test the connection.

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

OU REST for DACS-DERMS Connection

This connection is used to expose the integration as a REST service.

To configure this connection:

1. Select **OAuth 2.0** or **Basic Auth** for the **Security policy**, and select **Role** as **Trigger**.

2. On the **Connection** page, click **Test**.

3. Once the connection has been tested successfully, click **Save**.

OU FTP DACS for DACS-DERMS Connection

This connection is used to communicate with Oracle Utilities Digital Asset Cloud Service FTP Server using the FTP adapter.

To configure this connection:

1. In the **Connection Properties** section, enter the **FTP Server Host Address** and the **FTP Server Port**.

2. Expand **Optional Properties**, then select **Yes** for **SFTP Connection**.

3. In the **Security** section, select the applicable security policy for your Utilities Digital Asset Application FTP Server. For example, you can select the **FTP Server Access** policy on the **Security Policy** tab, then enter the Oracle Utilities Digital Asset Cloud Service FTP Server username and password.

   Note: For more information on the supported security policies, see Create an FTP Adapter Connection in the Integration 3 documentation.

4. Configure the appropriate **Agent Group** if applicable.
5. On the **Connection** page, click **Test**.
6. Once the connection has been tested successfully, click **Save**.

   Note: Make sure the FTP Server is set up and configured in Oracle Utilities Digital Asset Cloud Service.

OU REST DACS Object Storage for DACS-DERMS Connection

This connection is used to communicate with Oracle Infrastructure Cloud Object Storage Service APIs using the REST adapter.

To configure this connection:

1. In the **Connection Properties** section, enter the object storage API endpoint in the **Connection URL** field.

   Connection Type: REST API Base URL

   Connection URL format: `https://objectstorage.{region}.oraclecloud.com`

   Note: To see the Object Storage Service API and endpoints, refer to the Oracle Cloud Infrastructure documentation/API Reference and Endpoints.

2. In the **Security** section:
   a. Select the **OCI Signature Version 1** security policy.
   b. Provide the following Object Storage information:
      - Tenancy OCID
      - User OCID
      - Upload the private key
      - Fingerprint (obtained from object storage after register the public key for the appropriate user)

      Note: For more information, refer to the Object Storage Setup Guide 20C.
3. After the connection is tested successfully, click **Save**.

Configuring Agent (if applicable)

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

This section includes:

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

Possible Combinations

The possible combination of an agent group is Oracle Utilities Grid Edge Distributed Energy Resources Management System on-premises and Oracle Integration 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 the connectivity agent installer, see the following:

- Download and Run the Connectivity Agent Installer for Oracle Integration Cloud Generation 2
- Download and Run the Connectivity Agent Installer for Oracle Integration Cloud Generation 3

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 Digital Asset Cloud Service 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.

      Example: https://OIC_host:OIC_port

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

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

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

      Note: Before running the connectivity agent installer, perform the steps listed in the following

      - Download and Run the Connectivity Agent Installer for Oracle Integration Cloud Generation 2
      - Download and Run the Connectivity Agent Installer for Oracle Integration Cloud Generation 3

   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.

Setting up Certificates for Security

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

If there are no valid certificates for this integration, download the Oracle Utilities Grid Edge Distributed Energy Resources Management System/Oracle Utilities Digital Asset Cloud Service certificates and upload them to Oracle Integration Cloud to handshake with Oracle Utilities Grid Edge Distributed Energy Resources Management System/ Oracle Utilities Digital Asset Cloud Service.

To download the Oracle Utilities Grid Edge Distributed Energy Resources Management System/Oracle Utilities Digital Asset Cloud Service certificate:

1. Login to Oracle Utilities Digital Asset Cloud Service/Oracle Utilities Grid Edge Distributed Energy Resources Management System.
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 configuring the lookups, handling business and technical errors, and sending email notifications. It includes the following sections:

Configuring Lookups

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

Lookup Name	Integration Name	Purpose
OUTL-BRT-DACS_DRMS_AssetType	OU DERMS DACS Enrollment Request	
OUTL-BRT-DACS_DRMS_AssetSpec	OU DERMS DACS Enrollment Request	Translate DERMS device make and model (format MAKE!MODEL) to DACS asset specification.
OUTL-BRT-DACS_DRMS_ConfigProps	• OU DACS DERMS CommonErrorHandler • OU DACS DERMS Device Score FTP Transfer • OU DACS DERMS Device Score OS Transfer • OU DACS DERMS Device Status Check • OU DERMS DACS Device Status Ack • OU DERMS DACS Enrollment Request • OU DACS DERMS Enrollment Sync • OU DERMS DACS Enroll Sync Ack • OU DERMS DACS Event Device Reserve • OU DERMS DACS Event Outcome Process • OU DERMS DACS ProgramEvent Status Update	Generic properties and default values used in the integration's business logic and mappings
OUTL-BRT-DACS_DRMS_DeviceLocationStatus	OU DACS DERMS Enrollment Sync	Translate device status values between applications
OUTL-BRT-DACS_DRMS_Email_ID	• OU DACS DERMS Common Error Handler • OU DACS DERMS Device Score FTP Transfer • OU DACS DERMS Device Score OS Transfer • OU DERMS DACS Event Device Reserve • OU DERMS DACS Event Outcome Process	Provide the email information to send error details: • **to** property contains the email address(es) of people who handle technical issues like network connection issues, 401 unauthorize issues. • **to.ProcessNotification** property contains the email address(es) of business or application users in DACS and/or DERMS.
OUTL-BRT-DACS_DRMS_EventType	• OU DERMS DACS ProgramEvent Status Update	Translate event type between applications

Lookup Name	Integration Name	Purpose
OUTL-BRT-DACS_DRMS_Routing	• OU DACS DERMS Device Status Check • OU DERMS DACS Event Outcome Process • OU DACS DERMS Enrollment Sync • OU DERMS DACS Event Device Reserve	This lookup is used to route the DERMS environment instances to the DACS CIS Division
OUTL-BRT-DACS_DRMS_EnrollmentStatus	OU DERMS DACS Enrollment Request	Translate the enrollment status to code
OUTL-BRT-DACS_DRMS_EventOutcome	OU DERMS DACS Event Outcome Process	Translates the incoming event outcome to DACS code
OUTL-BRT-DACS_DRMS_StageStatus	OU DERMS DACS ProgramEvent Status Update	Translate stage status values between applications

Editing Lookups

To edit a lookup:

1. Login to Oracle Integration for Cloud.
2. Navigate to **Projects**.
3. Select the project and go to the **Lookups** section of the project.
4. Click **Save** and **Close**.

Configuration Properties

The lookups include properties that can be configured and defaulted in the integration.

Lookup: OUTL-BRT-DACS_DRMS_ConfigProps

Property Name	Sample Value	Description
notification.type.email	email	Hardcoded value for the integrations to send to the 'common error handler' to decide how to send the notifications out. In future release this might be augmented with other types besides the current default: 'email'
notification.email.error.flag	true	If the value is set to true, email notification will be sent out for errors. Valid values: true/false. Default to true. Also, setup the OUTL-BRT-DACS_DRMS_Email_ID 'to' property for the users or administrators who should receive the email.

Property Name	Sample Value	Description
notification.email.process.complete.flag	true	If the value is set to true, email notification will be sent out when the process is completed. Valid values: true/false. Default to true. This is used by flows doing file processing. Also, setup the OUTL-BRTDACS_DRMS_Email_ID 'to.process.notification' property for the users who should receive the email.
notification.email.process.nofile.flag	true	If the value is set to true, email notification will be sent out when no file was processed. Valid values: true/false. Default to true. This is used by flows doing file processing. Also, setup the OUTL-BRTDACS_DRMS_Email_ID 'to.process.notification' property for the users who should receive the email.
enrollmentSyncAckDelay	5	Value is in seconds. Delay before seeing an enrollment acknowledgement back.
dacs.enrollmentSource.default	X1BY	Default to X1BY (Bring Your Own). This is used in Enrollment Request flow. Valid Values: • X1BY - Bring Your Ownm • X1CC - Contact Center • X1SS - Self Service
dacs.prefixtag.fileuploaded	Sent-	Prefix to append to the filename from DACS that has been transferred successfully to the target location. Shared property for all file related flows in this integration.
dacs.prefixtag.filenotuploaded	Error-	Prefix to append to the filename from DACS to mark the file as error or not uploaded to the target location. Shared property for all file related flows in this integration.

Property Name	Sample Value	Description
dacs.dvcScore.extract.filename.prefix	DeviceScore	Device Score Extract file name prefix. It should have the same beginning value as the batch parameter filename in Batch Process X1-SDCSE. Integration use this for filtering the file(s) to pick up from DACS file location by the Device Score flows.
dacs.dvcScore.ftp.input.directory	/sploutput/DACSEnv/DvcScore	DACS FTP directory where the Device Score extract files are stored for OIC to pick up from. Required to be populated when DACS is on-premises.
dacs.os.namespace	dacsnamespace	DACS Object Storage namespace serves as a container for all DACS related buckets and objects. It is used when calling the Object Storage APIs. Required to be populated when DACS is in the cloud.
dacs.os.dvcScore.bucket name	DACS_DVCSCORE	Define the bucket name where the Device Score Extract files are stored in the DACS Object Storage for OIC to pick up from. It is used when calling the Object Storage APIs. Required to be populated when DACS is in the cloud.
dacs.error.ack.messagecategory	11114	DACS - Integration Message Category
dacs.error.ack.messagenumber	31002	Error occurred while processing request to NMS %1%2%3%4%5%6%7%8%9

Lookup: OUTL-BRT-DACS_DRMS_EnrollmentStatus

Property Name	Value	Description
PENDING	SUCCESS	
ERROR	ERROR	
VALERROR	ERROR	
FAILURE	ERROR	
10589	SUCCESS	Duplicate errors can be ignored

Lookup: OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Property Name	Sample Value	Description
From	admin@myCy.com	The email address used to identify who is sending the notification. This value is the default email address for all outgoing emails for this project.
To	errorDist@myCy.com	The email address(es) who should receive any error notification. Multiple emails can be configured by putting comma to separate the email IDs. These are likely the administrators or users who maintain the applications.
to.process.notification	busUserDist@myCy.com	The email address(es) who should receive notification when the file processing has completed, or no file was processed. Multiple emails can be configured by putting comma to separate the email IDs. These are likely the business or application users.

Lookup: OUTL-BRT-OUAI_DACS_DRMS_EventType

DRMS_EventType	DACS_EventType	Description
X1EC	X1EC	
X1EM	X1EM	
X1DT	X1DT	
X1RE	X1RE	

Lookup: OUTL-BRT-OUAI_DACS_DRMS_StageStatus

DRMS_StageStatus	DACS_StageStatus	Description
CANCELED	F1CN	
COMPLETED	F1CO	
IN_PROGRESS	X1IP	
SCHEDULED	X1SD	

Lookup: OUTL-BRT-DACS_DRMS_Routing

DRMS_Instance	DRMS_Site_ Connection	DACS_CIS_Division	DACS_Connection
Attribute Value of DERMS SITE in DRMS Parameters	Name of OIC Connection	CIS Division value	Name of DACS Connection

Lookup: OUTL-BRT-DACS_DRMS_DeviceLocationStatus

DACS_DEVICE_LOC _STATUS	DRMS_DEVICE_ STATUS	Description
D1YS	Active	Value for DACS/DERMS for active or inactive device
D1NO	Inactive	

Lookup: OUTL-BRT-DACS_DRMS_AssetType

DRMS_ASSET_TYPE	DACS_ASSET_TYPE	Description
SMART_THERMOSTAT	SMART THERMOSTAT	Value for DACS/DERMS for type of device

Lookup: OUTL-BRT-DACS_DRMS_AssetSpec

DRMS_MAKE_ MODEL	DACS_ SPECIFICATION	Description
NEST!N3GEN	EST_G3_SPEC	Value for DACS/DERMS for device
NEST!N4GEN	ZZ_CTRL_DVC_THER M_SPEC22	
ECOBEE!E3GEN	EcoBee_E3	

Error Handling

This section describes the different ways errors are handled in the integration:

- Summary of Integration Error Handling
- Resubmitting the Error Instances in Oracle Integration Cloud

Summary of Integration Error Handling

Integration Process: DERMS DACS Enrollment Request

Type of Error	Action	Notification Type	Retry
Technical Fault Example: DACS is not accessible	• Send FAILURE ackType to DERMS • Process Stop	Error Email	Resend message from DERMS
Business Fault (For each record processing where DACS enrollProgram returns - Status VAL-ERROR or ERROR)	• Set Error to the record's responseCode and add to DERMS Responses Collection. • Process the next record. • At the end of the collection processing, send ERROR ackType and the response collection to DERMS.		None Enrollments created in DACS in Pending Status. DACS handles the business errors.
Business Fault (For each record processing DACS enrollProgram returns messageNumber = 10589)	• Error means the enrollment request already exists in DACS. • Ignore the error • Process the next record		None

Integration Process: DACS DERMS Enrollment Sync

Type of error	Action	Notification Type	Retry
Technical Fault Example: DERMS is not accessible	Process Stop	Error Email	Resend message from DACS
Business Fault Example: Cannot create the subscription in DERMS due to null CIS_PERSON_ID.	Process Stop	Send Enrollment Sync Ack with Error	Fix the data in DACS. Resend message from DACS.

Integration Process: DACS DERMS Device Status Check

Type of error	Action	Notification Type	Retry
Technical Fault Example: DERMS is not accessible	Process Stop	Error Email	Resend message from DACS

Integration Process: DACS DERMS Event Device Reservation

Type of error	Action	Notification Type	Retry
Technical Fault (DACS HealthCheck API Error)	• Send FAILURE ackType to DERMS • Process Stop	Error Email	Resend message from DERMS
Technical Fault (Read File Error) Example: File Empty	• Send FAILURE ackType to DERMS • Process Stop	Error Email Process Complete Email - Error	Resend message from DERMS
Technical Fault (DACS Event Participation - Reserve Device API Error)	• Send FAILURE ackType to DERMS • Process Stop	Error Email Process Complete Email - Error	Resend message from DERMS
Business Fault	N/A		None DACS handles the business errors

Integration Process: DERMS DACS Event Device Outcome

Type of error	Action	Notification Type	Retry
Technical Fault (DACS HealthCheck API Error)	• Send FAILURE ackType to DERMS • Process Stop	Error Email	Resend message from DERMS
Technical Fault (Read File Error) Example: File Empty	• Send FAILURE ackType to DERMS • Process Stop	Error Email Process Complete Email - Error	Resend message from DERMS
Technical Fault (DACS Event Participation - Post Event Outcome API Error)	• Send FAILURE ackType to DERMS • Process Stop	Error Email Process Complete Email - Error	Resend message from DERMS
Business Fault	N/A		None DACS handles the business errors

Integration Process: DACS DERMS Device Score

Type of error	Action	Notification Type	Retry
Technical Fault Example: Source FTP or Source Object storage is not accessible	Process Stop	Error Email	Next scheduled run will pick up the files from DACS source content server or manually run the OIC process.
Partial Processing Technical Fault During Processing in Loop Example: DERMS is not accessible	Process Stop	Error Email Process Complete Email (also includes list of files not transferred)	Rename the file in DACS content server by removing the "Error-' prefix in the filename then manually run the OIC Process.
Business errors	N/A		

Integration Process: DERMS DACS ProgramEvent Stage Status

Type of error	Action	Notification Type	Retry
Technical Fault Example: DACS is down or inaccessible due to authentication error, network issue, technical etc.	Process Stop	Error Email Process returns FAILURE to DERMS	DERMS will retry the request
Business errors from DACS (Should not happen)	Process Stop	Error Email Process returns ERROR for DACS '400' errors otherwise FAILURE to DERMS	DERMS will retry the request for FAILURE
Business errors from DERMS or bad OIC configuration values	Request is not sent to DACS	Process returns ERROR to DERMS	Request will not be retried by DERMS

Resubmitting the Error Instances in Oracle Integration Cloud

In this integration, the flows initiated are asynchronous flows. The **Resubmit** option is available only for asynchronous flows.

To resubmit the error instances in Oracle Integration Cloud:

1. Login to Oracle Integration Cloud.
2. Navigate to **Integrations** > **Monitoring** > **Errors**.
3. Select the integration to resubmit.
4. Click the **Resubmit** icon.

Email Notifications

This pre-built integration includes a configurable email notification when technical errors are encountered in Oracle Integration Cloud.

To receive an email notification:

1. Login to Oracle Integration Cloud.
2. Navigate to **Integrations** > **Designer** > **Lookups**.
3. Edit the **OUTL-BRT-DACS_DRMS_ConfigProps** lookup.

   Change the `notification.email.error.flag` property value to *true*.
4. Edit the **OUTL-BRT-DACS_DRMS_Email_ID** lookup.
   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 **OUTL-BRT-DACS_DRMS_Email_ID** lookup, do not edit the values provided in the **Recipient** column.

Chapter 7

Customizations

In Oracle Integration Generation 3, you can customize an integration in an accelerator project by adding and configuring an extension group, which is what enables the integration customization by adding to the integrations in your accelerator project invoke connections (stitch, for-each, switch, map), integration actions, and global variables.

For more details on how to perform these changes, refer to Manage a Project in Using Integrations in Oracle Integration 3, and to the Knowledge Base article How To Extend Oracle Integration Cloud Gen3 Project (Doc ID 3017378.1).

Chapter 8

Monitoring and Troubleshooting

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

- Oracle Utilities Digital Asset Cloud Service
- Oracle Integration Cloud

Oracle Utilities Digital Asset Cloud Service

This section provides information about monitoring Oracle Utilities Digital Asset Cloud Service logs.

See the **Troubleshooting** section in the *Oracle Utilities Cloud Services Implementation Guide* on Oracle Help Center for more information.

Cloud Service Logs

The customer or system integrator can request access logs from cloud environments. Every Access Log request will require a service request to be logged in My Oracle Support.

On-Premise Application Logs

Application related error logs can be viewed from:

- DACS_ENV_NAME/logs/ or DACS_ENV_NAME/logs/system folder. Example: V27_DACS_ORA_WLS/logs/system/

See the Oracle Utilities Digital Asset Cloud Service documentation for details.

Oracle Integration Cloud

This section focuses on the monitoring of the Oracle Integration Cloud, as well as on the troubleshooting of issues related to the integration activation:

- Monitoring Integration Flows
- Troubleshooting

Monitoring Integration Flows

Integration flows are monitored from:

- Project (for project based integration instances)
- Observability (for non project based integration instances)

To monitor the integration flows within a project:

1. Login to Oracle Integration Cloud.
2. Click **Projects**. On the navigation pane, click the relevant project.
3. Navigate to the **Observe** menu, where you can consult the following:
   - **Integrations**: To view the counts of various status of instances created per integration flows.
   - **Instances**: To see instances of integrations of the project.
   - **Future runs**: To see all the runs scheduled or started for scheduled integrations.
   - **Audit**: To view and download design-time audit logs.

To monitor the integration flows through the Oracle Integration Cloud menu:

1. Login to Oracle Integration Cloud.
2. On the navigation pane, click **Observability**.
3. Select the following as required:
    - **Dashboards**: To monitor the complete integration information. Get at-a-glance information about the number and status of your projects, integrations, connections and more.
    - **Integrations**: The Monitor integrations page lets you view the message processing status of your running integrations. It shows how many messages have been received and processed and how many messages are successful, in error or aborted and errors have occurred, and how many messages have been aborted. To monitor each integration.
    - **Instances**: To filter and track the status of integration instances and show the flow trace/activity stream of the integration.
    - **Error**: To manage errors in Oracle Integrations. Resubmit failed instances, discard failed instances, view message recovery status, and view basic and detailed error messages.

      For more information, refer to Explore the Navigation Pane.

Troubleshooting

To troubleshoot the errors in the workflow through the generated instances, you can set tracing level to DEBUG to generate detailed logs.

To enable DEBUG:

1. Select **Configure Activation** and then select the **Tracing Level** to be 'DEBUG'.
2. Run the integration and check the activity stream which now will include the runtime log details of the flow.
3. If an activation fails, the Integrations page displays an error message. 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.
    - For Oracle Utilities Digital Asset Cloud Service initiated integration flows activated for the first time, ensure that Oracle Utilities Work and Asset Cloud Service catalog is configured accurately. All external systems and inbound web services used by the integration are defined in the catalog.

Appendix A

Limitations and Workarounds

For a list of limitations and workarounds in this integration and in the respective edge applications, refer to the *Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Energy Distributed Energy Resources Management System Release Notes* included in this release. The documentation is available at Oracle Help Center.