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

Configuration Guide

Release 24B

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

Contents

Preface

Welcome to the Oracle Utilities Analytics Insights Integration to Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System Configuration Guide for release 24B.

This preface explains how the guide is organized and introduces other sources of information that can help you. It includes the following:

Audience

This document is intended for anyone implementing the Oracle Utilities Analytics Insights integration with Oracle Utilities Digital Asset Cloud Service and 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 Analytics Insights Integration to Oracle Utilities Digital Asset Cloud Service and 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 Digital Asset Cloud Service documentation	https://docs.oracle.com/en/industries/energy-water/digital-asset-cloud-service/
Oracle Utilities Analytics Insights documentation	https://docs.oracle.com/en/industries/energy-water/analytics-insights/index.html

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

Resource	Location
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
DRMS	Demand Response Management System
LEC	Oracle Utilities Live Energy Connect
OUAI	Oracle Utilities Analytics Insights
IWS	Inbound Web Service

Term	Expanded Form
OIC	Oracle Integration Cloud
OCI	Oracle Cloud Infrastructure

Chapter 1

Overview

This chapter provides an overview of the integration between Oracle Utilities Analytics Insights, 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 by the integration.

The chapter includes the following:

Overview of the Integration

The integration between Oracle Utilities Analytics Insights, Oracle Utilities Digital Asset Cloud Service and 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, load reduction forecasts for enrolled customers, program event participation outcomes, and the actual consumption reduced or kWh avoided during a program event to be used for financial settlement.

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 is built on Oracle Utilities Network Management System (NMS). It adds incremental support to the Oracle Utilities Network Management System 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. Oracle Utilities Network Management System facilitates the modeling of individual Demand Response devices down to the customer service point and/or aggregated to load transformers to support Oracle Utilities Network Management System driven optimization. In conjunction with Oracle Utilities Network Management System the Oracle Utilities Grid Edge Distributed Energy Resources

Management System component can help optimize electrical networks both operationally and commercially.

Oracle Utilities Grid Edge Distributed Energy Resources Management System offers strategy templates to be used for forecasting for 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. Oracle Utilities Grid Edge Distributed Energy Resources Management System supports 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.

About Oracle Utilities Analytics Insights (OUAI)

Oracle Utilities Analytics Insights delivers pre-built and trained machine learning insights designed to drive utility business outcomes, solving specific and complex use cases with data science. It provides a client-facing web portal user interface with a back-end analytics engine. Insights are surfaced onto Oracle Analytics Cloud to be explored further by utility users.

Oracle Utilities Analytics Insights supports standardized data ingest from other Oracle Utilities applications to significantly speed up delivery. It provides a flexible platform that allows the ability to ingest any type of data and allow data scientists to add it into an algorithm. Export tools featured within the product allows insights to be added to any data lake.

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 Analytics Insights
- 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 Analytics Insights Integration to Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System Release Notes* included in this release.

Integrations documentation is available at Oracle Help Center.

Prerequisites

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

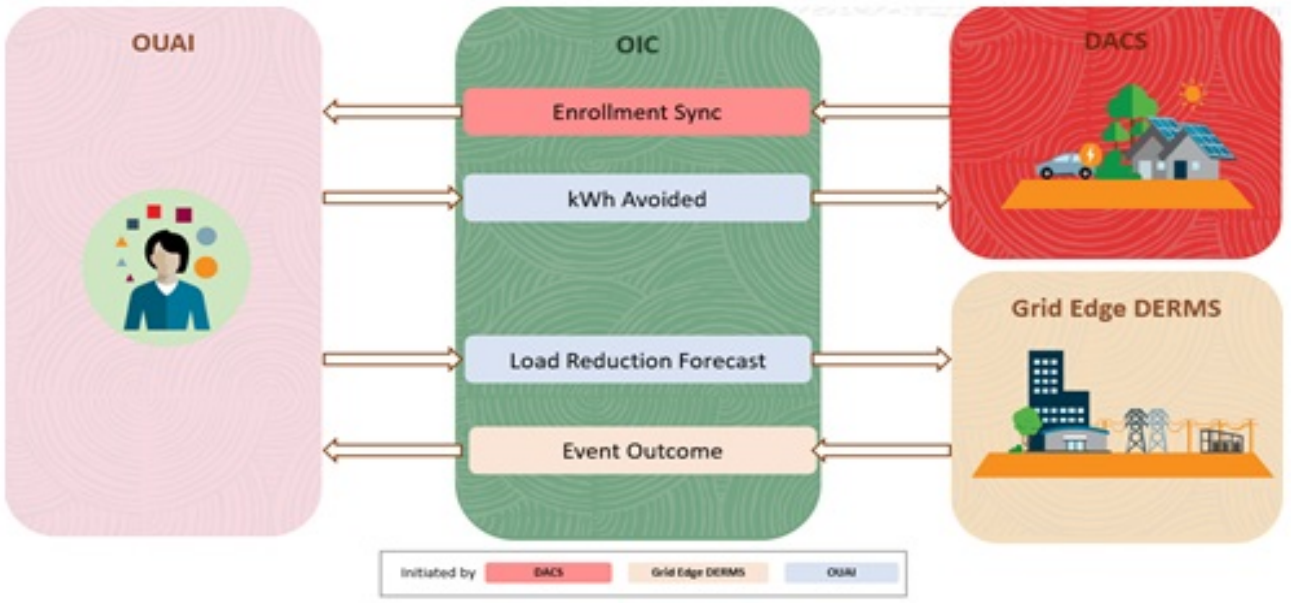
Customer Information must be synchronized from the Custom Information System application or Oracle Utilities Customer Care and Billing to the following applications:

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

Make sure that the Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resources Management System must be installed, set up, and working properly.

Supported Business Processes

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



Note: The initial release is focused on supporting enrollments for customer-owned demand-response devices like Smart Thermostats.

The integration supports the following key functionalities:

- Synchronize the customer's program subscription information on successful enrollments and unenrollments from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Analytics Insights.
- Send device outcome for all participating devices in an event from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Analytics Insights.
- Periodically transfer the estimated load reduction forecast for each metered service point that is associated to an active program from Oracle Utilities Analytics Insights to Oracle Utilities Grid Edge Distributed Energy Resources Management System.
- Transfer the actual kWh Avoided value for each participating customer post an event participation from Oracle Utilities Analytics Insights 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 Analytics Insights, 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 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, namely, business, and technical error email notification. Email notifications are optional, but are enabled by default.

1. Business email notifications:

   These notifications are used in file processing flows.

   Configure the following properties in lookup OUTL-BRT-OUAI_DACS_DRMS_ConfigProps to enable and disable notifications:

   - Property name `notification.email.process.complete.flag` to 'true' to receive 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 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 `dacs.to.process.notification`, `drms.to.process.notification` and `ouai.to.process.notification recipients` of the OUTL-BRT-OUAI_DACS_DRMS_Email_ID lookup. These are sent to the business users of the applications.

2. Technical error email notifications:

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

   - Configure the property name `notification.email.error.flag` in the OUTL-BRT-OUAI_DACS_DRMS_ConfigProps lookup 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 the OUTL-BRT-OUAI_DACS_DRMS_Email_ID lookup. These are sent to the administrators of the applications.

Note: Email notifications are optional but are enabled by default.

- The OUTL-BRT-OUAI_DACS_DRMS_ConfigProps lookup 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 outbound messages to pull file(s) from a content server or to create file(s) and upload to the content server defined for an external application to pull for processing.

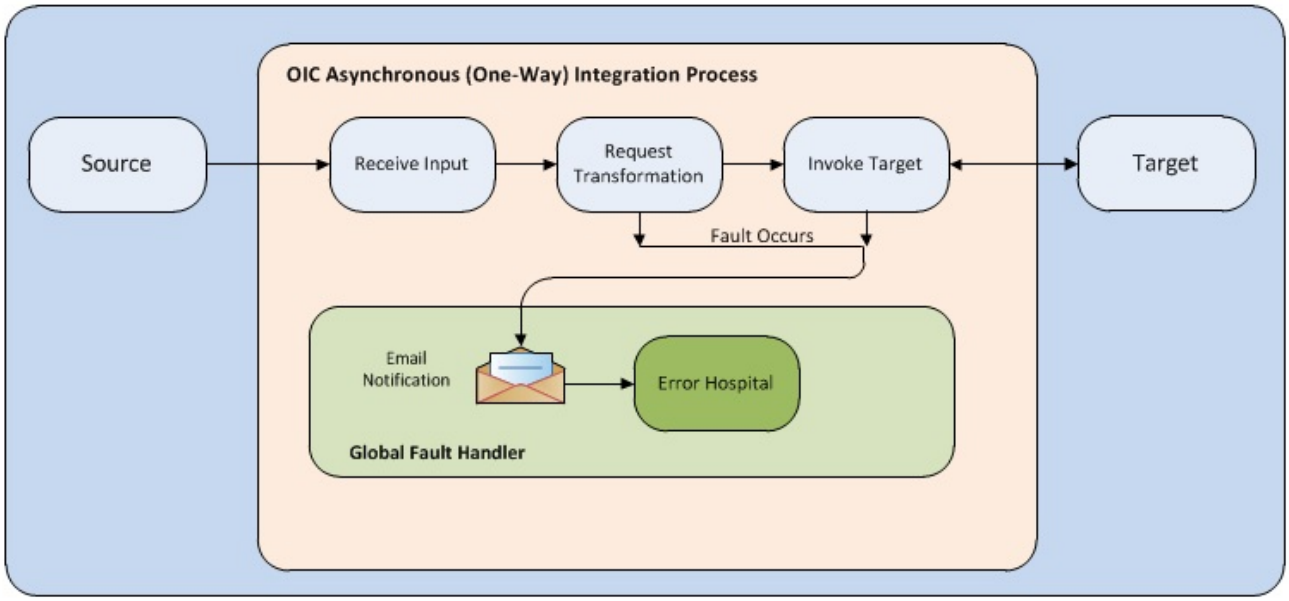
  Oracle Utilities Digital Asset Cloud Service uses REST inbound web services (IWS) to receive messages.
- In the Oracle Utilities Grid Edge Distributed Energy Resources Management System initiated processes, events are triggered to send the outbound messages and files if applicable. Oracle Utilities Grid Edge Distributed Energy Resources Management System uses REST APIs to receive messages or files.
- In the Oracle Utilities Analytics Insights all data are transferred through files. Any incoming or outgoing files are placed in an Oracle Cloud Infrastructure Object Storage.
- 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:

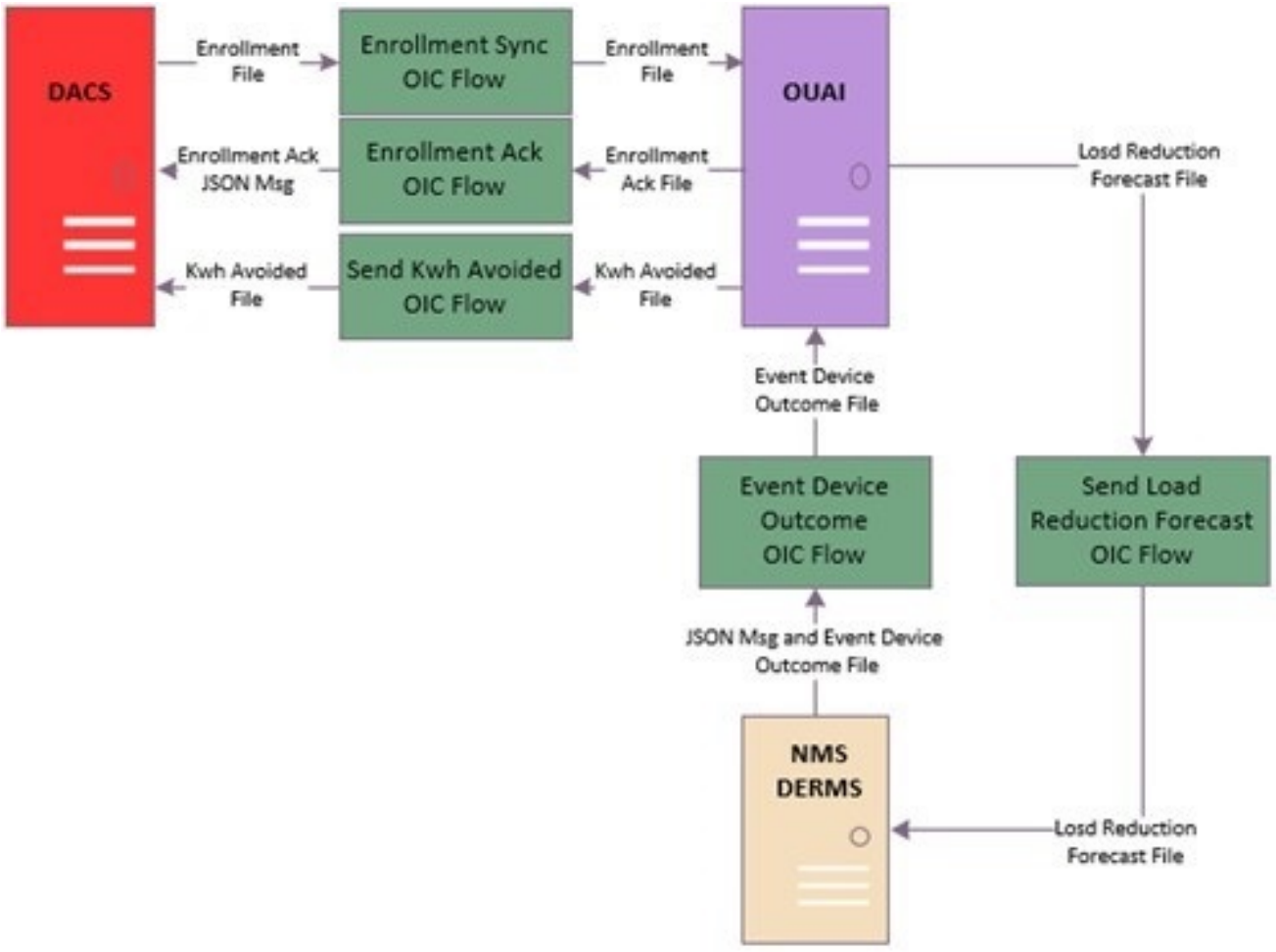
1. Receives request message from the source application.
2. Transforms message from the source to the target format. Lookups are used for data translations, if applicable.
3. Invokes target application to send the request message.
4. In case of any error, the global fault handler catches the error.
5. 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 solution diagram for the integration between Oracle Utilities Analytics Insights, Oracle Utilities Digital Asset Cloud Service, and Oracle Utilities Grid Edge Distributed Energy Resources Management System is shown below.



Integration Flows

The integration supports the following processes:

- Enrollment Sync Process
  - Enrollment FTP Transfer (DACS Initiated)
  - Enrollment OS Transfer (DACS Initiated)
  - Enrollment Acknowledgment OS Process (OUAI Initiated)
- Event Device Outcome (DERMS Initiated)
- KWH Avoided OS Transfer (OUAI Initiated)
- Load Reduction Forecast OS Transfer (OUAI Initiated)
- Common Integration Flows

Enrollment Sync Process

When customers enroll or unenroll, their smart controllable device(s) in a program successfully in Oracle Utilities Digital Asset Cloud Service, the enrollment information are sent to Oracle Utilities Analytics Insights through a file extract.

This integration process transfers the enrollment file from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Analytics Insights.

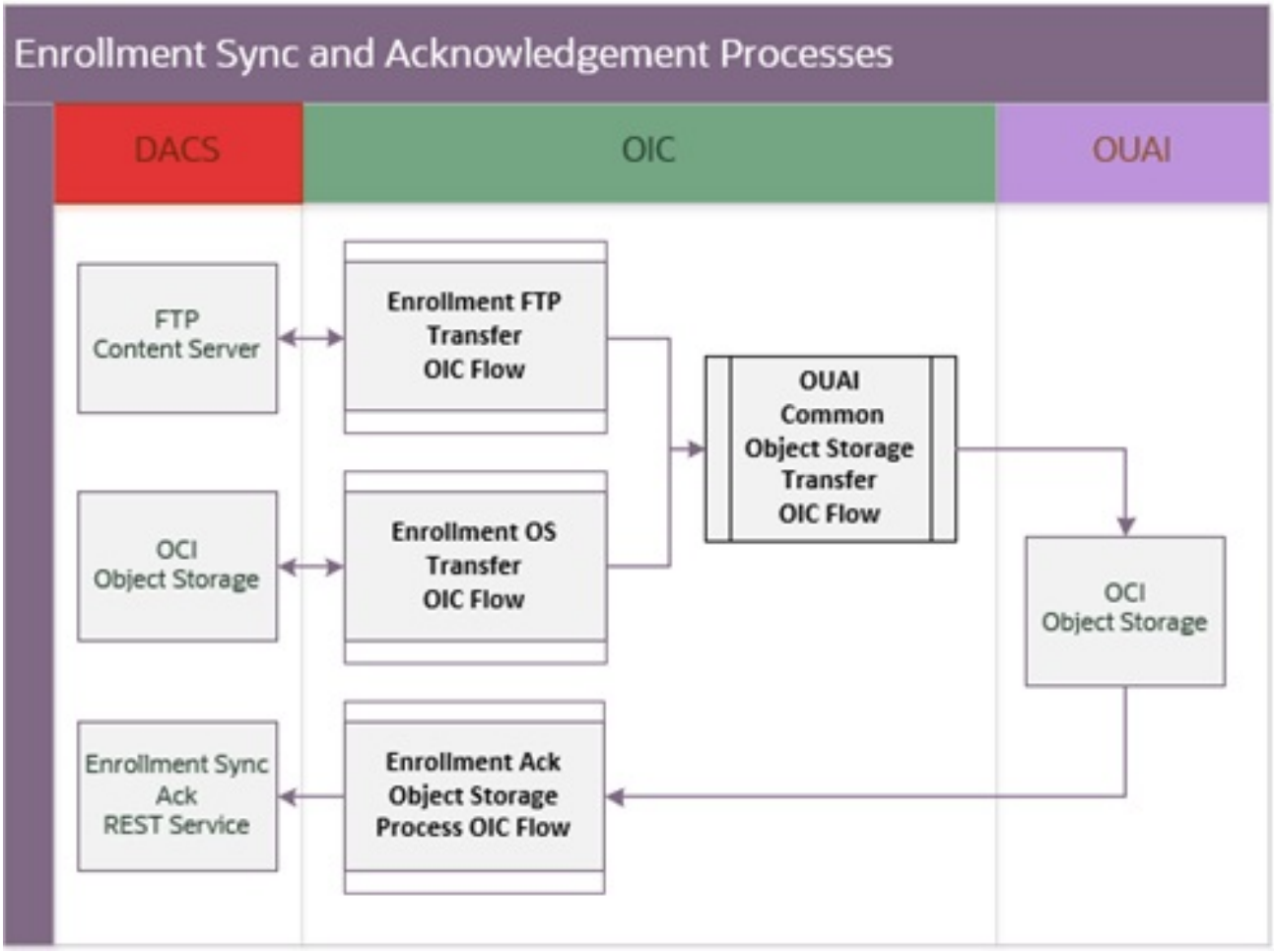
Oracle Utilities Analytics Insights process the enrollments and send the enrollment acknowledgment back to Oracle Utilities Digital Asset Cloud Service.

Oracle Utilities Digital Asset Cloud Service can place the file in an On Premise FTP Server or in an OCI Object Storage location. Oracle Utilities Analytics Insights only interacts with files through OCI Object Storage.

The enrollment synchronization and acknowledgment are handled by the following Oracle Integration Cloud integration flows depending on the file transfer preference:

- Enrollment FTP Transfer (DACS Initiated)
- Enrollment OS Transfer (DACS Initiated)
- Enrollment Acknowledgment OS Process (OUAI Initiated)

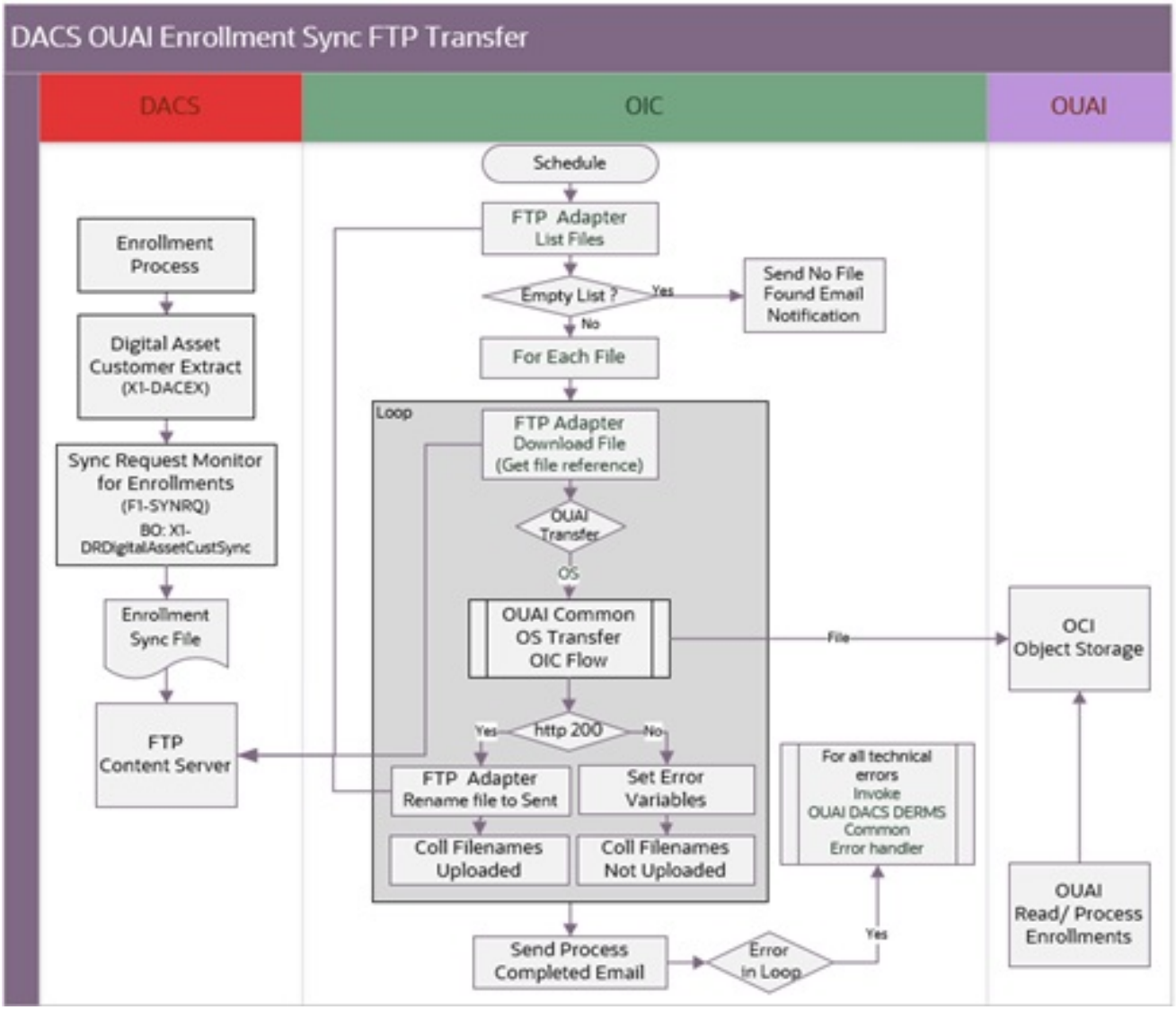
The following diagram shows the Enrollment-related processes:



Enrollment FTP Transfer (DACS Initiated)

This integration process retrieves the enrollment sync data file(s) from an FTP content storage location where Oracle Utilities Digital Asset Cloud Service uploads files and transfer it to the related Oracle Utilities Analytics Insights Object Storage location.

The following diagram shows a graphical representation of the Enrollment Sync integration process from an FTP Server:



Processing Details

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

1. The process is triggered by a schedule or it can also be triggered manually.
2. Lists all files found in the in the Oracle Utilities Digital Asset Cloud Service source folder, filepath set in the property `dacs.ftp.enroll.input.directory`. It will retrieve files matching the prefix set in `property dacs.enroll.filename.prefix`.

- If no file is found, it will send a no file found email notification and the process will stop.
- If files are found, go to the next step.

3. For each file, do the following:
   a. Download the file using the FTP Adapter.
   b. If Oracle Utilities Analytics Insights is configured to receive the file via object storage, invokes the "OU OUAI Common OS Transfer" Oracle Integration Cloud child process passing the necessary information to transfer the file accordingly.

      The OU OUAI Common OS Transfer Oracle Integration Cloud child process uploads the file to the Oracle Utilities Analytics Insights object Storage.

      Note: The property ouai.file.target.transfer is defaulted to "os". Currently, Oracle Utility Analytics Insights only support Object Storage as its content server.

      - If the child process returns HTTP status 200, the file transfer was successfully completed. The source file name is renamed by appending the prefix set in the property.
      - Else, an error occurred during the file transfer.
4. After successful transfer of all the files, a Process Completed email notification is sent to `dacs.to.process.notification` and `ouai.to.process.notification` recipients defined in lookup OUTL-BRT-OUAI_DACS_DRMS_EMAIL_ID.
5. Error Handling.

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.
- If the error occurs while processing the list of files, then 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 Analytics Insights and Oracle Utilities Digital Asset Cloud Service artifacts used in this integration process.

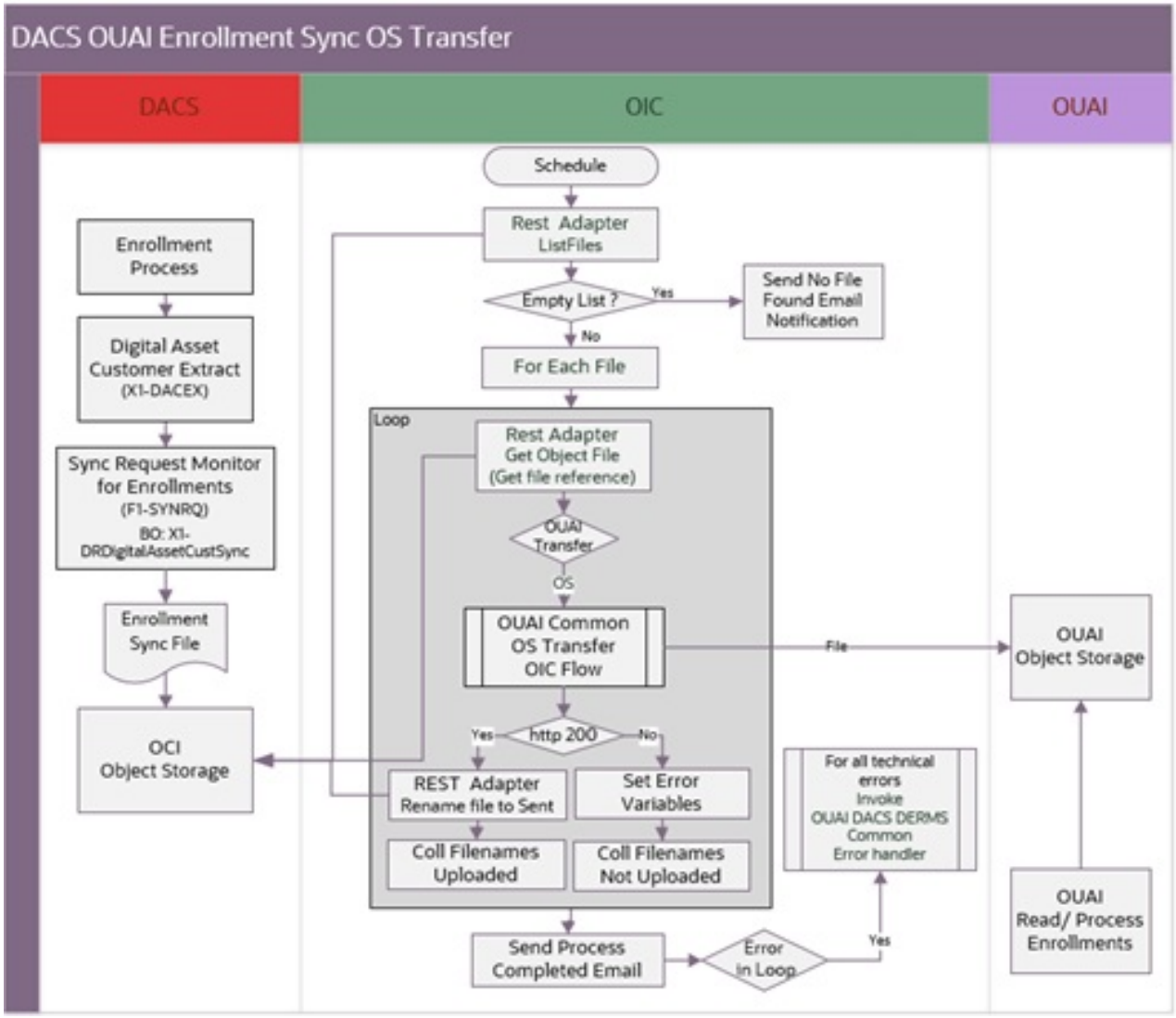
Artifacts	Value
Integration Process Name	OU DACS OUAI Enrollment FTP Transfer
Integration Process Identifier	OUTL-BA-DACS_OUAI_FTP_ENROLL
Integration Project Name	OU OUAI DACS DERMS
Source Connection (FTP Adapter)	OU FTP DACS for OUAI-DACS-DERMS
Target Connection (REST Adapter)	OU REST OIC for OUAI-DACS-DERMS (Connecting to internal OU OUAI Common OS Transfer OIC flow passing file as attachment)

Artifacts	Value
Local Integrations	OU OUAI Common OS Transfer OU OUAI DACS DERMS Common Error Handler
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications	OUTL-BRT-OUAI_DACS_DRMS_ConfigProps OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Enrollment OS Transfer (DACS Initiated)

This integration process retrieves the enrollment sync data file(s) from an Oracle Integration Cloud Object Storage location where Oracle Utilities Digital Asset Cloud Service uploads files and transfer it to the related Oracle Utilities Analytics Insights Object Storage location.

The following diagram shows a graphical representation of the Enrollment Sync integration process from an Oracle Integration Cloud Object Storage:



Processing Details

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

1. The process is triggered by a schedule or it can also be triggered manually.
2. Lists all files found in the Oracle Utilities Digital Asset Cloud Service Object Storage Bucket, that is set in the property `dacs.os.enroll.bucket` along with `dacs.os.namespace`. It will retrieve files matching the prefix configured in the property `dacs.enroll.filename.prefix`.
   - If no files are found, it will send a no file found email notification and the process will stop.
   - If files are found, go to the next step.
3. For each file, do the following:
   a. Get the file using the REST Adapter.

b. If Oracle Utilities Analytics Insights is configured to receive the file via object storage, invokes the Oracle Integration Cloud child process: OU OUAI Common OS Transfer passing the necessary information to transfer the file accordingly.

The "OU OUAI Common OS Transfer" Oracle Integration Cloud child process uploads the file to the Oracle Utilities Analytics Insights object Storage.

Note: The property ouai.file.target.transfer is defaulted to "os". Currently, Oracle Utilities Analytics Insights only support Object Storage as its content server.

- If the child REST service returns HTTP status 200, the file transfer was successfully completed. The source file name is renamed by appending the prefix set in the `dacs.prefixtag.fileuploaded` property.
- Else, an error occurred during the file transfer.

4. After successful transfer of all the files, a Process Completed email notification is sent to `dacs.to.process.notification` and `ouai.to.process.notification` defined in lookup OUTL-BRT-OUAI_DACS_DRMS_EMAIL_ID.
5. Error Handling.

   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.
   - If the error happens while processing the list of files, then 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 artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU DACS OUAI Enrollment FTP Transfer
Integration Process Identifier	OUTL-BA-DACS_OUAI_FTP_ENROLL
Integration Project Name	OU OUAI DACS DERMS
Source Connection (REST Adapter)	OU REST DACS Object Storage for OUAI-DACS-DERMS (Connecting to Object Storage)
Target Connection (REST Adapter)	OU REST OIC for OUAI-DACS-DERMS (Connecting to internal OU OUAI Common OS Transfer OIC flow passing file as attachment)
Local Integrations	OU OUAI Common OS Transfer OU OUAI DACS DERMS Common Error Handler

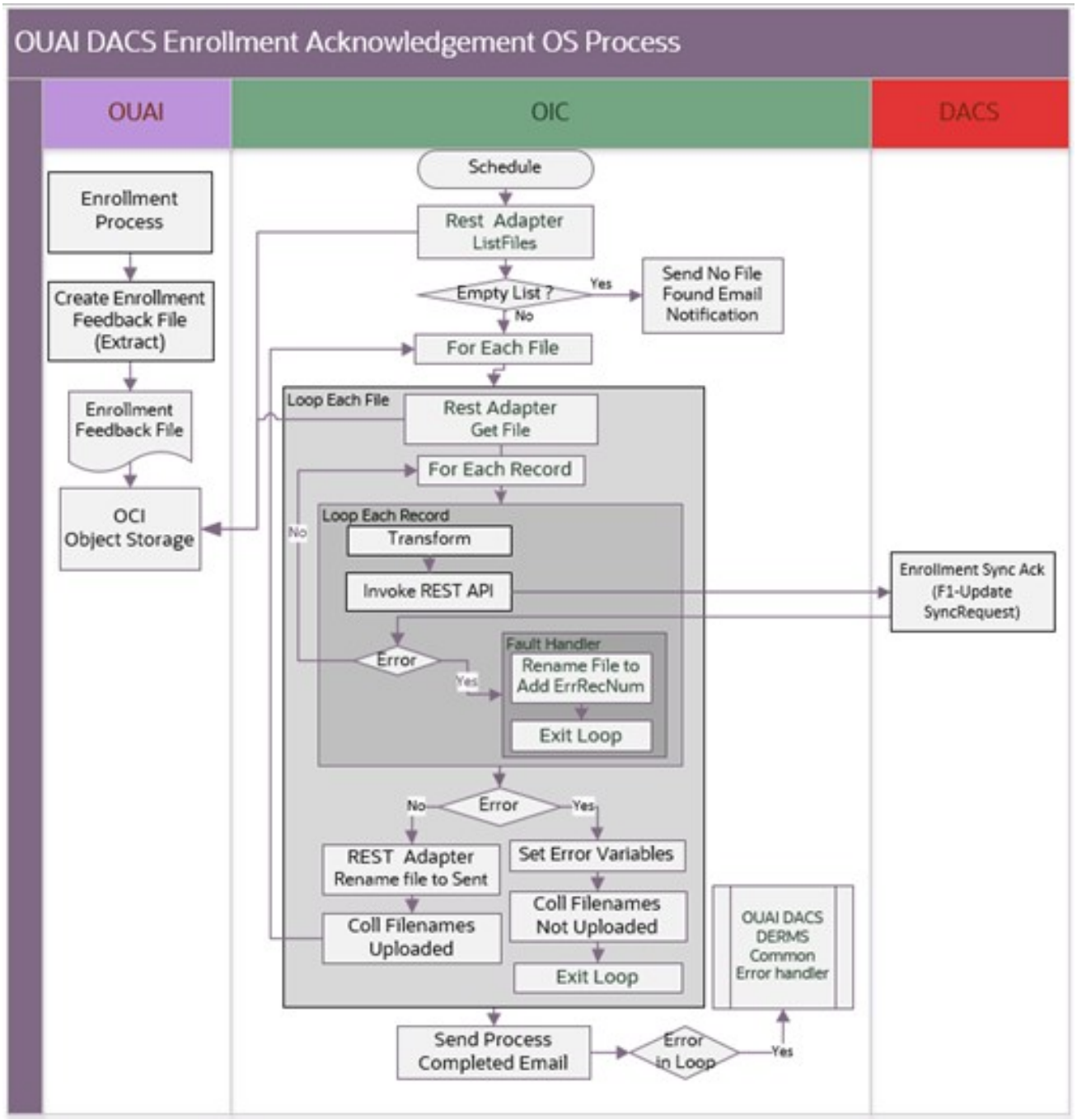
Artifacts	Value
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications	OUTL-BRT-OUAI_DACS_DRMS_ConfigProps OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Enrollment Acknowledgment OS Process (OUAI Initiated)

After Oracle Utilities Analytics Insights process the enrollments received from Oracle Utilities Digital Asset Cloud Service, it sends the enrollment acknowledgment back to Oracle Utilities Digital Asset Cloud Service.

Oracle Utilities Analytics Insights only interacts with files through Oracle Integration Cloud Object Storage and Oracle Utilities Digital Asset Cloud Service receives the enrollment acknowledgments through a REST web service.

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



Processing Details

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

1. The process is triggered by a schedule or it can also be triggered manually.
2. Lists all files found in the Oracle Utilities Analytics Insights Object Storage Bucket, set in properties `ouai.os.enrollack.bucket` and `ouai.os.namespace`. It will retrieve files matching the prefix set in the `ouai.os.enrollack.filename.prefix` property.

- If no file is found, it will send a no file found email notification and the process will stop.
- If files are found, go to the next step.

3. For each file, do the following:
   a. Get the file using the REST Adapter
   b. For each record in the file:
      - Transform the enrollment acknowledgment CSV record to Oracle Utilities Digital Asset Cloud Service JSON format.
      - Invoke Oracle Utilities Digital Asset Cloud Service Sync Request Update REST endpoint to send the acknowledgment.
      - For any errors encountered during record processing in the loop:
        - The source file will be renamed to append the error record number.

          Sample: `feedback.dacs.program_subscription.20230210_ErrInRcd_6.csv`

          The sample denotes that when processing the 6th record, an error was encountered due to a network connection issue or the application went down. When the file is reprocessed, it will start at the 6th record.
        - It will stop further record processing in the file.
   c. If no error encountered in the record processing loop:
      - The current source file name is renamed by appending the prefix set in the property `ouai.prefixtag.fileuploaded` processed.
      - Else, an error occurred during the record processing and stop further file processing.
4. After successful transfer of all files, a Process Complete Notification email is sent to `dacs.to.process.notification` and `ouai.to.process.notification` recipients defined in the OUTL-BRT-OUAI_DACS_DRMS_Email_ID lookup.
5. Error Handling.
   - For technical faults encountered in the process, such as connectivity issues, an error email notification with error details is sent out via the common error handler Oracle Integration Cloud process.
   - If an error is encountered 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 Analytics Insights and Oracle Utilities Digital Asset Cloud Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU OUAI DACS EnrollmentAck OS Process
Integration Process Identifier	OUTL-BA-OUAI_DACS_OS_ENROLL_ACK
Integration Project Name	OU OUAI DACS DERMS

Artifacts	Value
Source Connection (REST Adapter)	OU REST OUAI OS for OUAI DACS DRMS (Connecting to Object Storage)
Target Connection (Oracle Utilities Adapter)	OU REST DACS for OUAI-DACS-DRMS
Local Integrations	OU OUAI DACS DERMS Common Error Handler
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications	OUTL-BRT-OUAI_DACS_DRMS_ConfigProps OUTL-BRT-OUAI_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).

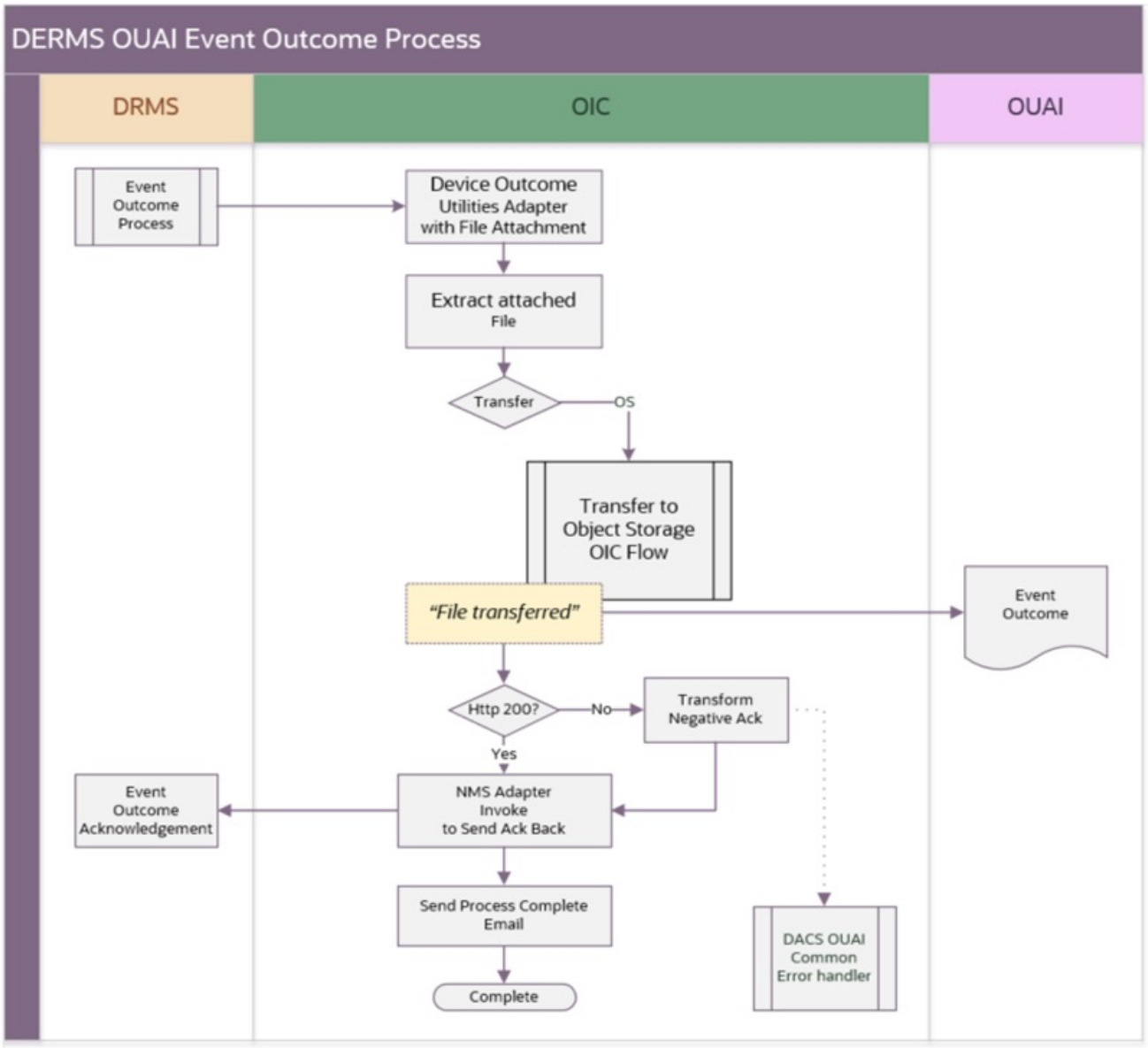
Oracle Utilities Grid Edge Distributed Energy Resources Management System aggregates and sends both Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Analytics Insights the post event outcome for all controllable devices called to participate in an event or events through a file.

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 it 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.

This integration process transfers the post event outcome file from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Utilities Analytics Insights 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 Outcome integration process.



Processing Details

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

1. The process is triggered when Oracle Utilities Grid Edge Distributed Energy Resources Management System invokes REST endpoint to send the post event outcome information to Oracle Utilities Analytics Insights Service. The message received is a JSON payload with a CSV file attachment.
2. If Oracle Utilities Analytics Insights is configured to receive the attached file via object storage the request is routed to OU OUAI Common OS Transfer child process passing the necessary information to drop it accordingly.

The OU OUAI Common OS Transfer Oracle Integration Cloud child process uploads the file to the Oracle Utilities Analytics Insights Object Storage.

Note: The property ouai.file.target.transfer is defaulted to "os". Currently, Oracle Utilities Analytics Insights only support Object Storage as its content server.

a. If the child REST service returns HTTP status 200, the file transfer was successfully completed, and a positive post event outcome acknowledgment is sent to Oracle Utilities Grid Edge Distributed Energy Resources Management System.

b. Else, an error occurred during the file transfer and a negative post event outcome acknowledgment is sent to Oracle Utilities Grid Edge Distributed Energy Resources Management System.

3. Error Handling

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.
- A negative acknowledgment is sent to Oracle Utilities Grid Edge Distributed Energy Resources Management System upon it will retry the file transfer according 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 OUAI Event Device Outcome Transfer
Integration Process Identifier	OUTL-BA-DRMS_OUAI_EVT_OUTC_TRNFR
Integration Project Name	OU OUAI DACS DERMS
Source Connection (Oracle Utilities Adapter)	OU REST DERMS for OUAI DACS DERMS
Trigger	DERMS Service Name: NMS-DACSOutbound OperationId: deviceOutcomeToOUAI
Target Connection (REST Adapter)	OU REST OIC for DACS-DERMS (Connecting to internal OU OUAI Common OS Transfer OIC flow passing file as attachment)
Target Connection (Oracle Utilities Adapter)	OU REST DERMS for OUAI DACS DERMS

Artifacts	Value
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 OUAI Common OS Transfer OU OUAI DACS DERMS Common Error Handler
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications	OUTL-BRT-OUAI_DACS_DRMS_ConfigProps OUTL-BRT-OUAI_DACS_DRMS_Email_ID OUTL-BRT-DACS_OUAI_Routing

KWH Avoided OS Transfer (OUAI Initiated)

When customer devices, enrolled in an active program participated in a program event, the outcome of the devices' participation can result in a financial incentive.

The actual reduction in consumption during the event duration is calculated by Oracle Utilities Analytics Insights. The kWh Avoided is calculated at the metered service point linked to the device or devices that participated in an event.

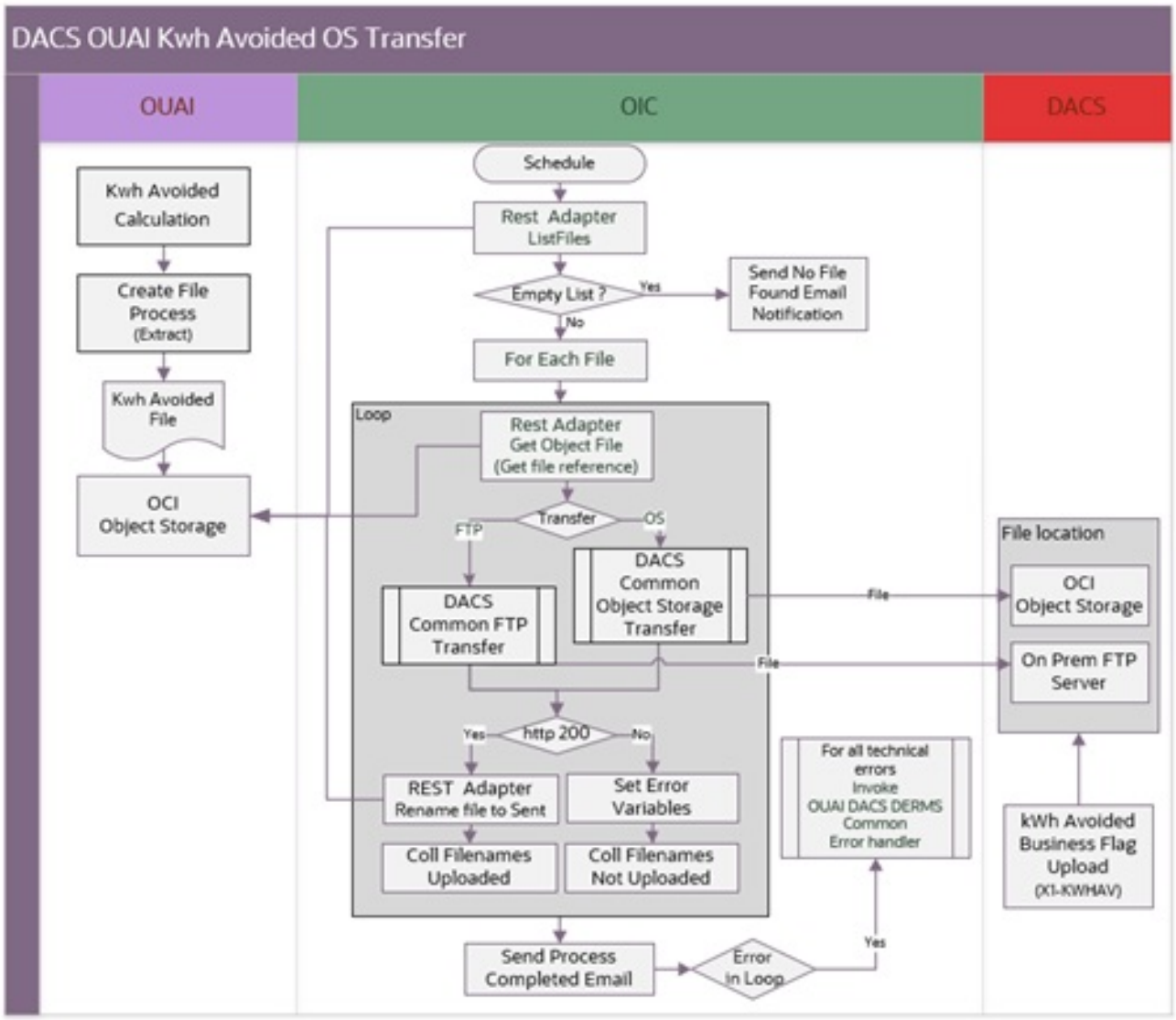
This integration process sends the KWH Avoided data from Oracle Utilities Analytics Insights to Oracle Utilities Digital Asset Cloud Service.

Oracle Utilities Analytics Insights only interacts with files through OCI Object Storage and Oracle Utilities Digital Asset Cloud Service can receive the files in an On Premise FTP Server or in an OCI Object Storage location.

The Kwh Avoided File Transfer called internally the following Oracle Integration Cloud integration flows depending on the target file transfer preference:

- OU DACS Common OS Transfer
- OU DACS Common FTP Transfer

The following diagram shows a graphical representation of the KWH Avoided File Transfer process.



Processing Details

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

1. The process is triggered by a schedule or it can also be triggered manually.
2. Lists all files found in the Oracle Utilities Analytics Insights Object Storage Bucket, set in properties `ouai.os.kwhavoided.bucket` and `ouai.os.namespace`. It will retrieve files matching the prefix set in the `ouai.os.kwhavoided.filename.prefix` property.
   - If the file is not found, it will send a 'no file found' email notification and the process stops.
   - If files are found, proceed to the next step.

3. For each file, do the following:
   a. Get the file using the REST Adapter.
   b. Based on the value set in the `dacs.file.target.transfer.pref` property, the process sends the file reference to a child process.
   c. There are 2 child processes that can be called - OU DACS Common FTP Transfer and OU DACS Common OS Transfer.
      - If the property value is 'os', it is routed to the OU DACS Common OS Transfer child process, the file is sent to DACS OCI Object Storage. The file location is set in the **`dacs.os.namespace`** and `dacs.os.kwhavoided.bucket` properties.
      - If property value is 'ftp', it is routed to OU DACS Common FTP Transfer child process, the file is sent to the Oracle Utilities Digital Asset Cloud Service FTP location. The file location is set in the `dacs.ftp.kwhavoid.input.directory` property.
   d. If the child process returns HTTP status 200, the file transfer was successfully completed. The source file name is renamed by appending the prefix set in the `ouai.prefixtag.fileuploaded` property. Otherwise, an error occurred during the file transfer.
4. After successful transfer of all files, a Process Complete Notification email is sent to `dacs.to.process.notification` and `ouai.to.process.notification` recipients defined in the OUTL-BRT-OUAI_DACS_DRMS_Email_ID lookup.
5. Error Handling.

   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.
   - If an error is encountered while processing the list of files, the Process Complete email notification is also sent out that contains the summary of files transferred and not transferred.
   - The integration flow will stop processing.

Technical Details

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

Artifacts	Value
Integration Process Name	OU OUAI DACS KwhAvoided OS Transfer
Integration Process Identifier	OUTL-BA-OUAI_DACS_KWHAVD_OS_TRF
Integration Project Name	OU OUAI DACS DERMS
Source Connection (REST Adapter)	OU REST OUAI Object Storage for OUAI-DACS-DERMS (Connecting to Object Storage)

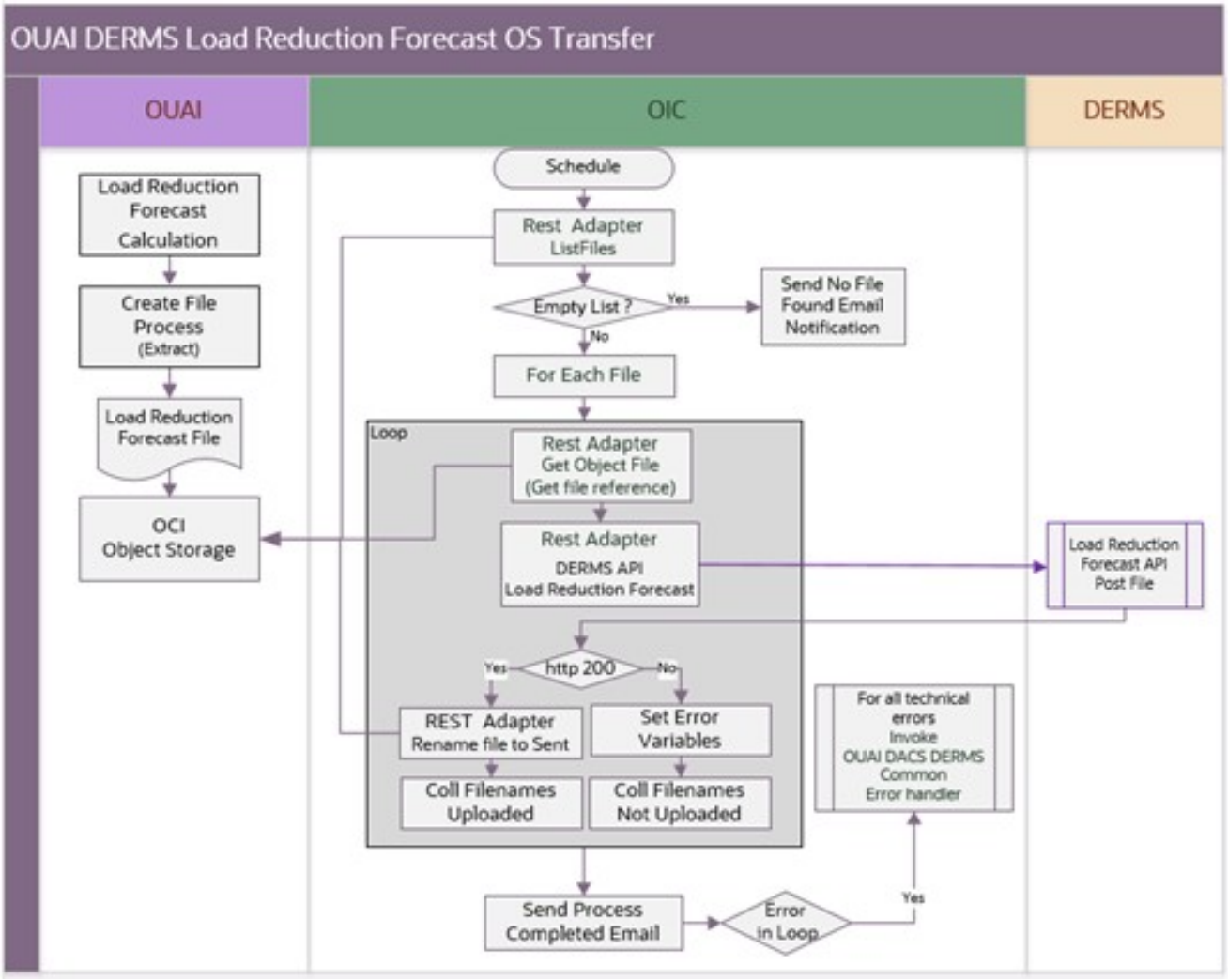
Artifacts	Value
Target Connection (REST Adapter)	OU REST OIC for OUAI-DACS-DERMS (Connecting to internal OU DACS Common OS Transfer or OU DACS Common FTP Transfer OIC flow passing file as attachment)
Local Integrations	OU DACS Common FTP Transfer OU DACS Common OS Transfer OU OUAI DACS DERMS Common Error Handler
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications	OUTL-BRT-OUAI_DACS_DRMS_ConfigProps OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Load Reduction Forecast OS Transfer (OUAI Initiated)

Oracle Utilities Analytics Insights calculates the load reduction forecast for each metered service point associated to a utility customer enrolled in an active demand response program and sends the information to Oracle Utilities Grid Edge Distributed Energy Resources Management System.

Oracle Utilities Analytics Insights only interacts with files through the Oracle Integration Cloud Object Storage and Oracle Utilities Grid Edge Distributed Energy Resources Management System receives the files through a REST web service.

The following diagram shows a graphical representation of the Load Reduction Forecast File Transfer process.



Processing Details

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

1. The process is triggered by a schedule or it can also be triggered manually
2. List all file list found from in the Oracle Utilities Analytics Insights Object Storage bucket, set in `ouai.os.loadreductionforecast.bucket` and `ouai.os.namespace` properties. It will retrieve files matching the prefix set in the `ouai.loadreductionforecast.filename.prefix` property.
   - If no file is found, it will send a no file found email notification and the process will stop.
   - If files are found, go to the next step.
3. For each file, do the following:
   a. Get the file using the REST Adapter.

b. Prepare the file to send to Oracle Utilities Grid Edge Distributed Energy Resources Management System.

c. Invoke DERMS Load Reduction Forecast REST API and send the file as a binary attachment.

d. Check the **Acknowledge Type (ackType)** field from Oracle Utilities Grid Edge Distributed Energy Resources Management System.

- If it displays "SUCCESS", the source file name is renamed by appending the prefix set in the `ouai.prefixtag.fileuploaded` property and the next file in the list is processed.
- Otherwise, an error occurred during file transfer and the rest of the files, if any, will not be processed.

4. After successful transfer of all files, a Process Complete email notification is sent to `ouai.to.process.notification` and `derms.to.process.notification` recipients defined in the OUTL-BRT-OUAI_DACS_DRMS_Email_ID lookup.

5. Error Handling.

   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.
   - 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 OUAI DERMS LoadReductionForecast OS Transfer
Integration Process Identifier	OUTL-BA-OUAI_OS_LR_FORECAST
Integration Project Name	OU OUAI DACS DERMS
Source Connection (REST Adapter)	OU REST OUAI Object Storage for OUAI DACS DRMS (Connecting to Object Storage)
Target Connection (Oracle Utilities Adapter)	OU REST DERMS for OUAI DACS DERMS
invoke	DERMS Service Name: NMS-DACSInbound openAPIUrl: https://{host}:{port} /nms-drms/rest/v1/openapi.json OperationId: loadForecastReduction Method: POST URI: /load-forecast-reduction/{file-name}

Artifacts	Value
Local Integrations	OU OUAI DACS DERMS Common Error Handler
Lookup For more information about the lookup properties, refer to Configuring Lookups, Error Handling, and Email Notifications	OUTL-BRT-OUAI_DACS_DRMS_ConfigProps OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Common Integration Flows

This section focuses on the common logic that is used throughout the integration. The common logic is placed in common integration flows to be reused or called by the other integrations flows. It can be categorized in design standards, email format, and common integration.

File to File Transfer

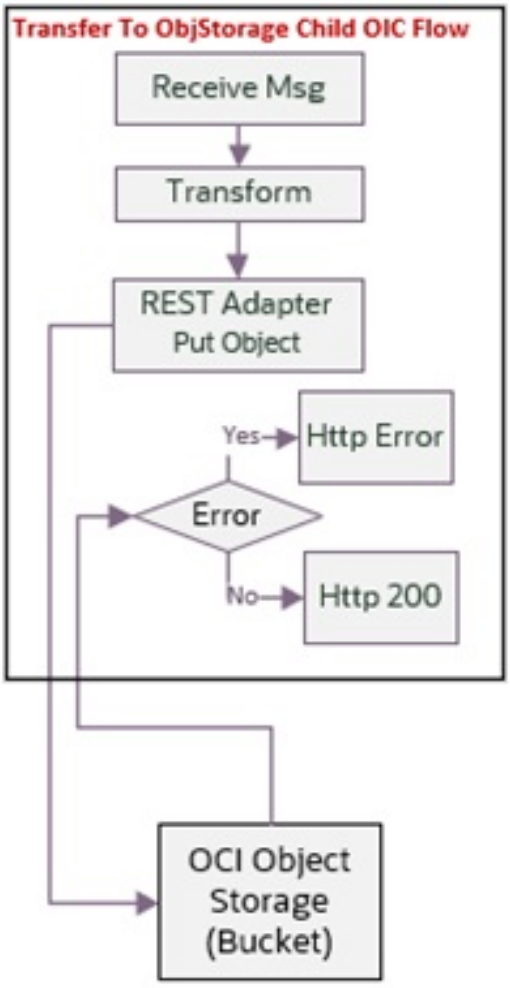
Many integrations move files from one application to another. Source and target locations can be a folder in an on-premises server or a cloud object storage. This is dependent on what the source and target applications support during the implementation.

> **Note:** Currently, Oracle Utilities Analytics Insights only uses the Oracle Integration Cloud Object Storage as its content server. Oracle Utilities Grid Edge Distributed Energy Resources Management System uses REST APIs to send and receive files. Oracle Utilities Digital Asset Cloud Service supports both FTP and Object Storage as its content server.

If the source application supports both FTP and object storage as its content server, then there will be two Oracle Integration Cloud flows to support each entry point. It is duplicated because an integration cannot be activated if one of the connections is not setup.

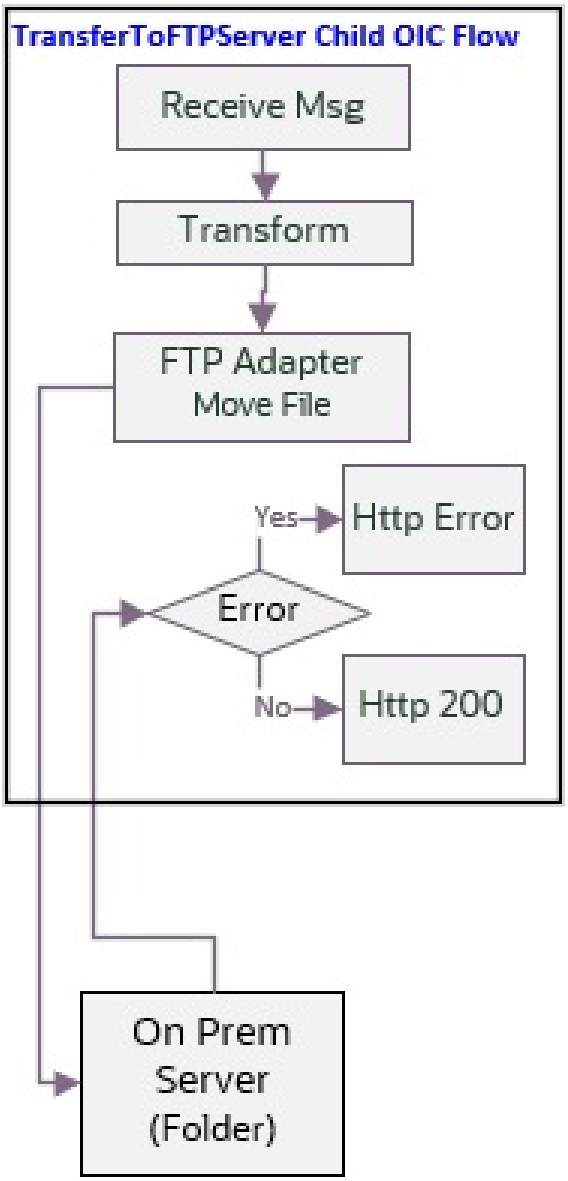
To allow customers to decide how to transfer files to a target location, a file target transfer preference property must be set to determine where to transfer the file. Valid values are “os” or “ftp”.

- If set to “os”, a child Oracle Integration Cloud flow is called to transfer the file to a target object storage location.



Note: Each application’s target object storage location has it's own child Oracle Integration Cloud flow.

- If set to “ftp”, a child Oracle Integration Cloud flow is called to transfer the file to a target ftp location.



Note: Each application’s target FTP location has it's own child Oracle Integration Cloud flow.

Common Child File Transfer Flows (Oracle Integration Cloud Initiated)

- OU OUAI Common OS Transfer
- OU DACS Common FTP Transfer
- OU DACS Common OS Transfer

All child Oracle Integration Cloud flows are exposed as a REST API with multipart request media type to pass a json request message with a file attachment. They are set up

similarly to receive the endpoint information to send to an FTP or Object Storage location.

To Object Storage	To FTP Server
Object Name	Filename
Namespace Name	
Bucket Name	Directory
File Reference	File Reference

Technical Details

The following table describes the integration processes and the respective Oracle Utilities Analytics Insights and Oracle Utilities Digital Asset Cloud Service artifacts used in this integration process.

Artifacts	Value
Integration Process Name	OU OUAI Common OS Transfer
Integration Process Identifier	OUTL-BA-DACS_OUAI_OS_TRANSFER
Integration Project Name	OU OUAI DACS DERMS
Source Connection (REST Adapter-Trigger)	OU REST for OUAI-DACS-DERMS
Target Connection (REST Adapter)	OU REST OUAI Object Storage for OUAI-DACS-DERMS

Artifacts	Value
Integration Process Name	OU DACS Common FTP Transfer
Integration Process Identifier	OUTL-BA-OUAI_DACS_FTP_TRANSFER
Integration Project Name	OU OUAI DACS DERMS
Source Connection (REST Adapter-Trigger)	OU REST for OUAI-DACS-DERMS
Target Connection (FTP Adapter)	OU FTP DACS for OUAI DACS DERMS

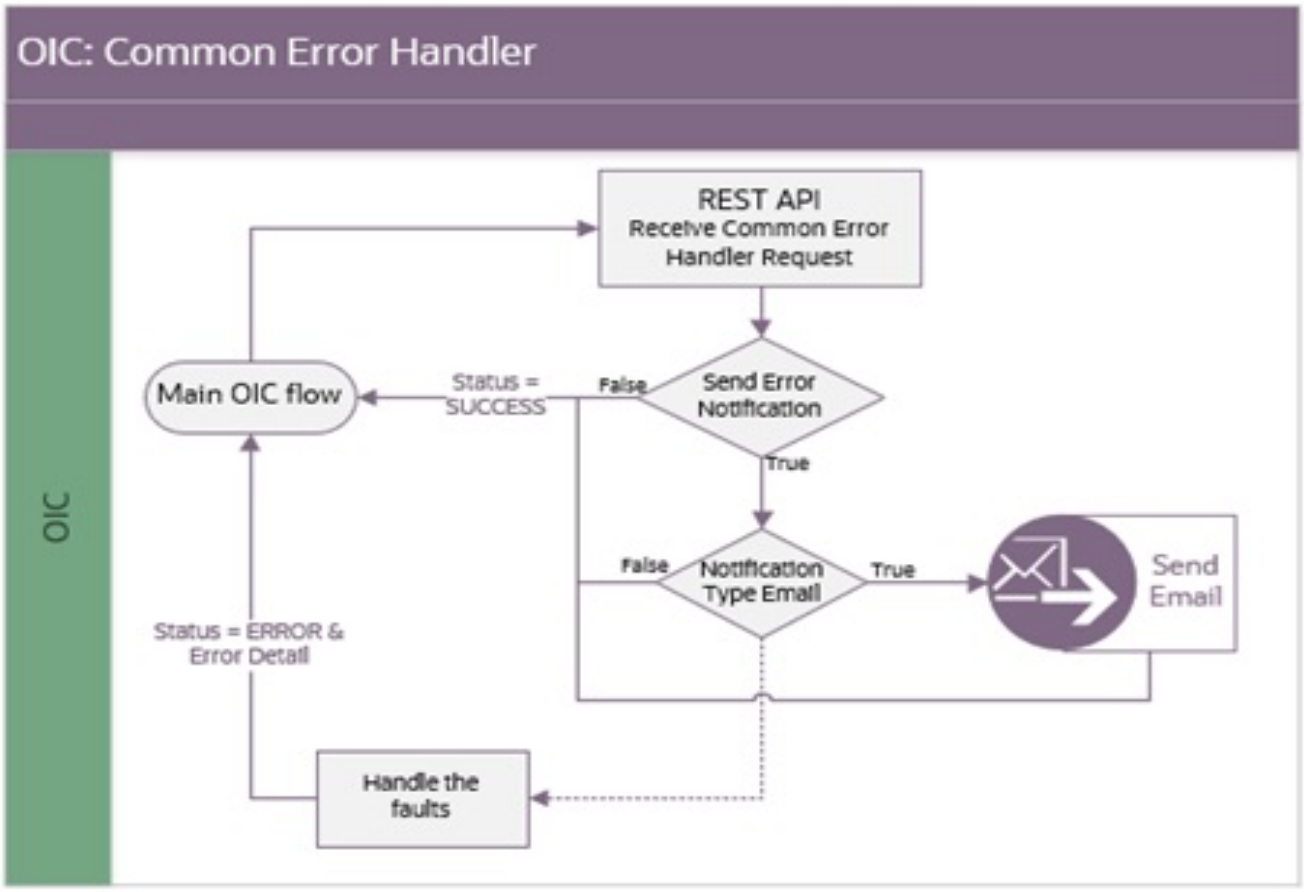
Artifacts	Value
Integration Process Name	OU DACS Common OS Transfer
Integration Process Identifier	OUTL-BA-OUAI_DACS_OS_TRANSFER
Integration Project Name	OU OUAI DACS DERMS
Source Connection (REST Adapter-Trigger)	OU REST for OUAI-DACS-DERMS

Artifacts	Value
Target Connection (REST Adapter)	OU REST DACS Object Storage for OUAI-DACS-DERMS

Common Error Handler (Oracle Integration Cloud 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 perform 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 flows.
2. The request message received is processed based on the following property names, `notification.email.error.flag` and `notification.type.email`, in the **OUTL-BRT-OUAI_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 artifacts used in this integration process.

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

Chapter 3

Configuring Oracle Utilities Digital Asset Cloud Service

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

- Configuring Admin Data in Oracle Utilities Digital Asset Cloud Service
- Managing Web Service Catalog
- Adding Oracle Integration Cloud Certificates

Configuring Admin Data in Oracle Utilities Digital Asset Cloud Service

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.

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**:

- Digital Asset Integration Master Configuration

Digital Asset Integration Master Configuration

The Digital Asset master configuration is used for synchronizing digital asset customer information to Oracle Utilities Analytics Insights.

Update the Digital Asset Integration Master Configuration created for DACS-DERMS Integration.

Update the Digital Asset Integration master configuration by populating the **DataRaker Integration Parameters** section with the following data:

- **Default Batch Control for Extract**: X1-DACEX (Digital Asset Customer Extract for DataRaker)
- **Program Subscription Types Eligible for Sync**: Configure one or more program subscription types that are eligible for sync to Oracle Utilities Analytics Insights.

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

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.

Business Flag Type

Create a new or update an existing Business Flag Type for the KWH Avoided activity.

To create a Business Flag type:

1. In the **Admin** menu, navigate to **[B or Integration]**.
2. Add or edit the **Standard Name for kWh Avoided**.
3. Add or edit the **Related Transactional BO for kWh Avoided Business Flag**.
4. Add or edit the **Status**.
5. Add or edit the **Description**.
6. Add or edit the **UOM**.
7. Add or edit the **TOU**.
8. Add or edit the **SQI**.
9. Add or edit the **Interval Size**.

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 Analytics Insights. 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)**
     a. Under the **Maintenance Object - Options** tab, add the "Sync Request BO" MO Option with an option value "X1-DRDigitalAssetCustSync (DataRaker Digital Asset Customer Sync Request)".
     b. 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 sync request.

Scheduling Batch Jobs

Run the following Oracle Utilities Digital Asset Cloud Service Batch Processes:

- Enrollment Sync Related Batch Processes

- Kwh Avoided Upload Batch Process

Enrollment Sync Related Batch Processes

These are the batch processes to run to process the initial and incremental sync request and send the enrollments out as a file from Oracle Utilities Digital Asset Cloud Service.

- **F1-SYNRQ** - Sync Request Monitor Process
- **X1-DACIL** - DataRaker Digital Asset Customer Sync Initial Load
- **X1-DACEX** - Digital Asset Customer Extract for DataRaker

Batch Code	Description
F1-SYNRQ	Sync Request Monitor Process This is the batch process to run the sync request. It is a generic batch process that is used for different sync processes. It includes parameters that can be used to control which sync request BOs to process.

The parameters for this batch process are the following:

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-DRDigitalAssetCustSync
restrictToBOStatus	Enter a status code to limit the process to sync requests in this state.	PENDING

Batch Code	Description
X1-DACIL	DataRaker Digital Asset Customer Sync Initial Load This batch process creates initial Digital Asset Customer sync request records for the D1-US MO (first parameter). The sync request BO to use is specified in the second parameter. The initialLoad element in the sync request BO schema is set by this process.

The parameters for this batch process are the following:

Batch Parameters	Parameter Description	Value
syncRequestMO	Maintenance Object	D1-US
syncRequestBO	Sync Request Business Object	X1-DRDigitalAssetCustSync

Batch Code	Description
X1-DACEX	Digital Asset Customer Extract for DataRaker This multi-threaded batch process creates the flat file(s) that are extracted for DataRaker. It creates the extract file(s) that contain the Metered Service, Metered Service Point, and Program Subscription information.

The parameters for this batch process are the following:

Batch Parameters	Parameter Description	Value
filePath	The file path where the output should be placed. Refer to Referencing URIs in the user documentation for more details	/tmp (Sample)
fileName	Name of the extract file	ENROLL_SYNC_{BN}.csv (Sample)
fileFormat	The extract file format. Valid values are CSV (delimited) FIXD (fixed position output) or XML (XML document)	CSV
includeHeader	If set to 'Y', then a header row is included in the file that is produced.	Y

Kwh Avoided Upload Batch Process

This is the batch process to calculate and send out the device score to Oracle Utilities Grid Edge Distributed Energy Resources Management System. Schedule the corresponding batch jobs in the order they are listed:

Batch Code	Description
X1-KWHAV	kWh Avoided Business Flag Upload This batch control uploads the kwh Avoided data from a CSV file on the server. For each data row in the file, this batch creates a kWh Avoided Business Flag record.

The parameters for this batch process are the following:

Batch Parameters	Parameter Description	Value
fileName	Name of the file or files to be uploaded	kwhavoided.csv (Sample)
filePath	The file path where the file is to be picked up,	/storage/kwhavoid (Sample)

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

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 that is 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 that is available at Oracle Help Center.

Chapter 4

Configuring Oracle Utilities Grid Edge Distributed Energy Resources Management System

This chapter provides details about how to configure the DRMS 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 that is available at Oracle Help Center.

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

Configure the DRMS parameters in Oracle Utilities Grid Edge Distributed Energy Resources Management System to establish the communication from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Integration Cloud, as well as to control other parameters related to the integration.

DRMS_PARAMETERS Table

Attribute	Value
OIC_EVENT_OUTCOME_OUAI_URL	https:// hostname:port/ic/api/integration/v2/flows/oracleutilities/project/OUTL-BA-OUAI_DACS_DERMS/OUTL-BA-DRMS_OUAI_EVT_OUTC_TRNFR/1.0/eventOutcome
OIC_USER	Define OIC Username
OIC_PASS	Define OIC Password
MAX_RETRIES	This should be already configured from the implemented DACS-DERMS integration. Value to be set to the amount 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 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'.

Chapter 5

Configuring Oracle Utilities Analytics Insights

For information about Oracle Utilities Analytics Insights, refer to the Oracle Utilities Analytics Insights (OUAI) documentation that is available at Oracle Help Center.

Chapter 6

Importing, Configuring, and Testing Integration Connections

This chapter explains the process of importing an Oracle Accelerator Project, which imports the connections, integrations, lookups, and libraries into an Oracle Integration Cloud instance. It also explains the configuration of the imported connections, agents, and security certificates.

It includes the following sections:

Importing the 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 Analytics Insights Integration to Digital Asset Cloud & DERMS Int". In **Filter by Region/Country**, select the **North America** checkbox.
4. Select the pre-built integration project to import.
5. Click **GetApp**.
6. Review and accept "Oracle Standard Terms and Restrictions".
7. Click **Next**. My Oracle Support portal opens.
8. From the integration artifacts table, click the link to download the following Business Accelerator Project (.car) file: `OUTL-BA-OUAI_DACS_DERMS-01.24.2000.car`
9. Before importing the new Accelerator Project (.car) file into your Oracle Integration Cloud instance, do the following:
    a. Back up the existing customized integrations and lookups.
    b. Perform cleanup by deactivating and deleting the existing flows, connections, lookups, and libraries used in the integration and the .par package file.

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

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

    Note: Make sure to select the **Anyone can edit, view, and monitor** checkbox.
13. The new project will show up in the list with a status of **Configured** due to the connections not being completed yet.
14. Click **Project Edit** and follow the verification and configuration steps documented in the sections below.
15. 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 import was successful, go to the OU OUAI DACS DERMS project:

1. In the **Integrations** section of the project, verify that the following integrations (version 1.24.2000) are imported successfully.
    - OU OUAI DACS DERMS Common Error Handler
    - OU DACS Common FTP Transfer
    - OU DACS Common OS Transfer
    - OU OUAI Common OS Transfer
    - OU DACS OUAI Enrollment FTP Transfer
    - OU DACS OUAI Enrollment OS Transfer
    - OU OUAI DACS EnrollmentAck OS Process
    - OU DERMS OUAI Event Outcome Transfer
    - OU OUAI DERMS LoadReductionForecast OS Transfer
    - OU OUAI DACS KwhAvoided OS Transfer
2. In the **Connections** section of the project, verify that the following connections are imported successfully:
    - OU FTP DACS for OUAI-DACS-DERMS
    - OU REST DACS Object Storage for OUAI-DACS-DERMS
    - OU REST DACS for OUAI-DACS-DERMS
    - OU REST DERMS for OUAI-DACS-DERMS
    - OU REST OUAI Object Storage for OUAI-DACS-DERMS
    - OU REST for OUAI-DACS-DERMS
    - OU REST OIC for OUAI-DACS-DERMS
3. In the **Lookups** section of the project, verify that the following lookups are imported successfully:
    - OUTL-BRT-OUAI_DACS_DRMS_ConfigProps
    - OUTL-BRT-OUAI_DACS_DRMS_Email_ID
    - OUTL-BRT-OUAI_DACS_DRMS_Routing

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

- OU REST OUAI Object Storage for OUAI-DACS-DERMS Connection
- OU REST for OUAI-DACS-DERMS Connection
- OU REST OIC for OUAI-DACS-DERMS Connection

OU FTP DACS for OUAI-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 the **SFTP Connection**.
3. In the **Security** section, select the applicable security policy for your Utilities Digital Asset Application FTP server.

   For example, select the **FTP Server Access** policy on the **Security Policy** tab, and enter the username and password for the Oracle Utilities Digital Asset Cloud Service FTP server.

   Note: For more information on the supported security policies, refer to the Integration 3 documentation that is available at Oracle Help Center.
4. Configure the appropriate **Agent Group**, if applicable.
5. On the **Connection** page, click **Test**.
6. After the connection is 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 OUAI-DACS-DERMS Connection

This connection is used to communicate with the OCI Object Storage APIs using the REST adapter. This is the Object Storage that Oracle Utilities Digital Asset Cloud Service uses to store and retrieve files.

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 its endpoints, refer to 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 the public key registration for the appropriate user)

Note: For more information, refer to the Object Storage Setup Guide.

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

OU REST DACS for OUAI-DACS-DERMS Connection

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

To configure this connection:

1. Add the Oracle Utilities Digital Asset Cloud Service 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. On the **Security** section, select the applicable security policy to access the application.

   Note: For more information on the supported security policies, refer to the Oracle Utilities Adapter documentation.
3. When configuring the connection to Oracle Utilities Digital Asset Management on-premise application:
   a. In the **Agent Group** section, select **Configure Agents**.
   b. Select the agent group from the list created in Creating an Agent Group.
4. On the **Connection** page, click **Test**.
5. Once the connection has been tested successfully, click **Save**.

OU REST DERMS for OUAI-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. On the **Security** section, select the applicable security policy to access the application.

   Note: For more information on the supported security policies, refer to the Oracle Utilities Adapter documentation.
3. When configuring the connection to Oracle Utilities Digital Asset Management on-premise application:
   a. In the **Agent Group** section, select **Configure Agents**.
   b. Select the agent group from the list created in Creating an Agent Group.
4. On the **Connection** page, click **Test**.
5. Once the connection has been tested successfully, click **Save**.

OU REST OUAI Object Storage for OUAI-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 its endpoints, refer to 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.
3. Once the connection has been tested successfully, click **Save**.

OU REST for OUAI-DACS-DERMS Connection

This connection is used to expose the integration as a REST service. This connection is used to call integrations using the REST adapter.

To configure this connection:

1. Select **OAuth 2.0** or **Basic Auth** as the **Security policy**, and set the **Role** as **Trigger**.
2. On the **Connection** page, click **Test**.
3. Once the connection has been tested successfully, click **Save**.

OU REST OIC for OUAI-DACS-DERMS Connection

This connection is used to invoke local integrations that can accept a multipart request for passing a multipart attachment reference using the REST adapter.

To configure this connection:

1. In the **Connection Properties** section, select the REST API Base URL for the Connection Type.
2. Add the Oracle Integration Cloud connection URL.

   Example: `https://OIC_CloundInstance.com`
3. Select **OAuth client Credentials** as **Security Policy**. For this security type, also add the **Access Token URI**, **Client ID**, **Client Secret** in the **Security** section.

   In the **Optional Security** section, add the **Scope** and select **Send client credentials** as **Basic Auth Header** for **Client Authentication**.

   Alternatively, if you select **Basic Auth** on the **Security** tab, enter the Oracle Integration Cloud username and password.
4. On the **Connection** page, click **Test**.
5. Once the connection has been 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 Utilities Grid Edge Distributed Energy Resources Management System
- Oracle Utilities Digital Asset Cloud Service

Creating an Agent Group

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

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

To create an agent group:

1. Log in to Oracle Integration Cloud.
2. On the **Home** page, click **Agents**.
3. Click **Create Agent Group**.
4. Enter the following information:
   - Agent Group Name
   - Identifier

     Note: The agent group name and identifier must be same.
   - Agent Type: "Connectivity Agent"
   - Description
5. Click **Create**.

Downloading Agent Installer

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

For more information on agent installer, see Downloading and Running Premises Agent Installer.

Installing On-Premises Agent

To install an on-premises agent:

1. Log in 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 that are detailed in Begin Setting Oracle Utilities Adapter.

   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 the Oracle Integration Cloud documentation that is available at Oracle Help Center.

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 7

Configuring Lookups, Error Handling, and Email Notifications

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

- Configuring Lookups
- Error Handling
- Email Notifications

Configuring Lookups

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

Lookup Name	Integration Name	Purpose
OUTL-BRT-OUAI_DACS_DRMS_ConfigProps	• OU DACS OUAI Enrollment FTP Transfer • OU DACS OUAI Enrollment OS Transfer • OU DERMS OUAI Event Outcome Transfer • OU OUAI DACS DERMS Common Error Handler • OU OUAI DACS EnrollmentAck OS Process • OU OUAI DACS KwhAvoided OS Transfer • OU OUAI DERMS LoadReductionForecast OS Transfer	Generic properties used in the integration's business logic and mappings.
OUTL-BRT-OUAI_DACS_DRMS_Email_ID	• OU DACS OUAI Enrollment FTP Transfer • OU DACS OUAI Enrollment OS Transfer • OU DERMS OUAI Event Outcome Transfer • OU OUAI DACS DERMS Common Error Handler • OU OUAI DACS EnrollmentAck OS Process • OU OUAI DACS KwhAvoided OS Transfer • OU OUAI DERMS LoadReductionForecast OS Transfer	Provides the email information to send error details. • The **to** property contains the email addresses of people who handle technical issues, such as network connection issues, 401 unauthorized issues, and so on. • The **to.process.notification** property contains the email addresses of business or application users in OUCCS, OUDACS and/ or GE-DERMS.

Editing Lookups

To edit a lookup:

1. Log in to Oracle Integration for Cloud.
2. Navigate to **Integrations** > **Designer** > **Lookups**.
3. Select the lookup to edit and make changes.
4. Click **Save** and **Close**.

Configuration Properties

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

Lookup: OUTL-BRT-OUAI_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 beside '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, set up the OUTL-BRT-OUAI_DACS_DRMS_Email_ ID 'to' property for the users or administrators who should receive the email.
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, set up the OUTL-BRT-OUAI_DACS_DRMS_Email_ID 'ouai.to.process.notification', 'dacs.to.process.notification' and 'derms.to.process.notification' properties for the users who should receive the email.

Property Name	Sample Value	Description
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-BRTOUAI_DACS_DRMS_Email_ID. 'ouai.to.process.notification', 'dacs.to.process.notification', and 'derms.to.process.notification' properties for the users who should receive the email.
dacs.file.target.transfer.pref	os|ftp	Target DACS file location preference. Values are "os" or "ftp".
dacs.enroll.filename.prefix	ENROLL_SYNC	Enrollment Sync Extract file name prefix. It should have the same beginning value as the batch parameter filename in Batch Process X1-DACEX or X1-DACIL. Integration use this for filtering the file(s) to pick up from DACS file location by the Enrollment Sync flow.
dacs.ftp.enroll.input.directory	/scratch/enrollInputDir	DACS FTP directory where the Enrollment Sync extract files are stored for OIC to pick up from. Required to be populated when DACS is on-premise, dacs.file.transfer.pref is = 'ftp'.
dacs.ftp.kwhavoid.input.dire ctory	/scratch/ KwhAvoidedInputDir	DACS FTP directory where the Kwh Avoided extract files are stored for OIC to pick up from. Required to be populated when DACS is on-premise, dacs.file.transfer.pref is = 'ftp'.
dacs.os.namespace	dacsnamespace	DACS Object Storage namespace serves as a container for all DACS related buckets and objects. Required to be populated when DACS is in the cloud, dacs.file.transfer.pref = 'os'.
dacs.os.enroll.bucket	DACS_EnrollFolder	Define the bucket name where the Enroll Sync extract files are stored in the DACS Object Storage for OIC to pick up from. Required to be populated when DACS is in the cloud, dacs.file.transfer.pref = 'os'.

Property Name	Sample Value	Description
dacs.os.kwhavoided.bucket	DACS_KWHAvdFolder	Define the bucket name where the Kwh Avoided extract files are stored in the DACS Object Storage for OIC to pick up from. Required to be populated when DACS is in the cloud, dacs.file.transfer.pref = 'os'.
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.error.ack.messagecategory	11114	DACS - Integration Message Category
dacs.error.ack.messagenumber	11001	Message in DACS '%1%2%3%4%5%6%7%8%9'
ouai.file.target.transfer.pref	os|ftp	Target OUAI file location preference. Values are "os" or "ftp". Defaulted to "os"
ouai.os.enrollack.filename .prefix	feedback.dacs. program_subscription	Enrollment Ack file(s) produce by OUAI should begin with this value. Integration use this for filtering the file(s) to pick up from OUAI file location by the Enrollment Ack flow.
ouai.os.kwhavoided.filename.prefix	ouai.kwh_avoided	Kwh Avoided file(s) produced by OUAI should begin with this value. Integration use this for filtering the file(s) to pick up from OUAI file location by the KWHAvoided flow.
ouai.loadreductionforecast. filename.prefix	ouai.load_forecast	Load Reduction Forecast file(s) produced by OUAI should begin with this value. Integration use this for filtering the file(s) to pick up from OUAI file location by the LoadReductionForecast flow.
ouai.os.namespace	ouainamespace	OUAI Object Storage namespace serves as a container for all OUAI related buckets and objects. Required to be populated when OUAI is in the cloud, ouai.file.transfer.pref = 'os'
ouai.os.enroll.bucket	OUAIEnrollFolder	Define the bucket name where the Enrollment Sync extract files are stored in the OUAI Object Storage for OIC to drop the file. Required to be populated when OUAI is in the cloud, ouai.file.transfer.pref = 'os'.
ouai.os.enrollack.bucket	OUAIEnrollAckFolder	Define the bucket name where the Enrollment Ack extract files are stored in the OUAI Object Storage for OIC to pick from. Required to be populated when OUAI is in the cloud, ouai.file.transfer.pref = 'os'.

Property Name	Sample Value	Description
ouai.os.eventoutcome.bucket	OUAIOutcomeFolder	Define the bucket name where the Event Outcome extract files are stored in the OUAI Object Storage for OIC to drop the file. Required to be populated when OUAI is in the cloud, ouai.file.transfer.pref = 'os'.
ouai.os.kwhavoided.bucket	OUAIKwhAvoidFolder	Define the bucket name where the Kwh Avoided extract files are stored in OUAI Object Stoarage for OIC to pick the file from. Required to be populated when OUAI is in the cloud, ouai.file.transfer.pref = 'os'.
ouai.os.loadreduction forecast.bucket	OUAI_LRFolder	OUAI directory where the LoadReductionForecast extract files are stored. Required to be populated when OUAI is in the cloud, ouai.file.transfer.pref = 'os'.
ouai.prefixtag.fileuploaded	Sent-	Prefix to append to the filename from OUAI that has been transferred or processed successfully to the target location. Shared property for all file related flows in this integration.

Lookup: OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Recipient	Email ID	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 the integration.
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.
dacs.to.process.notification	dacsUser@myCy.com	The email address(es) who should receive notification for DACS related integration 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 DACS business or application users.

Recipient	Email ID	Description
ouai.to.process.notification	ouaiUser@myCy.com	The email address(es) who should receive notification for OUAI related integration 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 OUAI business or application users.
drms.to.process.notification	drmsUser@myCy.com	The email address(es) who should receive notification for DERMS related integration 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 DERMS business or application users.

Error Handling

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

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

Summary of Integrations Error Handling

Integration Process: DACS OUAI Enrollment Sync Transfer (applies to OIC flows FTP and OS)

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 the DACS source content server or manually run the OIC process.
Partial Processing Example: Network connection Issue. OUAI Object Storage not accessible.	Process Stop	Error Email Process Complete Email (includes list of files not transferred)	Next scheduled run will pick up the files not transferred from DACS source content server or manually run the OIC process.
Business Fault For each record processing in OUAI, it will return a positive/ negative acknowledgment in the Ack flow.	Handled by the Enrollment Ack flow		Fix data in DACS or OUAI. Resend message from DACS.

Integration Process: OUAI DACS Enrollment Sync Acknowledgment

Type of error	Action	Notification Type	Retry
Technical or Remote Fault Example: OUAI Object Storage is not accessible.	Process Stop	Error Email	Rerun or schedule the integration process
Technical Fault Example: DACS returns Status 401 or 500	Process Stop	Error Email	Integration fix: Rerun or reschedule the integration process.
Technical Fault Example: DACS returns Status 400	Process Continue	N/A	DACS throws 400 error when a duplicate request is found with syncrequestid. OIC will suppress this kind of error as this has already been synchronizised from OUAI to DACS.

Integration Process: DERMS OUAI Event Device Outcome

Type of error	Action	Notification Type	Retry
Technical or Remote Fault Example: OUAI Object Storage is not accessible.	• Send FAILURE ackType to DERMS • Process Stop	Error Email	Resend message from DERMS
Business Fault	N/A		None OUAI handles the business errors.

Integration Process: OUAI DERMS Load Reduction Forecast

Type of error	Action	Notification Type	Retry
Technical or Remote Fault Example: OUAI Object Storage is not accessible.	• Send FAILURE ackType to DERMS • Process Stop	Error Email	Resend message from DERMS
Business Fault	N/A	Error Email	None OUAI handles the business errors.
Technical Fault (DACS returns Status 400)	Process Continue	N/A	DACS throws 400 error when a duplicate request is found with syncrequestid. OIC will suppress this kind of error as this has already been synchronized from OUAI to DACS.

Resubmitting the Error Instances in Oracle Integration Cloud

In this integration, the flows initiated by Oracle Utilities Analytics Insights are asynchronous flows. The **Resubmit** option is available only for asynchronous flows.

To resubmit the error instances in Oracle Integration Cloud:

1. Log in to Oracle Utilities Analytics InsightsOracle 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 for technical errors and business completions.

To receive a technical error email notification:

1. Log in to Oracle Integration Cloud.
2. Navigate to **Integrations** > **Designer** > **Lookups**.
3. Edit the OUTL-BRT-OUAI_DACS_DRMS_ConfigProps lookup.
4. Change the notification.email.error.flag property value to 'true'.
5. Edit the OUTL-BRT-OUAI_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** column, provide the comma separated email IDs.

      Note: In the OUTL-BRT-OUAI_DACS_DRMS_Email_ID lookup, do not edit the values provided in the **Recipient** column.

To receive business completion notifications:

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

   Change the `notification.email.process.complete.flag` property value to '*true*'.

   Change the `notification.email.process.nofile.flag` property value to '*true*', if you want to be notified even if no files were found during a scheduled run.
4. Edit the OUTL-BRT-OUAI_DACS_DRMS_Email_ID lookup.
   a. In the **From** field, enter the email ID to receive an email from.
   b. In the corresponding **dacs.to.process.notification**, **drms.to.process.notification**, and **ouai.to.process.notification** fields, enter the email ID of the recipient.
   c. In the **Email_Id** column, provide the comma separated email IDs.

Chapter 8

Customizations

In Oracle Integration Generation 3, you can customize an integration in an accelerator project by adding and configuring an extension group.

An extension group enables you to customize your integration by adding invoke connections; stitch, for-each, switch, map, and integration actions; and global variables to the integrations in your accelerator project.

For details on how to perform these changes, refer to the Manage a Project section in the Using Integrations in Oracle Integration 3 documentation that is available at Oracle Help Center.

In addition, see the How To Extend Oracle Integration Cloud Gen3 Project (Doc ID 3017378.1) knowledge base article that is available at My Oracle Support.

Adding New Mappings

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

As the integration is delivered as business accelerator, the base integration flow cannot be edited and they need to clone the existing integration flow to add any customizations to the existing xsl mapper files.

The supported cases are:

- **Case 1**: In the Oracle Utilities Digital Asset Cloud Service application schema, elements exist but are not mapped in the Oracle Integration Cloud pre-built integration.
- **Case 2**: In Oracle Utilities Analytics Insights, properties exist but are not mapped in the Oracle Integration Cloud pre-built integration.

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

In this integration, Oracle Utilities Digital Asset Cloud Service is the source and Oracle Field Service is the target.

To add custom mappings in Oracle Integration Cloud layer:

1. Login to Oracle Integration Cloud.
2. Identify the integration to add custom mappings.
3. Clone the integration.
4. Export the respective cloned integration from Oracle Integration Cloud to your local machine.
5. Unzip the .iar file and identify the mapping/xsl file in which the custom mappings have to be added.
6. This integration has all mappers as import xsl. To add any new mapping, edit the respective mapper/xsl file.

   Note: Mappings cannot be added using the Mapper Design view.
7. In all integration mappings, a template is added under every complex element. Any custom elements under that complex element can be added directly in the template provided.
8. Add the mapping under the respective customization template. Save the changes.
9. In Oracle Integration Cloud, click the integration to add the mapping for an extra element. Select the respective map activity.
10. Click **Import** and upload the updated mapper/xsl file.
11. Save and close and activate the integration to reflect the custom mappings.

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

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

Example:

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

Chapter 9

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.

See the **Troubleshooting** section in the *Oracle Utilities Cloud Services Implementation Guide* 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 the DACS_ENV_NAME/logs/system` folders.

  Example: `V27_DACS_ORA_WLS/logs/system/`

See the Oracle Utilities Digital Asset Cloud Service documentation for more information.

Oracle Integration Cloud

This section focuses on the monitoring of Oracle Integration Cloud, as well as on the troubleshooting of any issues that occur during the integration activation.

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. Log in to Oracle Integration Cloud.
2. Click **Projects**. On the navigation pane, click the relevant project.
3. Navigate to the **Observe** menu.
4. You can check:
   - **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.

For details, refer to Monitor the Message Processing Status of Integrations in Projects at Oracle Help Center.

To monitor the integration flows from the Oracle Integration Cloud Observability menu:

1. Login to Oracle Integration Cloud.
2. In the navigation pane, click **Observability**.
3. Select any of the following as required:
    - **Dashboards:** To monitor the complete dashboard of integration. 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, as well as data on the errors occurred.
    - **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 details, refer to Explore the Navigation Pane at Oracle Help Center.

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.

Some of the sample cases are as follows:

- For any connectivity errors while activating the integration, make sure the trigger connection is successful. Test the connection and refresh the metadata, and then activate the integration.
- If the integration (Oracle Utilities Network Management System initiated flows) is activated for the first time, make sure the Oracle Utilities Network Management System catalog is configured accurately.

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 Analytics Insights Integration to Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Grid Edge Distributed Energy Resources Management System Release Notes* included in this release.

The documentation is available at Oracle Help Center.