

**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 23A

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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 23A

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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 23A.

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

- [Audience](#)
- [Documentation and Resources](#)
- [Documentation Accessibility](#)
- [Conventions](#)
- [Acronyms](#)

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 Support	<p>Visit My Oracle Support at https://support.oracle.com regularly to stay informed about updates and patches.</p> <p>Refer to the <i>Certification Matrix for Oracle Utilities Products (Doc ID 1454143.1)</i> on My Oracle Support to determine if support for newer versions of the listed products is included.</p> <p>For more information, refer to the Oracle Utilities Integrations page at http://my.oracle.com/site/tugbu/productsindustry/productinfo/utilities/integration/index.htm</p>
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.
<i>italic</i>	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
DACS	Oracle Utilities Digital Asset Cloud Service
DERMS	Oracle Utilities Grid Edge Distributed Energy Resources Management System
DRMS	Demand Response Management System
IWS	Inbound Web Service
LEC	Oracle Utilities Live Energy Connect
OIC	Oracle Integration Cloud
OUIAI	Oracle Utilities Analytics Insights

Chapter 1

Overview

This chapter provides an overview about 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 focuses on software requirements, Oracle Integration Cloud, and business standpoint of the integration.

The chapter focuses on the following:

- [Overview of the Integration](#)
- [About Oracle Utilities Digital Asset Cloud Service](#)
- [About Oracle Utilities Grid Edge Distributed Energy Resources Management System](#)
- [About Oracle Utilities Analytics Insights](#)
- [About Oracle Integration Cloud](#)
- [Software Requirements](#)
- [Prerequisites](#)

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 components facilitates the exchange of information related to controllable devices at a customer's premise.

This integration can be leveraged to support customer enrollment, unenrollment, load reduction forecasts, program event participation outcomes and energy (kWh) avoided.

Oracle Utilities Digital Asset Cloud Service is responsible for managing (demand response) programs and initiating program enrollments and orchestration of the customer enrollment journey. Oracle Utilities Grid Edge Distributed Energy Resources Management System supports the creation, scheduling and dispatching of (demand response) events, whilst Oracle Utilities Analytics Insights computes load reduction forecast values for each customer to facilitate optimal resource utilization during event creation and post an event derives actual energy reduction for each customer to allow financial settlement calculations.

When a customer has successfully enrolled into or unenrolled from a program, Oracle Utilities Analytics Insights needs to update the customer's information so that they can be included or excluded from the load forecast reduction computation. This pre-built integration will facilitate the synchronizing of such enrollment and unenrollments from Oracle Utilities Digital Asset Cloud Service to Oracle Utilities Analytics Insights.

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

On completion of a (demand response) program event, Oracle Utilities Grid Edge Distributed Energy Resources Management System will receive the actual outcome for all devices that participated in the event via Oracle Utilities Live Energy Connect (LEC) via external entities like Aggregators/Head End Systems. This pre-built integration will allow Oracle Utilities Grid Edge Distributed Energy Resources Management System to share the event outcome for each device with Oracle Utilities Analytics Insights so that it can record the event participation outcome and factor it during computation of actual energy (kWh) consumption avoided for an event and for computing load reduction forecasts.

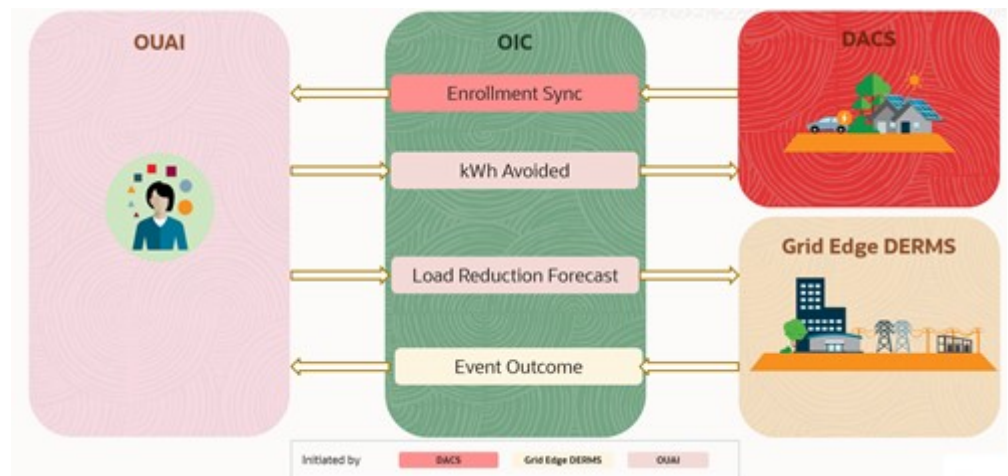
Oracle Utilities Analytics Insights computes an estimated load reduction forecast for each metered service point that is associated to an active program on a daily basis using key inputs like energy consumption data, event participation outcomes and weather forecasts. This pre-built integration will allow Oracle Utilities Analytics Insights to share this with Oracle Utilities Grid Edge Distributed Energy Resources Management System to be factored during determining the portfolio of customers to be called upon during a demand response event.

To facilitate the financial settlements for a customer's participation in an event, Oracle Utilities Analytics Insights derives the actual energy (kWh) consumption avoided for the event duration using inputs from the event outcome message, the interval consumption data measured for the event duration and the customer's consumption pattern. This pre-built integration allows Oracle Utilities Analytics Insights to pass the kWh avoided value to Oracle Utilities Digital Asset Cloud Service for each customer post an event so that an accurate settlement is performed.

To summarize, the integration can be leveraged to:

- 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 event outcome for all participating devices 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 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.

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



About Oracle Utilities Digital Asset Cloud Service

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

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

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

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

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

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

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

Software Requirements

The following software is required for the integration to work:

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

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.

The documentation is available on Oracle Help Center at:

<https://docs.oracle.com/en/industries/energy-water/integrations-index.html>

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 Oracle Utilities Analytics Insights, Oracle Utilities Digital Asset Cloud Service, and Oracle Utilities Grid Edge Distributed Energy Resources Management System applications.

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-DERMS REST APIs.
 - REST Adapter interacts with Oracle Cloud Infrastructure Object Storage APIs and DERMS REST APIs with file attachments.
 - 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 by default are enabled.

- Business email notifications:

Configure the property name

`notification.email.process.complete.flag` in the OUTL-BRT-OUAI_DACS_DRMS_ConfigProps lookup to 'true' to receive email notification when the process is completed or partially processed. By default, this is set to 'true'.

Configure the property name

`notification.email.process.nofile.flag` in the OUTL-BRT-OUAI_DACS_DRMS_ConfigProps lookup 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.

- Technical error email notifications:

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.

- In the Oracle Utilities Digital Asset Cloud Service initiated processes, batch processes are used to send outbound messages or to create file(s) and upload to the content server defined for an external application to pull for processing.

Oracle Utilities Digital Asset Cloud Service uses REST inbound web services (IWS) to receive messages or pull files from a content server using batch processes.

- 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.
- To make sure all the integration flows work properly, configure:
 - the properties in lookup OUTL-BRT-OUAI_DACS_DRMS_ConfigProps
 - all DVM lookup related to this integration.
- 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 patterns used in this solution are:

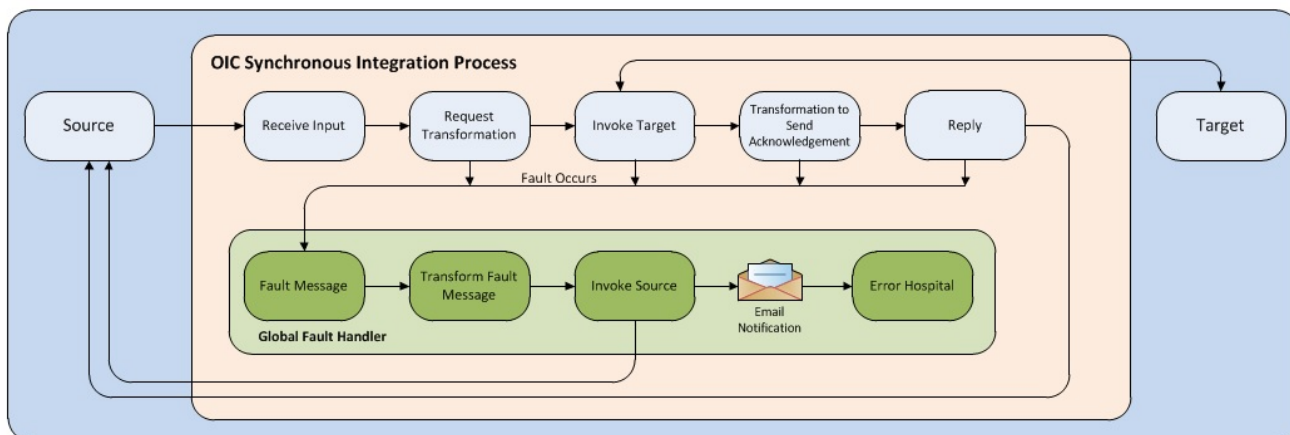
- [Synchronous](#)
- [One-way Asynchronous](#)

Synchronous

The synchronous integration process:

1. Receives request message from the source application.
2. Transforms the message from source format to the target format. Lookups are used for data translations, if applicable.
3. Invokes the target application.
4. Transforms the response message from the target format back to the source format. It sends back the response to the source application.
5. In case of any error, the global fault handler catches them and sends the transformed error message to the source application.

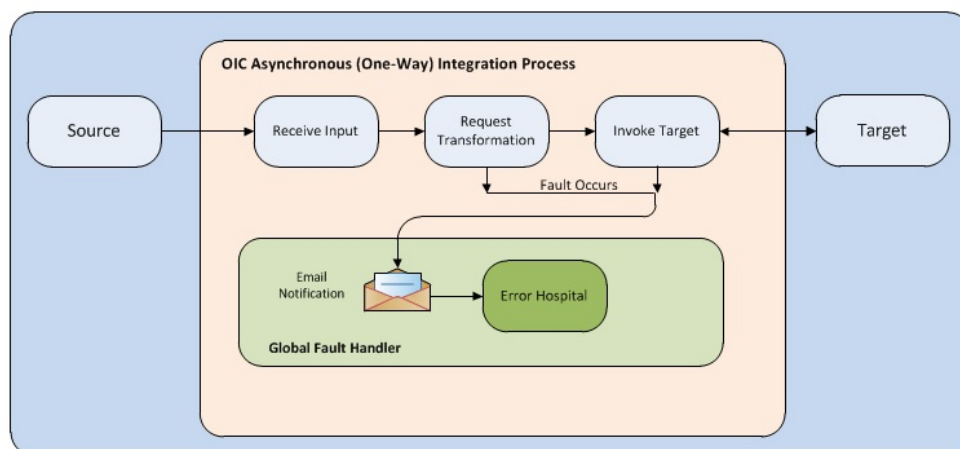
- An optional email notification is sent to the respective users as configured.



One-way Asynchronous

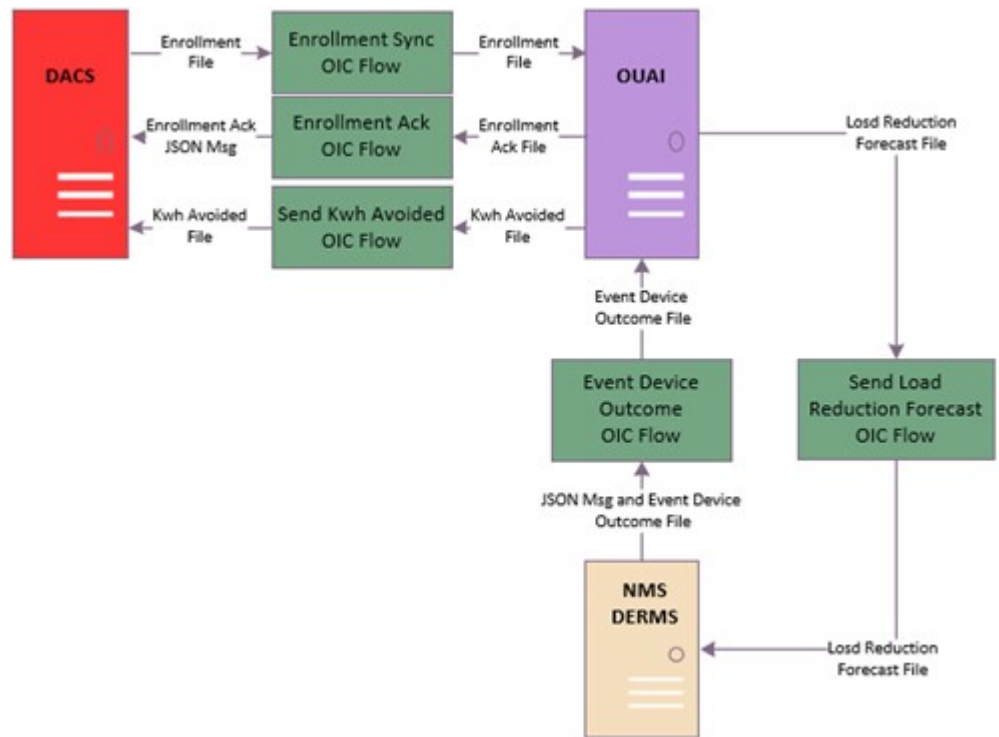
The one-way asynchronous integration process:

- Receives request message from the source application.
- Transforms message from the source to the target format. Lookups are used for data translations, if applicable.
- Invokes target application to send the request message.
- In case of any error, the global fault handler catches the error.
- An optional email notification is sent to the respective users as configured.
- 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](#)
- [Event Outcome \(Oracle Utilities Grid Edge Distributed Energy Resources Management System Initiated\)](#)
- [KWH Avoided OS Transfer \(Oracle Utilities Analytics Insight System Initiated\)](#)
- [Load Reduction Forecast OS Transfer \(OUAI Initiated\)](#)
- [Common Logic](#)

Enrollment Sync

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.

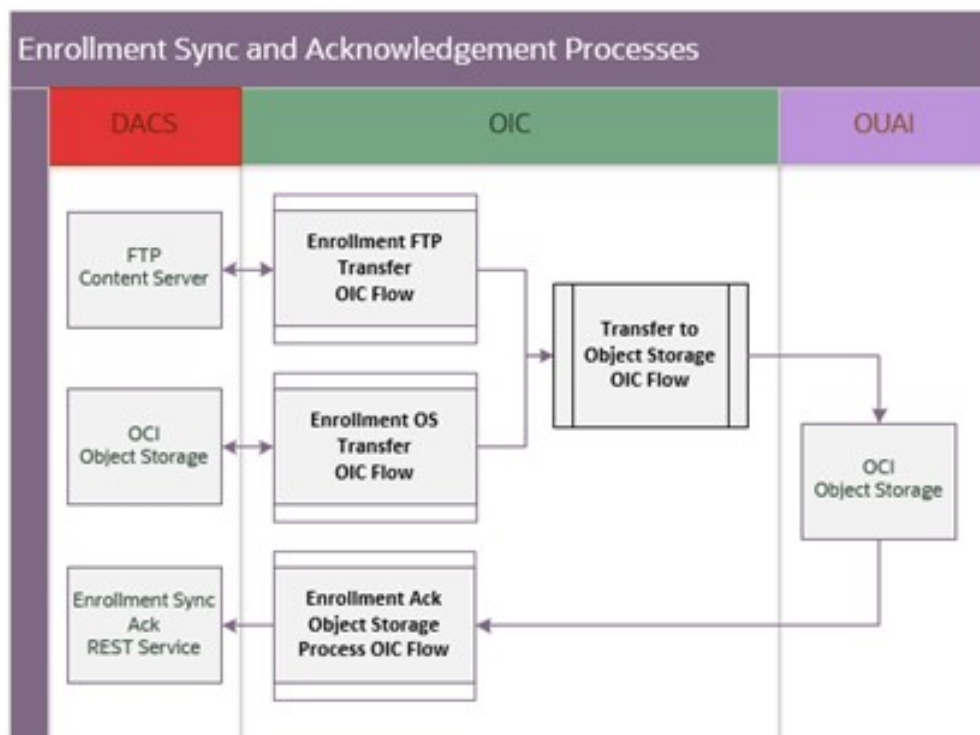
Oracle Utilities Analytics Insights process the enrollments and send the enrollment acknowledgment back to Oracle Utilities Digital Asset Cloud Service.

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 \(Oracle Utilities Digital Asset Cloud Service Initiated\)](#)
- [Enrollment OS Transfer \(Oracle Utilities Digital Asset Cloud Service Initiated\)](#)
- [Enrollment Acknowledgment OS Process \(Oracle Utilities Analytics Insight System Initiated\)](#)

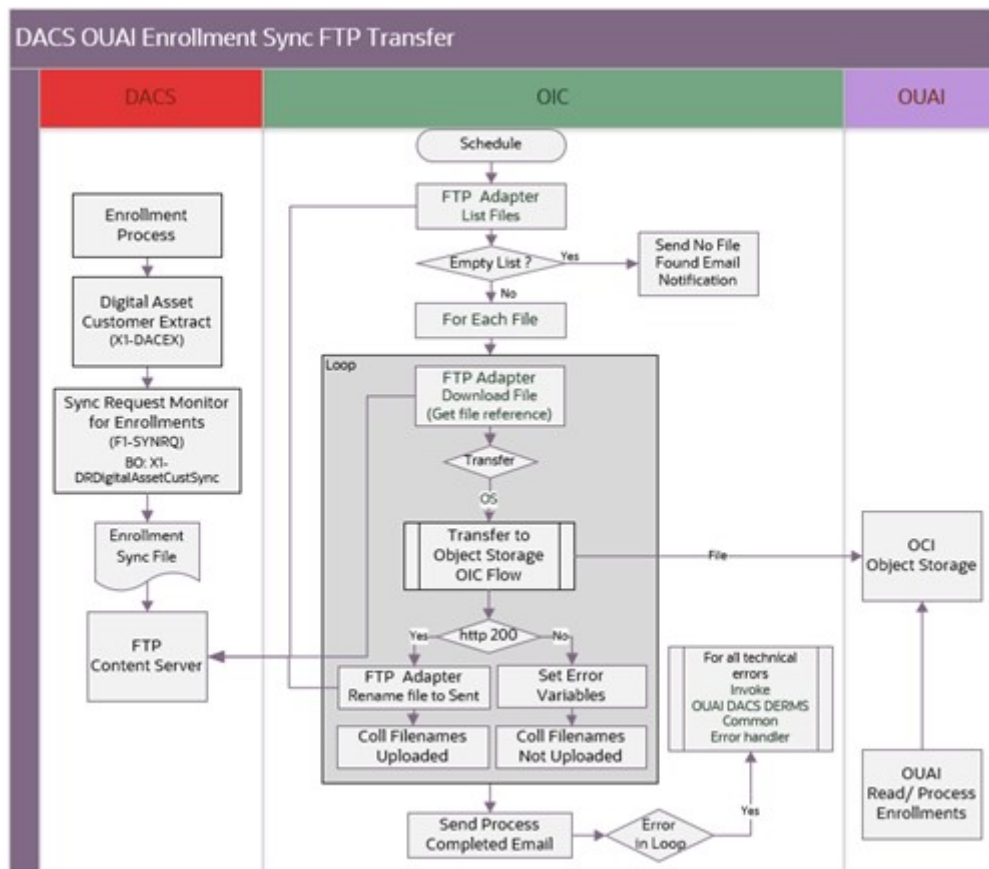
The following diagram shows the Enrollment related Processes:



Enrollment FTP Transfer (Oracle Utilities Digital Asset Cloud Service Initiated)

This integration process retrieves the enrollment sync data file(s) from an FTP content storage location where DACS uploads files and transfer it to the related OUA I 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 DACS 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 OIC child process: OU OUAJ Common OS Transfer passing the necessary information to transfer the file accordingly.

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

- c. 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. Otherwise, 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 OIC process to the users defined in `to.recipient` in lookup OUTL-BRT-OUAI_DACS_DRMS_Email_ID.
- 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 the respective OUAI and DACS 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 Package Name	outl.ba.ouai.dacs.derms.01.23.1000
Source Connection (FTP)	OU FTP DACS for OUAI DACS DRMS
Target Connection (OS)	OU REST OUAI OS for OUAI DACS DRMS
Local Integrations	<ul style="list-style-type: none"> • OU OUAI Common OS Transfer • OU OUAI DACS DERMS Common Error Handler
OIC Lookup	<ul style="list-style-type: none"> • OUTL-BRT-OUAI_DACS_DRMS_ConfigProps • OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Lookups Referenced

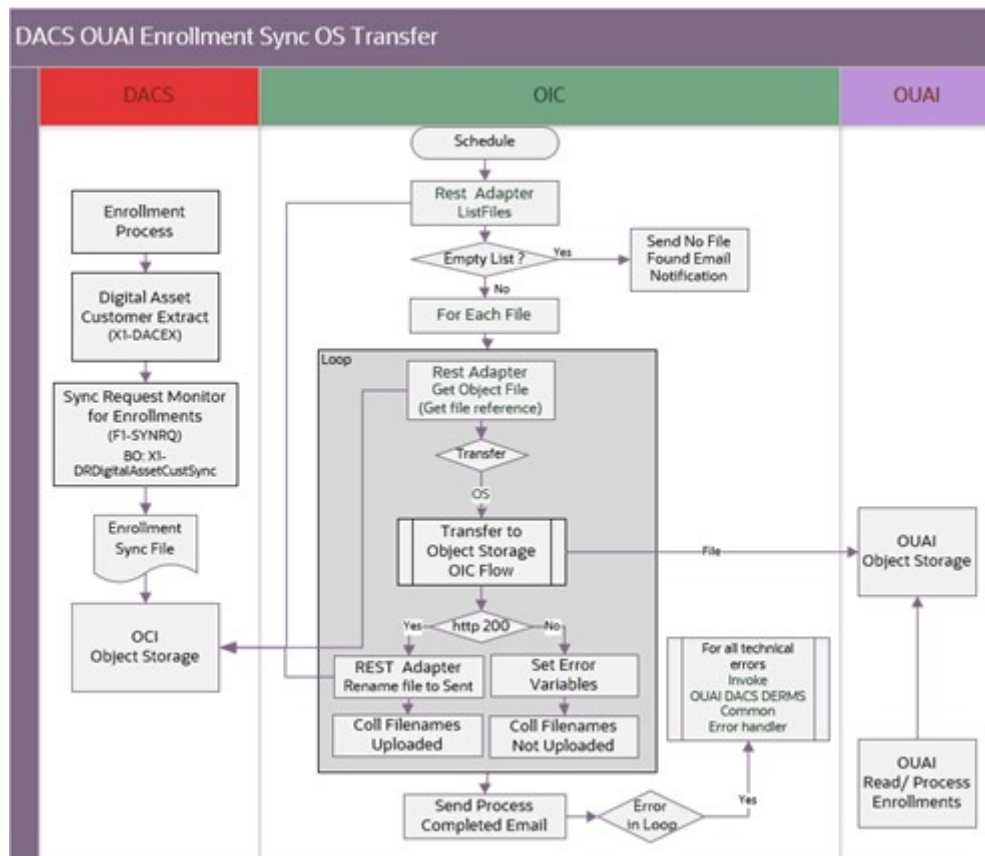
The following table describes the customized properties referenced in the integration. For more information about the lookup properties, refer to [Configuring Lookups, Error Handling, and Email Notifications](#).

DVM	Property
OUTL-BRT- OUAI_DACS_DRMS_ConfigProps	<ul style="list-style-type: none"> notification.type.email notification.email.error.flag notification.email.process.nofile.flag notification.email.process.complete.flag dacs.enroll.filename.prefix dacs.ftp.enroll.input.directory dacs.prefixtag.fileuploaded ouai.file.target.transfer.pref ouai.os.enroll.bucket ouai.os.namespace
OUTL-BRT- OUAI_DACS_DRMS_Email_ID	<ul style="list-style-type: none"> from to dacs.to.process.notification ouai.to.process.notification

Enrollment OS Transfer (Oracle Utilities Digital Asset Cloud Service Initiated)

This integration process retrieves the enrollment sync data file(s) from an OCI Object Storage location where DACS uploads files and transfer it to the related OUAI Object Storage location.

The following diagram shows a graphical representation of the Enrollment Sync integration process from an OIC 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 DACS Object Storage Bucket, 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 OIC child process: OU OUAi Common OS Transfer passing the necessary information to transfer the file accordingly.

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 property `dacs.prefixtag.fileuploaded`.
 - Otherwise, an error occurred during the file transfer.
- c. After the transfer is successful, the source file name will be renamed prepending the prefix set in the property `dacs.prefixtag.fileuploaded`.
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 OIC process to the users defined in `to.recipient` in lookup `OUTL-BRT-OUAI_DACS_DRMS_Email_ID`.
- 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 Package Name	outl.ba.ouai.dacs.derms.01.23.1000
Source Connection (OS)	OU REST DACS OS for OUAI DACS DRMS
Target Connection (OS)	OU REST OUAI OS for OUAI DACS DRMS (from child process)
Local Integrations	<ul style="list-style-type: none"> • OU OUAI Common OS Transfer • OU OUAI DACS DERMS Common Error Handler
OIC Lookup	<ul style="list-style-type: none"> • OUTL-BRT-OUAI_DACS_DRMS_ConfigProps • OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Lookups Referenced

The following table describes the customized properties referenced in the integration. For more information about the lookup properties, refer to [Configuring Lookups, Error Handling, and Email Notifications](#).

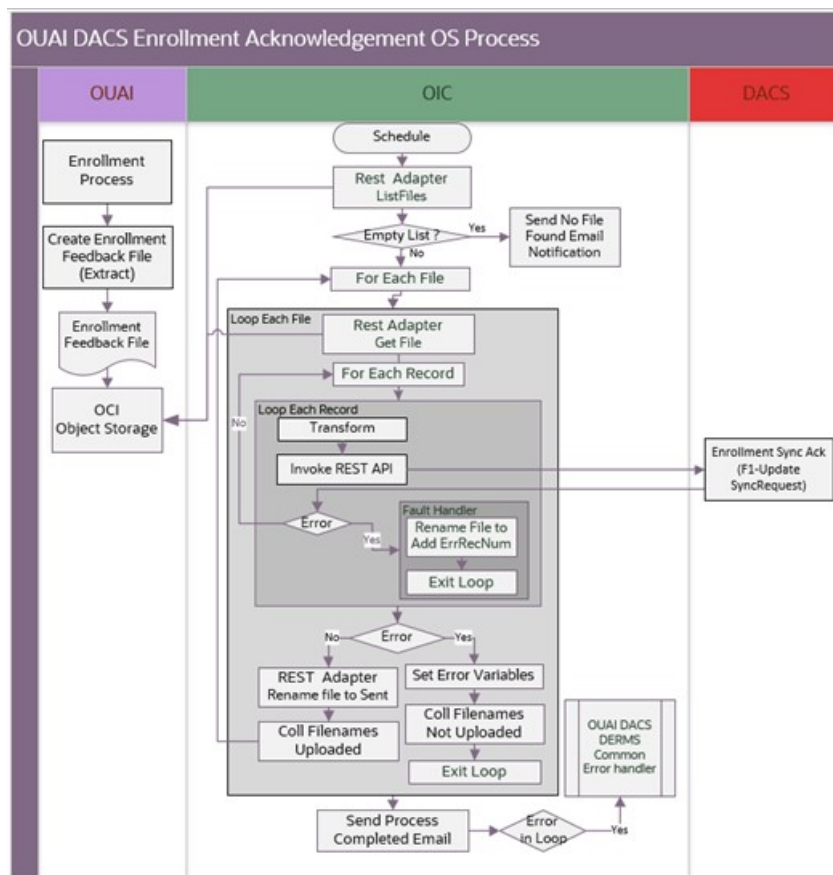
DVM	Property
OUTL-BRT- OUAI_DACD_DRMS_ConfigProps	<ul style="list-style-type: none"> notification.type.email notification.email.error.flag notification.email.process.nofile.flag notification.email.process.complete.flag dacs.enroll.filename.prefix dacs.prefixtag.fileuploaded ouai.file.target.transfer.pref ouai.os.enroll.bucket ouai.os.namespace dacs.os.namespace dacs.os.enroll.bucket
OUTL-BRT- OUAI_DACD_DRMS_Email_ID	<ul style="list-style-type: none"> from to dacs.to.process.notification ouai.to.process.notification

Enrollment Acknowledgment OS Process (Oracle Utilities Analytics Insight System Initiated)

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

Oracle Utilities Analytics Insights only interacts with files through OCI Object Storage and DACS 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 OUAI Object Storage Bucket, set in properties `ouai.os.enrollack.bucket` and `ouai.os.namespace`. It will retrieve files matching the prefix set in property `ouai.os.enrollack.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. 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`

This means 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.
 - Otherwise, 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 lookup `OUTL-BRT-OUAI_DACS_DRMS_Email_ID`.
 5. Error Handling.
 - For technical faults encountered in the process, such as connectivity issues, the integration will call the common error handler service to send an error email notification to the users defined in `to` recipient in lookup `OUTL-BRT-OUAI_DACS_DRMS_Email_ID`.
 - 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 OUAI and DACS 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 Package Name	outl.ba.ouai.dacs.derms.01.23.1000
Source Connection (REST)	OU REST OUAI OS for OUAI DACS DRMS
Target Connection (Oracle Utilities Adapter)	Oracle Utilities REST DACS for DACS-DRMS
Local Integrations	OU OUAI DACS DERMS Common Error Handler
OIC Lookup	<ul style="list-style-type: none"> • OUTL-BRT-OUAI_DACS_DRMS_ConfigProps • OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Lookups Referenced

The following table describes the customized properties referenced in the integration. For more information about the lookup properties, refer to [Configuring Lookups, Error Handling, and Email Notifications](#).

DVM	Property
OUTL-BRT-OUAI_DACD_DRMS_ConfigProps	<ul style="list-style-type: none"> notification.type.email.flag ouai.os.enrollack.bucket ouai.prefixtag.uploaded ouai.os.namespace ouai.os.enrollack.prefixtag.sent
OUTL-BRT-OUAI_DACD_DRMS_Email_ID	<ul style="list-style-type: none"> from to dacs.to.process.notification ouai.to.process.notification
OUTL-BRT-DACS_OUAI_Routing	<ul style="list-style-type: none"> DRMS_Instance DRMS_Site_Connection

Event Outcome (Oracle Utilities Grid Edge Distributed Energy Resources Management System 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).

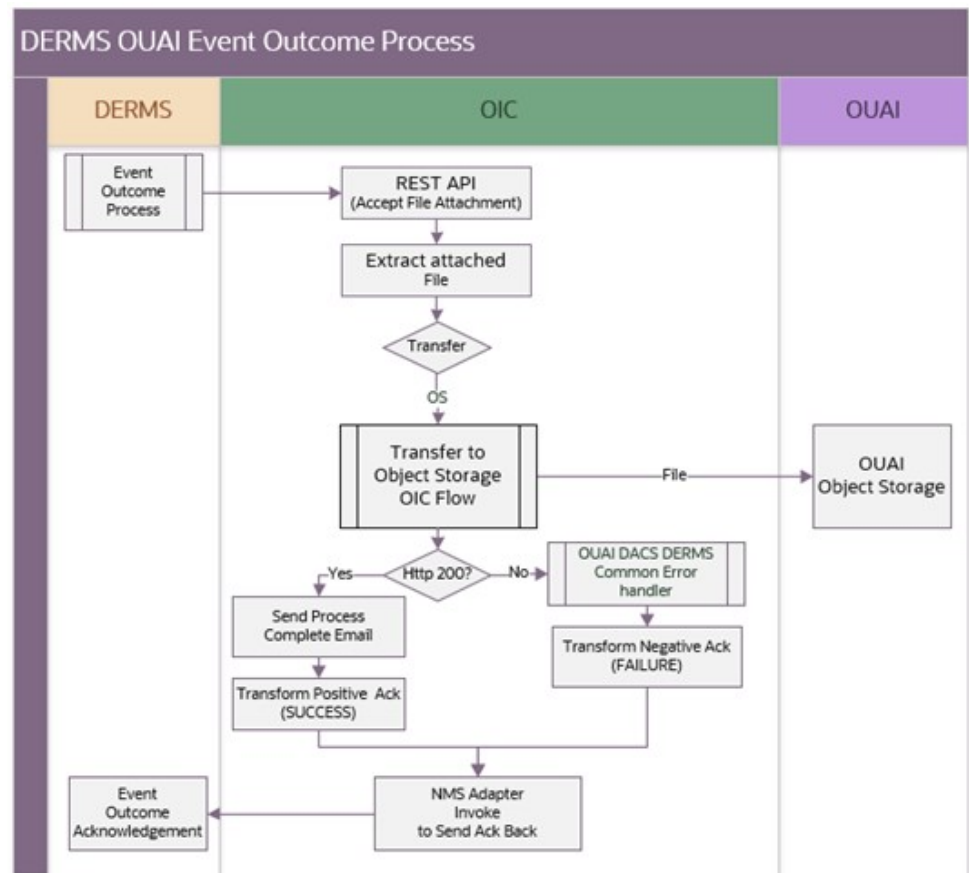
Oracle Utilities Grid Edge Distributed Energy Resources Management System aggregates and sends both Oracle Utilities Digital Asset Cloud Service and Oracle Utilities Analytics Insights the post event outcome for all controllable devices called to participate in an event or events through a file.

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 in and both participated in an event, then each device will have one outcome record in the file.

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

This integration process transfers the post event outcome file from DERMS 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.

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. Otherwise, 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 OIC process to the users defined in `to_recipient` in lookup `OUTL-BRT-OUAI_DACS_DRMS_Email_ID`.
- 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_PARAMETERS` 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 Outcome Transfer
Integration Process Identifier	OUTL-BA-DRMS_OUAI_EVT_OUTC_TRNFR
Integration Package Name	outl.ba.ouai.dacs.derms.01.23.1000
Source Connection (REST)	OU REST Trigger for OUAI DACS DERMS
Target Connection (Oracle Utilities Adapter)	OU REST DRMS for OUAI DACS DRMS URI / event-outcome-ack
Local Integrations	<ul style="list-style-type: none"> • OU OUAI Common OS Transfer • OU OUAI DACS DERMS Common Error Handler
OIC Lookup	<ul style="list-style-type: none"> • OUTL-BRT-OUAI_DACS_DRMS_ConfigProps • OUTL-BRT-OUAI_DACS_DRMS_Email_ID • OUTL-BRT-DACS_OUAI_Routing

Lookups Referenced

The following table describes the customized properties referenced in the integration. For more information about the lookup properties, refer to [Configuring Lookups, Error Handling, and Email Notifications](#).

DVM	Property
OUTL-BRT-OUAI_DACS_DRMS_ConfigProps	<ul style="list-style-type: none"> • notification.type.email.flag • ouai.file.target.transfer.pref • notification.email.process.complete.flag • ouai.os.namespace • ouai.os.eventoutcome.bucket

DVM	Property
OUTL-BRT- OUAI_DACS_DRMS_Email_ID	<ul style="list-style-type: none"> • from • to • drms.to.process.notification • ouai.to.process.notification
OUTL-BRT-DACS_OUAI_Routing	<ul style="list-style-type: none"> • DRMS_Instance • DRMS_Site_Connection

KWH Avoided OS Transfer (Oracle Utilities Analytics Insight System 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.

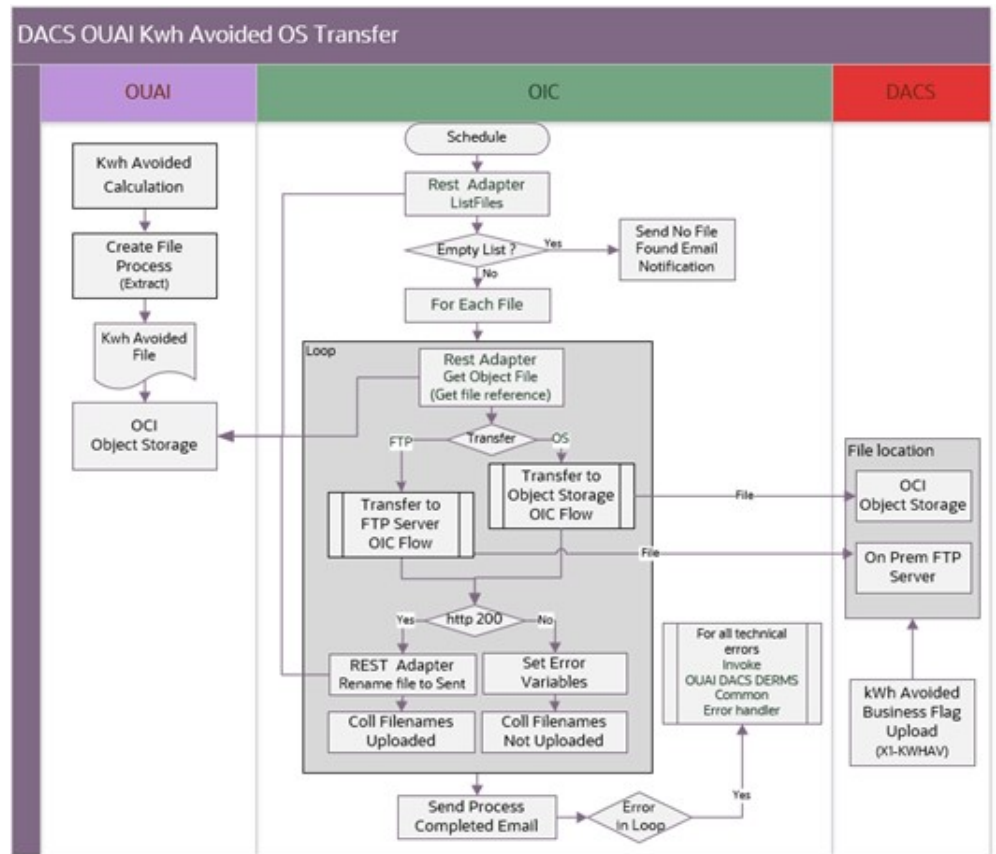
This integration process sends the KWH Avoided data from OUAI to Oracle Utilities Digital Asset Cloud Service.

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:

- The process is triggered by a schedule or it can also be triggered manually.
- Lists all files found in the OUI Object Storage Bucket, set in properties `ouai.os.kwhavoided.bucket` and `ouai.os.namespace`. It will retrieve files matching the prefix set in property `ouai.os.kwhavoided.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.
- For each file, do the following:
 - Get the file using the REST Adapter
 - Based on the value set in property `dacs.file.target.transfer.pref`, the process sends the file reference to a child process.
 - There are 2 child process 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 OU DACS Common OS Transfer child process, the file is sent to DACS OCI Object Storage. The file location is set in property `dacs.os.namespace` and `dacs.os.kwhavoided.bucket`.
 - If property value is 'ftp', it is routed to OU DACS Common FTP Transfer child process, the file is sent to DACS FTP location. The file location is set in property `dacs.ftp.kwhavoid.input.directory`.
- 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 property `ouai.prefixtag.fileuploaded`. 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 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 OIC process to the users defined in `to` recipient in lookup OUTL-BRT-OUAI_DACS_DRMS_Email_ID.
 - If an error is encountered 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.
 - The integration flow will stop processing.

Technical Details

The following table describes the integration processes and the respective OUAI and DACS 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 Package Name	outl.ba.ouai.dacs.derms.01.23.1000
Source Connection (REST)	OU REST OUAI OS for OUAI DACS DRMS
Target Connection (REST)	<ul style="list-style-type: none"> • OU FTP DACS for OUAI DACS DRMS (from child process) • OU REST DACS OS for OUAI DACS DRMS (from child process)
Local Integrations	<ul style="list-style-type: none"> • OU DACS Common FTP Transfer • OU DACS Common OS Transfer • OU OUAI DACS DERMS Common Error Handler
OIC Lookup	<ul style="list-style-type: none"> • OUTL-BRT-OUAI_DACS_DRMS_ConfigProps • OUTL-BRT-OUAI_DACS_DRMS_Email_ID • OUTL-BRT-DACS_OUAI_Routing

Lookups Referenced

The following table describes the customized properties referenced in the integration. For more information about the lookup properties, refer to [Configuring Lookups](#), [Error Handling](#), and [Email Notifications](#).

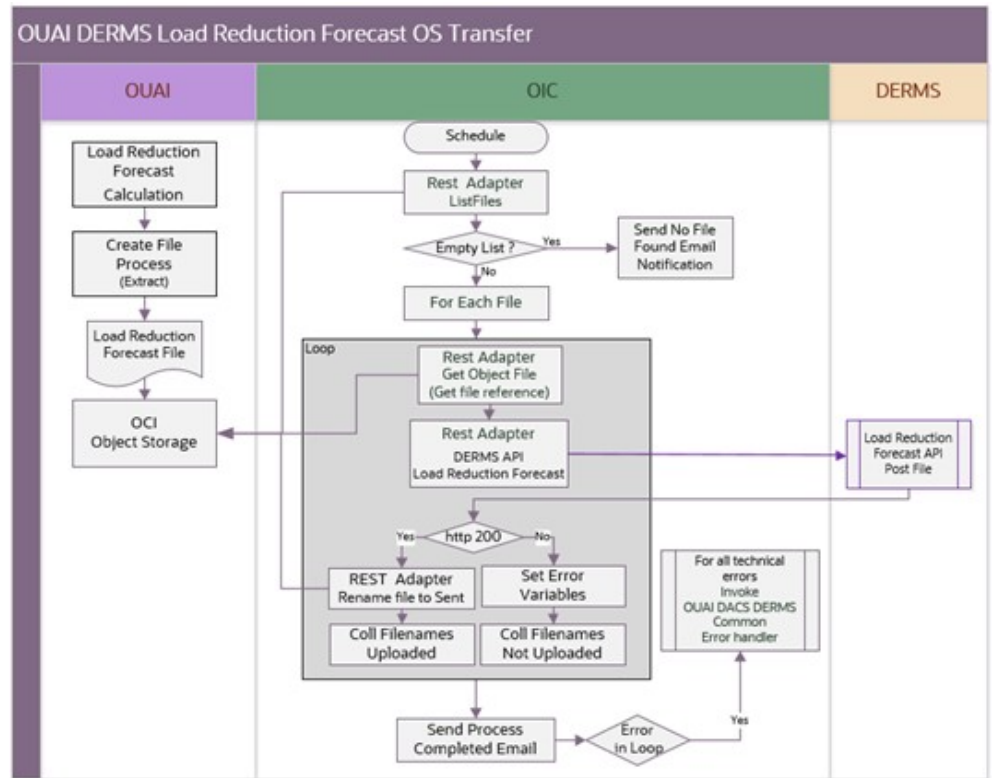
DVM	Property
OUTL-BRT- OUAI_DACSDRMS_ConfigProps	<ul style="list-style-type: none"> notification.type.email.flag dacs.file.transfer.pref dacs.os.kwhavoided.bucket dacs.os.namespace dacs.ftp.kwhavoid.input.directory ouai.os.kwhavoided.bucket ouai.os.kwhavoided.filename.prefix ouai.os.namespace
OUTL-BRT- OUAI_DACSDRMS_Email_ID	<ul style="list-style-type: none"> from to dacs.to.process.notification ouai.to.process.notification
OUTL-BRT-DACSDOUAI_Routing	<ul style="list-style-type: none"> DRMS_Instance DRMS_Site_Connection

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 DERMS.

Oracle Utilities Analytics Insights only interacts with files through OCI Object Storage and DERMS 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 properties `ouai.os.loadreductionforecast.bucket` and `ouai.os.namespace`. It will retrieve files matching the prefix set in property `ouai.loadreductionforecast.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. 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 field (`ackType`) from DERMS.

- If it is SUCCESS, the source file name is renamed by appending the prefix set in property `ouai.prefixtag.fileuploaded` 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 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 OIC process to the users defined in `to` recipients in lookup `OUTL-BRT-OUAI_DACS_DRMS_Email_ID`.
- If the error happens while processing the list of files, the Process Complete email notification is also sent out containing the summary of files transferred and not transferred.

Technical Details

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

Artifacts	Value
Integration Process Name	OU OUAI DERMS LoadReductionForecast OS Transfer
Integration Process Identifier	OUTL-BA-OUAI_OS_LR_FORECAST
Integration Package Name	outl.ba.ouai.dacs.derms.01.23.1000
Source Connection (REST)	OU REST OUAI OS for OUAI DACS DRMS
Target Connection (REST)	OU REST API DRMS for OUAI DACS DRMS
Local Integrations	OU OUAI DACS DERMS Common Error Handler
OIC Lookup	<ul style="list-style-type: none"> • OUTL-BRT-OUAI_DACS_DRMS_ConfigProps • OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Lookups Referenced

The following table describes the customized properties referenced in the integration. For more information about the lookup properties, refer to [Configuring Lookups, Error Handling, and Email Notifications](#).

DVM	Property
OUTL-BRT- OUAI_DACS_DRMS_ConfigProps	<ul style="list-style-type: none"> notification.type.email ouai.loadreductionforecast.filename.prefix ouai.prefixtag.fileuploaded notification.email.process.complete.flag ouai.os.namespace ouai.os.loadreductionforecast.bucket
OUTL-BRT- OUAI_DACS_DRMS_Email_ID	<ul style="list-style-type: none"> from to dacs.to.process.notification ouai.to.process.notification

Common Logic

In this section, we discuss the common logic that is used throughout the integration. This can be categorized in design standards, email format, and common integration.

File to File Transfer

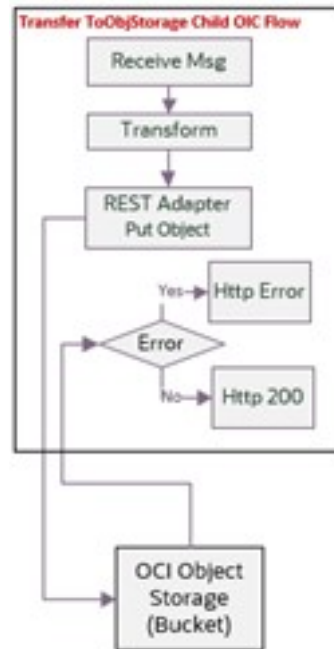
Many of the integrations are moving files from one application to another. Source and target locations can be a folder in an on-premises server or a cloud object storage. This is dependent on what the source and target applications support during implementation.

Note: Currently Oracle Utilities Analytics Insights only uses the OCI object storage as its content server. DERMS uses REST APIs to send and receive files. DACS supports both FTP and Object Storage as its content server.

If the source application supports ftp or object storage as its content server then there will be two OIC flows to support each entry point. The duplication is done because an integration cannot be activated if one of the connections isn't setup.

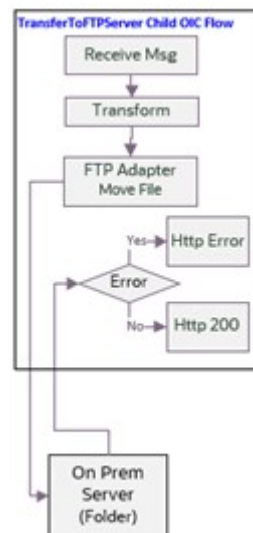
To allow customers to decide how to transfer files to a target location, a file target transfer preference property must be set to determine where to transfer the file. Valid values are os or ftp.

- If set to 'os', a child OIC flow is called to transfer the file to a target object storage location.



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

List of child Oracle Integration Cloud flows supported by this integration:

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

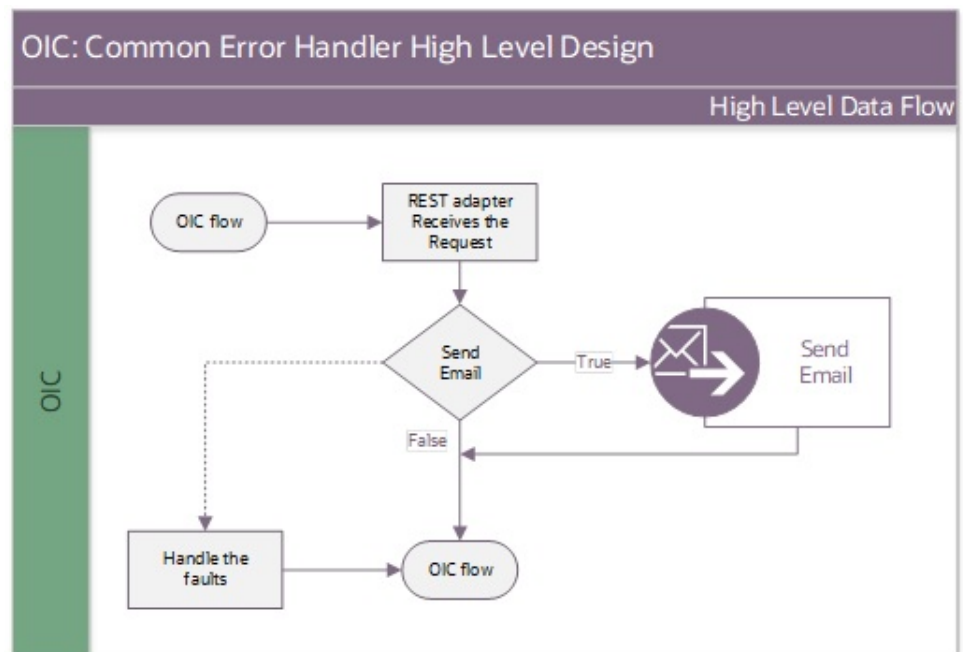
All child Oracle Integration Cloud flows are exposed as a REST API and are setup similarly to receive the endpoint information to send to an FTP or Object Storage location.

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

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.



Business Processing

The integration process includes the following activities:

1. This process is invoked from other Oracle Integration Cloud flows internally when an error occurs in any of the integration process from global error handler. Common Error Handler flow is triggered.
2. REST adapter receives the request and processes it based the property name error email.flag in the OUTL-BRT-OUAI_DACS_DRMS_ConfigProps lookup. Email notification will be sent.

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 Package Name	outl.ba.ouai.dacs.derms.01.23.1000
Source Connection	local integration
trigger	/receiveMessage

Lookups Referenced

The following table describes the customized properties referenced in the integration. For more information about the lookup properties, refer to [Configuring Lookups, Error Handling, and Email Notifications](#).

DVM	Property
OUTL-BRT- OUAI_DACS_DRMS_ConfigProps	<ul style="list-style-type: none"> notification.type.email notification.email.error.flag
OUTL-BRT- OUAI_DACS_DRMS_Email_ID	<ul style="list-style-type: none"> From To

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](#)
- [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.

- [Message Senders](#)
- [External System](#)
- [Inbound Web Service \(IWS\)](#)
- [Master Configuration](#)
- [Head End System](#)
- [Activity Type](#)
- [Communication Type](#)
- [Service Task Type](#)
- [Sync Request Process](#)
- [Scheduling Batch Jobs](#)

Message Senders

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

To create a message sender:

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

External System

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

To create an external system:

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

Inbound Web Service (IWS)

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

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

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

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

Master Configuration

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

- Digital Asset Integration Master Configuration

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.

Communication Type

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

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

To create a communication type:

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

Service Task Type

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

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

To create a service task type:

1. In the **Admin** menu navigate to **[S or General]**.
2. Enter a unique service task type and its description. Refer to the embedded help for more information.

Sync Request Process

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

To configure a Maintenance Object:

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

Scheduling Batch Jobs

Make sure to schedule the following batch jobs in the order they are listed:

1. **X1-CALAS**: Updates control scores of enrolled devices with the latest information.
2. **X1-SDCSE**: Extracts the latest control scores of enrolled devices.

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 at:

<https://docs.oracle.com/en/industries/energy-water/digital-asset-cloud-service/>

Chapter 4

Configuring Oracle Utilities Grid Edge Distributed Energy Resources Management System

This chapter includes information about the following:

- [Configuring Admin Data 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 on Oracle Help Center at:

<https://docs.oracle.com/en/industries/energy-water/network-management-system/>

Configuring Admin Data in Oracle Utilities Grid Edge Distributed Energy Resources Management System

To configure Admin data in Oracle Utilities Grid Edge Distributed Energy Resources Management System, establish the communication from Oracle Utilities Grid Edge Distributed Energy Resources Management System to Oracle Integration Cloud.

Update the Oracle Utilities Grid Edge Distributed Energy Resources Management System database table with the following Oracle Integration Cloud details.

Table Name	drms_parameters
OIC flow end point URL	Update the value with OIC flow end point URL <ul style="list-style-type: none"> • <https://hostname:port/ic/api/integration/v1/flows/rest/OUTL-BA-DRMS_OUAI_EVT_OUTC_TRNFR/1.0/eventOutcome where the attrib = 'OIC_EVENT_OUTCOME_OUAI_URL'
OIC Credentials	The <OIC_USER> and <OIC_PASS> should already be configured from the implemented DACS-DERMS package.
MAX_RETRIES	<ul style="list-style-type: none"> • This should already be configured from the implemented DACS-DERMS package. Value to be set to the amount of retries DERMS will perform upon receiving a technical fault or negative acknowledgment. • 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 on Oracle Help Center at:

<https://docs.oracle.com/en/industries/energy-water/analytics-insights/index.html>

Chapter 6

Importing, Configuring, and Testing Integration Connections

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

- [Importing the Oracle Integration Cloud Package from Oracle Cloud Marketplace](#)
- [Verifying the Package Import](#)
- [Configuring Connections in Oracle Integration Cloud](#)
- [Configuring Agent \(if applicable\)](#)
- [Setting up Certificates for Security](#)

Importing the Oracle Integration Cloud Package from Oracle Cloud Marketplace

All integration points are shipped as part of single package (.par) file.

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

1. Launch the Oracle Cloud Marketplace portal.
https://cloudmarketplace.oracle.com/marketplace/en_US/homePage.jspx
2. Click **Applications**.
3. Search for “Oracle Utilities Digital Asset Cloud Service”.
4. Browse through the list of applications and select the pre-built integration package to import.
5. Click **GetApp**.
6. Review and accept “Oracle Standard Terms and Restrictions”.
7. Click **Next**. My Oracle Support portal opens.
8. Download the integration package from My Oracle Support.
9. When prompted, select the server where the pre-built integration file should be uploaded.

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

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

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

To import a package in Oracle Integration Cloud:

1. Login to Oracle Integration Cloud.
2. Navigate to **Integrations > Designer > Packages**.
3. Click **Import**.
4. Select the .par file downloaded from Oracle Cloud Marketplace.
5. Verify if the package is imported is successfully.

Verifying the Package Import

To verify the package import was successful:

1. Verify whether the following integrations are imported successfully.
 - OU OUAI DACS DERMS Common Error Handler (01.23.1000)
 - OU OUAI DACS KwhAvoided OS Transfer (01.23.1000)

- OU OUAI DACS FTP Transfer (01.23.1000)
 - OU OUAI DACS OS Transfer (01.23.1000)
 - OU DERMS OUAI Event Outcome Transfer (01.23.1000)
 - OU DERMS OUAI OS Transfer (01.23.1000)
 - OU DACS OUAI Enrollment FTP Transfer (01.23.1000)
 - OU OUAI DACS EnrollmentAck OS Process (01.23.1000)
 - OU OUAI DERMS LoadReductionForecast OS Transfer
2. Verify if the following connections are in place.
 - OU FTP DACS for OUAI DACS DRMS
 - OU REST DACS OS for OUAI DACS DRMS
 - OU REST DACS for OUAI DACS DRMS
 - OU REST DRMS for OUAI DACS DRMS
 - OU REST OUAI OS for OUAI DACS DRMS
 - OU REST Trigger for OUAI DACS DERMS
 - OU REST API DRMS for OUAI DACS DRMS
 3. Make sure that the following look ups are imported successfully.
 - OUTL-BRT-OUAI_DACS_DRMS_ConfigProps
 - OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Configuring Connections in Oracle Integration Cloud

After the packages are imported and verified, configure the respective connections.

This section describes the procedure to configure the following:

- [OU FTP DACS for OUAI DACS DRMS Connection](#)
- [OU REST DACS OS for OUAI DACS DRMS Connection](#)
- [OU REST DACS for OUAI DACS DRMS Connection](#)
- [OU REST DRMS for OUAI DACS DRMS Connection](#)
- [OU REST OUAI OS for OUAI DACS DRMS Connection](#)
- [OU REST Trigger for OUAI DACS DERMS Connection](#)
- [OU REST API DRMS for OUAI DACS DRMS Connection](#)

OU FTP DACS for OUAI DACS DRMS Connection

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

To configure this connection:

1. Login to Oracle Integration Cloud and navigate to the connection.

2. Set the **FTP Server Host Address** (xxxx.com).
3. Do not modify anything on the **FTP Server port** and **SFTP connection** tabs.
4. Select the **FTP Server Access** policy on the **Security policy** tab and enter the Oracle Utilities Digital Asset Cloud Service FTP Server username and password.
5. Configure the appropriate **Agent Group** if applicable.
6. On the **Connection** page, click **Test**.
7. After the connection is tested successfully, click **Save**.

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

OU REST DACS OS for OUI DACS DRMS Connection

This connection is used to communicate with Oracle Infrastructure Cloud Object Storage 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.

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

Refer to the Oracle Cloud Infrastructure documentation/API Reference and Endpoints to see the Object Storage Service API and endpoints at: <https://docs.oracle.com/en-us/iaas/api/>

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)

For more information, refer to the Object Storage Setup Guide 20C at: https://docs.oracle.com/cd/F35460_01/index.htm

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

OU REST DACS for OUI DACS DRMS Connection

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

To configure this connection:

1. Login to Oracle Integration Cloud and navigate to the connection.
2. Add the Oracle Utilities Digital Asset Cloud Service catalog URL in the **Catalog Url** element.

3. Select **Basic Auth** on the **Security** tab and enter the Oracle Utilities Digital Asset Cloud Service username and password.
4. Configure the appropriate **Agent Group** if applicable.
5. On the **Connection** page, click **Test**.
6. After the connection is tested successfully, click **Save**.

OU REST DRMS for OUI DACS DRMS 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. Login to Oracle Integration Cloud and navigate to the connection.
2. Add the Oracle Utilities Grid Edge Distributed Energy Resources Management System catalog URL in the **Catalog Url** element.
3. Select **Basic Auth** on the **Security** tab and enter the Oracle Utilities Grid Edge Distributed Energy Resources Management System username and password.
4. Configure the appropriate **Agent Group** if applicable.
5. On the **Connection** page, click **Test**.
6. After the connection is tested successfully, click **Save**.

OU REST OUI OS for OUI DACS DRMS Connection

This connection is used to communicate with Oracle Infrastructure Cloud Object Storage 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.

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

Refer to the Oracle Cloud Infrastructure documentation/API Reference and Endpoints to see the Object Storage Service API and endpoints at: <https://docs.oracle.com/en-us/iaas/api/>

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)

For more information, refer to the Object Storage Setup Guide 20C at: https://docs.oracle.com/cd/F35460_01/index.htm

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

OU REST Trigger for OUI DACS DERMS Connection

This connection is used to communicate with and from connected applications using a REST adapter. This connection is used by Oracle Utilities Grid Edge Distributed Energy Resources Management System to trigger incoming messages. A REST trigger cannot be used if it has an agent configured.

To configure this connection:

1. Login to Oracle Integration Cloud and navigate to the connection.
2. Add the Oracle Integration Cloud instance connection URL in the **Connection URL** element.
3. Select **Basic Auth** on the **Security** tab and enter the OIC username and password.
4. On the **Connection** page, click **Test**.
5. After the connection is tested successfully, click **Save**.

OU REST API DRMS for OUI DACS DRMS Connection

This connection is used to communicate with and from connected applications using a REST adapter. This connection is used by Oracle Utilities Grid Edge Distributed Energy Resources Management System to trigger incoming messages.

To configure this connection:

1. Login to Oracle Integration Cloud and navigate to the connection.
2. Add the DRMS connection URL (For example: <https://hostname:port/nms-drms/rest/v1>) in the **Connection URL** element.
3. Select **Basic Auth** on the **Security** tab and enter the OIC username and password.
4. Configure Agents if needed.
5. On the **Connection** page, click **Test**.
6. After the connection is tested successfully, click **Save**.

Configuring Agent (if applicable)

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

This section includes:

- [Possible Combinations](#)
- [Creating an Agent Group](#)
- [Downloading Agent Installer](#)
- [Installing On-Premises Agent](#)

Possible Combinations

The possible combination of an agent group is:

- Oracle Utilities Grid Edge Distributed Energy Resources Management System on-premises and Oracle 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. Login to Oracle Integration Cloud.
2. On the **Home** page, click **Agents**.
3. Click **Create Agent Group**.
4. Enter the following information:
 - Agent Group Name
 - Identifier

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

 - Agent Type: “Connectivity Agent”
 - Description
5. Click **Create**.

Downloading Agent Installer

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

For more information on agent installer, see:

<https://docs.oracle.com/en/cloud/paas/integration-cloud/integrations-user/downloading-and-running-premises-agentinstaller.html>

Installing On-Premises Agent

To install an on-premises agent:

1. Login to Oracle Integration Cloud.

2. On the **Home** page, click **Agents**.
3. Click **Download**.
4. Select **Connectivity Agent**.
5. Select **Save File** when prompted to save the file to a directory location on your on-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.
For example: `https://OIC_host:OIC_port`
 - b. Provide the `agent_GROUP_IDENTIFIER`. It should be the agent group created in Oracle Integration Cloud.
 - c. Set the proxy parameters if the connectivity agent is used with a proxy in the on-premises environment.
 - d. Set the `JAVA_HOME` property to the directory/folder where JDK is installed.

Note: Before running the connectivity agent installer, perform the steps in the link below.

<https://docs.oracle.com/en/cloud/paas/integration-cloud/utilities-adapters/you-begin-setting-oracle-utilities-adapter.html#GUID-7F770AD1-5B87-4C62-968A-3AB30D043835>

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

```
java -jar connectivityagent.jar
```
- f. Provide the Oracle Integration Cloud credentials when prompted.
- g. Wait for a successful installation message to appear.

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

To verify if the agent instance was created:

1. Navigate to the **Agents** page in Oracle Integration Cloud.
2. Check if the agent count for your **Agent Group** is increased by one.
3. Click the number to view the agent details.

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

Setting up Certificates for Security

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

If there no valid certificates for this integration, download the Oracle Utilities 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_DRM S_ConfigProps	<ul style="list-style-type: none"> 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_DRM S_Email_ID	<ul style="list-style-type: none"> 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 details.

Editing Lookups

To edit a lookup:

1. Login to Oracle Integration for Cloud.
2. Navigate to **Integrations > Designer > Lookups**.
3. Select the lookup to edit and make the necessary 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
dacs.file.transfer.pref	os	Default type of file transfer. Values are “os” or “ftp”
dacs.enroll.filename.prefix	ENROLL_SYNC	EnrollmentSync extract file name prefix for ftp transfer. It should have the same value as the batch parameter filename in Batch Process X1-DACEX or X1-DACIL
dacs.ftp.enroll.input.directory	/scratch/sploutput/ VMAIN_C2M_DACS_DERMS_ LIN_ORA_WLS/tmp/	DACS directory where the EnrollmentSync extract files are stored in the ftp server for OIC to pick up. Required to populate this when DACS is on-premises
dacs.ftp.kwhavoid.input.directory	/scratch/Integration/KWH	DACS directory where the KwhAvoided extract files are stored in the ftp server for OIC to pick up. Required to populate this when DACS is on-premises.
dacs.os.enroll.bucket	DACS_Source_DEV	DACS directory where the EnrollmentSync extract files are stored and for OIC to pick up. Required to populate this when DACS is configured for ‘os’ file processing
dacs.os.kwhavoided.bucket	OUAI_Target_DEV	DACS directory where the KwhAvoided extract files are stored in the object storage for OIC to pick up. Required to populate this when DACS is configured for ‘os’ file processing

Property Name	Sample Value	Description
dacs.os.namespace	idabowt3caih	DACS Object Storage namespace serves as a container for all your buckets and objects. Defines the namespace where the buckets and objects the Device Score extract file resides. Required to populate this when DACS is configured for 'os' file processing
dacs.prefixtag.fileuploaded	Sent-	Prefix used to rename the extract filename that has been transferred correctly
notification.email.error.flag	true	Determines if error email notifications are sent out when technical errors occur. By default, this is set to "true"
notification.email.process.complete.flag	true	Determines if processes completed notifications are sent out to application users after the OIC process ends. by default, this is set to "true"
notification.email.process.no.file.flag	true	Hardcoded value, used by the integrations to verify if a business email must be sent even when no files were present during the scheduled time
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 of 'email'
ouai.file.target.transfer.prefix	os	Default type of file transfer. Values are "os" or "ftp"
ouai.loadreductionforecast.filename.prefix	LRRF_	LoadReductionForecast extract file name prefix for file transfer

Property Name	Sample Value	Description
ouai.os.enroll.bucket	OUIA_EnrollmentSync	OUIA directory where the EnrollmentSync extract files are stored. Required to populate this when OUIA is configured for 'os' file processing
ouai.os.eventoutcome.bucket	OUIA_EventOutcome	OUIA directory where the Event Outcome extract files are stored. Required to populate this when OUIA is configured for 'os' file processing
ouai.os.kwhavoided.bucket	OUIA_KwhAvoided	OUIA directory where the KwhAvoided extract files are stored. Required to populate this when OUIA is configured for 'os' file processing
ouai.os.kwhavoided.filename.prefix	KwhEvent	KwhAvoided extract file name prefix for file transfer
ouai.os.loadreductionforecast.bucket	OUIA_LoadReduction	OUIA directory where the LoadReductionForecast extract files are stored. Required to populate this when OUIA is configured for 'os' file processing
ouai.os.namespace	idabowt3caih	OUIA Object Storage namespace serves as a container for all your buckets and objects. Defines the namespace where the buckets and objects extract file resides. Required to populate this when OUIA is configured for 'os' file processing
ouai.prefixtag.fileuploaded	SENT_	Prefix used to rename the extract filename that have been transferred or processed correctly

Lookup: OUTL-BRT-OUAI_DACS_DRMS_Email_ID

Recipient	Email ID	Description
from	admin@myCy.com	Default email 'from' address on all outgoing emails for this package
to	errorDist@myCy.com	Comma separated email addresses that will receive the technical error notifications
dacs.to.process.notification	dacsUser@myCy.com	Comma separated email addresses of DACS business or application users that will receive the business notifications for DACS related integrations
ouai.to.process.notification	ouaiUser@myCy.com	Comma separated email addresses of OUAI business or application users that will receive the business notifications for OUAI related integrations
drms.to.process.notification	drmsUser@myCy.com	Comma separated email addresses of DRMS business or application users that will receive the business notifications for DRMS related integrations

Error Handling

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

- [Error Handling Ways](#)
- [Resubmitting the Error Instances in Oracle Integration Cloud](#)

Error Handling Ways

In this integration, the errors are handled in different ways due to the limitation of Oracle Integration Cloud.

- [Synchronous Flow Error Handling](#)
- [Asynchronous Flow Error Handling](#)
- [Summary of Integration Error Handling](#)

Synchronous Flow Error Handling

As part this error handler the errors are sent back to global fault handler and the respective system via Common Error Handler flow.

Technical Fault

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

Remote Fault

This fault occurs when the target system is down. When this error occurs the flow immediately goes to global fault handler and the fault is sent back to the respective system.

Business Fault

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

Asynchronous Flow Error Handling

Technical Fault

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

Remote Fault

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

Business Fault

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

Summary of Integration Error Handling

Integration Process: Event Outcome

Type of error	Action	Notification Type	Retry
Technical or Remote Fault Example: OUAI object storage is not accessible	<ul style="list-style-type: none"> Send FAILURE ackType to DERMS Process Stop 	Email	Resend message from DERMS
Business Fault	N/A		

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

Type of error	Action	Notification Type	Retry
Business errors	N/A		
Technical Fault Example: Source FTP or Source Object storage is not accessible	Process Stop	Error Email	Next scheduled run will pick up the files from DACS source content server or manually run the OIC process
Partial processing Example: Network connection issue, OUAI object storage not accessible	Process Stop	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

Integration Process: Load Reduction Forecast

Type of error	Action	Notification Type	Retry
Technical Fault Example: OUAI object storage is not accessible	<ul style="list-style-type: none"> Send FAILURE ackType to DERMS Process Stop 	Error Email	Resend message from DERMS
Business Fault	N/A		

Integration Process: 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
Business Fault	N/A		
Technical Fault (DACS returns Status 401 or 500)	Process Stop	Email	Integration fix: Rerun or reschedule the integration process

Type of error	Action	Notification Type	Retry
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 is already been sync from Oracle Utilities Analytics Insights to Oracle Utilities Digital Asset Cloud Service

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

Email Notifications

This pre-built integration includes a configurable email notification for technical errors and business completions.

To receive a technical error email notification:

1. Login 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. Login 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

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

- [Adding New Mappings](#)

Adding New Mappings

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

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 Oracle Utilities Digital Asset Cloud Service, 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.

For example:

```
<integration_process_identifier_name>\icspackage\project\  
<integration_process_identifier_name>\resources\  
<processor_xxx>\<resourcegroup_xxx>\<req_xxx.xml>
```

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.

Oracle Utilities Digital Asset Cloud Service Error Logs

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

The following error logs can be monitored for Oracle Utilities Digital Asset Cloud Service:

- Errors related to the online integration invocation from Oracle Utilities Digital Asset Cloud Service are stored in the `NMS_ENVIRONMENT_NAME/logs/` or `NMS_ENVIRONMENT_NAME/logs/system` folder.

For example: `V27_NMS_ORA_WLS/logs/system\`

For more information about errors and notifications, see the Oracle Utilities Digital Asset Cloud Service documentation.

Oracle Integration Cloud

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

Monitoring Integration Flows

Integration flows are monitored using the following:

- Dashboard
- Cloud Logs

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

1. Login to Oracle Integration Cloud.
2. On the **Home** page, click **Monitoring**.
3. Select any of the following as required:
 - **Dashboards** - To monitor the complete dashboard of integration.
 - **Integrations** - To monitor each integration.
 - **Tracking** - To monitor instance and flow trace/activity stream of the integration.
 - **Error** - To monitor the integrations in 'error' state. Re-submit the asynchronous integration flows.

To monitor the integration flows using Oracle Integration Cloud logs:

1. Login to Oracle Integration Cloud.
2. On the **Home** page, click **Monitoring**.

3. On the navigation pane, click **Dashboards** to view the overall success/failure rate of the integration.
4. Navigate to the **Logs** menu.
5. In the right pane, click the link to show options for downloading the Oracle Integration Cloud logs or diagnostics logs.
6. In case of any issues, attach the diagnostic logs to a service request for help.

Troubleshooting

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

To troubleshoot the activation error:

1. Click **Download Diagnostic Logs** to download the logs for diagnosing the issue.
2. Select **Enable Tracing**.

TRACE ENABLED is displayed next to ACTIVE.

A few 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 on Oracle Help Center at:

<https://docs.oracle.com/en/industries/energy-water/integrations-index.html>