Oracle Utilities Digital Asset Management

Release Notes

Release 2.0.0.1.1

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Oracle Utilities Digital Asset Management Release 2.0.0.1.1 Release Notes

Contents

Preface

Welcome to the Oracle Utilities Digital Asset Management Release Notes. This release notes provides an overview of the new functionality, enhancements, known issues and other changes in Oracle Utilities Digital Asset Management V2.0.0.1.1.

The preface includes:

- Audience
- Related Documents
- Updates to Documentation
- Conventions
- Acronyms
- Additional Resources

Audience

Release Notes is intended for anyone installing or using Oracle Utilities Digital Asset Management.

Related Documents

For more information, refer to these Oracle documents:

Installation Guides and Release Notes

- *Oracle Utilities Digital Asset Management Release Notes*
- *Oracle Utilities Digital Asset Management Quick Install Guide*
- *Oracle Utilities Digital Asset Management Installation Guide*
- *Oracle Utilities Digital Asset Management Database Administrator's Guide*
- *Oracle Utilities Digital Asset Management Licensing Information User Manual*

User Guide

- *Security Guide*
- *Server Administration Guide*

Updates to Documentation

The complete Oracle Utilities Digital Asset Management documentation set is available from Oracle Help Center at https://docs.oracle.com/en/industries/energy-water/index.html.

Visit My Oracle Support for additional and updated information about the product.

Conventions

The following text conventions are used in this document:

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

Acronyms

The following acronyms and terms are used in this document:

Acronym	Definition
CCB	Oracle Utilities Customer Care and Billing
C2M	Oracle Utilities Customer To Meter
SOM	Oracle Utilities Service Order Management
SGG	Oracle Utilities Smart Grid Gateway
ODM	Oracle Utilities Operational Device Management
MDM	Oracle Utilities Meter Data Management
OUAF	Oracle Utilities Application Framework
DAM	Oracle Utilities Digital Asset Management

Additional Resources

Additional and updated information about the product is available on My Oracle Support. For more information and support, visit the Oracle Support website.

Chapter 1

Oracle Utilities Digital Asset Management Release Notes

Welcome to the Oracle Utilities Digital Asset Management Release Notes. This document provides general information about Oracle Utilities Digital Asset Management V2.0.0.1.1 including new functionality, known issues, and other important information.

This guide includes the following:

- About This Release
- Supported Platforms
- Supported Integrations
- Demo Data Information
- User Configuration
- Enhancements in Digital Asset Management
- Known Issues in This Release
- Oracle Utilities Application Framework V4.5.0.1.1 Release Notes

Refer to the *Quick Install Guide* and *Installation Guide* for information regarding supported platforms and installation steps.

About This Release

This section contains general information about this release of Oracle Utilities Digital Asset Management 2.0.0.1.1. The release includes the following components:

- Oracle Utilities Digital Asset Management 2.0.0.1.1
- Oracle Utilities Application Framework 4.5.0.1.1

Please visit My Oracle Support (http://support.oracle.com) and Oracle Software Delivery Cloud (http://edelivery.oracle.com/) for the most recent service packs and patches for Oracle Utilities Digital Asset Management 2.0.0.1.1 to ensure you have the most current version of this product.

Supported Upgrades

This version of Oracle Utilities Digital Asset Management supports the following upgrade paths:

- From Oracle Utilities Digital Asset Management v2.0.0.0.0 to 2.0.0.1.1

Supported Platforms

See the **Supported Platforms** section in the Oracle Utilities Digital Asset Management *Quick Install Guide* (included in this release) for a list of supported platforms.

Supported Integrations

The following integrations are supported in this version of Oracle Utilities Digital Asset Management.

- Oracle Utilities Digital Asset Management 2.0.0.1.1 Integration to Oracle Utilities Distributed Energy Resources Management System
- Oracle Utilities Analytics Insights Integration to Oracle Utilities Digital Asset Management 2.0.0.1.1 and Oracle Utilities Grid Edge Distributed Energy Resources Management System

  Note: Version numbers listed are supported as of the v2.0.0.1.1. release (January 2023). Refer to the Certification Matrix for Oracle Utilities Products (Document ID 1454143.1) on My Oracle Support to determine if support for newer versions of the listed products have been added.

Demo Data Information

The application delivers a demo database based on the application versions provided with the release, including Oracle Utilities Application Framework. Demo data provides sample configuration and data for key application features.

Demo data is included in the package and includes its own installation instructions. Please refer to the *Oracle Utilities Digital Asset Management Database Administrator's Guide* for more information or contact Oracle Support.

User Configuration

Oracle Utilities Digital Asset Management shares its application environment with other Oracle Utilities products, including Oracle Utilities Customer to Meter and Oracle Utilities Work and Asset Management. The default installation of any of these products provides access to all menu items and functionality provided with these products.

To configure the system such that only menu items and functionality used by *Oracle Utilities Digital Asset Management* is available, application users should be assigned to the following set of user groups:

- Digital Asset Services (DACS_SERVICES)
- DACS WAM Services* (DACS_WAM_SERVICES)

* This user group provides access to Work and Asset Management functionality included with *Oracle Utilities Digital Asset Management*.

Refer to the **Defining Users** section in the *Administrative User Guide* for more information about setting up users.

Enhancements in Digital Asset Management

This section describes new features and functionality included in this release of *Oracle Utilities Digital Asset Management* including the following:

- Product Usability
- Integrations

Product Usability

This section describes new product usability enhancements introduced in this release, including:

- DACS Customer Portal
- Unified Search

DACS Customer Portal

The **DACS Customer Portal** provides you with customer- and program-related information, such as the following customer summary or digital asset context information:

- Contact Information
- Usage Subscription
- Service Point ID

- Address Value List

The **Main** section of the portal enables you to perform the following actions:

- View current program enrollments and eligible programs

- Initiate process flow-driven enrollments and un-enrollments

- View program enrollment activities linked to artifacts like enrollments, un-enrollments, and event participation

This enables you to drive customer program management, and view enrollment and event-related activities.

Unified Search

Oracle's Redwood user experience provides a single search box to quickly retrieve customer, account, and meter information such as customer name, address, contact info, and serial number. For more complex queries, you can use the link provided to navigate to a pre-configured advanced search portal. You can also search for Oracle Utilities application menu items using the same single search box.

This allows you to quickly find customer and meter information without leaving the current page.

Integrations

This section describes new integration-related enhancements introduced in this release, including:

- Actual KWH Avoided

- Event Outcome - Device Score Calculation

- Event Outcome - Settlement Calculation

- Load Reduction Forecast

- Program Subscription - Enrollment or Unenrollment Synchronization

Actual KWH Avoided

Oracle Utilities Analytics Insights can send a kWh Avoided file to Oracle Utilities Digital Asset Management. This file contains the actual energy reduction achieved for the duration of the event for each customer.

Oracle Utilities Analytics Insights calculates the kWh reduction achieved by each participating customer in a program event based on the event outcome sent by Oracle Utilities Grid Edge Distributed Energy Resources Management Systems, the smart meter consumption data received from AMI systems, and the load curve values referenced from historical consumption data. Oracle Utilities Analytics Insights generates kWh avoided files consisting of comma separated records for each participating metered service point and places them in a configured location. Oracle Integration Cloud transfers the files between the configured source and target locations via secure file transfer or object storage buckets.

Oracle Utilities Digital Asset Management records and uses the kWh avoided information to determine financial settlement data.

Refer to the **Importing, Configuring, and Testing Integration Connections** section in the *Oracle Utilities Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resource Management System Configuration Guide* for more information.

Event Outcome - Device Score Calculation

Oracle Utilities Grid Edge Distributed Energy Resources Management System can share event outcome details after scheduled events with the Oracle Utilities Digital Asset Cloud Service. This ensures that the actual program event participation outcome for each controllable device is correctly updated and can be factored into the controllable device score calculation.

Oracle Utilities Grid Edge Distributed Energy Resources Management System dispatches a control signal via Oracle Utilities Live Energy Connect to a controllable device identified for a program event. Upon completion of the program event, the controllable device responds with an event outcome to indicate the participation was successful, the customer overrode the event, or the control signal was rejected by the controllable device.

Oracle Utilities Grid Edge Distributed Energy Resources Management System receives the event outcome from Oracle Utilities Live Energy Connect, transforms the outcome to a consistent message format, generates an event outcome file, and sends the file to Oracle Integration Cloud for publishing. Upon receiving the file, Oracle Integration Cloud traverses individual records to invoke the Oracle Utilities Digital Asset Management event outcome web service and sends an acknowledge response to Oracle Utilities Grid Edge Distributed Energy Resources Management System upon completion of the process.

The successful update to the event participation record in Oracle Utilities Digital Asset Management is factored into the next Device Score Calculation to allow for optimal selection of devices for the next program event.

Refer to the **Importing, Configuring, and Testing Integration Connections** section in the *Oracle Utilities Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resource Management System Configuration Guide* for more information.

Event Outcome - Settlement Calculation

Oracle Utilities Grid Edge Distributed Energy Resources Management System can share the actual event outcome details for each device after completion of a scheduled event with Oracle Utilities Analytics Insights.

Oracle Utilities Grid Edge Distributed Energy Resources Management System dispatches a control signal via Oracle Utilities Live Energy Connect to a controllable device identified for a program event. Upon completion of the program event, the controllable device responds with an event outcome to indicate the participation was successful, the customer overrode the event, or the control signal was rejected by the controllable device.

Oracle Utilities Grid Edge Distributed Energy Resources Management System receives the event outcome from Oracle Utilities Live Energy Connect, transforms the outcome to a consistent message format, generates an event outcome file, and sends the file to Oracle Integration Cloud for publishing. Upon receiving the file, Oracle Integration Cloud transfers the file between the source and target locations via object storage buckets

or secure file transfer. Oracle Utilities Analytics Insights records the event outcome across each metered service point.

This enables the computation of the "kWh Reduced" value to use in financial settlements and the calculation of the load reduction forecast for the corresponding service point.

Refer to the **Importing, Configuring, and Testing Integration Connections** section in the *Oracle Utilities Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resource Management System Configuration Guide* for more information.

Load Reduction Forecast

Oracle Utilities Analytics Insights can periodically send a load reduction forecast file containing the forecasted load reduction values for all metered service points associated to an active program enrollment to Oracle Utilities Grid Edge Distributed Energy Resources Management System.

Synchronization between Oracle Utilities Digital Asset Management and Oracle Utilities Analytics Insights is a mandatory prerequisite for running the integration flow, which ensures the Program Subscription is updated for all customers.

Oracle Utilities Analytics Insights calculates the load reduction forecast for each metered service point associated with an active program by leveraging historic consumption, historical event outcome, and weather forecast data. Oracle Utilities Analytics Insights periodically generates load reduction forecast files consisting of comma separated records and transfers the files between the source and target locations via secure file transfer or object storage buckets.

Oracle Utilities Grid Edge Distributed Energy Resources Management System uses the load reduction forecast, device score, and availability to reserve the optimal set of controllable devices for a program event.

Refer to the **Importing, Configuring, and Testing Integration Connections** section in the *Oracle Utilities Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resource Management System Configuration Guide* for more information.

Program Subscription - Enrollment or Unenrollment Synchronization

You can synchronize the customer's program subscription information n Oracle Utilities Digital Asset Management with Oracle Utilities Analytics Insights after a successful enrollment or unenrollment from a program.

The enrollment orchestration within Oracle Utilities Digital Asset Management sets up the relationship between the customer (contact, location), their controllable device, and the associated program via the program subscription. Once a customer and their controllable device is successfully enrolled in Oracle Utilities Digital Asset Management, it triggers a message to synchronize the data with Oracle Utilities Analytics Insights for the associated service point so that it is included in load reduction forecasting and actual kWh Avoided calculations.

A mandatory prerequisite for the integration is the synchronization between a Customer Information System and Oracle Utilities Analytics Insights, which ensures customer contact and location information are already updated so that identifier values can be processed.

Based on configurable parameters, this integration will handle synchronization of initial load requests at the beginning of an implementation and any updates to a customer's program subscription in Oracle Utilities Digital Asset Management for enrollments and unenrollments. Oracle Utilities Digital Asset Management generates comma separated files, which list individual enrollment sync records and Oracle Integration Cloud can be used to transfers the files between configured source and target locations either via secure file transfer or via object storage buckets. Oracle Utilities Analytics Insights will process individual records from the comma separated files and send an acknowledgment response per record back to Oracle Utilities Digital Asset Management to complete the process.

You can leverage this Oracle Integration Cloud flow to synchronize the program subscription information between the applications so that the eligible customers are included in load reduction forecasting and actual kWh Avoided calculations.

Refer to the **Importing, Configuring, and Testing Integration Connections** section in the *Oracle Utilities Oracle Utilities Digital Asset Cloud Service Integration to Oracle Utilities Grid Edge Distributed Energy Resource Management System Configuration Guide* for more information.

Known Issues in This Release

There are no known issues in this release.

Oracle Utilities Application Framework V4.5.0.1.1 Release Notes

This section describes enhancements, system data details and deprecation notices in Oracle Utilities Application Framework v4.5.0.1.1 including:

- Application Security
- Product Usability
- Data Export
- To Do Management and Processing Enhancements
- Batch Processing Enhancements
- Implementation Tool Enhancements
- Content Migration Assistant (CMA)
- Miscellaneous Enhancements
- Oracle Utilities Application Framework Deprecation Notices

    Note: The **Steps To Enable**, **Tips and Considerations**, **Key Resources**, and **Role Information** sections provide guidelines for enabling each feature, where applicable.

Application Security

This section describes the new and enhanced application security features in this release, including:

- Detailed Description Added to Application Service
- Screen Information Hidden on Session Timeout

Detailed Description Added to Application Service

Detailed Description was added as an optional attribute for application services. For most product delivered application services, the **Secured Objects** zone, which highlights which metadata objects in the system are linked to the application service, provides enough information to security administrators for them to understand what features are controlled by this record. There are a small number of application services that are referenced from JavaScript or Java, which are not discoverable by the **Secured Objects** zone. For these types of application services, a detailed description helps provide more information about the purpose and use of the record. For these examples and any other use case where the product has determined that additional information is warranted, the detailed description for such application services includes a detailed description.

Screen Information Hidden on Session Timeout

When a user's session times out, the underlying page is changed so that the underlying information is no longer visible. The user sees an alert that the session has timed out and they should click **OK** to log into the application again.

This ensures that possibly sensitive information is no longer visible.

Product Usability

This section describes the new and enhanced product usability features in this release, including:

- Algorithm Portal
- Application Security Query Portal
- Application Service Query Portal - Search by Release Version
- Characteristic Type Portal - Support Large Number of Characteristic Values
- Currency External Reference
- Currency Portal
- Dashboard Location Values Adjustment
- Display Icon Portal
- Geographic Type Portal
- Improved Field Portal
- Inbound Web Service Query Portal - Additional Search Options
- Language Portal
- Lookup Portal
- Menu Portal
- Online Help Opens in Oracle Help Center for Oracle Utilities Application Framework-based Applications
- Phone Type Portal
- Shortcut Key for Navigating Multiple Tabs Adjusted
- Unified Search Improvements
- User Group Portal
- Work List Zone - Improved Item Navigation

Algorithm Portal

The **Algorithm** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor. The portal includes a **References** tab that list all entities associated with an algorithm. Knowing where an algorithm is used provides you with a better view of your custom rules and will help you target your testing. This portal improves efficiency for building and maintaining algorithms for developers without impacting extensions.

Application Security Query Portal

While application security can be configured at the granular level of an application service and its access modes, it is more intuitive to review access rights to broader application components such as menu lines, dashboard zones, batch processes, and more. A new **Application Security Query** portal supports various options for reviewing this configuration across users, user groups, and various types of secured components. This portal improves efficiency for building and maintaining security without impacting customizations.

Application Service Query Portal - Search by Release Version

The **Application Service Query** portal is enhanced to support a new query option that lists application service by the release they were introduced in. The recording of this information is only available from this release going forward, so it is only applicable to new application service going forward. This makes the uptake step of reviewing new application services easier. This change is transparent to customizations as it improves efficiency for building and maintaining security.

Characteristic Type Portal - Support Large Number of Characteristic Values

The maintenance of the list of characteristic values for a pre-defined characteristic type has been moved to a separate zone on the portal rather than a list built into the main section. The new zone better handles use cases where a large number of characteristic values exist. The zone includes paging and supports filters for more easily finding and maintaining individual entries.

View and maintain characteristic values for a pre-defined characteristic type in a separate zone with filters and paging support.

Currency External Reference

> **Note:** This feature is only an infrastructure change, allowing for edge products or implementations to choose to add support for currencies that are more than three characters. There is no additional functionality provided by the product for this feature.

There is a new external reference column in the Currency table. This allows implementations to define currencies that use a currency code that is more than three characters. This may be required to support crypto currencies with codes of more than three characters. Internalization currencies and the product's current code field are still three characters.

Be aware of the following:

- The currency table still limits the primary key of currency code to three characters. To support a crypto currency with more than three characters, a unique Currency Code should be defined and the External Reference should be used to capture the recognized industry reference.

- References to the currency in product tables continues to use the three character unique currency code.

- Specific interfaces related to payments may need to be enhanced to support this feature. Contact your implementation team to confirm what customization are needed to handle larger currency references.

Currency Portal

The **Currency** page has been converted from the "list" maintenance fixed page style to a portal-driven user interface page. An "all-in-one" metaphor is used, providing a list of the existing currency codes along with the standard ability to broadcast, edit, delete, duplicate, and add a new record.

The **Currency** page has been converted to a portal to provide you with a more flexible and extendable user experience.

Dashboard Location Values Adjustment

The dashboard location values were adjusted to reflect the behavior in a right-to-left language. The values are now 'Before' and 'After', which reflect the location of the dashboard relative to the location of the main page display.

- If the user's language is 'left to right', then the value of 'Before' means the dashboard is on the left and the value of 'After' means the dashboard is on the right.

- If the user's language is 'right to left', then the value of 'Before' means the dashboard is on the right and the value of 'After' means the dashboard is on the left.

Previously, the values were 'Left' and 'Right' with the product behavior based on a 'left to right' language. For a user with a 'right to left' language, the product was reversing the order of the page, including the location of the dashboard. The updated values now reflect the behavior for both types of languages.

Display Icon Portal

Maintain display icon information using a standard portal.

The **Display Icon Reference** page has been converted to a portal to provide you with a more flexible and extendable user experience.

The display icon reference page has been converted from the 'list' maintenance fixed page style to a portal-driven user interface page. It includes a query zone where you can search by the code or the description. The image of the icon is displayed in the results.
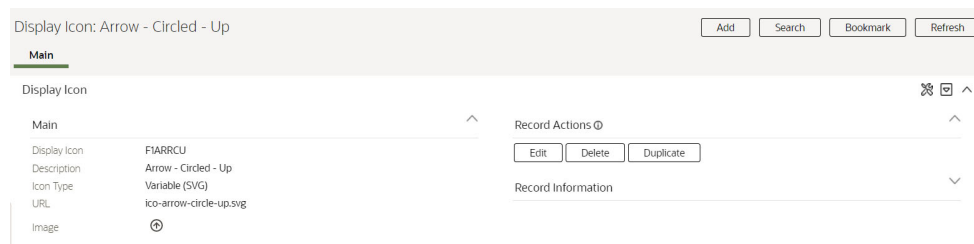

Any page that includes a search for a display icon, such as Tree or Insight Type, uses the same query and also benefits from the enhancement to include the icon's image.

Geographic Type Portal

The **Geographic Type** page has been converted to a portal to provide you with a more flexible and extendable user experience. An "all-in-one" metaphor is used, providing a list of the existing geographic types along with the standard ability to broadcast, edit, delete, duplicate, and add a new record. This portal improves productivity for adding and maintaining geographical types without impacting extensions.

Improved Field Portal

The **Field** page can now add or update the corresponding lookup field record. The only remaining reason to navigate to the **Lookup** page is for deletion or revision control purposes. Before this release, defining a lookup field involved setting the lookup field itself in the **Lookup** page and then adding it again in the **Field** page. This provides you with a seamless experience to maintain lookup fields. It improves efficiency for developers without impacting customizations.

Inbound Web Service Query Portal - Additional Search Options

The **Inbound Web Service Query** portal is enhanced to support search by information related to REST operations and help text configuration. This provides additional query options for searching inbound web services. This is transparent to customizations as it improves efficiency for building and maintaining inbound web services for developers.

Language Portal

The **Language** page has been converted from a "list" maintenance fixed page style to a portal-driven user interface page. An "all-in-one" metaphor is used, providing a list of the existing language codes along with the standard ability to broadcast, edit, delete, duplicate, and add a new record.

The **Language** page has been converted to a portal to provide you with a more flexible and extendable user experience.

Lookup Portal

The **Lookup** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor. The portal supports navigating to the corresponding field associated with the lookup. This makes it easier to access the information. This portal improves efficiency for building and maintaining lookups for developers without impacting extensions.

Menu Portal

The **Menu** page has been converted from the fixed page style to a portal-driven user interface page.

The **Menu** portal includes an **Application Security** tab for reviewing and configuration application security information for any of the menu lines.

This functionality was previously released on a separate **Menu Application Security** portal that was accessible via a dashboard zone associated with the fixed style menu page. With the conversion of the menu page to a portal, all menu configuration options, including application security setup, are provided in one place.

Online Help Opens in Oracle Help Center for Oracle Utilities Application Framework-based Applications

Opening online help from a Framework-based application now brings you to the relevant documentation page in Oracle Help Center. This removes the need to manage and deploy the help engine used in past releases, and reduces the overall deployment times significantly.

You can use standard browser functions to bookmark pages and page headings, and use your browser's option to open the content in a new tab or open it in a new window. Note that because the help launches as a standard browser window, the default behavior is that it will open in a new tab in the same window. Once the help is launched, you can set in your browser to move the tab location or separate it to its own window as desired going forward. There were also some enhancements to the online help to make navigating the content easier.

Phone Type Portal

The **Phone Type** page has been converted to a portal to provide you with a more flexible and extendable user experience.. An "all-in-one" metaphor is used, providing a list of the existing phone types along with the standard ability to broadcast, edit, delete, duplicate, and add a new record. This portal improves productivity when adding or maintaining phone types without impacting extensions.

Shortcut Key for Navigating Multiple Tabs Adjusted

The shortcut key for navigating from one tab of a page to the next tab on the same page is now Alt+F2. In the following example, if you are on the **Main** tab of the **User** page and wish to go to the **To Do Role**s tab, you could use Alt+F2 to get there.
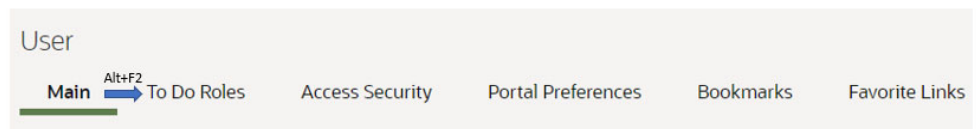
To go to the previous tab, use Shift+Alt+F2:
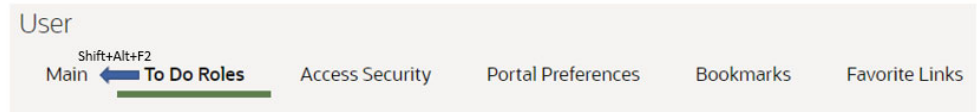
Previously, the shortcut keys for this functionality were F2 and Shift+F2, respectively. OJet uses F2 for some of its keyboard navigation and since the product uses OJet widgets for base functionality like Trees and Insights, the shortcut keys were adjusted to be able to take advantage of the built-in OJet features.

Unified Search Improvements

Previously, the Unified Search supported a single search option for a user. Now a user may switch between search options to which they have access. In addition, information about the current search option, which filters and hints it supports, and a recent search history, are all new features easily available to assist the user.

The unified search is enhanced to provide help on each filter and hint, and allow you to toggle between multiple search options you can access.

User Group Portal

The **User Group** page was replaced with a standard query portal that supports additional search filters by application service and user.

The **User Group Maintenance** page was replaced with a standard portal with the ability to use mass actions to:

- Add and remove application services, both at the service and access mode levels.

- Add and remove users.

- Set the expiration data for application services and users.

- Configure security type authorization information.

You can also review application components that are secured by the user group. This is similar to the **Application Security Query** portal which was also introduced in this release.

Work List Zone - Improved Item Navigation

The Work List zone is populated whenever you click the **Work List** icon in the header of a data explorer results list.

The following enhancements were made to the **Work List** zone:

- The entry that you are currently working on is marked with a star. Previously, a check was used for both the current entry and entries already visited. Now the check is only for the previously visited entries.
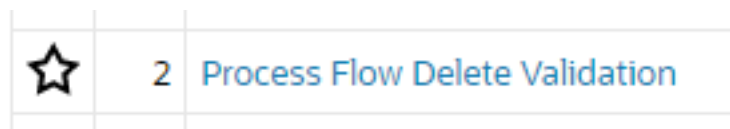
- **Previous** and **Next** buttons allow you to move through the list without having to find the next entry to click.

- You may actively mark a row to ignore when using the **Previous** and **Next** buttons. You can do this by clicking the column adjacent to that entry. Clicking this icon removes the indication and allows the entry to be included in the next/ previous processing again.
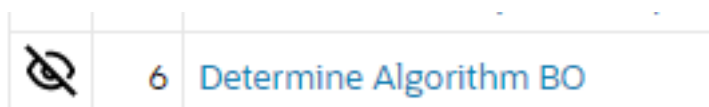
- If you have a long list, the zone keeps the current entry position in view even after refreshing the dashboard. Previously, any refresh of the zone would reposition the list to the top requiring you to scroll to find your current entry.
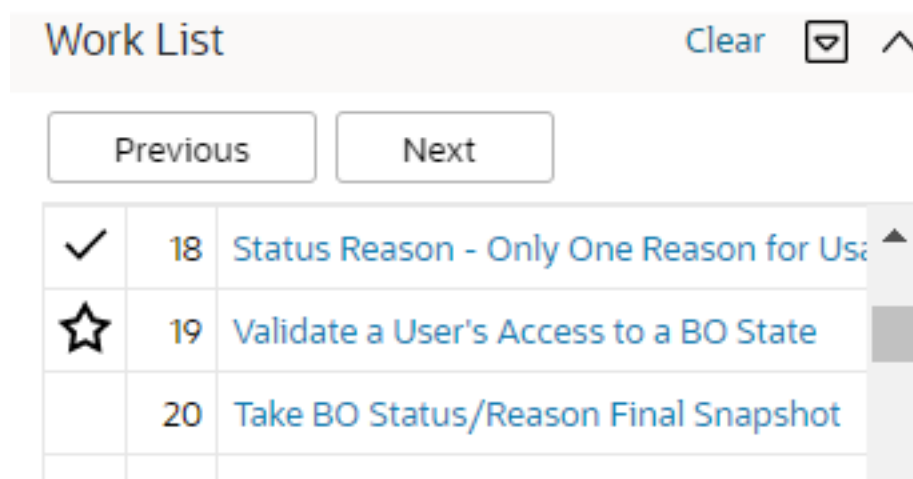
Data Export

This section describes the new and enhanced data export features in this release, including:

- Data Redaction Rules

- General Data Export - Restrict Initial Export by Time

- Generalized Export Dashboard Portal Enhancements

- Generalized Data Export Support for Entity Log Records

- Generalized Data Export Support for Lost Ongoing Export Files

Data Redaction Rules

Personal Identifiable Information (PII) that is not encrypted may require special handling when it is exported out of the application and written to files. Depending on how the export file is used, this type of information may need to be anonymize before being written to the file. Now, Generalized Data Export and Content Migration Assistant (CMA) batch processes support the anonymization of PII data based on customer-defined redaction rules.

A redaction rule defines the type of information that should be redacted, where it resides, and what function to apply to the value to anonymize it. For example, a phone number field may be redacted by applying a function that replaces all digits with 0. A library of common redaction functions is provided as an extendable lookup, and you may extend the list as needed. Sample redaction rules are provided as accelerator data, and you can update the rules as needed.

As a way of tracking and identifying fields that may contain sensitive information, a new searchable PII Class option now appears in the Field record definition.

The export tools were enhanced as follows:

- Content Migration Assistant

    - By default, data redaction rules are applied to anonymize sensitive information before it is written to the export file.

    - Depending on application security, you may indicate on a specific migration data set export request that data should be exported as it is (non-redacted). This option is only available to if you are provisioned with the "Do Not Apply Redaction Rules (NRDT)" access mode associated with the migration data set export's application service (F1MIGRDEXP).

- Generalized Data Export batch processes

    - By default, data redaction rules are applied to anonymize sensitive information before it is written to the export file.

    - A new batch parameter "Do Not Apply Redaction Rules" allows data to be exported as it is (non-redacted). The option requires that the user submitting the batch process is provisioned with the "Do Not Apply Redaction Rules (NRDT)" access mode associated with the data export application service (F1-DATAEXPORT).

    - Note that Generalized Data Export data export is a single stream of files that may be sent to multiple targets. You should review these integrations to be sure they do not have conflicting redaction requirements.

Once redaction rules are defined in an environment, these processes will automatically anonymize data by default.

A new **Obfuscation Configuration** portal provides a consolidated view of all masking, encryption, and redaction rules.

General Data Export - Restrict Initial Export by Time

By default, the initial export batch process exports the entire data for an entity. In some situations, typically around high volume historical data, there is a need to restrict the export to more recent data (for example, the last few months of data).

The initial export batch process now supports an optional batch parameter named "Restrict By Date" that allows utilities to constrain the history they export. The parameter

references the date field to use and the requested time frame in terms of number of days prior to business date. Refer to the Generalized Initial Export Template (F1-GEIXP) batch control for more information.

Note that excluding records from export should be carefully considered as this may result in data discrepancies when the excluded data is referenced on other entities. Refer to online documentation for additional considerations when using this option.

The option is only applicable to specific entities that have a qualifying reference date and the time frame for export may vary for each customer. Therefore, the new parameter is not added to any base product Initial Export batch control aside of the template batch control for documentation purposes. Customers can clone the base product batch control for a specific entity and add the parameter to their custom version.

Generalized Export Dashboard Portal Enhancements

When the list of entities to add or edit export settings for is too large, the transaction may time out. This situation often required the user to repeat the update in smaller batches. Now, by default, the application attempts to make the update in smaller batches. This minimizes timeout situations and makes them less problematic.

In addition, in some rare situations, the process to enable an entity for ongoing export may leave the entity not fully configured. Entities that are not fully configured are now explicitly highlighted as not configured, and they are listed at the top of the **Export Entities** zone. The user can then repeat the enablement action for these entities to resolve the problem.

Generalized Data Export Support for Entity Log Records

By default, the Generalized Data Export batch process does not export maintenance object log tables due to performance and data volume considerations. Also, log records are omitted from export because they do not usually contain useful business information. However, there are entities for which log records have analytical value. As of this release, a new **Export Log Tables** maintenance object option allows an entity to be configured to explicitly include its log records when exported.

Generalized Data Export Support for Lost Ongoing Export Files

The Generalized Ongoing Export (F1-GEEXO) batch process now keeps a backup of all entity keys exported by a specific batch run number in a designated backup table. A new Restore Generalized Export Keys (F1-GERST) batch process assists in recovering from such lost file situation. The new process restores the keys of all entities that were exported during a specific batch run, from the backup table back to the ongoing changes queue, causing them to be exported again on the next ongoing export batch run.

Note that this method does not restore the exact content of the original file that was lost. That content cannot be reproduced. Instead, this process ensures that the entities that were included in the lost file would be extracted again.

Previously, the Generalized Ongoing Export (F1-GEEXO) batch process did not keep a record of which entities were exported on a specific batch run. In cases where an export file is lost or damaged, there was no way to identify which entities should be exported again.

To Do Management and Processing Enhancements

This section describes the new and enhanced To Do features in this release, including:

- To Do Management by Assigned User
- To Do Dashboard Details Tab

To Do Management by Assigned User

Previously, the **To Do Management** portal restricted queries to a specific To Do Type. Now either a To Do Type or an Assigned User are required. As a result, there is now support for management of entries assigned to a user across multiple to do types.

To Do Dashboard Details Tab

The **To Do Dashboard** portal is enhanced to provide a detailed list of the entries selected by the charts on a new **Details** tab.

The new tab supports further filtering and actions a user can take to manage the selected entries. This provides the same functionality supported by the **To Do Management** portal.

> **Note:** With this enhancement to the **To Do Dashboard**, utilities are strongly encouraged to discontinue the use of the **To Do Summary** and **Supervisor To Do Summary** pages. The To Do Dashboard provides the functionality found in the two legacy 'summary' pages, and it also provides additional functionality not found in those pages.

Batch Processing Enhancements

This section describes the new and enhanced batch processing features in this release, including:

- Batch Logs for Issues Found Before Thread Execution
- Batch Submission Parameters Defaulted from Batch Control
- Manifest File Includes Previous Manifest File Information
- Plug-in Driven Batch Variables
- Plugin-driven Extract - Support for Writing to Multiple Files and Flexibility in File Names
- Submit Batch Job REST Linux Script
- Support for Encrypted Files and Digital Signatures
- Support Override of Base Algorithm on Batch Control

Batch Logs for Issues Found Before Thread Execution

The product captures a standard output file for each thread. If there are errors found in any thread, an error file is also produced which is accessible from the **Batch Run Tree** page. You can now capture log files for steps performed prior to the thread execution, for example in the "get job work" step.

The batch framework writes some basic logging information for the standard output file. The format of the file name produced is *batch control + run number + re-run number + date-time.stdout*. You will see an 'stdout' file for the batch run as well as one for each thread. Individual batch jobs may now also write log statements to the new stdout file at the batch run level.

If a batch job encounters an error in the steps before the thread execution, for example in the "Select Records" step, an error file is also produced. The format is *batch control + run number + re-run number + date-time.stderr*.

These files are also accessible from the **Batch Run Tree** page.

Batch Submission Parameters Defaulted from Batch Control

When submitting a batch job via any method, the system compares the provided parameters to those defined on the batch control.

- Any parameters that are missing from the request are populated from the batch control. Note that if the parameter is required and a default value is defined on the batch control, that value is used. If the parameter is optional, any default value found on the batch control is ignored. For optional parameters, the default value is only for online defaulting (where the user is able to choose to remove the default).

- In addition to the value, parameters define both a parameter name and sequence. If the parameters in the request only provide parameter name or sequence, the missing field is filled in based on the related batch control's definition. Note that if the request includes both the parameter name and the sequence, the system does not validate that the sequence is correct for the parameter name. The parameter name is the important field for the batch job functionality. The sequence is needed to ensure that the row is unique.

This feature improves the usability of the REST API used to submit a batch job (the 'submit' operation for the F1-SubmitJob inbound web service). Previously, the caller of this API was required to determine the batch parameters from the batch control ahead of time. With this enhancement, callers can submit the request for the batch submission and only supply the parameter name/parameter value for optional parameters where a value is desired or for required parameters when the value differs from the default value on the batch control. Any optional parameters where no value is needed or required parameters where the default value from the batch control is acceptable do not need to be provided.

Manifest File Includes Previous Manifest File Information

When sending the latest data export file using the Generalized Data Extract functionality, the manifest file produced with an extracted file now includes the previous successful batch run number and the previous manifest file name. The receiving systems can use this information to compare with the most recent file received to determine if any expected file is missing.

This allows for quick detection of issues when information is regularly extracted to an external system.

Plug-in Driven Batch Variables

The Plug-in Driven Upload process (template batch control is F1-PDUPL) now supports the following variables in the Processed File Extension parameter in addition to text:

- {RDT} or {runDateTime}

- {RD} or {runDate}

- {RT} or {runTime}

- {BC} or {batchCode}

- {BN} or {batchNumber}

- {RN} or {rerunNumber}

- {TN} or {threadNumber}

- {USR} or {userId}

The parameter must still end with text to streamline the existing system check, which ensures that the name of the file to upload does not include the text included in the Processed File Extension parameter. The User ID used for the parameter is the submission user instead of the "batch user."

Also, the Plug-in Driven Extract process (template batch control is F1-PDBEX) now supports the additional variables {USR} or {userId} as part of the file name. When these variables are specified, the submission user's ID is used.

Plugin-driven Extract - Support for Writing to Multiple Files and Flexibility in File Names

The plug-in driven extract process has been enhanced to allow for the Process Records algorithm to return one or more file names to write the data to. This allows for use cases where the data should be segregated by a business value. It also supports indicating a different file name for each schema returned by the algorithm, allowing for one unit of work to contribute to more than one file. Several use cases informed this enhancement:

- The data being extracted is related to different service providers and a file should be produced for each service provider. In this case, service provider is the unit of work and each unit of work could produce a separate file.

- The implementation has several CIS divisions and when extracting data, for example an asset, the data should be segregated such that each division gets its own file.

- An extract of Person data should result in a file with all the individual person information, a file with all the business person information, and a consolidated file of contact information for all person types. In this case, one call to the Process Records algorithm will result in data written to two different files (individual or business person information and contact information).

If a batch job is multi-threaded, each thread continues to produce its own set of files. For the service provider use case above, a multi-threaded process should still result in a file per service provider. However, for the Division and Person examples, each thread may include files for the same division or person type. The option to concatenate files is still supported and will concatenate files where the file name is the same except for the thread number. The existing limitations for the use of file concatenation still apply. This is documented in the batch control parameter description in the metadata.

Submit Batch Job REST Linux Script

The submitbatchREST.sh Linux script enables implementations to submit batch jobs when using external batch schedulers. This script uses the Submit Operation of the F1-SubmitJob REST service to create an entry in the Batch Job Submission table, which the batch daemon polls to pick up and run the batch job. The script also uses the Get Operation of the F1-SubmitJob REST service to periodically poll the system to retrieve the "Get Batch Job" or "Batch Run" details to provide status updates until the completion of the batch job.

Support for Encrypted Files and Digital Signatures

Exchanging and signing encrypted files requires the sender and recipient to share keys. The system needs to record the public keys provided by external parties and generate public/private key pairs so the public keys may be exchanged when encrypting or signing files.

A new public encryption key ring business object (F1-ExtKeyRing) allows the public keys provided by the recipients of encrypted files to be stored. The key ring also captures the external system ID and external reference of the system receiving the encrypted files. A new encryption key pair business object (F1-InternalEncryptionKey) allows private/public key pairs to be generated and stored using standard PGP format. The new internal key pair is classified as 'File Encryption / Signing'. Key rings previously classified as 'Signature' are now referred to as 'RSA Signature'. A new flag has been added to key ring to categorize key rings as external, internal, or OAuth.

The lifecycle of a key ring key has been changed to provide more flexibility when rotating keys. Internal generated keys are created in a status of pending. They may be manually activated when the public key has been shared with the applicable third parties. When a external public key is added, the new key is automatically activated and the previously active key is expired. Expired keys may be manually inactivated. Note that inactive keys can no longer be activated again.

Batch processing has been enhanced to implement file encryption and decryption using PGP standards. Digital signatures are also supported, using the standard 'Sign' option. New batch parameters have been introduced to specify the external and internal keys to be used for encryption and/or signing and the file adapter automatically encrypts, decrypts and signs the file data based on the existence of these parameters.

Support Override of Base Algorithm on Batch Control

The following batch control plug-in spots are single algorithm plug-in spots:

- Select Records
- Process Record
- File Upload

If the product provides batch controls with algorithms for any of the above plug-in spots plugged in, you can now override the base algorithm by plugging in your own custom algorithm using a higher sequence. The system uses the algorithm with the highest sequence.

Previously, if a base product batch control was provided with algorithms for any of the above plug-in spots, you were not able to override the batch control algorithm. You

could only clone the entire batch control if you wanted to override any of the provided algorithms.

Implementation Tool Enhancements

This section describes the new and enhanced implementation tools in this release, including:

- Action Provided to MO Audit Plug-In Spot
- Attachment Malware Scan Plug-in
- Base Product Index Data Visible in Table Portal
- Business Object Status Reasons REST API
- Characteristic Mapping Language Genericized
- Debugging Tools - Consolidated into a Single Button
- Dropdown Lists REST API
- Expand Tree REST API
- Extensions Dashboard Portal
- HTML Editor Syntax Highlighted
- HTML Row Header Reference Update
- Insights REST API
- Javadocs Viewer
- Menu Item Configuration for Add Action
- New Base Display Icon Images
- Parameter Update for New Language Batch Program

Action Provided to MO Audit Plug-In Spot

The action of a record is now provided to the MO Audit plug-in spot. For business use cases where the algorithm should perform different logic based on whether the record is added, changed, or deleted, this information simplifies algorithm code. Previously, algorithms with this requirement had to determine whether the record was new, changed, or deleted themselves.

MO Audit algorithms now receive the action for the impacted object simplifying logic that may differ based on the action.

Attachment Malware Scan Plug-in

The system supports a malware scan algorithm that is called when adding an attachment. This uses the "Attachment Malware Scan" System Event for on the **Algorithms** tab of the **Installation Options - Framework** portal. If an algorithm is plugged into this spot, it is called every time an attachment is uploaded, regardless of the method. In addition, the product has supplied a base algorithm that calls ClamAV. The ClamAV is not provided. Implementations need to separately install that software. If your implementation prefers to use a different malware scanning software, you can implement your own algorithm and plug it into the Installation Options.

Scanning attachments for malware before they are uploaded allows you to prevent harmful information from getting loaded to the system.

Base Product Index Data Visible in Table Portal

The **Index** tab on the **Table** portal now shows the base product-owned indexes. This allows for developers and implementers to view the information about the product delivered indexes.

Previously, the index information was only visible in the database. Also, in a previous release, metadata tables were added for defining indexes associated with a Table, however the new index metadata tables were not populated with the based product delivered indexes.

Business Object Status Reasons REST API

A new Status Reasons REST API (F1-StatusReasons) allows an external user interface application to retrieve valid reasons to be presented to a user when they perform an action that transitions an entity to a new status.

User interface applications like Visual Builder can use a new API for presenting valid reasons for transitioning an entity to a new status.

Characteristic Mapping Language Genericized

The characteristic mapping maintenance object (MO) is enhanced to allow for future support of mapping identifier values as well. As part of this effort, the maintenance object and the UI portal and many of the related artifacts are renamed to be more generic: Analytics Attribute Mapping.

Characteristic Mapping continues to be a business object for this MO and no changes exist for that functionality.

The newly rebranded Analytics Attribute Mapping table now includes new columns to support mapping of identifier values. There is a new business object visible in this release: F1-IDMapping. This business object captures the data needed to configure mapping of a given identifier type and value defined in a child table of an MO to a user defined field for a target dimension for the parent table of that MO. Note however that the changes to Oracle Utilities Analytics Visualization (OUAV) to support the identifier mapping are not supplied in this release. You may choose to define the metadata for the identifier mapping but they will not be used by OUAV at this time.

Debugging Tools - Consolidated into a Single Button

The various debugging tools that are enabled when the URL includes the `debug=true` parameter have been moved to a slide out panel enabled by a new 'bug' icon. The options visible to you when the debug parameter is turned on depend on whether your implementation is cloud or on-premise and your individual security rights.

In addition, the product has provided a new menu entry in the Help menu: Enable | Disable Debug. If you have access to the security application service for this menu entry, you can turn on or off debug without changing the URL parameter.

Dropdown Lists REST API

A "Dropdown Lists" (F1-DropdownLists) REST API retrieves data needed for building one or more drop-downs. Information for a drop-down includes a list of valid codes and their corresponding descriptions.

The web service supports the following types of drop-down data sources:

- Lookup field

- Extendable lookup

- All records in an admin maintenance object (only single prime key field entities are supported)

- Business service/service script computed list of values

User interface applications like Visual Builder (VB) may use a new API for retrieving data displayed as drop-downs.

Expand Tree REST API

The product provides a comprehensive infrastructure that supports user interface rendering of hierarchical information for a specific context based on configurable tree definitions. For example, it can present a tree view of entities related to an account. Now a new "Expand Tree" REST API (F1-ExpandTree) allows an external user interface application to retrieve hierarchical information for a specific context based on the same tree configuration. The information provided by the web service focuses on presentation content and includes minimal visualization recommendations, allowing the external application to render each tree node as per its own configuration and rules. Since they are application specific, the information also does not include action-related settings.

Extensions Dashboard Portal

The new **Extensions Dashboard** portal provides a high-level summary of all utility-owned entities and extensions made to base product entities. Information is summarized by maintenance object and allows the user to view the specific entities for a specific maintenance object and navigate to the respective page or portal for more information. With this information, utilities can better assess the necessary testing when planning for product upgrades and investigate the removal of extensions when upgrading to reduce costs.

HTML Editor Syntax Highlighted

The HTML editor on the UI Map/Schema tab has been updated to use a syntax highlighter to make it easier to review and update HTML.

This makes it easier to review and update the HTML.

HTML Row Header Reference Update

The HTML5 standard requires the use of the <TH> element within a table row when it is being used as the row header (<th scope="row"></th>). Previously, these elements were allowed to use a <TD> element for the row header.

For tables that are generated by Oracle Utilities Application Framework (Data Explorers, standard UI Map grids, and more), the HTML is automatically updated to match Oracle standards. If you are creating a table manually, a change is not required but it is recommend you update your HTML for better accessibility.

Insights REST API

The product already provides a comprehensive infrastructure that supports user interface rendering of various types of insights for specific contexts. For examples, billing insights about an account, person, and more.

A new "Insights" REST API (F1-Insights) allows an external user interface application to retrieve insight information for a specific context based on the same insight configuration. The information provided by the web service focuses on insight content and includes minimal visualization recommendation, allowing the external application to render the insights as per its own configuration and rules. For the same reason, the information does not include action-related settings because they are application specific.

Javadocs Viewer

Javadocs viewer is now available via the Admin > Implementation Tools menu. This launches the Javadocs landing page, which allows you to view information about base delivered Java classes and packages. In addition, when viewing an algorithm type, batch control, or foreign key reference, a 'source viewer' icon is visible when a Java program is displayed. If you click the icon, it launches Javadocs for that particular program.

In the **Script** page, the **Script Tips** zone in the dashboard includes a link to View Groovy Javadocs. This allows script writers to view information about methods and classes available for developing Groovy scripts.

Menu Item Configuration for Add Action

Menu items include optional configuration for application service and access mode. For menu items associated with searching, security is controlled by the associated portal or

transaction's application service. Therefore, defining an application service on these menu item is only useful to override the base application service, which is not common. However, for many menu items related to the add action, if a users did not have access to that action, they may still see the option on the menu and would only get a security error later after attempting to add. Utilities could override this by configuring an application service for the "add" Menu Item.

All product menu items handling an 'add' or any other action are configured with an application service or access mode by default.

New Base Display Icon Images

The following additional SVG icons are provided for use in contextual insights, trees, and other user interface features that support SVG icons.

Icon	ID	Description
☆	F1STAR	Star
★	F1STARTS	Star - Solid
🚫	F1VWHD	Hidden from View

Additional icons allow for an enhanced user experience for displayed information.

Parameter Update for New Language Batch Program

The language input parameters in the F1-LANG (New Language) batch program were adjusted to avoid confusion when submitting the batch for deletion of a language.

The two parameters were previously called Source Language and Target Language. Their descriptions have changed to Copy From Language and Action Language. The parameter names were not changed.

* 20	sourceLanguage	Copy From Language	Enter the language code for the source data. Only required for the add action.
* 30	targetLanguage	Action Language	Enter the language code for which the data is being added or deleted.

The behavior for adding a new language has also not changed. You should continue to put the Language to copy from first, and then the language you are adding as the second parameter. For example, if you are creating German language rows, using English as the Copy From Language, you would populate:

- **Action:** ADD

- **Copy From Language (formerly Source Language):** ENG

- **Action Language (formerly Target Language):** GER

However, the behavior for deleting changes has been updated. Previously, you populated the Source Language for the delete. Now you populate the Action Language. For example:

- **Action:** DEL

- **Copy From Language (formerly Source Language):**

- **Action Language (formerly Target Language):** GER

In addition, the batch program has been updated to prevent you from deleting rows for the ENG language that would result in the product system metadata being deleted.

Content Migration Assistant (CMA)

This section describes the new and enhanced CMA features in this release, including:

- CMA Import Performance Improvements
- CMA Support for Separate Configuration and Business Data Migrations
- Export Content Migration Assistant Data to an Older Version
- Migration Plan Pre-Compare Algorithm Execution Update

CMA Import Performance Improvements

By default, the Content Migration Assistant (CMA) import process creates a migration object for each imported entity. This allows for a granular reporting and error handling at the entity level. When importing a high volume data set of business entities, this granular management has a performance toll.

The CMA import process now supports a Bulk Import option by which a group of entities, of the same maintenance object, is managed as a single migration object. Using this option reduces the migration object management effort throughout the process and results in better performance. Each entity is still individually validated in this mode, as in regular import processing, but if one entity is invalid the entire migration object is not applied (impacting all entities within it). Bulk import mode is useful when importing a large set of data from a validated data source when almost no errors are anticipated.

The indication of whether to use bulk import or not is specified on the migration data set import request.

Another new option, also specified on the migration data set import request, allows you to indicate that all imported entities are assumed to be new additions to the current environment. By indicating that this import is Insert Only, the import process avoids unnecessary steps to determine whether the entity should be added or updated.

These option are only supported for master and transaction maintenance objects. They are not applicable to configuration migrations.

The import step of the CMA process has been enhanced to execute insert statements more efficiently by leveraging the database's bind variables functionality. This is transparent to existing in-progress migrations.

CMA Support for Separate Configuration and Business Data Migrations

By default, the same import CMA batch processes manage configuration and business data migrations. Typically, business data migrations involve high volume of records compared to much lighter configuration data sets. Processing them together by the same batch process slows down the performance of configuration migrations, preventing them from completing faster and more frequently. The issue mainly affects test-like environments where mixed data class migrations is more common: configuration data is imported from a lower environment and large test data is imported from a higher environment. Now you can adjust your CMA configuration in such environments to benefit from separating the import processes for configuration and business data.

The need to separate import processes mainly applies to migration objects because of their volume. Migration data set and transaction records are of low volume and as such are still managed by the same batch processes.

New batch processes are provided for importing migration objects containing business data:

- F1-MGOPB - Migration Object Monitor (Business)
- F1-MGOAB - Migration Object Monitor (Business) - Apply

By default, the existing migration object batch processes continue to handle both classes of data. To use the new batch processes for business data, you need to associate the new business data migration object BO provided as part of this enhancement with the new batch processes. See the steps below for details.

Export Content Migration Assistant Data to an Older Version

When performing a Content Migration Assistant (CMA) export, the format of the file is specific and the CMA import step knows how to read the file. There are times when the product makes an enhancement to CMA that requires a change in the structure of the export file at which point the 'version' of the CMA file is incremented. When this happens, the import step is able to detect if you are importing an older version of the CMA file and proceeds accordingly.

The product now provides support for exporting a CMA file using an older version format. For example, the current CMA version is 5. When creating a Data Set Export, you can indicate that you want to export using version 4. This is useful if you have upgraded one of your environments to a version of the product that uses CMA version 5, and you need to export data to an environment that has not yet been upgraded and is therefore still on version 4.

Migration Data Set Export

Main

Migration Request	F1-GeneralSystemOptions 🔍	General System Options, Criteria-based
* Export Directory ⓘ	/tmp	
File Name	servicePack1.txt	
File Suffix ⓘ	txt	
Export Description	Service Pack 1	
Source Environment Reference	https://ugbu-phx-90.snphxprshared1.gbucdsint02phx.or	
Migration File Version	4 ▾	

[Save] [Cancel]

This is analogous to choosing to save a Microsoft Word document using an older version of Word (for example, with the .doc file type) during the period where not all software could consume the newer (.docx) version.

Migration Plan Pre-Compare Algorithm Execution Update

When the migration data import process runs the pre-compare algorithms for a given migration plan, the logic now includes the algorithms configured on the migration plan in the target environment as part of the execution. Previously, this step only included the pre-compare algorithms carried over from the source environment. This ensures that any additional data updates applicable at the target are included.

Miscellaneous Enhancements

This section describes the new and enhanced miscellaneous features in this release, including:

- Application Service's Application Security Zones

- Cloud Object Storage Support for Platform as a Service (PaaS)

- Implementations using Platform as a Service (PaaS) can configure the file adapter of the Oracle Cloud Infrastructure Object Storage service to store interface files and reports.

- HTML Sanitization Improvements

- Improved Characteristic Type Referential Integrity

- Key Ring Support for OAuth Client and Secret

- New Class Element on Business Flag Standard Name Business Object

- Redaction Rules Support

- Support for Capturing and Exporting Batch Run Analytics Data

Application Service's Application Security Zones

The zones on the **Application Service - Application Security** tab have the following improvements:

- The **Deny Access** button in the **User Groups Linked** zone has been converted to a mass action button, allowing updates to multiple groups with one action. In addition, the search filters have been enhanced to provide a search within search to find a specific user or user group, filter by user group description, and exclude expired links. The Expiration Date column has been enhanced to highlight expired links in bold with red text and an asterisk. The Access Modes column now shows only the application service access codes that are not configured for the user group.

- The **Grant Access** button on the **User Groups Not Linked** zone has been converted to a mass action, allowing updates to multiple groups with one action. A pop-up window provides the ability to set the expiration date and remove unwanted access modes. In addition, the search filters have been enhanced to provide a search within search to find a specific user or user group and to filter by user group description.

Cloud Object Storage Support for Platform as a Service (PaaS)

Implementations using Platform as a Service (PaaS) can configure the file adapter of the Oracle Cloud Infrastructure Object Storage service to store interface files and reports.

Digital Self Service Masquerading Using Key Ring

The product supports the ability for a utility to authorize an external person to view the customer's account information in a customer-facing portal (such as Digital Self Service). The system uses a private/public key to enforce standard security measures. Previously, the, Redirection Targets master configuration captured a reference to the alias for the key

pair stored in the application keystore. Users may now capture a reference to a Signature key ring instead of the alias. This allows implementations to generate the key pair and to rotate the key pairs over time for greater security. Keystore aliases may no longer be used.

The master configuration for Redirection Targets now allows a key ring to be defined instead of the application keystore alias. This provides you with the ability to more easily manage Digital Self Service security.

HTML Sanitization Improvements

The product uses HTML sanitization logic to protect against HTML injection. In this release, the product has improved how it handles custom attributes. Previously, the sanitization logic would automatically sanitize unrecognized custom attributes. Now the sanitization logic has been adjusted to assess the data referenced by the attribute. If the data appears to pose an HTML injection risk, the attribute is sanitized by adding 'data-' to the attribute, rendering it harmless. If the data is considered safe, the custom attribute is accepted as implemented.

Improvements to the HTML sanitization functionality to better handle custom attributes.

Improved Characteristic Type Referential Integrity

The logic to check referential integrity for characteristic types and characteristic values is adjusted to be more targeted, and uses the characteristic entity configuration.

Tables that hold characteristic types and values fall into one of the following categories:

1. Characteristic tables that are a child record of a maintenance object and are used to capture additional information about that object.

2. Log tables that use characteristics to reference additional information related to the log.

3. Configuration tables to define valid characteristics for a related master or transaction table. For example, on the To Do Type, you can configure valid characteristic type for To Do Entries of that type.

4. Configuration tables that use characteristic types for eligibility criteria.

5. Staging tables that capture characteristics as part of an integration step.

Most characteristic tables fall into the first two categories. For these two categories, there is a characteristic entity flag value for each table and the table metadata defines its characteristic entity. For example, the To Do Entry Characteristic table defines the To Do Entry characteristic entity flag value. In this release, those tables have been updated to turn off the Enable Referential Integrity switch for the Characteristic Type and Characteristic Value constraints. Instead, explicit deletion validation logic has been added for Characteristic Type and Value. The logic looks at the Characteristic Entity values associated with the Characteristic Type and will only check the tables related to those values for references to the Characteristic Type/Value.

Tables in category 3 do not reference a characteristic entity value. Since these are configuration tables and low volume, the constraints for Characteristic Type and Characteristic Value continue to turn on the generic referential integrity.

Tables in categories 4 and 5 may or may not have an explicit characteristic entity value depending on the use case. For these types of tables, if there is no Characteristic Entity, it

is at the discretion of the product that owns that table as to whether or not referential integrity is enabled for that table.

This enhancement ensures that the deletion logic will not spend time checking every characteristic table for a reference the characteristic type/value. It will first explicitly check the tables related to the characteristic entities configured on the Characteristic Type, and then the standard generic referential integrity based on the constraint configuration will be applied.

Note that as part of this change the referential integrity is also checked when removing a Characteristic Entity value from the Characteristic Type. For example, if you have a Characteristic Type that references the To Do Entry characteristic entity and you want to remove that characteristic entity value, the system will check first that there is no To Do Entry that references that Characteristic Type.

Key Ring Support for OAuth Client and Secret

The product supports securing outbound messages using OAuth authentication. The client ID and secret used to obtain access are stored as message sender context values.

A new OAuth key ring business Object (F1-OAuthKeyRing) allows the client ID and secret to be stored in the same secure repository as other key ring classes, such as Signature keys. The key ring may be configured on the message sender context, replacing the client ID and secret context types. This enables the client secret to be updated periodically without having to update the associated message senders.

In addition, the key ring maintenance object is now an 'owned' entity. Message senders can now be delivered with the appropriate key ring already configured. Users will only have to add their specific keys to the delivered key ring.

New Class Element on Business Flag Standard Name Business Object

The F1-BusinessFlagStandardName business object is enhanced to include a new, required element for Class. The class element is mapped to a characteristic of type F1-BSFCL, which has values of Business Flag and Real Time. The description on the F1-BusinessFlagStandardName BO has been changed to External Insight Standard Name to reflect its expansion to a wider set of external insights.

Additional class element added to the External Insight Standard Name (formerly described as Business Flag Standard Name) extendable lookup business object allows developers to restrict the choice of standard name types on a business flag type to specific classes.

Redaction Rules Support

New entities for defining data redaction rules as part of a larger future enhancement to support obfuscation of personal information at export time were added.

> **Note:** This functionality is not yet ready for use by implementations.

Support for Capturing and Exporting Batch Run Analytics Data

There is a high volume of batch run data in the operational system that changes frequently and is recorded in a complex set of relationships. This is not well suited for

analytics that run directly off the operational data or for being exported for use in other environments. The previous release introduced new tables to support snapshots containing only the batch run and batch thread data applicable to analytics. This release introduces new batch processes designed to populate and export from these tables in increments.

The Batch Run Analytics Snapshot Update and the Batch Thread Analytics Snapshot Update processes are used to add data to the snapshot tables on an ongoing basis. Each snapshot update selects only the batch runs and threads not already in the snapshot. In order to support the initial population of the tables, parameters are provided to limit the records selected to a range of months. Refer to batch controls F1BRANSN and F1BTANSN for more information.

The Batch Run Analytics Snapshot Data Export and the Batch Thread Analytics Data Export processes are used to extract data from the snapshot tables on an ongoing basis. These processes assume that a Data Export Control exists for each of the snapshot maintenance objects to capture the date of the previous extract as a reference point for selecting the next set of records. Refer to batch controls F1BRANEX and F1BTANEX for more information.

The analytics views have not been amended to reference the batch snapshot tables in this release. The batch processes are provided to allow the tables to be populated ahead of the introduction of new batch views in future.

Oracle Utilities Application Framework Deprecation Notices

This section provides information on functionality that has been removed, is no longer supported by Oracle Utilities Application Framework v4.5.0.1.1, or is planned for removal.

- Deprecated Items
- Items Planned for Future Deprecation

Deprecated Items

This is a list of functionality / system data that Oracle already removed from the Oracle Utilities Application Framework.

Support for Migration Requests F1-FrameworkAdmin and F1-SchemaAdmin

These two migration requests have been marked as not recommended for a long time. As of this release, they are no longer delivered in base.

For backward compatibility, the two migration requests are updated to have a "CM" owner for upgrading utilities. To avoid confusion, you may remove the records from your installation if they have never been used.

Work Calendar Legacy Page Metadata

The following navigation keys have been removed:

- workCalendarMaint
- workCalendarMainPage
- workCalendarHolidayGrid

- workCalendarMainPage_H

Records in the UI metadata program component tables related to the above navigation keys.

Time Zone Legacy Page Metadata
These navigation keys have been deprecated:

- timeZoneMainPage

- timeZoneMainPage_H

- timeZoneTabMenu

Records in the UI metadata program component tables related to the above navigation keys.

Application Viewer
Note that there is currently no replacement for the Javadocs viewer. This is planned to be addressed in the next release.

Invite User to Mobile Application Zone
This zone was implemented as part of the mobile application, which is no longer supported.

Mobile Remote Message Artifacts
The user interface metadata has been removed for this object. This table was originally configured to support ILM, but it is no longer included in ILM partitioning steps.

Batch controls related to processing this table were removed if no instance data in the Batch Run table is found. If instance data is found, the batch control metadata is retained with a CM owner flag.

Mobile Data Terminal Artifacts
The user interface metadata has been deprecated for this object.

Mobile Component Artifacts
The user interface metadata and migration plan pan have been removed for this object.

Mobile Data Terminal Type Artifacts
The user interface metadata and migration plan have been deprecated for this object.

Deployment Part Artifacts
The user interface metadata and migration plan pan have been removed for this object.

Deployment Type Artifacts
The user interface metadata and migration plan have been deprecated for this object.

Deployment Artifacts
The user interface metadata has been removed for this object.

Master Configuration Business Objects Related to Mobile Application Framework
The master configuration business objects F1-MobileConfigurations and F1-MobileIdentityConfiguration are no longer delivered in base. Artifacts related to these

BOs are removed if no master configuration records are found for the respective BOs. If there is a master configuration found for either, then the related data remains with a 'CM' owner.

The REST service and corresponding script to update the master configuration is deprecated.

- IWS: F1-MobileIdentityConfiguration
- Script: F1-MobIdMCfg

Migration Plan - Import Algorithms

The Import algorithm plug-in spot for migration plan was flagged for deprecation many years ago and the base product does not deliver algorithms for this plug-in spot. The Pre-Compare plug-in spot is the recommended mechanism for adjusting migration data during import.

User Group Service Management Portal

This functionality was moved entirely from the **User Group Service Management** portal to the **Service Manager** tab on the new **User Group** portal.

Items Planned for Future Deprecation

This is a list of functionality / system data that Oracle plans to deprecate in a future release.

Support for Previous User Experience

In the current release, the product provides an option to Switch UI View. This changes the current user experience for the user for that session. Assuming the user is in the latest user experience (referred to as Redwood), this action switches the user experience to the previous look-and-feel.

In the future, the product plans to remove support for the ability to switch that design that preceded Redwood.

F1-DFLTAPS and FWLZDEXP Application Services

In an effort to consolidate application services, the product is removing all references in base delivered metadata to F1-DFLTAPS and FWLZDEXP. Records will instead reference F1-DFLTS.

You should select **Admin > Security > Application Service** and view F1-DFLTAPS. Review the Secured Objects zone. Note especially if your implementation uses this application service within HTML or Schemas. Any references should be adjusted to F1-DFLTS or a different application service that is appropriate for the business rule.

Implementations should repeat the above steps for the application service FWLZDEXP.

In addition, if your implementation has any hard-coding of either F1-DFLTAPS and FWLZDEXP in code that is not detectable by the Secured Objects zone, those references should also be updated to use F1-DFLTS or a different application service that is appropriate for the business rule.

Workflow and Notification Metadata and Database Tables

Workflow and notification functionality was an early way to support exchanging messages with an external system (notification) and providing a configurable process for acting on incoming messages (workflow). In more recent years, the functionality for

managing external messages is supported using Outbound Message and Inbound Web Service functionality. In addition, there are several features to support processing incoming messages. Service scripts can handle simple use cases. For more complicated processes, the service task or other business object driven objects are available.

The metadata and database tables related to this feature will be removed in a future release. Note that only a portion of the functionality for this feature is managed by Oracle Utilities Application Framework. Most of the functionality is supported in the Oracle Utilities Customer Care and Billing product.

Mobile Application Framework Metadata

Removal of support for the Mobile Application Framework has already been announced in a previous release. However, there is metadata still included in the application related to this functionality.

The metadata will be removed in a future release.

Key Ring Validation Scripts, Algorithm Types, and Algorithms

The product is removing all scripts, algorithm types, and algorithms that performed validation rules on the K1-SignatureKeyRing business object. The algorithms have been removed from the BO configuration. There are requirements to expand the use of a signature key ring beyond the current implementation for object file storage and the existing validations are not applicable to other planned use cases.

The following items will be removed in a future release.

- Algorithm
  - K1-KRDCKFS
  - K1-KRINCKFS
- Algorithm Type
  - KRDCKFS
  - K1-KRINCKFS
- Message
  - 11009 / 1402
- Plugin Script
  - K1-KRDCKFS
  - K1-KRINCKFS
- Service Script
  - K1-ChkCfgExL

UI Metadata Related to Converted Pages

The UI metadata related to fixed pages that have been converted to portals will be removed in a future release. The navigation keys listed are related to each maintenance page. The related UI program component data will also be removed. Note that the metadata related to the search pages will not be removed at this time in case they are used on other fixed pages.

- To Do Entry Maintenance
  - toDoEntryCharGrid

- toDoEntryDrillKeyValuesListGrd
- toDoEntrySortKeyValuesListGrid
- todoentrykeyvalue
- todoentrymain
- toDoEntryMaint
- toDoEntryPopupAdd
- toDoEntryPopupForward
- toDoEntryPopupSendBack
- Any help navigation keys

- Table Maintenance
  - metaDataTableFieldsGrid
  - metaDataTableMainPage
  - metaDataTableCFldsGrid
  - metaDataTableConstPage
  - metaDataTableMaint
  - metaDataTableRefByConstPage
  - metaDataTableFieldPage
  - Any help navigation keys

- Work Calendar Maintenance
  - workCalendarMaint
  - workCalendarMainPage
  - workCalendarHolidayGrid
  - Any help navigation keys

- Message Maintenance
  - msgMaintDetailsPage
  - msgMaintGrid
  - msgMaintPage
  - msgMaintTabMenu
  - Any help navigation keys

- Time Zone Maintenance
  - timeZoneMainPage
  - timeZoneTabMenu
  - Any help navigation keys

- Application Security Portal
  - f1appsecTabMenu

- Display Icon Portal
  - displayIconRefMaint

Miscellaneous System Data

The following metadata is no longer in use and will be removed in a future release:

Object	Data	Description/Comments
Lookup Value	CHAR_ENTITY_FLG / F1SE	Characteristic Entity / Sync Request Inbound Exception
Script	F1-TDMgActSS	To Do Management - Process Actions (Deprecated) / Replaced by F1TDMgActSS
Script	F1AddDebugLg	Add Log for Monitoring Probe (Deprecated) / Replaced by a BS - F1-MONPRBLOG
Zone	F1-BOMOSRCH	Not in use by base functionality
Zone	F1-CATCHSCH	Not in use by base functionality
Zone	F1-MONAVKEY	Not in use by base functionality
zone	F1-REVCONQRY	Not in use by base functionality

XSLT Managed Content Type

Entries in the Managed Content table related to XSL should be using the XSLTC managed content type and not the XSLT managed content type. In a future release, the XSLT managed content type will no longer be supported.

REST IWS - Original REST Servlet

The original URL supplied for invoking IWS based REST services included the IWS Service name in its makeup. Support for this will continue for backward compatibility purposes, but it will be deprecated in a future release. You should adjust your existing integrations to use the currently supported URL.

Append Setting from Pagination

There are several known issues with the functionality of the "append" option in pagination. It is recommended that you do not use this pagination setting.

Support for Master/Subordinate Servers for Web Service Catalog

The Service Catalog Configuration (master configuration) enables you to define subordinate servers. Defining subordinate servers is no longer applicable for the Oracle Integration Cloud.

Batch Run Statistics Portal Functionality

The **Batch Run Statistics** portal provides additional information about batch runs, but some functionality on the portal is related to capturing additional information from an external tool. This information is stored in a Fact record. Support for capturing additional information from an external tool will be discontinued in a future release.

Configuration Migration Assistant Import Algorithm Plugin Spot

The Content Migration Assistant Import algorithm plug-in spot will be deprecated. It is recommended that you review any existing algorithms and create appropriate Pre-Compare algorithms instead.

F1-MAINPROC Business Object Read When Pre-processing Exists

In the original implementation of configuration tools, the main framework maintenance BPA (F1-MainProc) did not perform a Read of the BO when a pre-processing script was linked to the BO via options. The pre-processing script was responsible for the Read.

In a subsequent release, a BO Read was added in F1-MainProc (even if a pre-processing script existed) to resolve a UI Hint issue related to child business objects. This solution introduced a problem only visible for specific scenarios and a different fix has been introduced. The new fix made the BO Read unnecessary in F1-MainProc. Because there are many pre-processing scripts that are properly performing the Read of the BO, ideally the BO Read should be removed from F1-MainProc so that multiple reads are not performed. However, there may have been pre-processing scripts introduced after the BO Read was included in F1-MainProc that were coded to not perform a BO read in the pre-processing script. Due to this situation, the BO Read is still performed as part of the processing of F1-MainProc.

When a pre-processing script exists, we plan to remove the BO Read from F1-MainProc logic. You should review your custom pre-processing scripts that are linked to your BO options to ensure that they properly perform a Read of your BO.