

# **Oracle Utilities Operational Device Management**

Release Notes

Release 2.4.0.0.0

**F54822-01**

April 2022

Oracle Utilities Operational Device Management 2.4.0.0.0 Release Notes

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# Preface

This document provides an overview of the enhancements, known issues, and other changes in Oracle Utilities Operational Device Management v2.4.0.0.0. The intended audience is anyone installing or using Oracle Utilities Operational Device Management v2.4.0.0.0.

## Related Documents

For more information on this release, refer to the following documents:

### Installation Guides

- Oracle Utilities Operational Device Management Release Notes
- Oracle Utilities Operational Device Management Quick Install Guide
- Oracle Utilities Operational Device Management Installation Guide
- Oracle Utilities Operational Device Management Database Administrator's Guide
- Oracle Utilities Operational Device Management Licensing Information User Manual

### User Guides

- Oracle Utilities Work and Asset Management and Oracle Utilities Operational Device Management Business User's Guide
- Oracle Utilities Work and Asset Management and Oracle Utilities Operational Device Management Administrative User's Guide

### Supplemental Documents

- Oracle Utilities Operational Device Management Server Administration Guide
- Oracle Utilities Operational Device Management Security Guide

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## Conventions

The following text conventions are used in this document:

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

# Chapter 1

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## Oracle Utilities Operational Device Management Release Notes

Welcome to the Oracle Utilities Operational Device Management Release Notes.

Release Notes provides general information about this Oracle Utilities Operational Device Management release, including new functionality/enhancements, known issues, and other important information.

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

Visit My Oracle Support (<http://support.oracle.com>) for the most recent service packs and patches for this release to ensure you have the most current version of the product.

This guide includes the following:

- [About This Release](#)
- [Relationship Between v2.4.0.0.0 and Prior Versions](#)
- [Database Changes](#)
- [Supported Integrations](#)
- [Demo Data Information](#)
- [Oracle Utilities Operational Device Management Enhancements](#)
- [Oracle Utilities Application Framework v4.5.0.0.0 Release Notes](#)
- [Known Issues in This Release](#)

## About This Release

This release includes functionality updates for Oracle Utilities Work and Asset Management and Oracle Utilities Operational Device Management:

- Oracle Utilities Work and Asset Management provides functionality to handle large volumes of assets and to manage the receipt, installation, maintenance, tracking and removal of those assets. The system also manages approval processing, tracks purchasing transactions, manages inventory and resources, and tracks costs, accounting and financial transactions.

- Oracle Utilities Operational Device Management provides functionality to handle large volumes of Utilities industry devices and to manage the receipt, installation, maintenance, tracking and removal of those devices.

**Note:** Oracle Utilities Operational Device Management is optimized for interoperability with Oracle Utilities Work and Asset Management, however a license for Oracle Utilities Work and Asset Management is required to take advantage of this functionality. Refer to the *Oracle Utilities Operational Device Management Licensing Information User Manual* for a description of licensing limitations.

The release includes the following components:

- Oracle Utilities Application Framework v4.5.0.0.0
- Oracle Utilities Operational Device Management v2.4.0.0.0

Features introduced in this release are highlighted in the [Oracle Utilities Operational Device Management Enhancements](#) section.

- Refer to the *Oracle Utilities Operational Device Management Quick Install Guide* for a full list of the media pack components and application components included with this release. Also refer to the **Supported Platforms** section in that guide for an updated list of supported platforms.
- Visit My Oracle Support (<http://support.oracle.com>) for the most recent service packs and patches for this release to ensure you have the most current version of this product.

**Note:** Oracle Utilities Operational Device Management is packaged as part of the **Oracle Utilities Work and Asset Management** media pack.

Customers seeking to download the **Oracle Utilities Operational Device Management** media pack must search for and download the **Oracle Utilities Work and Asset Management** media pack on Oracle Software Delivery Cloud and in My Oracle Support. There is no separate **Oracle Utilities Operational Device Management** package to download.

## Relationship Between v2.4.0.0.0 and Prior Versions

For the complete installation procedure, refer to the *Oracle Utilities Operational Device Management Installation Guide*.

## Database Changes

This release includes database enhancements. For more information, refer to the *Oracle Utilities Operational Device Management Database Administrator's Guide*.



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# Supported Integrations

The following integrations are supported in this version of Oracle Utilities Operational Device Management.

**Note:** Version numbers listed below are supported as of the v2.4.0.0.0 release (April 2021). 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.

## Oracle Utilities Product Integrations

- Oracle Utilities Operational Device Management V2.4.0.0.0 to Oracle Utilities Meter Data Management V2.3.0.x, V2.4.0.0.0, V2.5.0.0.0 (Oracle Utilities Integration for Device Operations)
- Oracle Utilities Operational Device Management V2.4.0.0.0 to Oracle Utilities Analytics 2.7.0.x
- Oracle Utilities Operational Device Management V2.4.0.0.0 to Oracle Utilities Service Order Management 2.5.0.x

## Additional Integrations

- BI Publisher Reports Integration

BI Publisher Reports allow users to generate and print reports for certain entities, such as operational data, activity reports, purchasing reports, inventory reports and so on. Refer to the Administrative User Guide for more information.

Please refer to the *Oracle Utilities Operational Device Management Administrative User Guide* or the specific integration guides available on the Oracle Technology Network for more information.

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## 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 delivered as part of the base installation. Refer to the *Oracle Utilities Operational Device Management Database Administrator's Guide* for more information, or contact Oracle Support.

Oracle recommends that you do not clone the demonstration environment as a basis for a new production environment. The demonstration environment typically includes transactional data that will be irrelevant to your production environment and can cause unexpected issues if it is not purged correctly. The recommended process is to start a new production environment from a new installation and migrate “clean” system data (such as business objects and algorithms) and administrative data (such as sample activity types or other administrative entities) from the demonstration and/or test or development environments as applicable.

Refer to the *Oracle Utilities Operational Device Management Administrative User Guide* for more information or contact Oracle Support.

# Oracle Utilities Operational Device Management Enhancements

This section provides descriptions of new and enhanced features in this release Oracle Utilities Operational Device Management.

This release includes:

- [Asset Management Enhancements](#)
- [No steps are required to enable this feature.](#)
- [Work Management](#)
- [Miscellaneous Enhancements](#)
- [Oracle Field Service Integration](#)
- [Operational Device Management-Service Order Management Integration](#)
- [System Wide](#)

## Asset Management Enhancements

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

- [Asset Disposition Tab](#)

### Asset Disposition Tab

You can review and analyze asset information through the **Asset Disposition** tab of **Assets** portal. This tab displays the **Disposition History** zone, previously displayed in the **Main** tab, and provides a new **Components History** zone that enables you to review components attached to assets.

#### Steps to Enable

No steps are required to enable this feature.

## Work Management

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

- [Send Updated Activity Details to External System](#)

### Send Updated Activity Details to External System

Synchronize the updated activity details of your Work and Asset Management and external systems. Previously, Work and Asset Management did not notify external systems of any updates made to the activities that the external system created.

#### Steps to Enable

No steps are required to enable this feature.

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## Miscellaneous Enhancements

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

- [Contextual Insights in Assets Portal](#)

### Contextual Insights in Assets Portal

The **Assets** portal enhances your user experience through new Badge Contextual Insights for asset condition rating and asset location criticality. Contextual insights enhance the user experience by drawing attention to specific asset conditions.

#### Steps to Enable

To enable this feature, complete these steps:

1. Add and configure the W1-AssetConditionScoreBuckets (Asset Condition Score Bucket Configuration) business object by selecting **Admin** then **B** and the **Bucket Configuration** menu item.
2. Add and configure the W1-AssetCriticalityBuckets (Asset Criticality Bucket Configuration) business object by selecting **Admin** then **B** and the **Bucket Configuration** menu item.
3. Configure W1ASCNLOCCRT (Asset Condition and Location Criticality) and related badge Insights and Insight Types algorithms.
4. Add an Insight Group to the asset condition by selecting **Admin**, then **I**, select **Insight Group** then **Add**. Set the Insight Class to "W1AC (Asset Condition)" and Valid Visual Structure to "Badge Insight". Add the created Asset Condition Insight Type to the Insight Type list of the insight group.
5. Add another Insight Group to the asset condition. Set the Insight Class to "W1LC (Asset Location Criticality)" and Valid Visual Structure to "Badge Insight". Add the created Asset Criticality Insight Type to the Insight Type list of the insight group.

## Oracle Field Service Integration

This section describes the new and enhanced Oracle Field Service Integration features in this release, including:

- [Oracle Device Cloud Service - Oracle Field Service Cloud Integration](#)

### Oracle Device Cloud Service - Oracle Field Service Cloud Integration

The Oracle Field Service Cloud integration enables the passing of device-related field activities like meter test or device inspection to Oracle Field Service Cloud for scheduling, routing, and completion. The integration supports passing of planned service histories or forms for an activity and valid service histories for each asset linked to the activity that the crew can complete on the field.

The Oracle Device Cloud Service and Oracle Field Service Cloud integration provides the capability to pass a collection of planned service histories for an activity and pass valid service histories for each asset linked to the activity, which field crews can complete.

**Steps to Enable**

To enable this feature, refer to the *Oracle Utilities Meter Data Management Integration to Oracle Field Service Cloud Configuration Guide* and *Oracle Field Service Cloud Configurations Setup Guide* for more information.

## Operational Device Management-Service Order Management Integration

This section describes the new and enhanced Operational Device Management-Service Order Management Integration features in this release, including:

- [Support for Multiple Service Histories Per Asset for Operational Device Management - Service Order Management Integration](#)

### Support for Multiple Service Histories Per Asset for Operational Device Management - Service Order Management Integration

You can now create multiple service history questionnaires for Operational Device and Service Order Management activities. In addition, new Service History Types are maintained in the corresponding Activity Type and Asset Type. Previously, only one service history questionnaire was created for Operational Device and Service Order Management activities.

This allows accumulation of additional service information through the creation of multiple service histories for Operational Devices and Service Order Management activities.

**Steps to Enable**

1. Update the activity's Activity Type with the Service History Types valid for the activity.
2. Update the asset's Asset Type with the Service History Types valid for the asset.

**Tips and Considerations**

The list of valid Service History Types sent to Service Management are maintained in Activity Type and Asset Type.

## System Wide

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

- [Crew, Asset, and Asset Location Search Enhancements](#)
- [Unified Search](#)
- [Menu Items Display Order](#)

### Crew, Asset, and Asset Location Search Enhancements

Crew-related search fields now appear as drop-downs throughout the application. In addition, asset-related search fields support badge numbers as alternate keys for asset IDs and asset location-related search fields support tag numbers as alternate keys for location IDs.

**Steps to Enable**

No steps are required to enable this feature.

**Unified Search**

Unified Search provides support for finding asset and asset locations. You can use the filter rules and hints provided by the table in the unified search box:

Filter	Filter Rule	Hint	Comments
Badge Number	Minimum five characters excluding whitespaces	bn:   BN:	Applicable to asset search only
Serial Number	Minimum five characters excluding whitespaces	sn:   SN:	Applicable to asset search only
Tag Number	Minimum five characters excluding whitespaces	tn:   TN:	
Building	Minimum two alphanumeric characters excluding whitespaces	bl:   BL:	
Address 1	One ore more numeric characters followed by a space and an alphanumeric character	ad:   AD:	
Description	Minimum five characters excluding whitespaces	ds:   DS:	

Unified search results display a maximum of 20 records.

**Steps to Enable**

To use the unified search for assets and asset locations, add users to a group with access to the following applications:

- W1-ASSETUNISRCH (Asset Unified Search)
- W1-ASTLOCUNISRCH (Asset Location Unified Search)

**Tips and Considerations**

By default, Unified Search only uses asset search. If you prefer asset location search, deactivate asset search by completing these steps:

1. Navigate to Extendable Lookup.

2. Search and navigate to the F1-UnifiedSearch business object.
3. Set the status of W1-AssetUnifiedSearch (Asset Unified Search) to "Inactive."
4. Save the changes.
5. Log off and log in to the application.

### **Menu Items Display Order**

The context menu is now ordered as follows:

- Go To > the object. Asset, if available, is the first item in the context menu.
- Quick View, if available, is the second item in the context menu.
- All remaining items are listed in alphabetical order.

### **Steps to Enable**

No steps are required to enable this feature.

# Oracle Utilities Application Framework v4.5.0.0.0 Release Notes

This section describes enhancements, system data details and deprecation notices in Oracle Utilities Application Framework v4.5.0.0.0 including:

- [Product Usability](#)
- [Integration Enhancements](#)
- [Data Export](#)
- [To Do Management and Processing Enhancements](#)
- [Batch Processing Enhancements](#)
- [Implementation Tool Enhancements](#)
- [Analytics](#)
- [Miscellaneous Enhancements](#)
- [Web Services](#)
- [Oracle Utilities Application Framework Deprecation Notices](#)
- [Technical Upgrade Notes](#)

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

## Product Usability

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

- [Redwood User Experience](#)
- [Batch Day Dashboard and Batch Run Threads Portals](#)
- [Dashboard Portal Controls - User Preferences](#)
- [Display Domain Name in Toolbar](#)
- [Enhanced Button Web Component](#)
- [New Base Display Icon Images Provided](#)
- [Tabbed Display](#)
- [Issue Detail Collector Tool](#)
- [Switch UI View Option](#)
- [User Search Shows Enabled Users by Default](#)
- [Adjust Menu Sequences](#)
- [Entity Tags](#)
- [Field References](#)
- [Filter Area On Data Explorer Collapses After Search](#)
- [Inbound SOAP Web Service Debugging Improvement](#)



- [Menu Application Security Portal](#)
- [New Hot Keys for Navigation](#)
- [New User Experience](#)
- [Open API Specification Enhancements](#)
- [User Group Services Management - Filter User Groups by Entity Tag](#)
- [Ability to Configure a Warning when Downloading Data](#)

## Redwood User Experience

Oracle's Redwood user experience introduces a new compact page header that takes up less vertical space to allow more page content to be displayed, as well as new portal tabs, buttons, background colors, borders, and fonts all updated to match the overall Redwood user experience found in other Oracle applications.

Oracle Redwood provides a consistent user interface experience across Oracle's latest solutions.

### Steps to Enable

To enable the Redwood user experience, add the `redwood=true` parameter to your application or environment URL.

### Key Resources

Refer to the **Redwood Look and Feel** section of the *Oracle Utilities Operational Device Management Business User Guide* for more information.

### Unified Search

Oracle's Redwood user experience provides a single search box to quickly retrieve customer, account, and meter information such as customer name, premise address, account ID, badge/serial number, and more (where applicable). 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.

Unified Search allows you to quickly find customer, account, and meter information without leaving the current page.

### Steps to Enable

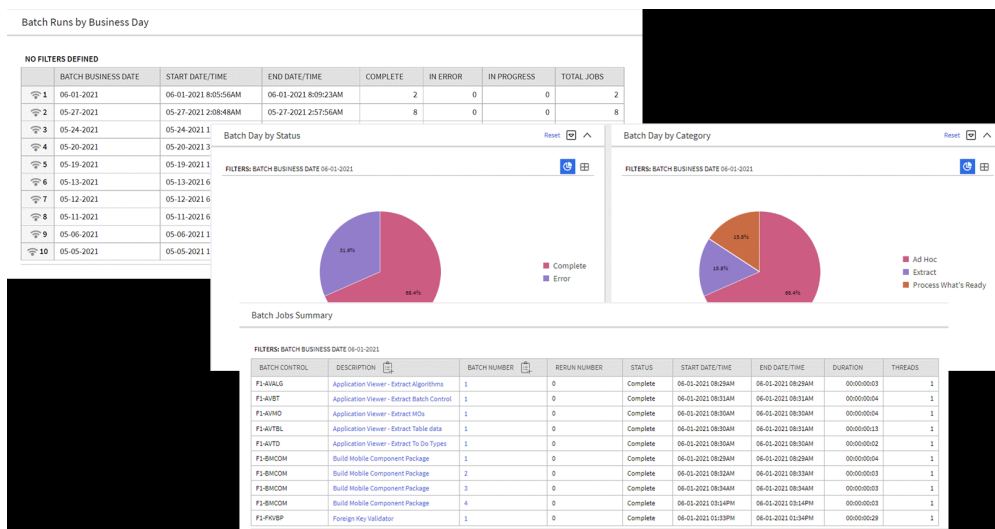
To enable the Redwood user experience, add the `redwood=true` parameter to your application or environment URL.

### Key Resources

Refer to the **Unified Search** section of the *Oracle Utilities Operational Device Management Business User Guide* for more information.

## Batch Day Dashboard and Batch Run Threads Portals

The **Batch Day Dashboard** portal provides a high level summary of the batch jobs that ran for a given business date. It provides analysis by job status and job category using analytic charts. The batch jobs summary provides links to the Batch Run Threads portal and the Batch Run Tree for a selected batch run.



The **Batch Run Threads** portal provides a high level summary of the threads for a given batch run. It provides analysis by various criteria using analytic charts. The portal is accessed via a link from the batch jobs summary zone on the Batch Day Dashboard portal.

An implementation may introduce additional zones to these portals as needed.

The introduction of the **Business Day Dashboard** allows you to quickly determine the state and performance information of your batch workloads using the Business Date as a key dimension. The portal contains zones to provide details about state and individual thread performance to assist in detecting data and performance issues with individual batch workloads.

### Steps To Enable

No steps are required to enable this feature.

### Tips And Considerations

This table lists the new application services for the portals.

Object	New Application Service
Batch Day Dashboard	F1BTCHDY
Batch Run Threads Portal	F1BTCHTH

## Dashboard Portal Controls - User Preferences

Oracle's Redwood user experience enables you to set the following **Dashboard** portal control options according to your preferences:

- **Collapsed/Expanded Portal:** The system retains the collapsed **Dashboard** portal after your logged out and start a new session. Previously, when you ended your session with your **Dashboard** portal collapsed, the system displays an expanded **Dashboard** portal the next time you logged in to the application.
- **Portal Width:** You can resize or adjust the width of the **Dashboard** portal by using a slider and the system retains your preferred width even after logging out of the application. Previously, your needed to navigate to User Preferences to adjust the width of the **Dashboard** portal.

- Vertical Position: You can position the **Dashboard** portal on the left or right side of the screen. Previously, the portal's position is fixed on the right side of the screen.

**Steps to Enable**

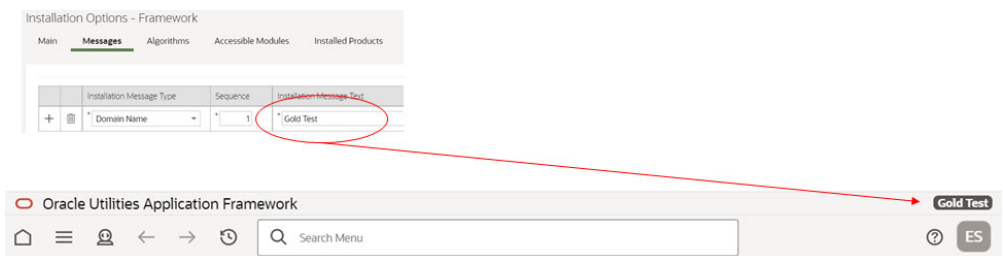
To enable the Redwood user experience, add the `redwood=true` parameter to your application or environment URL.

**Tips And Considerations**

Refer to the **User Preferences** section of the *Oracle Utilities Operational Device Management Administrative User Guide* for more information on defining the portal's location.

**Display Domain Name in Toolbar**

The system supports defining a domain name using an installation message. When using the Redwood user experience view, the text entered in the **Installation Message Text** for an Installation Message of type "Domain Name" is displayed in the title bar.



Implementations with multiple environments for development, testing, production, and others can easily identify their current environment using this name.



**Note:** This feature is only supported under the Redwood user experience view. Refer to online documentation for more information on Redwood user experience view.

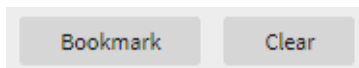
**Steps to Enable**

To enable the Redwood user experience, add the `redwood=true` parameter to your application or environment URL.

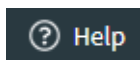
**Enhanced Button Web Component**

The enhanced button web component (`ou-button`) provides a number of button formats:

Object	New Application Service
	Icon buttons show only an image, such as the search and filter icons. This was previously the only button format supported.
or  	



Text buttons show text within a shape or outline.



Text + Icon buttons show text aligned with an icon.



Menu buttons show text and a down caret.



Icon Menu buttons show an icon and a down caret.






In addition, the `ou_button` component supports the use of a Display Icon Reference instead of a direct reference to the image file and the ability to reference edge application owned images, including SVGs.

#### Steps To Enable

No steps are required to enable this feature.

### New Base Display Icon Images Provided

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

Icon	ID	Description
	F1ARRCL	Left Arrow - Circled
	F1ARRCR	Right Arrow - Circled
	F1BLDING	Building
	F1BOOK	Book
	F1CHK	Check

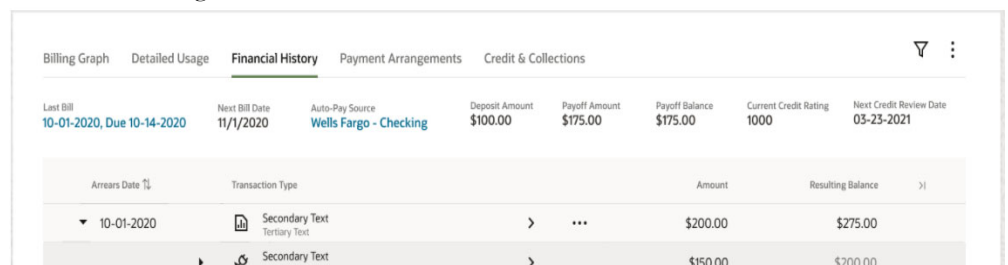
	F1CLOSE	Close
	F1CLOSEC	Close - Circled
	F1EVT	Event
	F1EVTN	Event Note
	F1KMBOOK	Knowledge Management
	F1NOIMG	Image Not Found
	F1REFNCE	Reference

**Steps To Enable**

No steps are required to enable this feature.

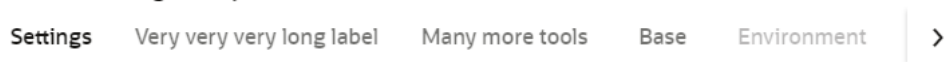
**Tabbed Display**

A new zone type is introduced that allows a single zone to display different panels of information using tabs.



The zone supports up to 50 zones as tabs with overflow support when the tab display exceeds the screen resolution available.

**Overflow using conveyor belt**



The **Tab Display** zone supports the display of complex of information using tabs within a single zone. This allows you to stay within a context of a zone, but it allows for flexibility in the information available in that zone to reduce your time and costs.

### Steps To Enable

No steps are required to enable this feature.

## Issue Detail Collector Tool

When a user encounters an error with the product and submits a service request, information about the environment, release, and configuration of the user is often very helpful in understanding the cause of the problem. The issue collector script can be used to capture the environment details and issue description for reporting purposes. The script is accessed via the Prepare Issue Details item in the Main - Tools submenu. A popup window is provided to display the details that are being captured and allows the user to add additional text describing the specific issue.

Online Issue Reporter

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Environment Details

ISSUE ID	2021915_165813299_12
APPLICATION URL	http://slcao351.us.oracle.com:20000/spl/cisMain.jsp?utilities=true&debug=true&tools=true&language=ENG#main
USER AGENT	Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/94.0.4606.81 Safari/537.36
USER ID	CBALKAN
USER LANGUAGE	ENG
BROWSER TIME ZONE	America/New_York
BROWSER TIME STAMP	Fri Oct 15 2021 16:58:13 GMT-0400 (Eastern Daylight Time)
COOKIES ENABLED	true
INSTALLED PRODUCTS	Customer Release V4.4.0.3.2.10 Oracle Utilities Application Framework V4.4.0.3.2.001.001
DOMAIN NAME	Main Development

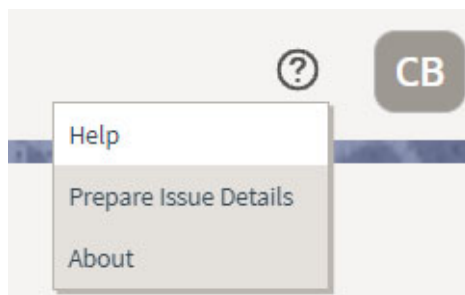
Issue Details

ISSUE DESCRIPTION

When the details are submitted, they are added to the system log, together with a unique identifier, so the information can be searched when investigating the problem.

The menu item is secured so that implementations may choose which users have access to this capability.

**Redwood Only:** Note that for the Redwood user interface, the help menu on the toolbar includes a menu item for launching this window. If you are able to access this option through the **Main - Tools** submenu, you will also see the option in the **Help** menu.



**Steps to Enable**

Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in the Role section below.

**Role Information**

System administrators should set grant users or grant access to the F1-PREISSUEDTLS application service for the Prepare Issue Details menu item.

**Switch UI View Option**

The User menu now includes a Switch UI View option that allows users to switch the user interface between the standard look and feel and the Redwood User Experience introduced in a previous release.

The Switch UI View option in the User menu can also be secured using the F1UIVIEW application service.

This option provides an easier method to switch between user experiences than manually changing the environment URL. Implementations may now control which users, if any, have the ability to toggle between the new Redwood look and feel and the standard look and feel.

**Steps to Enable**

Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in the Role section below.

**Role Information**

System administrators should grant access to the F1UIVIEW application service for those users who will be allowed to switch between user experiences.

**User Search Shows Enabled Users by Default**

The zone-based user search that is used for any portal-based user interface where a user record needs to be selected now shows only enabled users in the result by default. Enabled users are those whose User Enable flag is set to "Enabled". If you want to include inactive users in your search criteria (users whose User Enable flag is set to "Disabled"), you can check the new "Include Inactive Users" filter.

**Steps To Enable**

No steps are required to enable this feature.

**Adjust Menu Sequences**

The system's menu configuration includes sequence numbers to allow control over the order of menu lines throughout the system. If sequence numbers of one or more entries are the same, the system orders those lines alphabetically. Unless there are special circumstances, the product standard is to use the sequence number 50 for all menu lines that are part of the Main Menu or Admin Menu configuration.

Several Oracle Utilities Application Framework-delivered menu lines have been updated to sequence 50 to align with this product standard. The My Preferences menu entry on the Main Menu has a higher sequence (80) so that its position is always last in that menu.

**Steps To Enable**

No steps are required to enable this feature.

## Entity Tags

Entity tagging supports grouping of configuration, demo, and test related entities so they can better describe a logical function. Each group is represented by a "tag" and entities may be associated with multiple tags.

A **Tags** dashboard zone allows the user to add, remove, and review tags for an entity. The zone is secured by an application service so that it is only available to applicable user roles. The **Entity Tag** portal lists all entities linked to a tag and supports mass actions for associating configuration entities with a tag.

### Steps To Enable

Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in the Role section below.

### Role Information

System administrators should grant access to the following application services:

- F1-ENTYTAG application service for the Entity Tag maintenance object.
- F1ENTAG application service for the Entity Tag maintenance portal.
- F1ENTAGS application service for the Entity Tag query portal.
- F1-TAGS application service for the Tags dashboard zone.

## Field References

A References tab is added to the Field portal to list application components that explicitly reference the field record. You can review all application references of a field record.

### Steps To Enable

No steps are required to enable this feature.

## Filter Area On Data Explorer Collapses After Search

The filter area now collapses when searching on data explorer zones in all cases. The Expand Filters button becomes visible, allowing you to adjust your search criteria, if desired.

Previously, this behavior only occurred if the query resulted in more than two records. The behavior is now consistent for all results.

### Steps To Enable

No steps are required to enable this feature.

## Inbound SOAP Web Service Debugging Improvement

If your inbound SOAP web service uses XSL transformation, the debug log now includes the details of the document before and after the XSL transformation. You now see more information in the debug output for inbound SOAP web services that use XSL transformation.

### Steps To Enable

No steps are required to enable this feature.



## Menu Application Security Portal

A user may require several application service grants to properly work with the application components associated with a specific menu line. A new **Menu Application Security** portal is provided to assist with maintaining application security for a user group and the application services associated with a specific menu line. The portal is accessible from a new **Menu Links** dashboard zone that is available when reviewing the Menu page.

The **Application Services Linked** and **Application Services Unlinked** zones now include a filter by entity tag, allowing you to refine the list of application services by logical function.

### Steps To Enable

No steps are required to enable this feature.

### Tips and Considerations

An upgrade script updates all user groups that currently have access to the existing **Menu** page application service CILEMNUP to have the same access to the new portal application service F1MENU.

## New Hot Keys for Navigation

The new hot key **Alt+[** allows you to quickly move the cursor focus to the next major page component. You can use **Shift+Alt+[** to reverse the navigation order. The major page components include:

- The menu or toolbar area
- The Dashboard
- The Page Title area
- The main Page Area, including the tabs for the current page and the display area of the current page

The new hot key **Alt+]** allows you to quickly move the cursor focus to the next zone. You can use **Shift+Alt+]** to move the cursor to the previous zone. For portal-based pages, this key navigates through zones in the portal and through the zones in the Dashboard. For fixed pages, the key applies to navigation of zones within the Dashboard portal.

### Steps To Enable

No steps are required to enable this feature.

## New User Experience

The product provides an updated user experience referred to as Redwood. The new experience includes a compact page header that takes up less vertical space to allow more page content to be displayed, as well as new portal tabs, buttons, background colors, borders, icons, and fonts. Previously, this user experience was only available by turning on a URL parameter. This parameter is no longer supported or necessary, and the experience has been enriched.

The following are highlights from the Redwood user experience:

- Palette and Icons - The color palette and icons reflect a more modern and streamlined user experience.

- Unified Search - There is a single search box to perform comprehensive searches for data relevant to your application, based on search options supplied by your specific product.
- Dashboard Controls - The default location for the dashboard is now on the left. User preferences allow you to configure it on the right, as before. In addition, the state of the dashboard (its width and whether it is open or closed) are captured in the user preferences and remain set until changed again.
- Portal or Zone Configuration - There is advanced configuration for portals and zone layout, including new width options and height options.
- Domain Name Display - Installation Options allow you to define a domain name for an environment. This information is displayed in the toolbar.

You can use the Switch UI View option in the user menu to revert the user experience to the previous one for the current session. This option is only visible if the user has been granted access to the appropriate application service.

Oracle is transitioning all its products to a new consistent user experience, branded the Redwood experience. The Oracle Utilities Application Framework has implemented this experience to provide a more consistent and modern interface with new design elements including consistent color, layout, fonts, behavior and iconography.

#### Steps To Enable

No steps are required to enable this feature.

#### Tips And Considerations

Note that to view the underlying HTML for a page, you should use the **Inspect** option rather than **View Source** or **View Frame Source**. With the Redwood user experience, the "view source" options no longer include the underlying HTML source code.

## Open API Specification Enhancements

The Open API Specification document generated for an Inbound Web Service complies with up-to-date schema definition standards.

Note that the changes do not impact the request and response schemas used by the web service at run time and therefore should not cause upgrade issues.

The following sections describe the changes introduced in this release:

- Schema Reference

The primary changes is to how a schema is referenced using the \$ref attribute and how its root node is defined for when XML format is used.

Previously, the \$ref definition referenced the "root" element of the request and response schemas using a nested reference within the schema definition. This was needed to ensure that in XML format the same root node was included in the request and response schemas.

```
"$ref": "#/components/schemas/CREATEPERSON_request/properties/C1-CrePerson"
```

#### Schema Definition

```
"CREATEPERSON_request": {
  "type": "object",
  "properties": {
```

```

    "C1-CrePerson": {
      "type": "object",
      "properties": {
        "personId": {
          "type": "string",
          "maxLength": 10,
          "description": "Person ID"
        }
      }
    }

```

This type of nested schema reference is no longer supported. Instead, a designated XML attribute is added to explicitly define the root node.

In this release, the schema reference is changed as follows:

```
"$ref": "#/components/schemas/CREATEPERSON_request"
```

### Schema Definition

```

"CREATEPERSON_request": {
  "type": "object",
  "properties": {
    "personId": {
      "type": "string",
      "maxLength": 10,
      "description": "Person ID"
    }
  }
}

"xml": {
  "name": "C1-CrePerson"
}

```

- Reusing the Schema Definition for the Standard Error Response

Previously, the same error response structure was repeated as a separate schema for each IWS operation. This made the file large for no reason. In this release, a single copy of the error response schema is included in the document to make it smaller and simpler.

- Adjusting the "Tags" Attribute Text

The tags attribute is constructed as <Resource Category description> / <IWS description>. The IWS description part was used to include the detailed description of the service if any was defined, but tags should ideally be short and not involve detailed descriptions. In this release, the IWS description part is changed to include only the short description of the service, regardless of any detailed description that may be defined for the service.

### Steps To Enable

No steps are required to enable this feature.

## User Group Services Management - Filter User Groups by Entity Tag

The User Group Services Management portal provides zones to view the application services linked or unlinked to a chosen user group and the ability to remove or add services.

The Application Services Linked and Application Services Unlinked zones now include a filter by entity tag, allowing you to refine the list of application services by logical function.

### Steps To Enable

No steps are required to enable this feature.

## Ability to Configure a Warning when Downloading Data

You can configure the system to provide a warning to users when data is downloaded or exported locally, to remind them that it could contain sensitive or personal data that should be safeguarded.

A new property setting is provided to indicate that users should be warned whenever they perform an action that causes data to be copied to their local machine. The default text of the warning is as follows:

*"This action copies a file to your local machine that might contain sensitive data. Be careful to follow your organization's guidelines for handling this type of information."*

Your implementation may choose to override the text to align with your business practice. The message category and message number are 11001/6201.

The warning is displayed when the user performs any of the following actions:

- Chooses the Export to Excel action on any data explorer zone from the zone menu.
- Views an Attachment. (This actually downloads a local copy of the attachment data).
- Clicks a button that uses the oraDownloadData function from a UI map. This is dependent on specific page design. If a page has a UI map that uses this function to support downloading data, users get the warning when clicking the button. An example of this functionality is visible when editing a Bundle Export record.

### Steps To Enable

To enable this feature, complete these steps:

1. Go to the `spl.properties` file and set the `spl.runtime.warning.dialog.before.download` property to true.
2. Optionally, if you would like to override the warning text, go to **Admin, System, Message** and search for message category 11002, message number 16201. Edit the message and enter the desired text in the **Override Message Text** field.

## Integration Enhancements

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

- [Based Delivered External Systems and Message Senders](#)

- [Support for Generic Data Synchronization Functionality](#)

## Based Delivered External Systems and Message Senders

In order to support pre-configured integration flows, the External System and Message Sender records are enhanced to be system-owned entities.

The base product can provide fully configured integrations.

### Steps To Enable

No steps are required to enable this feature.

## Support for Generic Data Synchronization Functionality

There is a new generic mechanism by which an entity can be synchronized with an external system in an ongoing fashion. The solution supports base product fully configured integrations that may be customized and new custom integrations.

The following points describe the new functionality:

- A new Data Synchronization Control extendable lookup defines a data synchronization configuration for a maintenance object and an external system.
  - If the status of the record is active the synchronization is enabled.
  - A synchronization script is referenced on the record to manage the integration business rules. The script is called in Check mode to determine whether the entity needs to be synchronized upon a change data capture event and it is also called in Process mode to prepare the data and send the outbound message to the external system.
  - There could be multiple configuration records for an entity and external system, allowing override by other products and customer where the configuration with the highest sequence is in effect.
- When an entity is changed, a designated Maintenance Object Audit rule consults all enabled integrations for the entity, as defined by the Data Synchronization Control extendable lookup, to determine whether the change should be synchronized or not. If the change should be synchronized, a generic data synchronization request process for each external system is initiated accordingly.
- The processing of a request to synchronize an entity with an external message is managed by a Generic Data Synchronization request business object that is processed later by batch.

### Steps to Enable

Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in the Role section below.

### Tips And Considerations

With this mechanism, introducing a new entity data synchronization involves the following artifacts:

- Implementing a synchronization script.
- Defining standard outbound message configuration including external system and message sender.

- Adding an entry in the Data Synchronization extendable lookup referencing the Maintenance Object, External System and corresponding Synchronization Script. When applicable, use a higher sequence number to override a base product configuration for the same entity and external system.
- Plugging-in the FW generic MO audit to initiate the generic data synchronization request if not already plugged in.

#### **Role Information**

System administrators should set grant users or grant access to the F1-GENDATSYNCBOAS application service for the generic synchronization request business object.

## **Data Export**

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

- [General Data Export - File Size Control](#)
- [General Data Export - Ongoing Export Enabled On-Premise](#)
- [General Data Export - Thread Allocation Control](#)

### **General Data Export - File Size Control**

Generalized Data Export (GDE) batch processes produce a single file per thread by default. This may result in files that are too large to manage. An optional batch parameter Records in File has been added to the GDE batch processes to limit the number of records exported in a file. When specified, the batch process closes the current file when the number of exported records reaches the specified limit and a new file is opened for exporting the next set of records. This allows for multiple export files to be created for a single thread.

The F1-GEXPI (Generalized Initial Export Initiator) batch process has this limit set to 500,000 records per file but this value may be removed or adjusted by your implementation as needed.

The F1-GEEXO (Generalized Ongoing Export) batch process has been enhanced to better manage situations where the backlog of queued changes has become too large. In this situation, the next batch takes longer to export, which delays the downstream consuming step of the export files. The import step can only start once the manifest file is ready when the batch completes. In this release, the backlog can be cleared in smaller "chunks", allowing the downstream consuming process to import them as they are made available. To support this, an optional batch parameter Thread Processing Limit has been introduced to limit the number of records exported in a single run. Instead of waiting for the next scheduled batch run to process the next set of remaining entries, a new batch process may be automatically submitted if requested by the Automatic Backlog Clearance batch parameter. The batch process has this limit set to 500,000 records and enables automatic backlog clearance. These parameters may be adjusted by your implementation as needed.

#### **Steps To Enable**

No steps are required to enable this feature.

### General Data Export - Ongoing Export Enabled On-Premise

The ongoing export feature of the Generalized Data Export functionality is enabled for on-premise installations. This provides on-premise installations with the ability to continuously export data as it changes.

#### Steps To Enable

No steps are required to enable this feature.

### General Data Export - Thread Allocation Control

By default, each export batch submitted by the F1-GEXPI (Generalized Initial Export Initiator) batch process uses the number threads defined on the maintenance object's specific batch control record. This allows for a more optimal configuration of the number of threads to allocate to a specific batch based on the size of the corresponding maintenance object.

In this release, an optional batch parameter Override Number of Threads is introduced to override this value. When set to "Y" the default value is overridden with the number of threads the initiator batch is submitted with. This allows for a global number of threads allocation that does not require a specific value on each specific export batch control.

Note that this override capability only applies to master and transaction entities. Admin entities are of low volume and therefore should use their default value, which is typically a single thread.

#### Steps To Enable

No steps are required to enable this feature.

## To Do Management and Processing Enhancements

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

- [Improved User Search for Assigning To Do Entries](#)

### Improved User Search for Assigning To Do Entries

The search for users provided in the Forward action on the To Do Entry portal now allows you to filter the result list by the user ID and/or user name.

The screenshot shows a web browser window with the title "Users Valid for a To Do Type - Google Chrome". The browser's address bar shows a lock icon. Below the address bar is a search form with three input fields: "User ID", "Last Name" (which contains the text "Barry"), and "First Name". A "Search" button is positioned below the "Last Name" and "First Name" fields.

In addition, the results list has been enhanced to display counts of To Do Entries already assigned to this user for the same To Do Type ("Assigned - This Type") and across all To Do Types ("Total Assigned").

	User Name	User	To Do Role	Role Description	Assigned - This Type	Total Assigned
1	Balladares, Albert	SPLABX	F1_DFLT	System Default Role	0	0
2	Barry, Regina	SPLRXB1	F1_DFLT	System Default Role	0	4

In addition, the To Do Management portal's Assign action has been enhanced. If you are a supervisor using this action, you are prompted to choose the User to assign to. Previously, this prompt used a drop-down. In this release, you now use the same enhanced search. This allows you to filter the search by User ID or user name, and it also provides you with information about each user's current work load.

#### Steps To Enable

No steps are required to enable this feature.

## Batch Processing Enhancements

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

- [Root Node Element Optional on Plug-in Driven Extract](#)
- [REST Service to Get Batch Job Details](#)
- [DBMS Scheduler Option for Defining Time Zone](#)
- [DBMS Submission Default Changed to Single Submission](#)

### Root Node Element Optional on Plug-in Driven Extract

The plug-in driven extract batch program now supports configuration to suppress the inclusion of a Root Node Element by entering the word "suppress" in the XML Root Name parameter.

#### Steps To Enable

No steps are required to enable this feature.

### REST Service to Get Batch Job Details

The F1-SubmitJob Inbound Web Service is enhanced to have a new operation to Get the details of the batch job. It uses a new business service: F1-GetBatchJobDetails (Batch Job / Batch Run Details).

If the batch job does not have a batch run associated with it, the service returns information about the batch job only. If there is an associated batch run, the service also returns information about the batch run and its threads and instances.

For cases where an external system, such as an external scheduler, requires information about a batch job, you can use this REST service to return the detail of a given batch job ID.

#### Steps To Enable

No steps are required to enable this feature.



## DBMS Scheduler Option for Defining Time Zone

If your implementation is in a time zone that is different from the database time zone, set the new DBMS Scheduler Option `set_sessiontz` option to true to ensure that the Start Date/Time on the Batch Job Submission record is set to the time based on installation time zone rather than the database time zone.

### Steps To Enable

No steps are required to enable this feature.

### Tips And Considerations

Note that the Start Date/Time on the Batch Job Submission record is used as a way to delay the job's execution to a future date. It is not used as a timestamp to indicate when the job was created or executed. If the new option is not set or is set to false, there is no affect if your time zone matches the database time zone or if your time zone is after the database time zone. The setting is only relevant if your time zone is earlier than the database time zone. For those implementations, without this option set, the Batch Jobs are be created with the database time zone, which will cause a delay in the jobs being processed.

## DBMS Submission Default Changed to Single Submission

The DBMS scheduler now uses the "single submission" setting as the default. This setting results in the creation of a single Batch Job Submission record for a given job regardless of the number of threads. The resulting records in the Batch Run maintenance object continue to keep track of the multiple threads using the Batch Thread and Batch Instance records. Previously, the default setting was that single submission was turned off.

This setting may be overridden globally or for a specific batch program. Turning off the "single submission" setting results in the creation of a separate Batch Job Submission record for each thread. However, there is no benefit to using this setting. For jobs with a large number of threads, this option results in an unnecessary proliferation of records to manage.

### Steps To Enable

No steps are required to enable this feature.

## Implementation Tool Enhancements

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

- [Support Additional Zone Layout Options](#)
- [Support for Defining Links and List Standards in Schemas](#)
- [Explicit Imports in Groovy Scripts](#)
- [Web Component Syntax Change](#)
- [New Facility for Invoking Service Scripts or Business Services](#)
- [OJet Upgrade](#)
- [Script Syntax for Marking Lists in Error](#)
- [Admin Log Retrieval](#)

- [Explicit Imports in Groovy Scripts](#)
- [Improved Portal Zone Height Control](#)
- [New Base Display Icon Images Supplied](#)
- [Groovy Version 3.0.7 Upgrade](#)
- [Width Option for Contextual Insights](#)

## Support Additional Zone Layout Options

Additional zone width options, zone height options, and layout options are now available. This allows portal designers to have finer-grained control over how the zones are laid out in a portal to optimize layout and reduce whitespace. Additional configuration options added include:

- **Row Start Layout:** You can start a new row containing one, two or three zones displayed vertically. In past releases, a row included a single zone in each column.
- **Increased Width Options:** In past releases, zones may be full or half width. You can add additional widths to take advantage of flexible row layouts.
- **Flexible Height Options:** You can configure additional options for the zone height to optimize the display of the zone.

	ZONE	SEQUENCE	START LAYOUT	ROWS	WIDTH	HEIGHT / MAX %	DISPLAY	COLLAPSED	CONDITIONAL	REFRESH	OWNER
+	*F1-BATCHCTL Batch Control Query	10					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	Framework
+	*F1-BATCHRUN Batch Runs (Last 20)	20					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	Framework
+	*F1-BRSTATGRA Batch Run, RPS Graph and Thread Statistics	30					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	Framework

**Note:** These options are only supported under the Redwood user experience view. Refer to online documentation for more information on Redwood user experience view.

The additional zone configuration options allow for more specialized design of portals to ensure that information is presented in the optimal way for the user. They also give designers more control of the configuration for better organization of zones in portals.

### Steps to Enable

To enable the Redwood user experience, add the `redwood=true` parameter to your application or environment URL.

## Support for Defining Links and List Standards in Schemas

Standards for published APIs related to standard REST operations can be defined in the API's operation schema. In some cases, the published API includes elements that are different from the internal schema or additional features on top of the internal schema. In this release, with the introduction of the external facing schema (IWS operation schema), syntax has been added to configure these features directly in the operation

schema, allowing the internal schema to remain unaffected. Note that not all published REST APIs follow the standards below. Refer to the online help for more information about the types of APIs that follow the below standards.

### Dynamic Links

There are use cases where the published API will include a "\_self" element that includes the endpoint URL of the Get operation related to the data returned in the response. Additionally, these same response payloads may include foreign keys and for those entities, the response includes a "\_link" element that includes the endpoint URL of the GET operation for that entity (if it exists).

In this release, syntax is provided in the REST IWS operation schema to support building the runtime endpoint URL for the \_self and \_link. Besides dynamically building the static portion of the URL based on the current environment details, it also builds the dynamic portion of the URL, substituting the URL components for the operation and substituting the path parameters. The syntax allows you to define a specific IWS Operation or allows you to reference a maintenance object and at runtime for a REST call, and the system determines the appropriate IWS operation and builds the URL for this REST service.

Example of the syntax: `<_self getOperation="mo:'TO DO ENTRY';pk1:todoEntryId;" />`

The following is the information returned for the above syntax when performing a Get operation for a To Do Entry with ID 17798129050729. The system determined the Inbound Web Service 'get' operation for To Do Entry and built the URL components for that operation.

```
"_self": "/rest/apis/common/todos/todoEntries/17798129050729"
```

To support dynamically determining the Get Operation for a maintenance object, the following metadata is introduced:

- IWS Operation is enhanced to reference a Maintenance Object code. This field may only be populated on GET operations for REST IWS.

### IWS Operation

#### Main

WEB SERVICE NAME	To Do Entry
OPERATION NAME	getToDoEntry
DESCRIPTION	Get To Do Entry
SCRIPT	<a href="#">Get To Do Entry</a> <a href="#">View Schema</a>
HTTP METHOD	Get
MAINTENANCE OBJECT	<a href="#">To Do Entry</a>
URI COMPONENT	/{todoEntryId}
DETAILED DESCRIPTION	

- A new Maintenance Object (MO) Option type is added. It supports defining the IWS, operation name for the GET operation. This option allows for an implementation to override the default GET operation for an object, if needed.

OPTION TYPE	SEQUENCE	OPTION VALUE
* GET Operation	* 1	F1-ToDoEntry, getToDoEr

- A new Business Object (BO) Option type is added. The syntax is the same as the maintenance object option. This is useful for maintenance objects that support diverse business objects that may warrant specialized REST APIs.

When you use the "mo" syntax for the GET operation at runtime, the system takes the key of the entity and determines its business object. If it finds a specific GET operation as a BO option, that is used. Otherwise, if it finds a GET Operation configured as an MO option, that is used. Otherwise if it finds an IWS operation that references this MO as a foreign key, that is used. Finally, if it cannot determine a GET operation, it builds the text "Not available".

### Foreign Key Group

As mentioned above, when this type of published API includes a foreign key in the response, besides returning the value of the foreign key, we should also return a "\_link" with the endpoint URL of that object's 'Get' REST operation. To support that, the standard is that foreign keys are returned in a group.

#### Example:

```
<user>
  <user/>
  <_link/>
</user>
```

With the new features, the internal schema includes only the element for the data and the external schema includes configuration to build the group.

Internal Schema	Operation Schema Syntax
...	...
<user/>	<user role="FKGP">
...	<user/>
	<_link
	getOperation="mo:'USER';pk1:user;"/
	>
	</user>
	...

### Collection Lists of Data

When this type of published API returns a list of information, the standard is to use the element "\_data" for the list grouping tag.

#### Example:

```
<drillKeys>
  <_data>
    <sequence/>
```

```

    <keyValue/>
    <description/>
    <version/>
  </_data>
</drillKeys>

```

With the new features, the internal schema includes the list as defined internally (which does not include the `_data` element). Syntax in the operation schema allows you to define the list using the `_data` element.

Internal Schema	Operation Schema Syntax
<pre> &lt;drillKeys type="list"&gt;   &lt;sequence/&gt;   &lt;keyValue/&gt;   &lt;description/&gt;   &lt;version/&gt; &lt;/drillKeys&gt; </pre>	<pre> &lt;drillKeys role="COLL"&gt;   &lt;_data mapTo="drillKeys"&gt;     &lt;sequence/&gt;     &lt;keyValue/&gt;     &lt;description/&gt;     &lt;version/&gt;   &lt;/_data&gt; &lt;/drillKeys&gt; </pre>

Supporting syntax in the REST IWS operation schema for some standard features in our published APIs moves the burden of configuration to the object that needs the feature. The internal schema can therefore remain devoid of this configuration that is not applicable to the internal service. This is in the style of the Hypermedia as the Engine of Application State (HATEOAS) standard.

#### Steps To Enable

No steps are required to enable this feature.

#### Tips And Considerations

To take advantage of this feature, service scripts used for REST operations should include the F1-WebServiceControl data area. This includes the HTTP method element and allows for future enhancements. Once added, the service script logic can be enhanced to check the value of the HTTP Method and perform different steps based on the value.

### Explicit Imports in Groovy Scripts

Any scripts that include Groovy code should explicitly declare the Groovy classes to import using the Groovy Imports step type. The system includes a new `com.oracle.ouaf.groovy.skip.defaultImports=true` setting in the Properties file. If this is configured and the system detects that there are classes referenced in the script that are not explicitly defined when saving a script, it issues a warning and automatically adds import statements for the classes.

Previously, the system did not require explicit imports and had logic to import all callable classes available to Groovy at run time. Two issues were found with this practice.

- It was possible that the referenced class had the same name as a class in a different package and at runtime, the system would use a different class than what was intended. The non-unique name may not have been visible when writing the code, but rather would be found in a subsequent release (after a new class was introduced) or would be found in a different product layer.

- As the number of classes grew, the compilation time for Groovy scripts continued to increase.

To accommodate scripts written previously, the system compiles the Groovy script at runtime without the automatic import logic. If the script compiles, the system continues and runs the script. If the script does not compile, the system then performs the auto import of all callable classes.

#### Steps To Enable

No steps are required to enable this feature.

#### Tips And Considerations

It is recommended that implementations review their existing custom Groovy scripts and proactively update the scripts to explicitly declare the imports.

## Web Component Syntax Change

The attributes for Oracle Utilities Application Framework web components have been amended to make them easier to read and more similar to HTML. This will impact any existing ou-tree or ou-insight web component reference. The definition has been changed as follows:

- Supported value types are XPath and context.
- XPath references must explicitly say "x[.]". For example, `<ou-insights insightType="x[insightType]" mode="preview"></ou-insights>`. Previously, XPath was the default and did not need any mnemonic. For example, `<ou-insights insightType="insightType" mode="'preview'"></ou-insights>`.
- The change applies to all XPath references. For example in the context values, `<ou-insights insightType="F1-RELATED-TODO" context="TD_ENTRY_ID:x[ToDoEntryId];"></ou-insights>`. Previously, the context values appear as `<ou-insights insightType="'F1-RELATED-TODO'" context="'TD_ENTRY_ID':ToDoEntryId;"></ou-insights>`.
- Note that in addition to the changes above, literals no longer need to be surrounded by single quotes. Single quotes will continue to be supported but will not be necessary. Refer to F1-RELATED-TODO and TD\_ENTRY\_ID in the examples.

This enhancement standardizes the interface using industry standard syntax and amends the default rules for the attributes passed into a web component to facilitate enhanced web component features.

#### Steps To Enable

No steps are required to enable this feature.

## New Facility for Invoking Service Scripts or Business Services

The new service invocation function allows a developer to detail specific pieces of a data schema to be sent to the server when invoking a service. It also allows the definition of what needs to be handled when the service is returned. This can greatly reduce the amount of data being handled and therefore can provide a performance boost.

This invocation is also "asynchronous" and therefore will allow other JavaScript processes to continue while the server is processing the request.

**Steps To Enable**

No steps are required to enable this feature.

**Tips And Considerations**

This is a new function and does not affect any existing service calls. It is only available for use inside a UI Map.

**Key Resources**

Refer to the [Oracle JET Developer Cookbook](#).

**OJet Upgrade**

This is an Oracle standard JavaScript library that provides many user interface components. It is updated regularly to include new and updated components inline with updated Oracle user interface standards (Redwood).

This upgrade allows access to new components and updated Oracle Redwood user experience standards.

**Steps To Enable**

No steps are required to enable this feature.

**Tips And Considerations**

With this release, the former "ojcomponent" bind format is no longer valid. Any usage must be replaced with the newer OJet component code.

**Key Resources**

Refer to the [Oracle JET Developer Cookbook](#).

**Script Syntax for Marking Lists in Error**

The Edit Data 'terminate with error' syntax is enhanced to support marking an element in a list in error by referencing the variable used to loop through the list.

- `terminate with error( xxxx, yyyy element='$listVar/  
element_name')`

In this case, the \$listVar represents the variable used in the 'for' loop. For example, this validation includes a 'for' loop and uses the variable '\$key' to keep track of the list entry:

```
for ($key in "parm/hard/newBusinessObject/relatedBatches/  
relatedBatch")  
  if ("string($key/perfRelObjType) != 'F1PB'")  
    terminate with error (11022, 12104 element='$key/  
perfRelObjType');  
  end-if;  
end-for;
```

**Steps To Enable**

No steps are required to enable this feature.

**Tips And Considerations**

Note that in previous releases, the suggested mechanism for marking an element in a list in error was to concatenate the XPath with the list entry, as follows:

```
move "concat('list[',$count,']/elementName')" to $elementReference;  
terminate with error (11000, 11000 element=$elementReference);
```

However this technique was found to have limitations in certain use cases. As such, it is no longer the recommended technique.

Any scripts that are using the previous technique for marking a list entry in error should be updated to use the new syntax.

### Key Resources

Refer to the [Edit Data Syntax](#) section of the *Oracle Utilities Application Framework Administrative User Guide* for more information.

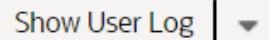
## Admin Log Retrieval

A new **Advanced Show Log Option** allows administrative users to fetch logs of other users. By default, a user can only retrieve their own user logs. The following are examples of when this capability is needed:

- Batch and integration logs are captured by special user codes created for this type of processing. These users typically do not represent a human and therefore would not access logs using "show user log." Instead, someone else would be accessing these logs.
- Customer administrators would like to retrieve logs for an end user for support reasons. An end user might not have technical skills to gather or assess the log, or they might not have the privileges necessary to access the logs for security reasons.

An Administrative (F1SU) access mode has been added to the existing Show User Log application service (F1USERLOG). Only users with access to the administrative access mode can view the logs of other users.

To a user with administrative access, the **Advanced Show Log Option** is offered as a drop-down button along with the **Show User Log** option.



Clicking **Show User Log** in the drop-down list launches a window allowing you to select the user ID for the desired user logs. You can also adjust the number of log entries. If you realize you want your own logs after all, you can simply click the checkbox.

## Advanced Show Log Option

### Parameters

My Logs	<input type="checkbox"/>
User	* <input type="text" value="SPLBXS"/> <input type="text" value="Scher, Batia"/>
Log Entries	<input type="text" value="200"/>
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	



**Steps To Enable**

Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in the Role section below.

**Role Information**

System administrators should set/grant users/grant access to the Administrative (F1SU) access mode of the existing Show User Log application service (F1USERLOG).

**Explicit Imports in Groovy Scripts**

When saving a script, if the system detects that there are classes referenced in the script that are not explicitly defined, it issues a warning and automatically adds import statements for the classes. Previously, you had to opt-in to this functionality using a property. In this release, this is now the standard product behavior.

When the script is executed at run time, the system uses the explicit imports to execute the script. Previously, the system had logic to import all callable classes available to Groovy at run time, which caused issues in certain cases. Because you may have custom scripts that still do not have the explicit imports, the system continues to fall back on the previous behavior to import all callable classes for scripts that do not compile with their explicit imports.

You should review your existing custom Groovy scripts and update the scripts to explicitly declare the imports.

**Steps To Enable**

No steps are required to enable this feature.

**Tips And Considerations**

The background process F1-CAGVY that reports all scripts that required the automatic import step to successfully compile. You should run this batch program to identify and fix any scripts missing explicit imports.

**Improved Portal Zone Height Control**

Zone height configuration is simplified and now supports the following options:

- **Content (Unlimited Height)** - Allows the height to be determined by content.
- **Content (Limited Height)** - Allows the height to be determined by content up to a specified maximum limit.
- **Fixed Height** - Sets the zone at a specific height regardless of content.

You can use height limit options to achieve a more consistent portal layout, especially when a zone is rendered on long or small devices.

When a height option is not explicitly selected, zone height is unlimited and determined by content. However, for a data explorer zone, the results grid area itself (not the entire zone) is limited by the zone parameter "height of report" (which has a default value of 50%).

The following zone height options are deprecated and replaced as follows:

- **Content** - Zones configured with this option along with a maximum height limit are upgraded to reference the Content (Limited Height) option. If no limit is specified, the Content (Unlimited Height) option is used.









- **Full** - Zones configured with this option are upgraded to reference the Content (Limited Height) option with a 100% height limit.
- **Half** - Zones configured with this option are upgraded to reference the Content (Limited Height) option with a 50% height limit.












#### Steps To Enable












No steps are required to enable this feature.












#### New Base Display Icon Images Supplied












You can use additional SVG icons in contextual insights, trees, and other user interface features that support SVG icons.












Icon	ID	Description
	F1ACTADD	Activities - Add
	F1ARWODL	Arrow - Open - Down - Left
	F1ARWODR	Arrow - Open - Down - Right
	F1ARWOUL	Arrow - Open - Up - Left
	F1ARWOUR	Arrow - Open - Up - Right
	F1ARWSI	Arrows - In
	F1ARWSO	Arrows - Out
	F1ASAVE	Save - Arrows Out




Icon	ID	Description
	F1BOX	Cube
	F1CAL	Calendar
	F1CALL	Telephone
	F1CALLA	Telephone - Add
	F1CAREA	Area Chart
	F1CBXOFF	Checkbox - Off
	F1CBXON	Checkbox - On
	F1CDWNR	Caret - Down - Right
	F1CHDOWN	Chevron - Down
	F1CHDWR	Chevron - Down - Right
	F1CIRCLE	Circle

Icon	ID	Description
	F1CLEFT	Caret - Left
	F1CLINE	Line Chart
	F1CLIST	Progress List
	F1CLPBC	Clear List
	F1CONSTD	Construction Design
	F1CPYTMP	Copy From Template
	F1CRAGG	Running Aggregate Chart
	F1RCLE7	Progress Circle
	F1CREATE	Site - Add
	F1CRIGHT	Caret - Right
	F1CRPAGE	Page - Add

Icon	ID	Description
	F1DAREA	Draw Area
	F1DWNLD	Download
	F1EDIT	Edit
	F1EDITIN	Inline Edit
	F1EXACRO	Export Acrobat
	F1FHAND	Free Hand Draw
	F1HEXGN	Polygon - Hexagon
	F1HOUSE	House
	F1HRGS	Waiting Hourglass - Start
	F1LAYERS	Layers
	F1LINEI	Line - Inclined

Icon	ID	Description
	F1LINEST	Line - Staggered
	F1LOC	Location
	F1LOCW	Location Pin - Work
	F1LOCWA	Location Pin - Work - Add
	F1MENUE	Expand Menu
	F1MOVE	Move
	F1MSG	Message
	F1MULT	Multiply
	F1NOTIF	Notification
	F1NUMS	Numbers
	F1OVAL	Oval

Icon	ID	Description
	F1PINS	Location Pin - Solid
	F1RECT	Rectangle
	F1RFRSH	Refresh
	F1RUNNIG	Running
	F1SCLOSE	Close - Circled - Solid
	F1SFILE	Work Request - File Stage
	F1SHARE	Share
	F1STPED	Close - Circled - 2 Colors
	F1TAG	Tag
	F1TEXT	Text
	F1TRIUP	Triangle

Icon	ID	Description
	F1VIEW	View
	F1WRKOA	Gantt Chart - Add
	F1ZOOMIN	Zoom In

**Steps To Enable**

No steps are required to enable this feature.

**Groovy Version 3.0.7 Upgrade**

You can stay current with the version of Groovy supported by the product.

**Steps To Enable**

No steps are required to enable this feature.

**Tips And Considerations**

Groovy introduced a change in behavior in this newer version. It is unknown whether this change in behavior is intentional or a defect.

Here is one example error:

```
[Static type checking] - Cannot find matching method
com.splwg.base.api.datatypes.Date#addDays(java.math.BigInteger).
Please check if the declared type is correct and if the method
exists.org.codehaus.groovy.control.MultipleCompilationErrorsExcept
ion:
startup failed: C1FATYPALMSG: 47: [Static type checking] - Cannot
find matching method
com.splwg.base.api.datatypes.Date#addDays(java.math.BigInteger).
Please check if the declared type is correct and if the method
exists.
@ line 47, column 35.
Date referenceDate =
row.getDateTime("SCHED_DTTM").getDate().addDays(row.getInteger("DA
YS_ALERT_NBR"));
```

In the cases that we have, some simple changes can be made in the groovy scripts to resolve the compile issues.

For example:

```
Date referenceDate =
row.getDateTime("SCHED_DTTM").getDate().addDays(row.getInteger("DA
YS_ALERT_NBR").intValue());
```



## Width Option for Contextual Insights

A new CSS helper class is available to the ou-insights web component: `card-full-width`. Adding `class="card-full-width"` to the ou-insights web component ensures that the width for a card insight adjusts to the width of the zone that contains it. Card insights that do not set this parameter use a fixed width.

### Steps To Enable

No steps are required to enable this feature.

## Analytics

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

- [Additional Business Flag Configuration Values](#)
- [Support Analytics Dimension Hierarchy Definition](#)

### Additional Business Flag Configuration Values

The Confidence attribute on Business Flag records now includes a Missed option, which can denote a false negative or a condition missed by the analysis tool.

Additionally, numeric values from *10* to *90* replace the *Low*, *Medium*, and *High* options of the Priority attribute. For backward compatibility, an upgrade step will adjust existing Priority values of Business Flags and Business Flag Types to the following:

- From High to 10
- From Medium to 50
- From Low to 90

### Steps To Enable

No steps are required to enable this feature.

### Support Analytics Dimension Hierarchy Definition

The metadata needed to support hierarchical dimensions can now be captured as part of the definition of an analytics dimension.

### Steps To Enable

No steps are required to enable this feature.

## Miscellaneous Enhancements

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

- [Analytics Publisher Report Uses External Reference](#)
- [Conversion Tool Support for Generic Foreign Key References](#)
- [Conversion Tool Support for Long Running Batch Processes](#)
- [Return Additional Details in DBMS Get Job Details Service](#)
- [Service to Maintain the Sequence Table](#)

- [Service Order Management Data in Local Time](#)
- [Update Customer Release Version Details](#)
- [Additional Elements Added to Installation Options BO](#)
- [Bundle Export Copy Feature Improvement](#)
- [REST Service to Maintain Customer Release Details](#)
- [Oracle Guided Learning Integration](#)

### **Analytics Publisher Report Uses External Reference**

The algorithm F1-BIPR-INV uses the external report reference to generate the URL. Previously, the algorithm used the internal report code rather than the external reference.

Most sample reports provided by the product populated the same value into the Report Code and the External Reference. Implementations following that pattern will see no impact to this change.

#### **Steps To Enable**

No steps are required to enable this feature.

#### **Tips and Considerations**

If your implementation uses Analytics Publisher for reports and uses this algorithm type to generate the URL, be sure that the External Reference on your existing report codes matches the Report Code value to ensure that the URL will continue to be built as before.

### **Conversion Tool Support for Generic Foreign Key References**

The conversion step of inserting records to the production schema is enhanced to also resolve foreign key references that are captured in a generic set of fields that include the entity's maintenance object (MAINT\_OBJ\_CD) and its prime key values (PK\_VALUE1-5). Tables with more than one set of fields are not supported and all referenced maintenance objects on the table should be convertible.

The enhancement improves the support for complex conversion processes by providing the ability to convert tables with generic foreign key references.

#### **Steps To Enable**

No steps are required to enable this feature.

### **Conversion Tool Support for Long Running Batch Processes**

The Override SQL Timeout batch parameter has been added to all conversion batch processes allowing them to set a different timeout limit than the default setting in the cloud. The parameter is set to three hours by default but can be supplied with a different time limit as needed when submitting the conversion batch process.

This provides the ability to extend the time limit set in the cloud for long running conversion batch processes.

#### **Steps To Enable**

No steps are required to enable this feature.

## Return Additional Details in DBMS Get Job Details Service

More supporting information is provided about the steps related to DBMS job runs when calling the F1-DBMSGetJobs (DBMS Scheduler Job List) business service. The following information is now provided for steps in the job run, where the information is applicable for that step:

- Batch Code
- Batch Number
- Batch Rerun Number
- Error Details (if applicable)

In addition, adjustments were made to what is considered an "In Progress" job run and what is considered a "Completed" job run. Previously, if a step in the DBMS job failed, it was returned for both an In Progress job run request and a Completed job run request. This could become confusing because a job with a failed step was not ever going to continue unless manual intervention occurred, so it is not "in progress." The system now uses the following criteria (from top down) for considering a job run In Progress or Completed:

- If a DBMS Job run has at least one step that is Running, the job is considered In Progress.
- If at least one step is Failed, it is considered Completed.
- If at least one step is Not Started (and no steps are Failed), it is considered In Progress.

If none of the above is true (all steps are Completed), it is considered Completed.

### Steps To Enable

No steps are required to enable this feature.

## Service to Maintain the Sequence Table

A new business service (F1-DocumentSequenceAddUpd) has been provided to add or maintain records in the Sequence table (CL\_SEQ). This service includes various actions to add, retrieve, update or delete a sequence which may be used for any business use case that requires a sequential number to be maintained (such as sequential document numbers in Oracle Utilities Work and Asset Management Cloud Service).

### Steps To Enable

No steps are required to enable this feature.

## Service Order Management Data in Local Time

The following portals now use and display the time in the Service Point or Installation Event time zone:

- Activities - SOM
- Activities - Command
- Appointment Booking

Previously, Service Order Management did not include a time zone component at the Activity Type level and used the application's default Installation Option time zone, which did not match the time zone of the local service point.

**Steps To Enable**

No steps are required to enable this feature.

**Update Customer Release Version Details**

You can update the Customer Release row in the Installed Products collection, allowing implementations to set a version, build, and patch level. This feature is useful for implementations that would like to use this information to manage their own release of customizable code or configuration.

There is a F1CustRelM (Customer Release Maintenance) BPA script that you may use when in a given environment to update the Customer Release information. The script could be linked to a menu entry or configured by appropriate users as a 'favorite script.' Implementation teams may wish to expose this as a REST- or SOAP-based service for integration into Continuous Integration and Continuous Delivery (CI/CD) tools.

**Update Customer Release**


---

Customer Release Details

RELEASE ID	<input type="text" value="V4.3.0.4.0"/>
RELEASE ID SUFFIX	<input type="text"/>
BUILD NUMBER	<input type="text" value="015"/>
PATCH NUMBER	<input type="text" value="225"/>

**Steps to Enable**

Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in the Role section below.

**Role Information**

Users must have the Execute access mode for the Installation Options application service (CILTINSP).

**Additional Elements Added to Installation Options BO**

The F1-Installation business object is enhanced to retrieve all the elements on the main table of the Installation Options maintenance object. This provides a performance benefit for any code that needs information from the main table, such as the default currency, but does not require any of the data in the collections linked to the Installation Options maintenance object. Previously, this business object only included the owner flag element.

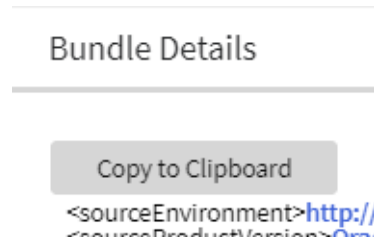
Additional elements added to the business object for Installation Options allow developers to use this artifact when they need main information from the installation option record.

**Steps To Enable**

No steps are required to enable this feature.

## Bundle Export Copy Feature Improvement

In the Bundle Export object, when you have bundled your metadata, use the Copy to Clipboard action to copy the bundle detail properly, retaining spacing for text like the HTML for a UI map.



In previous releases, the Bundle Details zone on the Bundle Export portal provided a "Select All" action to select the bundle details. You then needed to separately use the computer's generic copy function (Ctrl+C) to copy the information to your clipboard. The generic select and copy functionality was not able to retain spacing in objects like the HTML for a UI map. The new Copy to Clipboard action uses specific code to copy the information to the clipboard, retaining spaces.

As part of this feature, the Select All and Deselect All actions were removed. You can still manually select the bundle details manually, if desired.

Action to copy bundle export details retains proper spacing in copied artefacts.

### Steps To Enable

No steps are required to enable this feature.

## REST Service to Maintain Customer Release Details

The F1-InstallationOptions Inbound Web Service is introduced to provide operations to Get and Patch the release, build number and patch number details on the Customer Release record in the Installation Options installed products list. It uses an existing service script: F1CustRelMSS (F1CustRelMSS).

For cases where an implementation wants to track the version of the custom extensions, you can use this REST service to retrieve and update the Customer Release details. This is particularly useful for Oracle partners and utilities who want to update the customer version from CI/CD tools via curl commands.

### Steps To Enable

No steps are required to enable this feature.

### Tips And Considerations

The security for these new operations is the same security for the Installation Options - Framework transaction. Users must have the Execute action for the CILTINSP (Installation Options) application service.

### Key Resources

Refer to the Open API Specification for the F1-SubmitJob inbound web service for more information.

## Oracle Guided Learning Integration

This integration provides a mechanism for customers of the Oracle Guided Learning Cloud Service to define their application identifier (to identify their tenancy) in a

configuration parameter. This will automatically enable the learning widget to appear on the screen passing in the user details and the context to allow relevant content to appear.



**Note:** This integration is to enable the definition of the application identifier and the display of the widget. No prebuilt content is available at this time. Customers using this facility are free to add their own content as necessary using the Oracle Guided Learning Cloud Service.

**Note:** This integration only allows links to procedures and processes stored within Oracle Guided Learning. It does not support active workflow integration to Oracle Utilities products in this release.

#### **Steps To Enable**

Work with your Service Delivery Manager to complete the required configuration.

## **Web Services**

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

- [Additional Metadata to Support API Publishing](#)
- [Description Added to Inbound Web Service Operation](#)
- [HTTP Method Available to Internal Service Script](#)
- [Inbound Web Service Maintenance \(REST\)](#)
- [New Published APIs](#)
- [Outbound OAuth Client Credentials Grant Type](#)
- [Rootless Request and Response Schemas \(JSON\)](#)
- [Support for an External-facing Schema](#)

### **Additional Metadata to Support API Publishing**

The following internal fields have been added to support publishing product-delivered APIs in the product catalog:

- Detailed description for a REST IWS operation. This new field allows for the product to provide information visible in the catalogue of published APIs.
- Help text is provided for individual elements in a given published API.
- Sample request and response documents may be defined using a new IWS Operation Options collection.
- Operations may be associated with a sequence number that controls the order in which they appear in the Open API Specification.

Previously, the above text was added later in a separate documentation process. The new fields streamline the internal publishing process. Note that this text is visible to implementations in the IWS user interface pages. The information may be added for custom owned IWS, but it will not be used by any product processes. Note that this text is not translated as the published catalogue documentation is in English language only.

V-Model/Accounts are records of the financial relationship with an end customer for which bills are created. You must create at least one account for every customer that is billed. The account contains information that controls when the bills are created and how they are formatted. Every account must reference at least one person because the person contains the customer's demographic information (e.g., names, phone numbers, forms of ID). We refer to this individual as the "main" person linked to the account. In addition to the "main" person, an account may reference other types of persons, e.g., the billing contact, the third party guarantor of the account's debt, persons who receive copies of bills, etc. Most accounts are linked to at least one service agreement because, without a service agreement, there is nothing on which a bill can be based. An account without a service agreement may exist; you just won't be able to do much in the system with such an account. Note: All REST services that are in the Integration Suite APIs Web Service Categories require the related Integration Suite add-on product option to use.

POST	/{accountId}/billMessages	Create Account Bill Messages	🔒
GET	/{accountId}/billMessages	Get Account Bill Messages	🔒
PUT	/{accountId}/billMessages	Update Account Bill Messages	🔒
PUT	/{accountId}/persons	Update Account Person	🔒
POST	/{accountId}/persons	Create Account Person	🔒
GET	/{accountId}/persons	Get Account Person	🔒
POST	/{accountId}/creditRatingHistory	Create Account Credit Rating History	🔒

This provides the ability to include a detailed description of a REST IWS operation and to support help text for individual elements to better describe the published API. This increases the usability of the API's provided for integration and interfaces to help reduce integration costs.

#### Steps To Enable

No steps are required to enable this feature.

### Description Added to Inbound Web Service Operation

A language table has been added to the IWS operation and a description has been added. This description is included in the Open API Specification and may be included in the published API catalogue for published services. Previously, the operation description was taken from the internal service script, business service or business object. The internal description is not always relevant when publishing the service as an API. The new description allows the system to use an internal description for the internal service and use the operation description for a description specific to the published API.

The description captured on a REST IWS operation allows for a description specific to the operation as compared to the internal service description. This increases the usability of the API's provided for integration and interfaces to help reduce integration costs.

#### Steps To Enable

No steps are required to enable this feature.

### HTTP Method Available to Internal Service Script

When delivering REST operations for a given object, the logic to perform the operation is handled by a service script. In this release, the REST servlet populates the HTTP Method into a variable available to the invoked service script. This allows the product team and implementations the ability to use one service script to handle more than one HTTP method for an entity.

#### Steps To Enable

No steps are required to enable this feature.

### Tips And Considerations

To take advantage of this feature, service scripts used for REST operations should include the F1-WebServiceControl data area. This includes the HTTP method element and allows for future enhancements. Once added, the service script logic can be enhanced to check the value of the HTTP Method and perform different steps based on the value.

### Inbound Web Service Maintenance (REST)

The definition of a REST IWS was enriched to include an external-facing schema and documentation options for each operation.

The following enhancements were made to streamline the maintenance of the additional information:

- A standalone **Inbound Web Service Operation** portal is provided for providing additional information about an operation.
- Operations are displayed in a separate zone on the **Inbound Web Service** portal. The zone lists operations in the order they appear in the Open API Specification and supports navigation to the new operation portal.
- Help text information to be shared across all operations of a web service is maintained on a new zone on the **Inbound Web Service** portal.

### Steps To Enable

No steps are required to enable this feature.

### Tips And Considerations

Upgrade scripts ensure that users with access to the existing application service will have access to the new application service associated with the new portal. This table lists the existing and new application services.

Object	New Application Service	Access Added to Any User Groups with this Application Service/Read Access
Inbound Web Service Operation Portal	F1IWSOPR	F1IWSSVCP (Inbound Web Service Portal)
Inbound Web Service Operation Maintenance Object	F1IWSSVCOPR	F1IWSSVC (Inbound Web Service Maintenance Object)

### New Published APIs

The following new APIs are provided:

- F1-ToDoEntry: A REST IWS for the To Do Entry object. In this release, GET operations are provided for To Do Entry and for To Do Entry Logs.
- F1-ExtendableLookup: A REST IWS for the Extendable Lookup object. In this release, a GET operation is provided.

Both REST services take advantage of the new external facing schema features.

New published APIs for To Do Entry and Extendable Lookup expand the catalogue of options provided for implementations.



**Steps to Enable**

Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in the Role section below.

**Role Information**

Users must be granted access to the following new application services in order to use this functionality.

REST IWS	Application Service	Access Mode
F1-ToDoEntry	F1-INTG-SUITE-API	F1EX
F1-ExtendableLookup	F1LEXTLKUP	F1EX

**Outbound OAuth Client Credentials Grant Type**

OAuth is an open standard token-exchange technology for verifying a client's identity across multiple systems and domains without risking the exposure of a password. The OAuth specification methods for acquiring an access token are known as grant types. This release adds support for outbound integration with REST APIs that are secured by the Client Credentials grant type.

The configuration of a message sender is extended to capture the following OAuth related context options:

**CONTEXT TYPE**

\*  ▼

---

\*  ▼

---

\*  ▼

---

\*  ▼

---

\*  ▼

---

\*  ▼

You can use "OAUTH" for the Sender Security type and "client\_credentials" for the grant type. You can configure the rest of these options based on the client information provided by the external system. Note that the Client Secret value is encrypted.

This supports outbound REST API integrations that are based on OAuth "Client Credentials" grant type and increases support within OAuth domains such as the Oracle Cloud Infrastructure and other external OAuth domains.

**Steps To Enable**

No steps are required to enable this feature.

## Rootless Request and Response Schemas (JSON)

The configuration of an outbound message type on the External System page is enhanced to include a new JSON Conversion Method option, "Rootless JSON Conversion," that converts the internal XML-based request and response schemas to and from rootless documents. Previously, exchanging messages with an external system in JSON format required the request and response elements to be enclosed in a root node which is not a typical structure for REST service calls. This release also supports rootless JSON request and response schemas.

This supports standard message exchange with an external system in JSON format where the request and response schemas are rootless structures. It also reduces implementation costs by natively supporting rootless structures where interfaces require them.

### Steps To Enable

No steps are required to enable this feature.

## Support for an External-facing Schema

You can define a schema for a REST IWS operation. This allows a user to adjust the schema for an external-facing consumer. Previously, the schema of the underlying service (for example, service script) was also the schema for the REST IWS operation. The new IWS operation schema also supports some special configuration that allows additional features to be defined only for the IWS operation schema.

All references to the internal service below reference service script, but the same comments apply to business services and business objects, if that is what is referenced by the IWS operation:

- An element may reference a usage attribute, with values of Request Only, Response Only, Exclude and Both (the default). Previously, all elements in the service script schema were visible in both the request schema and the response schema (for HTTP methods that have both a request and response schema). This sometimes caused confusion or required additional documentation to clarify when the element is applicable.
- A different element name may be defined in the IWS operation schema, overriding the name in the service script. This allows the internal service script element name to more closely align to internal references to the element, if needed. The external-facing element name can be different allowing for a more readable schema.

The external schema for REST operations allows for more configuration to benefit the published API and helps reduce costs in integration. This increases the usability of the API's provided for integration and interfaces to help reduce integration costs.

### Steps To Enable

No steps are required to enable this feature.

### Tips And Considerations

If you have existing REST IWS operations, there is no requirement to take advantage of this feature. It is useful if you have elements that you would like to suppress or if there are elements you would like to appear in only the Request or only the Response.

## Application Security

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

- [Consolidation of Default Application Services](#)
- [New Application Service for Master Configuration Maintenance Object](#)

### Consolidation of Default Application Services

The product has consolidated the default application services that are required for basic application security.

- F1-DFLTTS now serves as the single 'default' application service. All user groups should have access to this application service and all its access modes.
- F1-DFLTAPS was previously used for business services and service scripts as the default application service. Going forward, business services and service scripts should use F1-DFLTTS as the default.
- FWLZDEXP was previously used for displaying zones. It is no longer used by base zones. F1-DFLTTS is the only application service needed for basic execution of zones.

#### Steps To Enable

No steps are required to enable this feature.

#### Tips And Considerations

An upgrade script will proactively update any references in the metadata to F1-DFLTAPS or FWLZDEXP to F1-DFLTTS. Implementations should consider if either of these application services are used directly in code and update those references to use F1-DFLTTS or a different appropriate application service.

In addition, an upgrade script ensures that all user groups with access to F1-DFLTAPS now have F1EX access to F1-DFLTTS.

In a future release, the application services F1-DFLTAPS and FWLZDEXP will be removed from support.

### New Application Service for Master Configuration Maintenance Object

The F1-MASTERCONFIG application service is provided to allow you to secure the maintenance of master configuration records separately from the security for the portal used to view master configuration records. This follows the product's standards. Previously, the same application service applied to both the maintenance object and the portal. This prevented you from more granular security configuration.

#### Steps To Enable

No steps are required to enable this feature.

#### Tips And Considerations

An upgrade script updates all user groups that currently have access to the existing F1MSTCFG application service to have the same access to the new F1-MASTERCONFIG application service.

In addition, any business object that was referencing the F1MSTCFG application service has been updated to reference F1-MASTERCONFIG.

Note that the existing F1MSTCFG application service has been updated to reference only the Inquire access mode. The access modes for Add, Change, and Delete have been removed since they are not applicable for a portal-based application service.

## 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 v4.5.0.0.0, 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.

#### Application Viewer Links

The Application Viewer links in the online help and several maintenance object, business object, business service, and function pages have been removed. You can now navigate directly from the application to metadata pages to view additional content.

#### Security Token in REST Container

In Oracle Utilities Application Framework 4.4.0.3.0, REST functionality was properly split out from the web to its own container. This allows REST to have its own authentication and security. By design, the Oracle Utilities Application Framework security token functionality was not added to this REST container because the token is used for CSRF protection for online web container only.

#### LDAP Import Metadata (Legacy Feature)

The following LDAP import metadata have been removed:

- Service Programs: CILTLDIP, CILTLDIL, CILTLDIS
- Application Service: CILTLDIP
- Fields: F1\_LDAP\_SUMM, F1\_LDAPGROUPSEARCHDATA\_SUMM, F1\_LDAPUSERSEARCHDATA\_SUMM, IMP\_GRP\_LBL, LDAP\_ENTTTY\_FLG, LDAP\_IMP\_JNDI\_LBL, LDAP\_PASSWORD, LDAP\_PASSWORD\_ENC, LDAP\_USER, RTRV\_LDAP\_ENT\_LBL, SEARCH\_4\_LD\_GRP\_LB, SEARCH\_4\_LD\_USR\_LB, SEARCH\_BY\_LDAP\_GRP
- Navigation options: CI0000000956, ldapImportTabMenu
- Navigation keys: ldapGroupSearchData, ldapGroupSearchPage, ldapImportGrid, ldapImportPage, ldapImportTabMenu, ldapUserSearchData
- Records in the UI metadata program component tables related to the above navigation keys.

#### Notes:

Implementations may continue to use the F1-LDAP batch job to perform external LDAP integration, if required.

Customers using Oracle Identity Cloud Service are not affected by this removal as a native adapter is used for that integration.

#### **Miscellaneous Metadata**

The following miscellaneous metadata have been removed:

- Script: F1-BundleInf, F1-GENPRINFO, F1-MgPlnInf
- Zone: F1-MGRREQDSP

#### **Metadata End of Support (Owner flag set to CM)**

Implementations should review and remove if not in use. The following miscellaneous metadata have been removed:

- Lookup value: CHAR\_ENTITY\_FLG / F1SE
- Algorithms: F1-LDAPIMPRT, F1-LDAPPREPR
- Algorithm Types: F1-LDAPIMPRT, F1-LDAPPREPR
- Maintenance Object: ENV REF
- Business Object: F1-EnvironmentRefPhysicalBO
- To Do Type: F1-SYNRQ
- Zone: F1-IWSSCHS, F1-IWSSCHS1, F1-IWSSCHS2, F1-IWSSCHS3
- Characteristic Type Legacy Page Metadata
- Navigation keys: charTypeMenu, charValuesPage, charValuesPage\_H, charValuesGrid, charEntitiesPage, charEntitiesPage\_H, charEntityGrid
- Records in the UI metadata program component tables related to the above navigation keys.

#### **Access Group Legacy Page Metadata**

The following Access Group metadata have been removed:

- Navigation keys: accessGroupMainPage\_H, accessGroupDARGrid, accessGroupMainPage, accessGroupMaint, accessGroupTabMenu
- Records in the UI metadata program component tables related to the above navigation keys.

#### **Application Service Legacy Page Metadata**

The following Application Service metadata have been removed:

- Navigation keys: applicationServiceMainPage\_H, applicationServiceMaintNew, applicationServiceTabMenu, applicationServiceMainPage, appSvcAccessModeGrid
- Records in the UI metadata program component tables related to the above navigation keys.

#### **OJet Support for Bind Architecture**

This feature is replaced by the Web Component Architecture. OJet previously supported a "bind" architecture for their components.

#### **Example:**

```
<input id="text -input"
      type="text"
      data-bind="ojComponent: {component: 'ojInputText',
                              textInput: value}"/>
```

The OJet team announced the deprecation of this format in OJet V7 and continued to support it until OJet V11. The newer releases of OJet have been focused on a "Web Component" architecture.

**Example:**

```
<oj-input-text value="value text" label-hint="enabled"></oj-input-
text>
```

This release of Oracle Utilities Application Framework now uses OJet V11 where the bind architecture is no longer supported.

**Groovy Language-based Custom Function Library Creation**

This feature is replaced by the JavaScript language-based custom function library creation. You can only create custom function libraries through JavaScript. Existing Groovy language-based custom function libraries will continue to work in the V4.5.0.0.0.

**Field Legacy Page Metadata**

The following Field Legacy Page metadata have been removed:

- Navigation Keys: impFldTabMenu, metaDataFieldTableGrid, metaDataFieldTableGrid, metaDataFieldTablePage, metaDataFieldMaint
- Records in the UI metadata program component tables related to the above navigation keys.

**Portal Legacy Page Metadata**

The following Portal Legacy Page metadata have been removed:

- Navigation Keys: portalMainPage, portalMainPopup, portalOptsGrid, portalOptsPage, portalTabMenu, portalZoneGridPage
- Records in the UI metadata program component tables related to the above navigation keys.

**Zone Legacy Page Metadata**

The following Zone Legacy Page metadata have been removed:

- Navigation Keys: portalZoneTabMenu, portalZoneMainPage, portalZoneParameterGrid, portalZonePortalGrid, portalZonePortalPage
- Records in the UI metadata program component tables related to the above navigation keys.

**Items Planned for Future Deprecation**

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

**UI Metadata Related to Converted Pages**

UI metadata related to fixed pages converted to portals will be removed in a future release. The following navigation keys related to the maintenance page will be removed:

- **Field:** impFldTabMenu, metaDataFieldMainPage, metaDataFieldMaint, metaDataFieldTableGrid, metaDataFieldTablePage, and any help keys
- **Access Group:** accessGroupMainPage, accessGroupMaint, accessGroupTabMenu, accessGroupDARGrid, and any help keys
- **Application Service:** applicationServiceMainPage, applicationServiceMaintNew, and any help keys
- **Portal:** portalTabMenu, portalMainpage, portalmainPopup, portalOptsGrid, portalOptsPage, and any help keys
- **Zone:** portalZoneTabMenu, portalZoneMainPage, portalZoneGridPage, portalZoneParameterGrid, portalZonePortalGrid, portalZonePortalPage, and any help keys

In this release, the following navigation keys related to the maintenance page will be removed:

- **To Do Entry:** toDoEntryCharGrid, toDoEntryDrillKeyValuesListGrd, toDoEntrySortKeyValuesListGrid, todoentrykeyvalue, todoentrymain, toDoEntryMaint, toDoEntryPopupAdd, toDoEntryPopupForward, toDoEntryPopupSendBack, and any help navigation keys
- **Table:** metaDataTableFieldsGrid, metaDataTableMainPage, metaDataTableCFldsGrid, metaDataTableConstPage, metaDataTableMaint, metaDataTableRefByConstPage, metaDataTableFieldPage, and any help navigation keys
- **Characteristic Type:** charTypeMenucharValuesGrid, charValuesPage, charEntityGrid, charEntitiesPage, and any help navigation keys
- **Work Calendar:** workCalendarMaint, workCalendarMainPage, workCalendarHolidayGrid, and any help navigation keys
- **Message:** msgMaintDetailsPage, msgMaintGrid, msgMaintPage, msgMaintTabMenu, and any help navigation keys
- **Time Zone:** timeZoneMainPage, timeZoneTabMenu, and any help navigation keys

Navigation keys related to search will be removed:

- **Field:** metaDataFieldSearchData and metaDataFieldSearchPage
- **Access Group:** accessGroupSearchData and accessGroupSearchPage
- **Application Service:** applicationServiceSearchData and applicationServiceSearchPage
- **Portal:** portalSearchData and portalSearchPage
- **Zone:** portalZoneSearchData and portalZoneSearchPage

In addition, the UI program component metadata related to Field, Access Group, Application Service, Portal, and Zone navigation will be cleaned up in a future release.

The UI program component metadata related to To Do Entry, Table, Characteristic Type, Work Calendar, Message, and Time Zone navigation will be cleaned up in a future release. Note that metadata related to the search pages will not be removed at this time in case these are used on other fixed pages.

**XSLT Managed Content Type**

The Managed Content table entries related to XSL should use the XSLTC managed content type instead of the XSLT managed content type. Support for the XSLT managed content type will be deprecated in a future release.

**REST IWS - Original REST Servlet**

The original URL supplied for invoking IWS-based REST services included the IWS Service name in its makeup. We continue to support this for backward compatibility purposes, but we will deprecate it in a future release. As defined in the documentation, you should adjust your existing integrations to use the currently supported URL.

**Append Setting In Pagination**

There are several known issues with the functionality of the 'append' option in pagination such that it is not recommended to use this pagination setting. This functionality will be deprecated in a future release.

**Support for Master / Subordinate Services for Web Services Catalog**

The Service Catalog Configuration (master configuration) supports defining subordinate servers. This functionality is no longer applicable for the Oracle Integration Cloud and will be removed in a future release.

**Selected Functionality of the Batch Run Statistics Portal**

The **Batch Run Statistics** portal provides some additional information about batch runs. However, some of the functionality provided on this page is related to capturing additional information from an external tool. This information is stored in a Fact record.

The functionality related to capturing additional information will no longer be supported in a future release. This information will still be available to existing clients, but the functionality will no longer be maintained.

**Miscellaneous System Data**

- Environment Reference. This administrative maintenance object was related to ConfigLab and Archiving, which are no longer supported. In a future release, the following will be removed:
  - Migration Plan F1-EnvironmentRef. Note that no base migration request references this plan. Implementations should ensure that no custom migration request references this plan.
  - F1-EnvironmentRefPhysicalBO business object
  - ENV REF maintenance object
- The following metadata related to the legacy LDAP import pages will be removed in a future release: Services CILTLDIP, CILTLDIL, CILTLDIS, Application Service: CILTLDIP
- The following algorithm types and algorithms provided for the current LDAP import functionality do not include any logic. They will be removed in a future release.
  - Algorithm Type / Algorithm F1-LDAPIMPRT
  - Algorithm Type / Algorithm F1-LDAPPREPR
- The To Do Type F1-SYNRQ (Sync Request Error) is not in use and will be deleted in a future release. Errors for the Sync Request Monitor (that also has the name F1-SYNRQ) are reported using the To Do Type F1-SYNTD (Sync Request Monitor Errors).



- The lookup value CHAR\_ENTITY\_FLG / F1SE (Characteristic Entity / Sync Request Inbound Exception) is not in use and will be removed in a future release.
- The scripts F1-BundleInf, F1-GENPRINFO, F1-MgPlnInf, F1-TDMgActSS, and F1AddDebugLg will be removed in a future release.
- The zones F1-IWSSCHS, F1-IWSSCHS1, F1-IWSSCHS2, F1-IWSSCHS3 and F1-MGRREQDSP will be removed in a future release.

### **CMA Migration Requests**

The migration requests F1-FrameworkAdmin (Framework Admin) and F1-SchemaAdmin (Schema Admin) are no longer recommended and are not going to be updated with new administration / control tables in future releases. The product may deprecate them in a future release.

### **CMA Import Algorithm**

In a future release, the CMA Import algorithm plug-in spot will be deprecated. As an alternative, review any existing algorithms and create appropriate Pre-Compare algorithms.

### **Business Object Read in F1-MainProc When Pre-Processing Exists**

In the original implementation of configuration tools, if a pre-processing script was linked to the business object via options, the main framework maintenance BPA (F1-MainProc) would not perform a Read of the business object (leaving it to the responsibility of the pre-processing script).

In a subsequent release, to solve a UI Hints issue related to child business objects, a business object Read was included in F1-MainProc even if a pre-processing script existed. This solution introduced a problem only visible for specific scenarios and a different fix has been introduced. In the meantime, the business object Read is no longer necessary in F1-MainProc. Since there are many pre-processing scripts that are properly performing the Read of the business object, ideally the business object 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 business object Read was included in F1-MainProc that were coded to not perform a business object read in the pre-processing script. Due to this situation, the business object Read is still performed as part of the processing of F1-MainProc.

The product plans to remove the business object Read from F1-MainProc logic when a pre-processing script exists. Review your custom pre-processing scripts that are linked to your business object options to ensure that it properly performs a Read of your business object.

### **OJet Support for Bind Architecture**

OJet previously supported a bind architecture for their components and this format is deprecated in OJet V7.

#### **Example:**

```
<input id="text-input"
  type="text"
  data-bind="ojComponent: {component: 'ojInputText',
    textInput: value}"/>
```

#### **Example:**

```
<oj-input-text value="value text" label-hint="enabled"></oj-input-
text>
```

The Oracle Utilities Application Framework applications are targeting to stay current on OJet upgrades as newer releases incorporate more features, better performance, and high integration with the Redwood Design System. In this release, Oracle Utilities Application Framework uses OJet V9.1 and with each release, an OJet upgrade will be applied when applicable.

As the bind format has been deprecated, support for the format will be removed from up-coming releases. This results in a smaller file size for OJet components but any existing code in Oracle Utilities Application Framework applications using the bind format will completely stop working. It is anticipated that this could happen as soon as OJet V11, but it could also be a later version. For this reason, it is imperative that any existing OJet code that uses the bind format be updated to use the Web Component format. There can be a direct replacement available (as in the above example) but OJet provides different options so there may be a better alternative.

#### **Custom Groovy Function Support from Oracle Utilities Testing Accelerator**

Support for defining custom functions with Groovy script will be deprecated in a future release.

#### **Incorporate Application Viewer to Oracle Utilities Applications**

Many aspects of the Application Viewer are incorporated into the application, including the data dictionary. The user interfaces for the tables and fields have been enhanced to provide more information at a glance and a view of the links between tables. Information about algorithms, batch controls, and maintenance objects are also visible directly in the application. In a future release, Javadocs and Groovy Javadocs will be viewable within the application at which point the standalone Application Viewer will no longer be delivered.

#### **Switch UI View**

The Switch UI View provides the ability to toggle between Redwood User Experience and pre-Redwood User Experience during a session. Support for pre-Redwood User Experience will be deprecated in a future release.

#### **F1-DFLTAPS and FWLZDEXP Application Services**

With the consolidation of application services, references to the F1-DFLTAPS and FWLZDEXP application services will be removed in a future release. Secured objects referencing these application services within HTML or Schemas must use F1-DFLTS or a different application service that is appropriate for the business rule.

#### **Workflow and Notification Metadata and Database Tables**

The Workflow and Notification function provided a configurable process to receive incoming messages (workflow) and exchange messages with an external system (notification). In the interim years, Outbound Message and Inbound Web Service manage external messages, service scripts handle simple incoming messages processing, and service tasks or business objects handle complicated incoming messages processing. The Workflow and Notification metadata and database tables will be deprecated in a future release.

**Note:** Oracle Utilities Application Framework only manages a portion of the Workflow and Notification function. Oracle Utilities Customer Care and Billing mostly supports the function.

#### **Mobile Application Framework Metadata**

Metadata related to the Mobile Application Framework will be removed in a future release.

### Key Ring Validation Scripts, Algorithm Types, and Algorithms

The following K1-SignatureKeyRing business object validation scripts, algorithm types, and algorithms will be deprecated 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

These objects are not applicable to the requirements to expand the use of the Signature Key Ring beyond object file storage and other planned use cases. The algorithms have been removed from the Business Object configuration.

## Technical Upgrade Notes

### JavaScript DOM “top” Property

Internal restructuring of the Oracle Utilities Application Framework has removed the use of the JavaScript DOM ‘top’ property to better encapsulate the JavaScript variables and functions, and reduce or remove the use of the Global Namespace. This technical upgrade has minimal effects on coding as filters have been provided to dynamically update the JavaScript at runtime and remove references to 'top'. All references to 'top' now refer to 'main', which already existed as a "pointer variable" to variables and functions. In addition, some functions that obtained pointers to UI objects are now direct references and therefore are no longer functions, for example:

Existing Code	New Code	Comments
<pre>var x = top.getNavigationInfo(na vOpt)</pre>	<pre>var x = main.getNavigationInfo(na vOpt)</pre>	The function names remain the same, only the location has changed
<pre>var x = top.main.getNavigationIn fo(navOpt)</pre>	<pre>var x = main.getNavigationInfo(na vOpt)</pre>	No need for a double reference

Existing Code	New Code	Comments
<code>var x = top.tabMenu().document</code>	<code>var x= main.tabMenu.document</code>	tabMenu is now a direct reference as well as tabPage, workspace, and model
<code>var x = top.getMain()</code>	<code>var x = main</code>	getMain() is a redundant function as 'main' is globally available

Should you need to get the 'top' for some reason such as obtaining window dimensions, the new `main.getOUAFTop()` function has been made available. Alternately, you can code "window.top" which the code changing filter will ignore. Note that the even if the code changing filter is extensive, there are many ways to write JavaScript and therefore some of your functions may still fail. Changing the offending line of code using the above examples as a guide should resolve the issues that arise.

### Edge Product Uptake

Similar to customer code, the base Edge Application code is "filtered" to adjust existing code, which removes the need to revisit all existing code and perform updates in order to retain a functioning application. However, new code should follow these standards and the standards presented in relevant guides. It is also best practice to "upgrade" existing code when the opportunity is available.

Note that references to the 'ouafTop' variable are possible when looking at Oracle Utilities Application Framework JavaScript. Do not use this variable as this is an interim to ease the path towards a better clean-up of the existing Oracle Utilities Application Framework code. The 'ouafTop' variable will be removed when no longer needed and therefore can break your code when used. Oracle Utilities Application Framework will not provide a filter to change 'ouafTop' dynamically.

### DOM4J API Upgrade

As part of the Oracle Utilities Application Framework's effort to update 3rd parties to the latest version, edge apps and customers can run into an issue when directly invoking the APIs in the 3rd party's library.

Oracle Utilities Application Framework upgraded the DOM4J API to the 2.1.1 version, which include a large number of changes as part of cleaning up methods to take more restrictive parameters and return more concrete versions. The previous version returned more generic return types and took more open arguments for example, a return type of List was returned from certain APIs. The 2.1.1 version returns nongeneralized versions of the exact type like List<Element> that could result in compile errors and require edge apps or customers to modify the code to fix the API calls.

In order to make code changes, go to the GitHub code repository for dom4j (<https://github.com/dom4j/dom4j/blob/master/src/main/java/org/dom4j>) and perform the following:

1. Look at the API change to <https://github.com/dom4j/dom4j/blob/master/src/main/java/org/dom4j/Element.java> `setContent()` api.
2. Click **History**. This opens all the log of changes that have been made to a class.

3. Click the hexadecimal revision number and review the set of changes made.
4. Click **Split** to see a more visual representation of the changes. You can directly search for the file, for example Element.java, and directly go to the changes to that file in the browser window.
5. Using the changes, make appropriate adjustments to your code. Note that once you find a change to the API, you can also look at code changes made to the other classes that were using the API. Your changes should be inline with the other invokers of the API to ensure that there are no regressions as part of the change that you would make.

### Groovy Upgrade

Oracle Utilities Application Framework upgraded to the latest Groovy version and compilation of some of your scripts could fail. For example, one of Oracle Utilities Application Framework's script performed arithmetic and this code was compiled successfully with the previous Groovy version:

- `BigDecimal.valueOf(Long.valueOf(batchRunTime.getTotalMilliseconds()/1000))`

The latest Groovy version does not compile this code because the it evaluates the division results in an expression as a `BigDecimal` and the compile error indicates that a `valueOf` api is not available in the `Long` class.

To resolve the issue, your code must perform an explicit cast to inform Groovy that the result is a long. For example, this code fixes the compile error and retains the original intention of the code line:

- `BigDecimal.valueOf(Long.valueOf((long)(batchRunTime.getTotalMilliseconds()/1000)))`

### Application Uptake

Oracle recommends that you manually upgrade to the latest Groovy version before taking the official Oracle Utilities Application Framework fix and then run `GroovySanityTest` (unit testing) to ensure no compilation errors are reported. If there are issues reported, make minor code changes to the script to compile successfully.

## Known Issues in This Release

There are no known issues in this release.