**Oracle Utilities Market Settlements Management**

Release Notes

Release 2.4.0.0.0

**F38812-01**

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# Contents

# Preface

These release notes provide an overview of the new functionality and known issues in Oracle Utilities Market Settlements Management Release 2.4.0.0.0.

## Audience

This Release Notes is intended for anyone installing or using Oracle Utilities Market Settlements Management V2.4.0.0.0.

## Related Documents

The following documentation is included with this release.

**Installation, Configuration, and Release Notes**
- *Oracle Utilities Market Settlements Management Release Notes*
- *Oracle Utilities Market Settlements Management Quick Install Guide*
- *Oracle Utilities Market Settlements Management Installation Guide*
- *Oracle Utilities Market Settlements Management Database Administrator's Guide*
- *Oracle Utilities Market Settlements Management Licensing Information User Manual*

**User Guides**
- *Oracle Utilities Market Settlements Management Business User Guide*
- *Oracle Utilities Market Settlements Management Administrative User Guide*

**Supplemental Documents**
- *Oracle Utilities Market Settlements Management Security Guide*
- *Oracle Utilities Market Settlements Management Server Administration Guide*

# Conventions

The following text conventions are used in this document:

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

# Chapter 1

## Release Notes

These release notes contain the following sections:

# About This Release

This section contains general information about Oracle Utilities Market Settlements Management V2.4.0.0.0. The Oracle Utilities Market Settlements Management release includes the following components:

- Oracle Utilities Application Framework V4.4.0.3.0

- Oracle Utilities Market Settlements Management V2.4.0.0.0

Please 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.

# Relationship Between 2.4.0.0.0 and Prior Versions

V2.4.0.0.0 supports the following upgrade paths:

- If you are installing Oracle Utilities Market Settlements Management for the first time, you must install V2.4.0.0.0, available on the Oracle Software Delivery Cloud.

- If you have Oracle Utilities Market Settlements Management V2.2.0.3 installed you can upgrade to V2.4.0.0.0 directly.

# Supported Platforms Notice

Refer to the **Supported Platforms** section of the *Oracle Utilities Market Settlements Management Quick Install Guide* included in this release for an updated list of supported platforms.

# Database Changes

Refer to **Appendix F: Database Changes in Oracle Utilities Market Settlements Management** in the *Oracle Utilities Market Settlements Management Database Administrator Guide* for details about database changes introduced in this release.

# Demo Data Information

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

Demo data is included in the service pack. Refer to the *Oracle Utilities Market Settlements Management Database Administrator's Guide* for more information about installing the demo database, or contact Oracle Support.

# User Configuration

Oracle Utilities Market Settlements Management shares its application environment with other Oracle Utilities meter solution products, including Oracle Utilities Meter Data Management and Oracle Utilities Smart Grid Gateway. The default installation of any of these products provides access to all menu items and functionality provided with these products.

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

- Meter Stack Common Services

- Meter Stack Common Batch Services*

- Settlement Services

- Settlement Batch Services*

*These user groups should be restricted to only those users who will be executing batch processing.

Refer to the **Defining Users** section in the *Oracle Utilities Application Framework Administrative User's Guide* for more information about setting up users.

# Enhancements

This section describes new features and functionality included in this release of Oracle Utilities Market Settlements Management.

## Reduction of Redundant To Dos

In this release, updates to the Communication Out business object, Communication In business object, and to the following Meter Data Management objects decrease the number of To Do entries created when the system reprocesses failed transactions:

- Initial Measurement Data

- Usage Transactions

- Completion Events

- Activities

- Settlement Transactions

- Device Management

Previously, the retry processes closed outstanding To Do entries associated with errors, recreated To Do entries for the same errors, and skewed To Do Type statistics reporting.

The enhancements to exception processing reduce storage requirements, improve operational efficiency, and increase the accuracy of Analytics Visualization To Do counts.

### Steps To Enable
No steps are required to enable this feature.

# Oracle Utilities Application Framework V4.4.0.3.0 Release Notes

This section describes enhancements, system data details and deprecation notices in Oracle Utilities Application Framework v4.4.0.3.0 including:

- Page to Portal Conversion
- Product Usability
- Integration Enhancements
- Data Export
- To Do Management and Processing Enhancements
- Batch Processing Enhancements
- Content Migration Assistant (CMA) Enhancements
- Implementation Tool Enhancements
- Security Features
- Analytics
- Miscellaneous Enhancements
- 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.

## Page to Portal Conversion

### To Do Entry Portal

The **To Do Entry** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor.

The following points highlight some improvements in the new portal functionality:

- In the new page, log entries are visible on the Log tab, which is the product standard for maintenance pages with logs.

- In the new page, there is a "related object" display. The system uses the drill keys associated with the To Do entry and determine the information string of that object and displays it to the user. A user can click this link to drill into the related object. Separately, a **Work** button is added to the page that performs the following functionality: if the To Do is "open", it gets assigned to the user; the To Do becomes the 'current To Do' and populates that dashboard zone; the user is brought to the target transaction (and if there is a BPA script associated with the To Do message, that script is launched). Previously, the **Message Text** was clickable and a user used this link to drill into the related key or launch the script.

- In the new page, the sort keys are shown on the main page instead of a separate tab. The drill keys are also shown on the **Main** tab, but within the **Record Information** section, which is initially collapsed.

- The characteristics linked to a To Do Entry are shown in a separate zone on the Main tab. However, when editing the To Do Entry, if you are allowed to make changes to the characteristics, they are maintained using the edit dialogue. Since this is a portal/zone based maintenance, foreign key characteristics use the Search Zone metaphor for searching. This is the standard for all maintenance objects going forward. This is an improvement from the previous page where the search was the old fixed page metaphor, causing issues when attempting to reference an object that did not have an old legacy fixed page search. In addition, when maintaining characteristics for an automatic To Do Entry, the new page presents valid characteristic types by first looking for valid characteristic types for the To Do Type and if no values are found, shows all the valid characteristic types for the To Do Entry entity.

- If there are related To Do entries for the To Do being shown, a badge insight is used to highlight the number of related To Dos, using the Contextual Insight feature introduced in this release. In addition, a zone displays a detailed list of the related To Do entries is included on the portal.

The following points highlight functionality that is the same as the previous version of the page:

- The To Do Entry query by To Do Type only shows the To Do Entries that are valid for the user: ones assigned to the user or ones that are Open in a To Do Role that the user is in.

- The To Do Entry query by ID allows the user to view that To Do entry.

- Any user may add a User Log.

- Any user may edit the To Do and change comments.

- Only users that are valid for the To Do (per the criteria in the first bullet) are allowed to change the priority or add or change Characteristic values or are allowed to Forward, Complete or Send Back. Note that as before, Send Back is only enabled if the To Do entry's Assigned By is populated.

- A user completing the To Do entry is able to add comments as part of the action.

Standardizing the layout of the **To Do Entry** page provides you with a user interface experience that is consistent with other portal-based pages.

**Steps To Enable**
No steps are required to enable this feature.

**Tips and Considerations**
If there are any foreign key characteristics that are configured to be valid To Do Entry characteristics and users may manually add a link to one of these types of objects, be sure that there is a Search Zone defined for the FK Reference for this characteristic type.

Upgrade scripts ensure that users with Read 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 |
|---|---|---|
| To Do Entry Query Portal | F1TODOEQ | CILQTDEP |
| To Do Entry Portal | F1TODO | CILQTDEP |

Note that any existing bookmarks for this page will take user to the previous version of the page. You need to take the following actions to move the bookmark to the new page:

1.  Click the bookmark. Take note of the To Do Entry ID.

2.  Navigate to the **To Do Entry** portal via the menu.

3.  Search and select the To Do Entry from your bookmark. This takes you to the new page.

4.  Delete the existing bookmark from the **Bookmark** dashboard zone.

5.  Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Message Category/Message Portal

The **Message** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor. Users may view messages for a message category and perform actions on this page.

Additionally, a separate Message maintenance portal is provided to view and update an individual message.



The new user interface pages include improved search criteria including searching by message text.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

Upgrade scripts ensure that users with Read 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 |
|---|---|---|
| Message Category Query Portal | F1MSGQ | CILTMSGP |
| Message Category Portal | F1MSGC | CILTMSGP |
| Message Portal | F1MSG | CILTMSGP |

Note that any existing bookmarks for this page will take user to the previous version of the page. You need to take the following actions to move the bookmark to the new page:

1. Click the bookmark. Take note of the Message Category.

2. Navigate to the **Message Category** portal via the menu.

3. Search and select the Message Category from your bookmark. This takes you to the new page.

4. Delete the existing bookmark from the **Bookmark** dashboard zone.

5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Table Portal

The **Table** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor.



The following highlights some additional features in the new portal:

- The maintenance object(s) associated with the table are included in the display.

- Optional fields that are not populated are not shown for a cleaner view.

- The list of fields for the table is shown in a zone on the main tab. The zone indicates which fields are part of the primary key and which are foreign keys. The label of the field as defined in the Field record is displayed and the user may drill into the fields from this zone.

- The Constraints tab shows the constraints for this table and allows for maintenance of the information. In addition, other tables that have constraints that refer to this table are displayed in this tab.

As part of this enhancement, a new Relationship tab is introduced and includes an Entity Relationship Diagram (ERD). This is similar to what is shown in the Data Dictionary in the Application Viewer so users no longer need to launch the Application Viewer to get this information. Be aware that the Application Viewer is planned for deprecation. The zone highlights which related tables are part of the same maintenance object. A user can drill to the ERD of any of the tables in the diagram. Additionally, a user can navigate to the maintenance object page for any table in the diagram.



Standardizing the layout of the Table page provides you with a user interface experience that is consistent with other portal-based pages.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

Upgrade scripts ensure that users with Read 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.
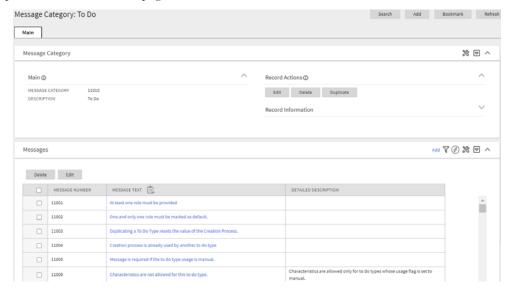
| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| Table Portal | F1TABLE | CILETBLP |

Note that any existing bookmarks for this page will take user to the previous version of the page. You need to take the following actions to move the bookmark to the new page:
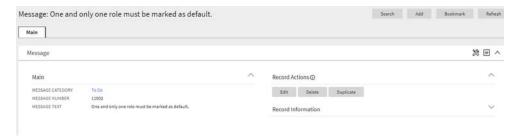
1. Click the bookmark. Take note of the Table.

2. Navigate to the **Table** page via the menu.

3. Search and select the Table from your bookmark. This takes you to the new page.

4. Delete the existing bookmark from the **Bookmark** dashboard zone.

5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Time Zone Portal

The **Time Zone** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor. It uses the All in One page metaphor that includes a list zone and display zone. The list zone includes a filter to narrow the results, if needed.

Standardizing the layout of the **Time Zone** page provides you with a user interface experience that is consistent with other portal-based pages.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

Upgrade scripts ensure that users with Read 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.
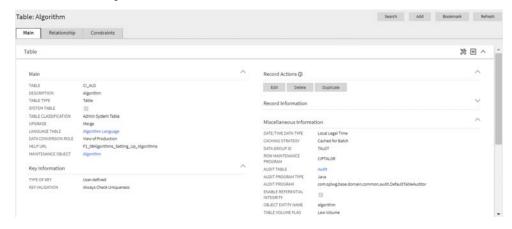
| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| Time Zone Portal | F1TMZNM | CILTTZNP |

Note that any existing bookmarks for this page will take user to the previous version of the page. You need to take the following actions to move the bookmark to the new page:

1. Click the bookmark. Take note of the Time Zone.

2. Navigate to the **Time Zone** portal via the menu.

3. Search and select the Time Zone from your bookmark. This takes you to the new page.

4. Delete the existing bookmark from the **Bookmark** dashboard zone.

5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Work Calendar Portal

The **Work Calendar** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor. The new user interfaces page includes more mass actions, including duplication capabilities for holiday dates.

Standardizing the layout of the **Work Calendar** page provides you with a user interface experience that is consistent with other portal-based pages.

### Steps To Enable

No steps are required to enable this feature.

### Tips and Considerations

Upgrade scripts ensure that users with Read 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 |
|---|---|---|
| Work Calendar Entry Query Portal | F1WRKCLQ | CILTCLWP |
| Work Calendar Portal | F1WRKCAL | CILTCLWP |

Note that any existing bookmarks for this page will take user to the previous version of the page. You need to take the following actions to move the bookmark to the new page:

1. Click the bookmark. Take note of the Work Calendar.

2. Navigate to the **Work Calendar** portal via the menu.

3. Search and select the Work Calendar from your bookmark. This takes you to the new page.

4. Delete the existing bookmark from the **Bookmark** dashboard zone.

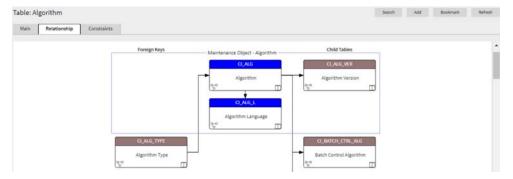5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Access Group Portal

The Access Group page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor.

Converting the Access Group page to a portal provides a user interface experience that is consistent with other portal-based features or modules.

### Steps To Enable

No steps are required to enable this feature.

**Tips and Considerations**

Upgrade scripts ensure that users with Read access to existing application service will have access to the new application service associated with the new portal. The following lists the existing and new application services:

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
| --- | --- | --- |
| Access Group Query Portal | F1ACGRPQ | CILTASGP |
| Access Group Portal | F1ACGRPM | CILTASGP |

An upgrade script is provided to update the Access Group's FK Reference (F1-ACCGP) with the new query zone (F1-ACCGRPQ).

Note that any existing bookmarks for this page will take the user to the old page. You need to take the following actions to move the bookmark to the new page:

1. Click the bookmark. Take note of the Access Group.

2. Navigate to the **Access Group** page.

3. Search and select the Access Group from your bookmark. This step takes you to the new page.

4. Delete the existing bookmark from the **Dashboard's Bookmark** zone.

5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Application Service Portal

The **Application Service** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor.

As part of this change, the **Secured Objects** zone has been moved to the **Main** tab from the **Application Security** tab. The **Application Security** tab continues to have the zones showing the user groups with and without access.

Converting the **Application Service** page to a portal provides you with a user interface experience that is consistent with other portal-based features or modules.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

Upgrade scripts ensure that users with Read access to existing application service will have access to the new application service associated with the new portal. The following lists the existing and new application services:

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| Application Service Query Portal | F1APPSVQ | CILTAPSP |
| Application Service Portal | F1APPSVM | CILTAPSP |

Note that any existing bookmarks for this page will take the user to the old page. You need to take the following actions to move the bookmark to the new page:

1. Click the bookmark. Take note of the Application Service.

2. Navigate to the **Application Service** page.

3. Search and select the Application Service from your bookmark. This step takes you to the new page.

4. Delete the existing bookmark from the **Dashboard's Bookmark** zone.

5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Zone Portal

The **Zone** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor.

The following highlights key changes to how a zone is maintained:

• The zone's portal links are now viewed and maintained on the **Main** tab.

• To support easier viewing and maintenance, the data explorer zone parameters are shown in three separate groups: **Filters**, **General Parameters**, and **SQLs**. The SQLs zone supports editing of SQL and its related parameters, including column definitions. In addition, the SQLs zone supports broadcasting to view related parameters, where each can be edited individually. When editing a Column parameter, the maintenance window has been streamlined by mapping the various mnemonics to separate fields with appropriate labels and search capability for foreign key references.

• A **Replicate** action has been added to the **Record Actions** section of the new user interface. In the previous zone page, the **Replicate** action was found in a special **Replicate Zone** dashboard zone.

Converting the **Zone** page to a portal provides you with a user interface experience that is consistent with other portal-based features or modules.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

Upgrade scripts ensure that users with Read access to existing application service will have access to the new application service associated with the new portal. The following lists the existing and new application services:

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| Zone Portal | F1ZONE | CILZZONP |

Note that any existing bookmarks for this page will take the user to the old page. You need to take the following actions to move the bookmark to the new page:

1. Click the bookmark. Take note of the Zone.

2. Navigate to the **Zone** page via the menu.

3. Search and select the Zone from your bookmark. This step takes you to the new page.

4. Delete the existing bookmark from the **Dashboard's Bookmark** zone.

5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.


## Portal Maintenance

The **Portal** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor. More specifically, the new portal provides easier access to other tab portals and context sensitive zones associated with a standalone portal.

Converting the **Portal** page to a portal provides you with a user interface experience that is consistent with other portal-based features or modules.


**Steps To Enable**

No steps are required to enable this feature.


**Tips and Considerations**

Upgrade scripts ensure that users with Read access to existing application service will have access to the new application service associated with the new portal. The following lists the existing and new application services:

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| Portal | F1PRTL | CILZPORP |

Note that any existing bookmarks for this page will take the user to the old page. You need to take the following actions to move the bookmark to the new page:

1. Click the bookmark. Take note of the Portal code.

2. Navigate to the **Portal** page via the menu.

3. Search and select the Portal from your bookmark. This step takes you to the new page.

4. Delete the existing bookmark from the **Dashboard's Bookmark** zone.

5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Characteristic Type Portal

The **Characteristic Type** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor.

Converting the **Characteristic Type** page to a portal provides you with a user interface experience that is consistent with other portal-based features or modules.

### Steps To Enable
No steps are required to enable this feature.

### Tips and Considerations
Upgrade scripts ensure that users with Read access to existing application service will have access to the new application service associated with the new portal. The following lists the existing and new application services:

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| Characteristic Type Portal | F1CHRTYP | CILTCHTP |

Note that any existing bookmarks for this page will take the user to the old page. You need to take the following actions to move the bookmark to the new page:

1. Click the bookmark. Take note of the Characteristic Type code.

2. Navigate to the **Characteristic Type** page via the menu.

3. Search and select the Characteristic Type from your bookmark. This step takes you to the new page.

4. Delete the existing bookmark from the **Dashboard's Bookmark** zone.

5. Click the **Bookmark** page action button to add a bookmark for this record for the new page.

## Field Portal

The **Field** page has been converted to a portal, leveraging a more flexible and extendable user interface metaphor.

### Steps To Enable
No steps are required to enable this feature.

**Tips and Considerations**

Upgrade scripts ensure that users with Read access to existing application service will have access to the new application service associated with the new portal. The following lists the existing and new application service:

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|--------|-------------------------|--------------------------------------------------------------------------|
| Field  | F1FIELD                 | CILEFLDP                                                                  |

An upgrade script is provided to enable the following FK reference records with the Field search zone (F1-FLDSRCH) as opposed to using the fixed-page style search:

- F1BF-MO

- F1RF-MO

- F1SR-MO

- F1ST-MO

- F1TY-MO

# Product Usability

## User Dashboard Control

While using the system, if a user collapses the dashboard, the system retains this setting until the user changes it again. Previously, the collapsed state of the dashboard was only applicable during a user's session. The next time a user logged into the application, the dashboard would reset to the original settings.

While using the system, the user may adjust the width of the dashboard using the slider and the system retains this setting until the user changes it again. Previously, the user could only adjust the width of the dashboard in the user preferences.

Each user may now also choose to locate the dashboard zone on the left of the page rather than the right.

**Steps To Enable**

No steps are required to enable this feature.

## To Do Dashboard Portal

The **To Do Dashboard** portal is intended to be used by both supervisor and non-supervisor To Do users. For supervisors, the charts consider To Do entries that are in a role which the supervisor is a member. For non-supervisors, the charts consider open To Do entries that are in a role of which the user is a member or entries currently assigned to the user.

The **To Do Dashboard** portal provides a high level summary of open To Do entries and To Do entries currently being worked on by various criteria using analytic charts.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

Supervisors are those users with security access to the "supervisor" access mode for the To Do Dashboard application service.

Upgrade scripts are provided to automatically allow users with Read access to either of the existing To Do Summary page and Supervisor To Do Summary page application services to have access to the new application service associated with the new portal. Note that the new portal does not replace any existing portal. It is provided as an additional summary portal to assist users with To Do management.

This table list the existing and new application services.

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| To Do Dashboard | F1DDASH | CILQTDSP, CILQTSSP<br><br>In addition, users with access to the Supervisor Summary page will get supervisor access to the **Dashboard** portal |

## Create Tab Portals

When creating a new portal page in the product, it is common to want to add additional tab portals for the same page. For example, it is common to use a separate Log tab portal for viewing log entries. Previously, it was not possible to create the tab portal and link it to the appropriate standalone portal.

You can insert new tabs when creating a new portal a page without the need to perform programming or coding.

**Steps To Enable**

No steps are required to enable this feature.

## Inbound Web Service Deployment - Filters Added

The **Deployment Status** zone on the **Inbound Web Service Deployment** portal has been enhanced to include filters. You may narrow down the results by Inbound Web Service name and/or description.

This enhancement allows you to easily retrieve deployment status data filtered by inbound web service names and descriptions.

**Steps To Enable**

No steps are required to enable this feature.

## Admin Menu Hidden if User has no Admin Items

If a user does not have security for any entries in the Admin menu drop-down, the menu itself is suppressed from the toolbar. Previously, if a user did not have security for any admin menu entries, the Admin menu was still visible in the toolbar and it would show an empty line when clicked.

This feature provides the appropriate administrative menu items in the product's toolbar based on the user's assigned security access.

**Steps To Enable**

No steps are required to enable this feature.

## Increased SQL Parameter Size

This feature increases the size of the following parameters to Varchar2 (32767) to provide more space for defining complex SQL statements to be used by zones or by the Select Records algorithm of a plugin-driven batch program:

- ZONE_PARM-VAL: Parameter Value on the Zone Parameters table (CI_ZONE_PRM)

- ALG_PARM_VAL: Value on the Algorithm Parameters table (CI_ALG_PARM)

The increased parameter size provides more space for defining complex SQL statements for data explorer zones and Select Record algorithms.

**Steps To Enable**

No steps are required to enable this feature.

## Date and Time Field Improvements

Date, time, or combined date and time input fields have been enhanced with new and improved icons. In addition, the arrows to move the date or time forward or backward one day or hour have been removed. These changes have been applied to portal-based maintenance pages and query filters. Fixed pages are not impacted by this change.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

If you include JavaScript that targets the forward or backward arrows, it should be removed since those icons are no longer included in the generated HTML.

## Additional Context Labels for Date and Time Fields

A date/time field has a single label throughout the application, but there are contexts in which a separate label may be needed for its "date" and "time" parts. An example of such context is when the field is used by the operational analytics product.

In the same way, date and time fields are associated with additional elements in the operational analytics product describing their various time aspects such as their month, year, hour, minutes, parts, and so on. These elements share a common part of the field's

label as their prefix. For example, for a **Creation Date/Time**, **Creation Date**, or **Creation Time** field, you may provide "Creation" as the field's base context label.

In this release, the definition of a Field is enhanced to support up to three sets of context-related alternate labels and corresponding labels for "Date", "Time", and "Date/Time" field types.

In the framework product, the following fields that are currently referenced by operational analytics tables are updated to include the context labels:

- ASSIGNED_DTTM: Assigned Date/Time
- COMPLETE_DTTM: Completion Date/Time
- CRE_DTTM: Create Date/Time

**Steps To Enable**
No steps are required to enable this feature.

## Query Portals Introduced for Existing Pages

Previously, many configuration objects used the fixed page user interface metaphor. Fixed pages use popup search windows to locate records. Many of these configuration objects now provide query portals instead of popup search windows. Additionally, the Search menu item for these configuration objects open a query portal rather than a popup search window.

The query portals provide a more intuitive search interface with several criteria fields and a single search button as compared to the popup search window that featured a separate search button for each criteria group. When selecting a record from the results, the user is brought to the existing maintenance page. The navigation through the menu in Add mode bring the user to the maintenance page with a blank form (as before). The query portal includes an **Add** button to add a record from there.

The following provides additional detail of where this functionality has been added:

- **Algorithm:** In addition to algorithm and description, the query portal includes algorithm and parameter related search criteria.
- **Algorithm Type**
- **Batch Control:** Besides batch control, description, and category, the query portal includes related batch control information search criteria.
- **Business Object:** Besides business object code, description, and maintenance object, the query portal includes related business object information search criteria.
- **Business Service:** In addition to business service and description, the query portal includes service and schema related search criteria.
- **Characteristic Type:** The query portal provides searching by characteristic type, description, type of characteristic, and characteristic entity.
- **Data Area:** In addition to data area and description, the query portal portal include schema related search criteria.
- **Feature Configuration:** In addition to feature name and description, the query portal includes feature option and value related search criteria.

- **Field:** Besides field and description, the query portal includes related field information search criteria.

- **Foreign Key Reference:** In addition to foreign key reference code and description, the query portal includes additional search criteria.

- **Lookup:** The query portal provides field name and related field description search criteria.

- **Maintenance Object:** In addition to maintenance object, description, and table, the query portal includes maintenance object option search criteria.

- **Managed Content:** In addition to managed content, description, and type, the query portal includes managed content related search criteria

- **Menu:** In addition to menu name, description, and type, the query portal includes menu related search criteria.

- **Navigation Key:** In addition to navigation key and program component identifier, the query portal includes navigation key information related search criteria.

- **Navigation Option:** In addition to navigation option and description, the query portal includes navigation option information related search criteria

- **Portal:** In addition to portal code and description, the query portal includes portal information related search criteria.

- **Script:** Besides script, description algorithm entity, and script type, the query portal includes related step type information search criteria.

- **Table:** In addition to table and description, the query portal includes related table information search criteria

- **UI Map:** In addition to map code and description, the query portal includes map information related search criteria

- **Zone:** In addition to zone, description, and zone type, the query portal includes zone parameter search criteria

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

Upgrade scripts ensure that users with Read access to existing application services will have Read access to the new application services associated with the new query portals. The following lists the application services associated with the existing fixed pages and the corresponding application services for the new query portal:

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
| --- | --- | --- |
| Algorithm | F1ALGQ | CILTALGP |
| Algorithm Type | F1ALGT1 | CILTALTP |
| Batch Control | F1BTCHQ | CILBTCP |
| Business Object | F1BOQ | FWLTBOJP |

| Object | New Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| Business Service | F1BSVQ | FWLTBSVP |
| Characteristic Type | F1CHRTYQ | CILTCHTP |
| Data Area | F1DTARQ | FWLTDARP |
| Feature Configuration | F1FCFGQ | CILTWSDP |
| Field | F1FLDQ | CILEFLDP |
| Foreign Key Reference | F1FKRFQ | CILEFKRP |
| Lookup | F1LKUPQ | CILTLKFP |
| Maintenance Object | F1MOQ | CILEMOBP |
| Managed Content | F1MANCQ | FWLTMGCT |
| Menu | F1MENUQ | CILEMNUP |
| Navigation Key | F1NAVKQ | CILENAVP |
| Navigation Option | F1NAVOQ | CILENVOP |
| Portal | F1PRTLQ | CILZPORP |
| Script | F1SCRQ | CILZSCRP |
| Table | F1TBLQ | CILETBLP |
| UI Map | F1UIMPQ | FWLTUIMP |
| Zone | F1ZONEQ | CILZZONP |

# Integration Enhancements

## HTTP Method

### Parameters Supported for POST HTTP Method in REST Services
The REST engine supports defining path and query parameters for POST operations. Previously, POST operations did not support parameters. The assumption had been that all information was included in the payload.

This feature provides URL parameters for POST HTTP methods.

#### Steps To Enable
No steps are required to enable this feature.

### Delete HTTP Method for REST Web Services
The REST Inbound Web Service was enhanced to support the DELETE HTTP method.

The actual actions and functionality that are triggered by a given REST service call are still controlled by the business object, business service, or service script that is configured on the operation. For example, if you configure an operation with the DELETE HTTP method and you reference a service script that is simply reading a record, the system will

perform the action of the service script and read the record. The HTTP methods are meant as external documentation.

**Steps To Enable**

No steps are required to enable this feature.

## Additional REST APIs

In this release, the following inbound REST web services are available:

- F1-BusinessInsights: The Common Business Insights API enables adding business flag records.

- F1-SubmitJob: The Batch Job Submission API allows external batch scheduling systems to submit an adhoc batch submission request.

- F1-SyncRequest: The Master Data Synchronization API enables adding inbound synchronization request records.

- F1-HealthCheckREST: The Health Check API invokes the health check service and returns the health check results.

- F1-Cache: The System Cache Management API invokes the service that flushes the server cache.

- C1-CustomerContact: The Customer Contact API enables retrieval of customer contact records.

**Steps To Enable**

Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in Role Information. If you need additional information about this API, contact your Delivery Team.

**Role Information**

The service called by the operation on the REST web service references a specific Application Service. The administrator must grant security access to that application service to the user submitting the REST service.

## Support for Tracing REST Inbound Web Services

The REST Inbound Web Service object exposes tracing configuration to enable tracing. Enable tracing for an inbound web service record creates log information for the record on future REST call executions.

**Steps To Enable**

No steps are required to enable this feature.

## Submit Job REST Web Service Returns Job ID

The F1-SubmitJob REST Inbound Web Service now returns the resulting Batch Job ID. This allows calling systems to use that ID to get subsequent information about the Batch Job.

**Steps To Enable**
No steps are required to enable this feature.

## User Redirection to Separate Target System

Your implementation may want to support the ability for a customer to authorize a customer service representative (CSR) to view the customer's account information in a customer facing portal. This would allow the CSR see exactly what the end customer is seeing or experiencing.

When the request for the CSR to view the customer information is received, the following steps occur:

- The security server for the customer facing portal is contacted to obtain a temporary grant code.

- The redirection response returns the grant code and the URL of the target customer facing portal.

- The browser redirects to the user to this URL with the grant code which is further authenticated and automatically exchanged for an authorization token, allowing the CSR to log in.

Standard security measures with private/public key encryption using JSON Web Tokens (JWT) ensure that only the implementation's application is allowed to communicate with the implementation's customer facing portal server. The system also provides a plug-in spot to allow for additional information, such as the customer's name and email address, to be included in the call to the security server.

This feature allows customers to authorize a customer service representative (CSR) to view the customer's account information in a customer facing portal and enable the CSR to see exactly what the end customer is seeing or experiencing.

**Steps To Enable**
Add a master configuration record using the F1-RedirectionTargetsConfig business object and configure the record with the following:

- URL of the target application

- URL of the security server

- Keystore alias for the public/private key stored in the application keystore used for secure communication with the security endpoint

Your product may also provide an algorithm to populate additional context information. If so, that algorithm may also be referenced in this configuration.

**Tips and Considerations**
Note that this feature works in conjunction with functionality provided by Oracle Utilities Customer To Meter.

**Role Information**
System administrators should grant access to the F1-REDIRECT (Redirect Service) Application Service to secure the call to this feature.

## New REST Engine Version Setting for Inbound REST Web Services

In this release, a new REST Engine Version flag has been added to REST Inbound Web Services. All existing REST Inbound Web Services are marked with a REST Engine Version value of 1.0 for backward compatibility and all new services are assigned version 2.0 as a default. The following provide details of how the behavior will differ for each engine version:

- Root Node for Payload

  - REST Inbound Web Service records with a REST Engine Version value of 2.0 do not have a root node around the payload.

  - Although the common practice for data that uses JSON is to not include a root node, previously a root node was expected. For backward compatibility reasons, any REST Inbound Web Service records marked as version 1.0 should continue to supply a root node in the request, and responses will continue to return the root node.

- Default Format

  - REST Inbound Web Service records with a REST Engine Version value of 2.0 default to JSNO format. If required, this can be overridden by including the 'application/xml' parameter in the Accept header. REST Inbound Web Service records with a REST Engine Version value of 1.0 default to XML format. This is for backward compatibility. If needed, this can be overridden by including the 'application/json' parameter in the Accept header.

- Format for Numbers and Booleans in the Response

  - JSON format returns strings with the value surrounded by quotes while numbers and Booleans do not have quotes. Previously, the system was incorrectly treating numbers and Booleans as strings in the response in JSON format.

- Backward Compatibility

  - For Inbound Web Service records marked as REST Engine Version 1.0, the system provides override support to indicate that for specific Inbound Web Service records you would like to continue to receive quotes for numbers and Booleans in the JSON response. This is only applicable if your implementation has existing integrations that have worked around this issue and would fail if the response returns the corrected format. A feature configuration is provided to identify the Inbound Web Service records that fall into this category.

  - An explicit REST Engine Version setting helps customers account for functional differences between versions when implementing Inbound Web Services.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

If your implementation has integrations that have worked around the issue that numbers and Booleans were treated as strings and therefore had quotes in the JSON response, do the following to identify the Inbound Web Service records that should retain the old, incorrect format:

1. Select **Admin**, then **General**, then **Feature Configuration**.

2. Look for an existing feature configuration with the feature type External Messages. If one does not exist, create one.

3. Add an option for the option type **IWS JSON Data Type Exceptions**.

4. In the value, indicate the Inbound Web Service record that is an exception. Note that multiple options for the option type may be added. Additionally, the option value supports a comma delimited list.

## JSON Response Correctly Handles Arrays

The REST response correctly returns list as arrays for JSON format regardless of the number of instances.

Previously, if a list included only one instance, the JSON response returned the single instance as a JSON object rather than a JSON array. If a list included more than one instance, the JSON response returned an array.

### Steps To Enable

No steps are required to enable this feature.

## Parameters Supported for POST HTTP Method in REST Services

The REST engine supports defining path and query parameters for POST operations. Previously, POST operations did not support parameters. The assumption had been that all information was included in the payload.

This feature provides URL parameters for POST HTTP methods.

### Steps To Enable

No steps are required to enable this feature.

# Data Export

## Data Export Tools

New set of tools are provided that allow customers to export their data to files that can be consumed by downstream applications like Data Lakes or any other system that needs the data.

The application supports the following classes of export methods for a maintenance object:

- Generalized: Applies to maintenance objects with low to medium volume and update activities. Most maintenance objects in the system are eligible for this method. This method involves an initial export of the object's entire data followed by an ongoing export of the changes that occur over time. Not that the ongoing export functionality is only supported in a Cloud installation.

- Specialized: Applies to maintenance objects with high volume or frequent update activities. This method uses a specific batch process for each maintenance object to optimally export data. This type of export involves an initial export of the

object's existing data. The initial run of the batch process exports the entity's existing data. Subsequent runs of the batch process exports data incrementally based on a timestamp field.

New batch controls are provided for eligible maintenance objects based on their export method classification.

The **Generalize Export Dashboard** portal allows you to select eligible entities to export and review their export state and configuration at a glance.

### Steps To Enable
Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in Role Information.

### Tips and Considerations
The ongoing export feature of the Generalized Data Export method is only supported in a Cloud installation.

### Role Information
System administrators that handle data export activities must have access to the following Secured Entity Application Services:

- F1-DATAEXPORT (Batch Controls) - All data export batch controls are associated with this application service

- F1-DATAEXPORTCTRL (Data Export Control Maintenance Object and Business Objects)

- F1DEXCNT (Data Export Control Portal)

- F1DEXCNS (Data Export Control Query Portal)

- F1GEXDAS (Generalized Export Dashboard Portal)

# To Do Management and Processing Enhancements

## Assign To Do Role Based on Access Group
In this release, the Access Group has been enhanced to include To Do Assignment Override configuration. This allows you to define special To Do Roles that you have created for your access groups and use the Assignment Override to indicate which To Do Types should have the To Do entry directed to the special To Do Role. The To Do entry functionality is heavily driven by To Do Role. Users are only allowed to view and work To Do entries that are assigned to a role that user is in. If your implementation has configured row level security for certain objects using an Access Group, you may want to ensure that only certain users can view To Do entries for those objects.

Defining special To Do Roles for access groups ensure that only certain users can view To Do entries for objects using an Access Group, you may want to ensure that only certain users can view To Do entries for those objects.

**Steps To Enable**

When configuring the To Do Roles, determine if To Do Entries for objects linked to certain access groups should be directed to specific groups of users.

- Define appropriate To Do Roles based on your To Do Types and your access groups, and link the appropriate user to each role.

- For each To Do Role, configure the To Do Types to which the role is valid.

- On each access group, configure the To Do Type/To Do Role override so that any To Do entry created for the indicated To Do Type will be assigned the indicated To Do Role for objects linked to this access group.

Configure the appropriate To Do pre-creation algorithm. A To Do pre-creation algorithm is needed to check for this override configuration and assign the appropriate role. This algorithm could be plugged in at the To Do Type (if only certain To o Types require this functionality) or could be plugged in at the installation level (if a larger number of To Do Types require this type of override). The algorithm needs to identify the object related to the To Do entry that is governed by an Access Group. This object may be the Drill Key or may be related to the To Do Entry via a characteristic. Once the object is identified, the algorithm determines its access group and then checks if there is an override role for the To Do Types for this To Do entry.

Specific cloud services may already provide a To Do pre-creation algorithm to assign a To Do Role based on an identified access group. If one is provided and satisfies your business case, use that algorithm. Otherwise, an appropriate algorithm needs to be determined.

## To Do Supervisor Actions

Supervisors can now reopen To Do Entries assigned to other users. Previously, only the user currently assigned to the To Do entry could reopen the To Do. Supervisors must be valid users in a To Do Role for the To Do Type to use this feature.

**Steps To Enable**

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

**Role Information**

A supervisor must be a member of a User Group with *Supervisor Assignment* access mode on the To Do Management and To Do Search application services.

# Batch Processing Enhancements

## File Integration Extract Configuration

The application provides the following file integration administrative objects that define the processing needed to create a specific type of extract using a plugin-driven background process:

- File Integration Type: Describes and classifies the extract configuration.

- File Integration Record Type: Captures the sequence, format, and logic for extracting the data required by the extract record.

The File Integration Type defines the record types that make up the extract. Each file integration record uses a data area to define the record's format and a collection of extract algorithms that populate the data area. The file integration types are extendable through the addition of customer record type details or custom file integration records.

A new batch parameter defines the file integration type that is applicable to a batch control. The batch parameter works with the base-package Process Records algorithm that retrieves the file integration type configuration and processes in sequence for each record type of the configuration.

**Steps To Enable**

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

**Role Information**

Implementers that view and define file integration types must have access to the following Secured Entity Application Services:

- F1-FILEINT (File Integration Type MO)

- F1-FLINREC (File Integration Record MO)

- F1FLINTS (File Integration Type Query Portal)

- F1FLINTP (File Integration Type Portal)

## Ability to Skip Records in Plugin-driven Extract

The Process Record algorithm can prevent writing empty rows to extract file using the *skipped* parameter.

- File Integration Type: Describes and classifies the extract configuration.

- File Integration Record Type: Captures the sequence, format, and logic for extracting the data required by the extract record.

The recommended best practice when designing plugin-driven batch is to ensure that the SQL in the Select Records algorithm is only selecting the records that are relevant to the process. Previously, the extract plugin-driven batch process expected each call to the Process Records plugin to return at least one schema to write to the extract file. In use cases where the Process Record algorithm checks a condition of the given record and finds that it does not need to be extracted after all, an empty row was written to the extract file. In this release, for this situation, the Process Record algorithm can now configure the is *skipped* output parameter, which will ensure that no empty row is written.

**Steps To Enable**

Add logic to the Process Record algorithm that detects a condition where no extract details should be written and set the is **skipped** parameter to *True*.

## Define Record XML Node for Plugin-driven Extract

You can define a record XML node when multiple schemas are returned for a plugin-driven extract that should be output in XML format.

The record XML node output parameter resolves issues where:

- The Process Record plugin returns multiple schemas (rows) for a given record.

- The plugin-driven extract batch process (whose output format is XML) is not able to determine which schemas belong together logically.

The output parameter 'record XML node' in the schema collection should be used to indicate the outer XML node to use to group related information together. All schemas returned from a single call to the Process Record plugin that have the same record XML node will grouped in the written output within that XML tag.

**Steps To Enable**

To take advantage of this functionality, a Process Record algorithm that returns multiple schemas for a given record where all information in the schemas should be grouped within an XML tag should return the same Record XML Node value.

## Thread Pool Name Batch Parameter

The Thread Pool Name parameter is available in all base-delivered batch controls. The parameter allows implementations to designate the batches to be run on a thread pool different from the default thread pool.

The record XML node output parameter resolves issues where:

- The Process Record plugin returns multiple schemas (rows) for a given record.

- The plugin-driven extract batch process (whose output format is XML) is not able to determine which schemas belong together logically.

The output parameter 'record XML node' in the schema collection should be used to indicate the outer XML node to use to group related information together. All schemas returned from a single call to the Process Record plugin that have the same record XML node will grouped in the written output within that XML tag.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

Implementations with custom batch controls can add the Thread Pool Name parameter to their batch controls.

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

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.

## Manifest File Creation

The batch framework now supports the ability to request the creation of a manifest file. Batch jobs that support the creation of the manifest file now include a "Manifest Option" batch parameter.

Manifest file information is provided in JSON format and includes information about the batch run, number of files, number of records processed, and details about each file including name, size, and SHA-256 hash value.

The following batch programs supplied by Oracle Utilities Application Framework were enhanced to support the new Manifest option:

- F1-GEXPI: The Generalized Initial Export Initiator batch control includes this new option and defaults to "Y."

- F1-GEEXO: The Generalized Ongoing Export batch control includes this new option and defaults to "Y."

- F1-GEIXP: The Generalized Initial Export Template batch control includes this new option and defaults to "Y." In addition, an upgrade script finds all the batch controls that were created from this template and inserts the new parameter on those records. The value defaults to "Y."

- F1-PDBEX: The Plug-in Driven Extract Template batch control includes this new option and defaults to blank. In addition, an upgrade script finds all the batch controls that were created from this template and inserts the new parameter on those records. The value is set to blank.

### Steps To Enable

No steps are required to enable this feature.

### Tips and Considerations

If product delivered batch programs include the Manifest Option parameter, set this option to "Y" to produce a manifest file when running the batch job.

If your implementation has any custom background processes that produce extract files and you would like to include a manifest option, add the batch parameter "manifestOption". To set this up, complete the following steps:

1. Select **Admin**, select **System**, select **Batch Control**, and select **Search**.

2. Search for and select the Batch Control.

3. Add a new batch parameter and set the parameter name to "manifestOption" (it is important to use this value), description to "Manifest Option", and security type to "None."

4. Set the sequence to an appropriate value.

5. Note that for the detailed description, the recommendation is to follow the pattern of the base delivered options: "If set to 'Y' a manifest file is created with the following name: {batchCode]_{batchNumber}_{rerunNumber}_manifest.json"

## Support for File Compression and Decompression

File compression when extracting and decompression when uploading is now supported. Not every batch program that manages extracts or uploads automatically supports this

functionality. Each batch program that supports it must explicitly indicate that the functionality is supported.

The following highlights additional information about the functionality:

- The system supports both GZIP compression/decompression and ZIP compression/decompression.

- If an extract program supports file concatenation, ZIP compression is not supported. Only GZIP compression is supported.

- To indicate that an extract file should be compressed, you should simply use .zip or .gz as the suffix of the file name. The system will use the compression method based on the chosen suffix. For example, myFile.gz will produce a GZIP compressed CSV file.

- For upload programs that support decompression, the file name's suffix will similarly trigger the appropriate decompression method.

The following programs provided by Oracle Utilities Application Framework support compression and decompression:

- Batch controls that use the same batch program as F1-PDBEX (Plug-in Driven Extract Template). Note that this batch program supports compression and concatenation. The combination of ZIP compression and concatenation is not supported.

- Batch controls that use the same batch program as F1-PDUPL (Plug-in Driven Upload Template).

Individual products (such as Oracle Utilities Customer Cloud Service or Oracle Utilities Meter Solution Cloud Service) may also include batch upload or extract programs. The batch control will explicitly state that compression or decompression is supported.

- F1-GEEXO: Generalized Ongoing Export
- The various Initial Data Export batch controls for each maintenance object

**Steps To Enable**
No steps are required to enable this feature.

## Submission Method and User for Batch Jobs
New fields have been added to batch jobs to capture the submission method for a batch job and the user who submitted the job, if applicable. The Submission User is captured to have an audit of the user that created the submission. This may be different from the batch user (existing field) that is provided to all the processes executed by the batch program. Note that there are some use cases where this field is not applicable. For example, timed batches and batch submission records created by a scheduler do not have a "submission user."

The **Submission Method** field is a customizable lookup. The base supported values are:

- Online: Populated when a user manually creates a batch job submission

- Generated: Populated by algorithms that submit a batch job and by "initiator" batch jobs that submit other batch jobs

- Scheduled: Populated by the DBMS scheduler. Note that for other schedulers, it is not advised to use this value as there may be logic and validation related to records created with this value that may not apply to other schedulers

- Timed: Populated by the batch daemon that submits timed jobs

- Other: Populated when no other value is provided

**Note:** Existing batch job submission records were not updated to populate either of these two new fields.

**Steps To Enable**
No steps are required to enable this feature.

**Tips and Considerations**
If your implementation has any algorithms or "initiator" type batch controls that create a batch job submission record, consider updating your code to populate the Submission Method of "Generated." Otherwise, the value of "Other" will be used.

## Support Cancellation of In Progress Batch Job Submission
In this release, you can request to cancel a batch job submission record for a job that is in progress. Previously, you could only cancel a pending batch job submission. The following points highlight additional information regarding this feature:

- The new Pending Cancel status allows you to cancel a Pending or Started job submission record. The status transitions to Pending Cancel. This is a signal to the batch processor. For pending jobs, it removes the job from the queue. For in progress jobs, it discontinues the processing. Once the batch processor confirms that all the work or pending work is canceled, it updates the status of the batch job submission record to Canceled.

- Batch job submission records will only transition to Ended if the batch run completed. Previously, when you canceled a Pending batch job submission record, the status would be changed to Canceled and then once the batch processor removed the job from the queue, the status would be updated to Ended.

- Batch jobs that were initiated by the DBMS Scheduler do not support this functionality. An existing business service may be used to cancel a DBMS job.

- The new Cancel operation of the F1-SubmitJob Inbound REST Web Service allows an implementation to request the cancellation of a job from an external system.

You can now cancel a batch job submission record with an In Progress or Pending status.

**Steps To Enable**
No steps are required to enable this feature.

## Additional Batch Categories
The Batch Category flag has been enhanced to add two additional values: Upload and Upgrade.

- **Upload** may be used to categorize batch controls that are responsible for uploading data.

- **Upgrade** may be used to categorize batch controls that are responsible for upgrading some set of data based on other data.

The new Batch Category options allow you to categorize batch controls used for uploading and upgrading data.

### Steps To Enable
No steps are required to enable this feature.

### Tips and Considerations
Note that for batch controls delivered with the base package, the **Batch Category** field should have abase value defined. This value can be overridden by an implementation. For upgrading clients, existing batch controls are not updated to use new categories. For example, if there are existing batch controls that upload data but were originally delivered with a 'Process What's Ready' category, your data will remain with the 'Process What's Ready' category.

## Support for Interrupting DBMS Job Steps
The system provides a new business service that receives a DBMS Job Name and finds all the running batch jobs for the Job's chain. For each one found, it cancels the batch job submission entry and marks the step "failed" in DBMS without stopping the DBMS Job. The steps in the chain can subsequently be restarted using the DBMS Scheduler - Restart Failed Chain business service.

This feature allows you to easily restart a DBMS job by interrupting a DBMS Job Step.

### Steps To Enable
No steps are required to enable this feature.

## Start Date, End Date, and Time Added to Batch Thread Instance
The start date/time and end date/time of a batch thread instance are captured. Previously, this information was only available in informational messages linked to batch thread instance. The informational messages are still included but now that start and end date/time stamps are captured directly on the instance record.

This feature will make it much easier for implementation to do analysis about batch timings at the instance level, if desired.

- The Process Record plugin returns multiple schemas (rows) for a given record.

- The plugin-driven extract batch process (whose output format is XML) is not able to determine which schemas belong together logically.

The output parameter 'record XML node' in the schema collection should be used to indicate the outer XML node to use to group related information together. All schemas returned from a single call to the Process Record plugin that have the same record XML node will grouped in the written output within that XML tag.

**Steps To Enable**

No steps are required to enable this feature.

**Tips and Considerations**

For existing batch thread instance records created prior to upgrading to this version, the system does not automatically populate the new columns. There is an upgrade background process provided to upgrade records if an implementation would like to do analysis of older records. The batch control is F1-BTIDT (Upgrade Batch Thread Instance Date / Time). It includes parameters to limit the upgrade to certain batch controls and/or a specific date range so that only the records you plan to include in your analysis are affected. Review the batch control detailed description for more information.

This batch control has its own application service. In order to run the batch job, you must have privileges to this application service: F1-BTIDT, access mode F1EX.

## Environment Information Added to Batch Email

The email sent when a batch program completes now includes information related to the installation configuration for the environment where the batch was run. This will help users that may be working in more than one environment (for example, development and test or two different testing regions), users that are working in more than one version of a product, or users that are working with more than one product.

The email now includes:

- The product name taken from the row in the Installed Products collection on the Installation Options that is marked at the 'display' product. This is the product name visible in the application heading.

- The product version taken from the same installed products row.

- If configured, the Domain Name taken from the Messages collection on the Installation Options. Refer to the description of the new Define an Environment Domain Name feature for more information.

Information related to the installation configuration of the environment that ran the batch job helps users working in more than one environment, in more than one product version, or with more than one product.

**Steps To Enable**

To take advantage of this functionality, a Process Record algorithm that returns multiple schemas for a given record where all information in the schemas should be grouped within an XML tag should return the same Record XML Node value.

# Content Migration Assistant (CMA) Enhancements

## Default User Support for CMA

The new Default User attribute in the Migration Assistant Configuration (Master Configuration) record prevents errors from occurring when the system references a non-existing user ID in the target environment during a data import.

You have the option of defining a Default User. The Configuration Migration Assistant tool uses the defined Default User when a record has constraints on the User table and the referenced user ID is invalid.

**Steps To Enable**

In the **Master Configuration** portal, update the Migration Assistance Configuration with a Default User ID.

## Migration Configuration Enhancements

A migration plan has been provided for the Table object, allowing for changes to customizable fields to be copied to another environment. The F1-SystemConfig (Framework System Configuration) migration request has been updated to include the new migration plan.

**Steps To Enable**

No steps are required to enable this feature.

## Test Data Migration and Other Improvements

Various enhancements were made to the Content Migration Assistant tool (formerly known as Configuration Migration Assistant) to better handle migration of selected business entities for testing or other purposes.  As such its name has been slightly changed to emphasize that it can be used to migrate any type of content, not just configuration data.

The following points highlight key export related improvements and changes:

- An **Entity Summary** zone listing how many entities were exported by maintenance object is shown on the Migration Data Set Export portal.

- A new **Collect Entity** dashboard zone is available to provide an easier way to collect entities to export onto an Entity List type of migration request. The zone appears on the dashboard once a migration request is in context, allowing the user to add any entity to the request list while reviewing information on the entity's maintenance portal.

- Entities specified using their prime keys on a Criteria-based migration request are listed in a zone to allow easy navigation to these entities.

- Search by a data set identifier is now supported.

The following points highlight key import related improvements and changes:

- The performance of the Apply Objects batch process is significantly improved when migrating master and transaction entities. This is mainly achieved using a new extendable lookup that guides the tool in processing objects in the order that better reflects their referential dependency on other entities, thus reducing significantly the number of retries needed to successfully import an entity. In addition, migration objects that belong to master and transaction entities inherit part of their system generated key from the migration transaction they are linked to, thus contributing to having all objects that depend on each other be processed by the same batch process thread.

- The **Migration Objects In Error** zone now lists objects based on their processing order, allowing the user to resolve issues in a more intuitive sequence.

- An **Entity Summary** zone listing all imported entities by maintenance object and status is shown on the **Migration Data Set Import** portal. A similar zone is also available at the transaction portal.

- A navigation link to the currently active import related batch process is shown on the data set portal, providing a visual indication as to whether that process is in progress or not.

- Transaction and object related zones are now shown on designated tabs on the migration data set portal, supporting a more intuitive organization of import information.

- Search options by a data set identifier or by migration object are now supported.

Enhancements to the Content Migration Assistant tool provides better migration of business entities for testing and other purposes..

**Steps To Enable**
No steps are required to enable this feature.

## CMA Performance Improvements

The Apply Objects step in CMA has been enhanced to more efficiently apply master and transaction objects. Less retries are used when applying master and transaction objects. When the process of applying an object results in an error, the system keeps retrying that object for a fixed number of times. Master and transaction data are more likely to be processed in the correct dependency order and therefore require less retries.

An import log record is not added when importing a master or transaction entity. Capturing a log record on the imported maintenance object log table is more relevant when importing configuration entities, especially when the import is to a higher environment like production. When importing master and transaction data it is mainly for testing purposes and usually involves higher data volumes so adding an extra log record to every entity unnecessarily consumes time and resources.

The enhancement to the Apply Objects step in CMA efficiently applies master and transaction objects, which results in less retries and errors.

**Steps To Enable**
No steps are required to enable this feature.

# Implementation Tool Enhancements

## Data Explorer Graph Support

Info Data Explorer - Single SQL and Info Data Explorer - Multiple SQLs zones now include five data visualization option parameters that may be configured to show the zone data in one or more graphical formats. Option types of Grid, Chart and Map are supported, If a zone defines visualization options, the data explorer will provide icon buttons to toggle between the various views. These buttons are presented in the same

order they are defined in the parameter list. Note that if more than one visualization option is present, one option must be of type Grid, allowing for a maximum of four graphical options. The graphs support broadcasting of values from the chart to other zones as filters.

The new data visualization option parameters provide various graphical formats to present zone data.

**Steps To Enable**

No steps are required to enable this feature.

## New Action Method

The Action Method feature provides edge products and implementations the ability to define an object that captures configuration for determining a value, such as an administrative code or an algorithm based on criteria. For example, the appropriate customer service request type to use for starting service for a customer can be determined based on the account's customer class and the CIS division.

Each use case that takes advantage of this functionality is defined using an Action Method Role, defined via an extendable lookup. In the above example, there is an action method role for Start Service. Each Action Method Role value defines one and only one Action Method record, which is where the criteria is defined along with the values determined by the criteria. In the above example, the Action Method for the Start Service action method role provides configuration for indicating the Customer Service Request Type based on a combination of CIS Division and Customer Class. The action method's business object defines a special algorithm plug-in spot called 'Retrieved Action Method Details'. The algorithm receives the criteria and returns the details as per the use case. In the above example, the caller would provide the CIS Division and Customer Class, and the algorithm would use that information to return the correct Customer Service Request Type.

The framework provides several components to help your product or your implementation to define its use cases. Your specific product may provide some functionality that uses the Action Method.

The Action Method feature enables implementations to define an object that captures configuration for determining a value.

**Steps To Enable**

Your implementation must define the appropriate action method records if your product supports one or more action method roles.

1. Select **Admin**, select **System**, then select **Action Mode** in Add mode. If your product provides more than one action method business object, select the appropriate business object for the use case.

2. Identify the appropriate Action Method Role and fill in the details appropriate for your implementation's business requirements.

**Note:** The type of details defined here are dependent on the specific use case. Refer to your product's documentation for more information.

You can design you own action method functionality:

- If your implementation has use cases that require or would benefit from an action method and your cloud service does not already define an Action Method Role.

- If your business requirements differ from the supplied functionality.

## Enforce Data Type with Ad-hoc Characteristics

An ad-hoc characteristic type may now be explicitly associated with an MD field to enforce data type validation. When characteristics of this type are captured, the system ensures that the entered value complies with the data type of the MD field if specified on the characteristic type record. This validation is performed in addition to existing validation methods such as using a validation algorithm on the characteristic type record or associating a flattened characteristic with an MD field as part of a business object schema.

The system ensures that the captured ad-hoc characteristic type complies with the data type of the MD field.

### Steps To Enable
No steps are required to enable this feature.

### Tips and Considerations
When associating an existing ad-hoc characteristic type with an MD field, make sure existing data complies with the MD field's data type to avoid errors at update time.

## Additional SQL Functions Supported

The following functions have been added to the SQL Allowlist:

- CAST
- EXTRACT
- GREATEST
- LEAST
- NUMTODSINTERVAL
- LEFT JOIN
- RIGHT JOIN
- INNER JOIN
- add_months

The enhancement added commonly used SQL functions to F1-SQLFunctionWhiteList (Managed Content). In addition, support is provided for the WITH clause, the AT TIME ZONE clause, hierarchal queries, CASE Expressions, and Datetime data types.

### Steps To Enable
No steps are required to enable this feature.

**Tips and Considerations**

When associating an existing ad-hoc characteristic type with an MD field, make sure existing data complies with the MD field's data type to avoid errors at update time.

## Contextual Insights

Contextual Insights provide a way to surface focused intelligence and alerts to users in the context of the core screens for any applications built on Oracle Utilities Application Framework. There are many useful configuration options for Contextual Insights.

There are a number of visual patterns that are supported:

- Badges Insights have a quick text notice with a solid background that is meant to alert the user to crucial summary information or attributes.

Life Support Sensitive Load

- Inline Insights display a message with an icon that is meant to be more descriptive about the context for crucial information to surface.

⚠ Existing Person(s) were found matching some or all of your criteria.

- List Insights are intended to exist in a list of insights that provide a message about related data as well as allow user actions to be configured. This type of insight supports an icon and supports primary and secondary text.

3 Related To Dos
2 are assigned to you; 1 is open.
View
Add To Do Entry

- Card Insights are the most information rich with the option for showing both primary and secondary text for an insight, a related large icon to call attention to the insight, as well as user actions that can be configured. Often a Card Insight can be used at the top of a list of insights to call more attention to the most important insights.

Warning

Minimum payment amount of $242.00 required to avoid shutoff
Threshold for non-shutoff is $200.00

Take a Payment    Action

New color palettes are provided for configuration for Contextual Insights that insecure consistency in user interface when surfaced.

Actions that users can perform are defined in the insight algorithm and include additional configuration on the new Insight Type object. Settings allow you to define what should occur when the action is selected, the text to display, and the emphasis that should be placed on the button.

Insight types may be delivered by your base product. Oracle Utilities Application Framework provides a base badge insight that is visible on the new **To Do Entry** portal if the To Do Entry has related To Dos. Your specific product may include additional insight types for other use cases. In addition, you can introduce your own insight types.

In addition, the product provides the Insight Group object as a convenient way to group multiple insight types together. Insight groups are not delivered by the base product. However, every insight group references a unique insight class (lookup value). The insight class is the reference used when configuring insights to appear on a specific user interface component. Your product may include one or more base insight classes that are ready to use on a user interface component. Your implementation would set up an insight group for this class and choose which insight types to include.

Contextual Insights provide a way to surface focused intelligence and alerts to users in the context of the core screens for any applications built on Oracle Utilities Application Framework.

**Steps To Enable**
No steps are required to enable this feature.

**Tips and Considerations**
Users must be granted access to the following new application services in order to use this functionality:

| Secured Object | Application Service | Access Modes |
|---|---|---|
| Insight Type MO | F1INSIGHTTYP | A, C, D, R |
| Insight Type Portal | F1INSTYP | R |
| Insight Group MO | F1INSIGHTGRP | A, C, D, R |
| Insight Group Portal | F1INSTGP | R |
| Color Option MO | F1COLOROPTION | A, C, D, R |
| Color Option Portal | F1COLOPT | R |

# Tree Metadata

New tree metadata allows use of user interface tree structures to display hierarchical data in many of the Oracle Utilities Application Framework products.

The Tree metadata encapsulates a number of visual patterns that are common to tree displays:

- Icons

- Broadcast function

- Configurable text for the tree nodes, with multiple options, including a user override

- Support for navigation via hyperlink and context menus

- Support for auto expansion of a tree node on load

- Support for inclusion of implementation specific nodes in trees supplied out-of-the-box

Previously, a tree could only be defined using HTML within a UI map. The Oracle Utilities Application Framework provides user interface tools and services that work in conjunction with the Tree metadata to perform many of the functions that were formerly in HTML.

Algorithms are responsible for the processing that populates the tree node key data and to allow override of the information text, if needed.

Metadata is provided to define configuration for displaying information in a tree format.

**Steps To Enable**
No steps are required to enable this feature.

**Tips and Considerations**
Users must be granted access to the following new application services in order to use this functionality:

| Secured Object | Application Service | Access Modes |
|---|---|---|
| Tree MO | F1TREE | A, C, D, R |
| Tree Query Portal | F1TREEQ | R |
| Tree Portal | F1TREEM | R |

## Icon Configuration Support

The product now provides support for Scalable Vector Graphic (SVG) images. These images can be scaled without reduction of quality and can take on color. The new Contextual Insight and Tree Metadata features support icons and the recommendation is to use SVG images for these features. The product also provides many base SVG images in the display icon table.

The product provides a Maintenance Object Option to define a default Display Icon for an object. Functionality such as the tree configuration may use this option to retrieve the default icon for an object. An analogous Business Object Option is provided for those maintenance objects that are used for different classes of objects that may warrant different icons at the business object level.

The Icon Configuration Support enables you to use scalable and high resolution SVG images as icons on your product.

**Steps To Enable**
No steps are required to enable this feature.

## Expanded Maintenance Object and Business Object Information

The Maintenance Object Information (MO Info) and Business Object Information (BO Info) plug-in spots now support returning an icon, if requested. The icon may be determined by the algorithm or alternatively, the plug-in drivers return the default Display Icon defined as a maintenance object option or business object option.

In addition, the plug-in spots support alternate detail for the information string itself:

- Short information: The algorithm can optionally return shorter, more concise information.

- Detailed information: The algorithm can optionally return up to four lines of information, allowing the algorithm to return different pieces of information in different lines. This is useful for user interfaces that support displaying information this way. Additionally, the algorithm can return an "overline" text, which is short text that can appear above the primary information text.

Note that the standard user interface metaphor that displays an information string for an object continues to use the standard information string returned by the algorithm. The additionally supported information may be used by specific use cases.

This feature enables you to request and retrieve short or detailed icon information.

**Steps To Enable**
No steps are required to enable this feature.

**Tips and Considerations**
The F1-GetFKReferenceDetails and F1-GetForeignKeyReference business services have been enhanced to return the additional information, if provided by the algorithm. If an icon is requested, it is returned, if provided by the algorithm or found on the Maintenance Object or Business Object option.

## Number Format Routine may Suppress Trailing Zeros
The F1-NumberAmountFormatter business service is enhanced to include an input parameter to suppress trailing zeros. For example, if a number has a scale of 5 and the value is 1.12300, depending on the business use case, it may be preferred to show this number as 1.123 instead of 1.12300.

The F1-NumberAmountFormatter business service that formats numbers now suppresses trailing zeros.

**Steps To Enable**
No steps are required to enable this feature.

**Tips and Considerations**
Your specific product may already be using this new feature in existing user interface zones to control the display of numbers. If you have any custom code that formats numbers and would like to take advantage of this feature, the call to the above business service can be modified to set the new input parameter to true.

# Security Features

## Secured Objects Zone Enhancements
The Secured Objects list may now include the following objects:

- **Menu Items:** Included if the menu item references the application service.

- **UI map:** Included if the application service is referenced in the HTML of the UI map using the oraHasSecurity function.

- **Schema UI hints:** Included if the application service is found in a business object, business service, data area, service script, or UI map schema referencing the oraHasSecurity function.

- **Script Step:** Included if the application service is found in the Edit Data of the script step with a reference to the F1-CheckApplicationSecurity business service.

An option to filter the list by object code or description replaces the zone's pagination function to provide a more targeted list. An increased zone width accommodates lengthy descriptions and prevents scrolling to view information.

**Steps To Enable**
No steps are required to enable this feature.

**Key Resources**
You can review the HTML or schema of the IU map to understand the objects being secured by the oraHasSecurity function.

You can review the script to understand the objects being secured by the F1-CheckApplicationSecurity business service.

# Analytics

## Metadata Extension for Analytics Tables (Oracle Utilities Analytics Visualization)
The metadata describing the product's data model is extended to define tables and views that represent dimension and fact tables in the operational analytics product. New entities and portals are introduced to capture analytics table definitions.

**Steps To Enable**
Make the feature accessible by assigning or updating privileges and/or job roles.

**Tips and Considerations**
Support for custom analytics dimensions and facts is currently not available. Extending the definitions of analytics dimensions is available only through characteristics mapping.

**Key Resources**
Refer to **Operational Analytics** in the *Oracle Utilities Customer Care and Billing Administrative User Guide.*

**Role Information**
System administrators must have access to the following Secured Entity - Application Services if implementations integrate with Oracle Utilities Analytics Visualization:

- Analytics Table Maintenance Object and Business Objects - F1-ANALYTICS

- Analytics Table Query Portal - F1ANLYTS

- Analytics Dimension Portal - F1ANALYT

- Analytics Fact Portal - F1ANFACT

## Characteristics Mapping

The Characteristics Mapping feature maps characteristics to user-defined fields provided by Oracle Utilities Analytics Visualization for each characteristics table associated with an analytics dimension table. Characteristics mapping records can be directly maintained on the **Analytics Dimension** portal.

This release renames the **ETL Mapping Control** menu item to **Characteristics Mapping** and provides standard query and maintenance portals for the maintenance object. Support for ETL Mapping Control is still available for existing implementations integrated with Oracle Utilities Analytics.

### Steps To Enable
Make the feature accessible by assigning or updating privileges and/or job roles.

### Tips and Considerations
The **Characteristic Mapping Query** portal is associated with the new F1CHRMAP application service. Upgrade scripts ensure that users with Read access to the existing Application Service will receive Read access to the new application service.

| Secured Entity | Application Service | Access Added to Any User Groups with this Application Service/Read Access |
|---|---|---|
| Characteristic Mapping Query Portal | F1CHRMAP | F1ETL |

System administrators must have access to this application service if implementations integrate with Oracle Utilities Analytics Visualization:

| Secured Entity | Application Service |
|---|---|
| Characteristic Mapping BO | F1-CHARMAPBOAS |

### Key Resources
Refer to **Operational Analytics** and **Defining Characteristic Mapping** in the *Oracle Utilities Customer Care and Billing Administrative User Guide*.

### Role Information
System administrators must have access to the F1-CHARMAPBOAS (Characteristic Mapping BO) application service if implementations integrate with Oracle Utilities Analytics Visualization.

## 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.

## Analytics Fact Logical Name
In this release, the name of the fact is explicitly captured as part of its definition record. Previously, the logical name of an analytics fact was incorrectly derived from its description in English.

**Steps To Enable**
No steps are required to enable this feature.

## Analytics Calendar Dimensions
The following database views are available to support analytics reports that are based on various calendar dimensions, for example reports that summarize information by week, by month, by year, and so on:

- F1_CAL_WEEK_D (Calendar Week Dimension)

- F1_CAL_MONTH_D (Calendar Month Dimension)

- F1_CAL_QUARTER_D (Calendar Quarter Dimension)

- F1_CAL_YEAR_D (Calendar Year Dimension)

- F1_CAL_FISC_PERIOD_D (Fiscal Calendar Period Dimension)

- F1_CAL_FISC_QUARTER_D (Fiscal Calendar Quarter Dimension)

- F1_CAL_FISC_YEAR_D (Fiscal Calendar Year Dimension)

Analytics reports based on calendar dimensions provide summaries in different periods of time.

**Steps To Enable**
No steps are required to enable this feature.

## Analytics Fact Relationship to a Logical Dimension

The operational analytics visualization tool was enhanced to support drilling from one fact to another for performance reasons when they are indirectly linked via the same logical dimension but at different aggregation levels. In order to support this relationship between analytic fact tables, the aggregated fact table explicitly references the corresponding logical dimension as part of its definition record.

The enhancement improves the performance of the operational analytics visualization tool in drilling from one fact to another fact when indirectly linked through the same logical dimension but at different aggregation levels.

**Steps To Enable**

No steps are required to enable this feature.

# Miscellaneous Enhancements

## Support Health Check Customization

The new Health Check installation-level System Event enables other product layers and implementations to add algorithms to check for additional conditions. The System Event also includes a base algorithm that checks the Batch Control - Level of Service algorithms. Previously, the Health Check portal and web service only supported checking the Batch Control - Level of Service algorithms.

**Steps To Enable**

Go to the **Algorithms** tab of the **Installation Options - Framework** page and find or add the Health Check System Event, then add the algorithms appropriate to your business.

**Tips and Considerations**

For backward compatibility, the system automatically references the Batch Control - Level of Service algorithm in the Health Check System Event in the installation algorithm collection for upgrading clients.

For implementations providing additional checks for other system components, refer to **Introducing Health Check Conditions** in the *Administrative User Guide* for more information.

## ILM Configuration Adjustments

The default value of the ILM Restrict by Status business object option is set to Y for the following maintenance objects:

- F1-BUSFLG (Business Flag)

- F1-MKTMSGIN (Inbound Market Message)

- F1-MKTMSGOUT (Outbound Market Message)

- F1-MKTPRCEVT (Market Process Event)

- F1-MKTPROC (Market Process)

- F1-OBJERSCH (Object Erasure Schedule)

- F1-PROSTR (Process Flow)

- F1-REMOTEMSG (Mobile Remote Message)

- F1-STSSNPSHT (Statistics Snapshot)

- F1-SVCTASK (Service Task)

- F1-SYNC REQ (Sync Request)

- F1-SYNCREQIN (Inbound Sync Request)

Defaulting **ILM Restrict by Status** to "Y" allows the Information Lifecycle Management Eligibility algorithm of the maintenance objects to restrict archiving based on the status of the record.

**Steps To Enable**
No steps are required to enable this feature.

**Tips and Considerations**
Implementations using Information Lifecycle Management that do not require archiving restrictions based on status should add the **ILM Restrict by Status** option type, assign it a higher sequence number, and set its value to "N".

## Conversion Entity Dashboard
The implementation tools for reviewing data conversion information include the following:

- Conversion Entity Query: Facilitates the selection of maintenance objects eligible for data conversion.

- Conversion Entity Dashboard: Lists the data conversion settings of the queried maintenance object and the current status of maintenance objects in the overall data conversion process.

**Steps To Enable**
Make the feature accessible by assigning or updating privileges and/or job roles. Details are provided in Role Information.

**Role Information**
System administrators that handle data conversion activities must ave access to the following Secured Entity Application Services:

- F1CVENTD (Conversion Entity Dashboard Portal)

- F1CVENTQ (Conversion Entity Query)

## Ability to Delay Algorithm Execution
The F1PRFMDELAY algorithm type creates a delay in processes that perform asynchronous actions and continue upon receiving a response.

Implementations can use this Business Object Status - Enter algorithm type to delay (counted in seconds) processes that expect a near immediate response to an asynchronous request. The design of the processes using this algorithm type must also consider responses not arriving in a timely manner.

**Steps To Enable**

For business objects that include a step that sends a message and expects an asynchronous response, create an algorithm for the F1PRFMDELAY algorithm type. Configure the algorithm with the appropriate number of seconds to delay in the parameter. Configure this new algorithm on a status that includes an algorithm that checks for the receipt of the asynchronous response.

## User Documentation Enhancements

In this release, the **Defining Algorithms** and **Defining Script Options** chapters of the online help are now under the **Configuration Tools** chapter. Reorganizing the chapters improves the searchability and usability of the algorithm and script topics as these are highly relevant components of the configuration tools.

In this release, the following are highlights of updates to the user documentation (online help):

- The **Database Options** chapter (renamed from "Database Tools") now has an overview section describing relationships of Maintenance Objects, Tables, Fields, and other metadata used to define objects in the system. As part of this update, the Characteristic Type help topics and FK Reference help topics have been moved to the "Database Options" chapter.

- The **Using Groovy Within Scripts** help topic has been updated to clarify best practices for referencing Java classes. The topic indicates that you should reference the class using the fully qualified package name or use an import step type to import the class and declare an alias.

**Steps To Enable**

No steps are required to enable this feature.

## Warning Handling Change

Standard warning processes for business object-driven maintenance show warnings a pop-up dialog boxes, allowing you to click **OK** or **Cancel**. **OK** indicates that the system should proceed with the add, update, or delete operation. **Cancel** returns you to the maintenance map, allowing you to make changes or to cancel the maintenance dialogue altogether. This is consistent with warning handling for fixed pages. Note that, after canceling, the warning message continues to display inline.

Previously, warnings were shown as messages in the maintenance dialog, allowing you to make changes before clicking Save again. The warning conditions were not checked again even though you could have changed something that should have triggered an additional check.

**Steps To Enable**

No steps are required to enable this feature.

## Generic APIs for the Utilities Test Automation (UTA) Tool

The following new Inbound Web Services are introduced to simplify the configuration of UTA test plans:

- Generic Data Explorer (F1-GenericDataExplorer) - This service may be used to call any data explorer zone that returns specific counts or any other type of information before a test is executed and afterwards for the purpose of comparing and evaluating test results.

- Copy Entity (F1-CopyEntity) - This service may be used to duplicate simple test entities.

### Steps To Enable

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

### Role Information

The new UTA application service F1-UTASVC (Automated Testing Service) secures new services. System administrators should only grant access to this service on environments where the UTA tool is allowed to use.

## BI 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 BI 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.

## Term Allowlist Used for Accepted Artifacts List

Product descriptions and documentation referencing the term 'Whitelist' are updated to use 'Allowlist' instead. Use inclusive term to identify a list of allowed artifacts.

### Steps To Enable

No steps are required to enable this feature.

## Define an Environment Domain Name

A new installation message type was introduced for implementations to label the specific environment with a desired domain name. For example, you can use "DEV" to identify your development region and "Test01" to identify one of your test environments.

Refer to the "Environment Information Added to Batch Email" feature for functionality that uses the new installation message in this release. In the future, other base features may take advantage of this information to help users that work in different environments to easily identify the current environment.

The new installation message type allows you to label environments with domain names.

### Steps To Enable

To enable this feature:

1. Navigate to the **Installation** page: select **Admin**, select **General**, then select **Installation Options - Framework**.

2. Navigate to the **Messages** tab.

3. Add a new row and choose an Installation Message Type of Domain Name.

4. Enter text that identifies the environment. The recommendation is to keep the text short and concise.

## Language Pack Installation Process Change

The procedure for installing a language pack has changed. When downloading the language pack, you are instructed to post the files in a specific directory. After the files have been posted, run the F1-LANG (Apply New Language) batch job for the desired language. This batch job now performs two steps. It created new language rows in the metadata and then applies the translated strings by looking for the language pack that you installed in the specified directory.

Previously, the process steps were to run the Apply New Language batch to create the new language rows and then use a blueprint-like process to apply the translated strings from the downloaded language pack.

The language pack installation procedure now applies the translated strings by looking at the installed language pack instead of the downloaded language pack.

### Steps To Enable

No steps are required to enable this feature.

## HTML Code not Included in Excel Export

When exporting data explorer results to Microsoft Excel, cells will no longer include HTML code. For cells that contain text where the HTML is used to emphasize or otherwise adjust the appearance of the text in the online page, in Microsoft Excel only the text is included. For cells that only include HTML, for example cells that display an icon, in Microsoft Excel these cells are now empty.

Previously, if HTML code was used for any reason in a cell, the HTML code would be included in the export to Microsoft Excel.

This feature exports data explorer results to spreadsheets instead of HTML code.

**Steps To Enable**

No steps are required to enable this feature.


# 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 v4.4.0.3.0, 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.


### Mobile Application

In this release, Oracle Utilities Application Framework no longer supports the built-in mobile application and documentation is no longer available.


### Cube Viewer

The Cube Viewer is now only accessible and supported through the Market Settlements product.


### Substring Function

The system now uses the database function "substr" for SQL queries and information data explorer zones. Support for the "substring" function has been removed.


### Xalan Library

The system now uses the native XSL engine of Java. The changes impacted internal XSLs and XSLs used by implementations that include integration and UI override XSLs if applicable.


### Batch Parameter Security Value of None

The Security flag of a batch control parameter is optional and includes the ENCR (Encrypt) and NONE (None) options. The NONE value has been removed because it is redundant and given the flag is optional.


### 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.

## 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 abut 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, and F1-MgPlnInf 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.

## 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 |
|---|---|---|
| var x = top.getNavigationInfo(navOpt) | var x = main.getNavigationInfo(navOpt) | The function names remain the same, only the location has changed |
| var x = top.main.getNavigationInfo(navOpt) | var x = main.getNavigationInfo(navOpt) | No need for a double reference |
| var x = top.tabMenu().document | var x= main.tabMenu.document | tabMenu is now a direct reference as well as tabPage, workSpace, and model |
| var x = top.getMain() | var x = main | 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)))

### Edge Product Uptake

For edge apps, 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.