

**Oracle Utilities Meter Solution Cloud
Service**

Release Notes

Release 17.2

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Oracle Utilities Meter Solution Cloud Service Release Notes

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Chapter 1

Release Notes

These release notes contain the following sections:

- [About This Release](#)
- [Oracle Utilities Meter Data Management Enhancements](#)
- [Oracle Utilities Smart Grid Gateway Enhancements](#)
- [Oracle Utilities Cloud Service Foundation 17.1 Release Notes](#)
- [Oracle Utilities Cloud Service Foundation 17.2 Release Notes](#)
- [Oracle Utilities Application Framework v4.3.0.4 Release Notes](#)

About This Release

This section contains general information about Oracle Utilities Meter Solution Cloud Service Release 17.2.

Oracle Utilities Meter Solution Cloud Service includes the following Oracle Utilities applications:

- Oracle Utilities Meter Data Management v2.2.0.1.0*
- Oracle Utilities Smart Grid Gateway v2.2.0.1.0*
- Oracle Utilities Smart Grid Gateway Adapter for Echelon v2.2.0.1.0
- Oracle Utilities Smart Grid Gateway Adapter for Itron OpenWay v2.2.0.1.0
- Oracle Utilities Smart Grid Gateway Adapter for Landis+Gyr v2.2.0.1.0
- Oracle Utilities Smart Grid Gateway Adapter for Sensus RNI v2.2.0.1.0
- Oracle Utilities Smart Grid Gateway Adapter for Silver Spring Networks v2.2.0.1.0
- Oracle Utilities Smart Grid Gateway MV-90 Adapter for Itron v2.2.0.1.0
- Oracle Utilities Service Order Management v2.2.0.1.0
- Oracle Utilities Cloud Service Foundation v17.2
- Oracle Utilities Customer Care and Billing to Meter Data Management 12.1.0
- Oracle Utilities Integration for Device Operations 12.1.0

* Includes Oracle Utilities Service and Measurement Data Foundation V2.2.0.1.0

Oracle Utilities Meter Data Management Enhancements

This section provides descriptions of enhancements in Oracle Utilities Meter Data Management introduced since the previous release of Oracle Utilities Meter Solution Cloud Service.

Introduced in Oracle Utilities Meter Data Management v2.2.0:

- [Dashboard Enhancements](#)
- [Interval Data Options Enhancement](#)
- [VEE Rules Enhancements](#)
- [Billing Process Enhancements](#)
- [Handling Widespread Outages Enhancement](#)
- [User Interface Enhancements](#)
- [Integration Enhancements](#)
- [Multiple Time Zone Support Enhancements](#)
- [Technical Enhancements](#)

Introduced in Oracle Utilities Meter Data Management v2.2.0.1:

- [Server Provider Enhancements](#)
- [Subtractive Interval Enhancements](#)
- [Oracle Utilities Customer To Meter Enhancements](#)

Dashboard Enhancements

MDM Operational Dashboard

The new MDM Operational Dashboard will provide an overview of batch performance as well as the status of key business processes. This dashboard will provide day-to-day statistics that are of interest to management and end users.

- Track and view the duration of key batch processes as a group and how they relate to a defined performance target, e.g. Meter-to-Bill
- Monitor Measurement and Event Loading Trends
- View Trends to Identify Problems: this includes IMD and Usage Transaction monitoring for exceptions and status.

Tablet Support for Dashboards

The MDM Operational Dashboard, Service Order Operational Dashboard, and Service Order Trends Dashboard have been revised to allow for easier viewing on tablets such as the Apple iPad™ (iOS 9.1).

Interval Data Options Enhancement

Subtractive Interval Data

Some head-end systems do not provide interval data in engineering units (kWh, kW, CCF, etc.), and instead provide register readings, known as pulses, where the current reading must be subtracted from the prior reading and manipulated to derive engineering units. Oracle Utilities

Meter Data Management has been enhanced to perform the subtractive calculation on each interval within an initial measurement.

This enhancement supports advanced features such as:

- Supporting rollovers calculation and validation for subtractive interval registers
- Efficient identification of the start reading for the first interval of an initial measurement
- Recalculation of the consumption a final measurement that occurs immediately after an initial measurement that has been processed. This ensures that existing measurements will have their consumption appropriately adjusted when either their start reading has been updated or a new start reading has been added.
- Ability to identify and re-evaluate estimations performed prior to and subsequent to an initial measurement received with new more accurate data.
- Alignment of the reading and consumption amounts for each interval based on the results of VEE processing. For example, if an initial measurement included a missing interval when that interval is estimated the appropriate adjustments will be made to the interval's reading and the consumption of the subsequent interval.

The enhancement includes a new reading condition code to delineate the condition of the reading (aka pulse) from the condition of the measurement calculated from that reading (e.g. kWh). Please note: the measurement condition may be marked as estimated even if the associated reading is an actual reading. This situation will occur when an interval's reading is non-estimated but the start reading is estimated resulting in a calculated consumption amount that is estimated.

VEE Rules Enhancements

VEE Rule: Consecutive Interval Check

This new validation rule flags any combination of consecutive intervals within initial measurement data based on the values of the data or the condition codes of the data. It can be used to find faulty meters that are reporting consecutive outage codes, zero measurements, or negative values. It can also be used by water utilities to identify leaks based on the interval never reaching zero.

VEE Rule: Dynamic Comparison Validation

This powerful new validation rule compares measurements to historical statistics for the related Service Point. The system will maintain statistics such as the following: sum, min, max, average, median, zero value count, outage count, and standard deviation. Setting up these measuring component statistics is a prerequisite to using the rule.

Users can define formulas (no programming required) for the comparison of current measurements to these statistics. This is powerful rule will allow utilities to look for unusual usage patterns. For example:

- Lowest/highest usage ever
- Current usage is more than three standard deviations from the mean
- Detect unexpected zero usage
- Detect negative usage while ruling out known cases
- Abnormal usage
- Voltage threshold monitoring

Please note, this rule does not query large sets of historical data and should perform better than the existing High Low VEE Rule.

VEE Rule: Final Measurement Replacement

This validation rule is being enhanced to allow you to define a range of configuration options to decide if scalar or interval data should replace existing measurements. The options include value change thresholds, percentage change thresholds, as well as condition code ranking. One common use for this rule is rejecting trivial measurement changes to prevent very small changes for a bill from being sent to a customer.

VEE Rule: Inactive Measurement Check

This new validation rule flags any initial measurement data received on a device that is either disconnected, not installed, and/or not connected to a usage subscription. This rule works for both interval and scalar data.

VEE Rule: Interval Estimation Create IMD for Gap

This rule is very different from other VEE rules in that it does not examine the current initial measurement but rather looks to see if there are any missing measurements prior to the initial measurement being processed (i.e. a gap exists). If so and the scenario meets the configured options it will generate an estimation initial measurement to fill in that gap.

This rule is intended to provide more real-time filling of missing measurements as opposed to running periodic estimation. However, it is still expected that periodic estimation will be used in conjunction with this rule such that any gaps that are not filled in by this rule would eventually be filled in by periodic estimation.

This rule can be configured to perform minimal validation of that gap that is identified and defer to the estimation initial measurement to validate against other initial measurements and final measurements that may overlap the gap. Conversely, it can also be configured to validate the gap and exclude any periods where a final measurement or in progress initial measurement overlaps the gap's duration.

VEE Rule: Prolonged Estimation Check

This new validation rule can be used on either interval or scalar measurement data and creates an alert when a device has been estimated for an extended period of time.

Billing Process Enhancements

Measurement Reprocessing

A major problem facing utilities is when devices are installed with an incorrect consumption multiplier. When this occurs, the billing consumption and the bills are incorrect. This enhanced functionality automatically corrects historic consumption when a meter multiplier or installation constant is corrected. The system looks for retroactive changes on either measuring components or installation events. When these multipliers are updated, historic measurements will be automatically reprocessed and trigger billing adjustment notifications to the customer information system (CIS).

Measurement Date Boundary Check

This new initial measurement data logic allows rejection of very old or future dated measurements based on user defined tolerances. This rule will help customers that want to mark old measurement partitions as "Read Only" or who want to prevent changes to measurements after a defined period of time but still keep the data in the system. If partitions are marked as "Read Only", these partitions do not need to be backed up as frequently as other measurements which reduces your overall data footprint. This is an important consideration when there are vast amounts of measurement data. Likewise, this logic can prevent erroneous future measurements that can cause the database to spawn unneeded partitions.

Usage Transaction Exceptions

This release includes enhanced exception management functionality for usage transactions. Similar to VEE exceptions, exceptions from usage transaction can now be stored in new usage exception maintenance object. This process will enable execution of the rest of the rules after encountering a non-severe error. Base usage rules have been enhanced to support configuration of exception type and severity to indicate that exceptions will be recorded in the exception table. A new Usage Transaction Exception Summary zone was also added to the Usage Transaction Log portal to list all the exceptions hit with a broadcast option to display the details of an exception entry.

Usage Rule: Alignment and Delay Usage Rule

This new usage rule helps customers with two primary needs:

1. Aligning multi-meter accounts
2. Delaying estimation in the hope that actual data will be received from the device.

The rule can be used for either of these needs alone or both at the same time.

For customers with multiple billing channels on the same device/service point, this rule helps ensure meter channels on the same service point are aligned to the same date and quality of measurements for billing (e.g. aligning the interval and scalar channels).

For customers with service on multiple service points, this rule helps ensure meter channels on different service points are aligned to the same date and quality of measurements for billing (e.g. for bulked service).

When estimated data exists, this rule can delay the completion of bill determinant requests (usage transactions) until the end of the request window. This provides the necessary time for the head-end to retry usage and potentially provide actual data before the end of the request window.

Usage Rule: Business Hold Flag

This new usage rule can stop a usage transaction from proceeding when there have been business flags for the applicable service points. The hold can either be indefinite or set to expire a configurable amount of time prior to the calculation window ending.

Usage Rule: Round and Adjust Usage

This new usage rule copies identified source and target service quantities and inserts these as period service quantities that are rounded and adjusted.

Usage Rule: Usage High/Low Rule

This new usage rule is used to manipulate validate the current usage against historical usage, either previous year usage or previous usage. It ensures that any increase or decrease of the current usage relative to historical usage is within a tolerance.

Usage Rule: Usage Rule Exception Handler

This new usage rule analyzes the exception list accumulated during the execution of usage rules, based upon exception criteria on the usage rule. This is used to stop execution of succeeding rules if there are too many exceptions have been hit. This is similar to the Exception Handler VEE rule.

Maintaining Minimum Condition Code When Combining Curves

Improvements were made to the Vector and Service Quantity and Apply Formula usage rules to allow retaining minimum interval condition code for each interval when combining multiple curves of interval data.

Handling Widespread Outages Enhancement

Outage Storm Mode

Unfortunately, utilities and their customers are often subject to natural disasters that cause disruptions to AMI networks. These outage events can be related to hurricanes, tornadoes, ice storms, earthquakes, tsunamis, etc. During these severe outages, AMI systems do not always provide outage and restoration events from the devices. Without these outage and restoration events, the system processes could estimate measurements that would be billed by the CIS. This will lead to unhappy customers, bad press, and lots of manual cleanup work after the fact.

While this is a problem for major outage events, this can also occur with smaller outages (smaller blackouts, planned outages, etc.). This can potentially become an issue anytime the AMI network has a significant number of devices failing to communicate.

This release includes enhanced outage processing to improve estimation accuracy during major outages. The system can automatically stop estimations when the number of meter readings coming is less than a user defined tolerance. This tolerance is based on a significant drop in the read percentage for all devices in a similar postal code, service type, and head-end system.

Estimations can automatically resume when the device returns to normal operation. This can occur through a number of actions: read percentage for the surrounding area returns to normal, regular data is received from the device, or a power restoration device event is received from the device.

The system also includes the ability to manually override "storm mode". This override allows estimations to resume even if the outage hasn't been fully resolved. This is useful if network fixes take too long and the utility has decided that customers should be billed on an estimate after a few days pass.

User Interface Enhancements

Updated 360 Degree View Charts

The charts that display measurement and event data on the 360 Degree View portals have been rewritten to leverage more modern graphical options. The prior functionality has been retained in almost all cases. Also, new enhancements have been added:

- Hover text has been added to Event Bars shown below Measurement Charts
- Additional Measuring Components can be displayed on the Service Point Consumption History zone

A new option is available to defer the rendering of charts on the 360 Degree Views to allow a user to choose the time period before running selecting any data. This will provide a performance benefit since users won't need to let the chart load once, change the dates to the desired range, and render the chart again.

Changes to the Application Look and Feel

The general look and feel of the application has changed. The following points highlight some of the changes.

- The font size has been increased.
- New images have been introduced for many icons in the system.
- The color schemes have changed.

These changes make it easier to support accessing the application from different types of devices, where touching the screen is a common form of selecting and launching information.

Changes to the Actions/Navigation Area

Several changes have been made to the Actions/Navigation area in this release.

The following actions have been moved from the actions/navigation area:

- Save
- Duplicate
- Delete
- Clear
- Refresh
- Previous Item
- Next Item

These actions are now found in the Page title area. Also note that the Previous Item and Next Item were previously icons. In this release, they are now buttons with the text Previous Item and Next Item.

Changes to Menu Behavior

Several changes have been made to the behavior of the Main Menu and the Admin Menu.

In previous releases, the menus were accessed using a vertical bar on the left side of the page area. The "active" menu available in the menu bar was chosen using a Menu drop-down list in the Actions/Navigation area (where the user could choose to make the Main Menu or the Admin Menu the "active" menu). In this release, the menu bar is no longer used. In addition, rather than a menu drop-down list to select Main Menu or Admin Menu, the Actions/Navigation area now includes separate icons for the two menus. Clicking the icon opens each menu directly.

In previous releases, if a menu entry supported both "Search" and "Add" modes, the menu would be shown with a plus sign (“+”) on the menu entry beside the menu label. The user would click the menu label to enter the page in "Search" mode and would click the sign to add a new entry for the maintenance object represented by the menu entry. In this release, if both "Search" and "Add" are supported for a given menu entry, a sub-menu with the explicit choices of Add and Search appear for the user to choose. If a menu entry does not support the “Add” mode, then the user simply clicks on the menu label to launch the page.

New User Menu

In this release, the Preferences link and the Logout link, which used to be separate links in the navigation area, are now entries in a drop-down list under the logged in user's name. This is referred to as the User Menu.

In addition, the information is now defined using menu metadata. This allows an edge product or implementation to add additional menu entries to the user menu, if desired.

Page Title Location

In previous releases the title of the page was positioned in the center of the actions and navigation area. In this release, the page title has been moved closer to the object display area, directly above the "Main" tab.

Next/Previous To Do Icons Moved to Current To Do Zone

In this release, the Previous To Do and Next To Do icons have been changed to buttons and are now found in the Current To Do dashboard zone.

Page Actions

In this release, some actions that were previously found in the header of a zone on a portal, such as Add and Go To Search, have been moved to be visible in the Page area where Clear and Refresh and other buttons are now displayed.

This information is configurable using new Portal Options functionality. One of the base delivered option types is a Page Action Menu. In conjunction with this, a new menu type Page Action Menu

has been introduced. The base product provided portals have been updated to include actions in the Page Action area that were formerly found in the header of one of the zones on the portal.

In previous releases, the main zone of a standalone maintenance portal included a Go To Search hyperlink. Clicking it would navigate to the query page that is associated with the maintenance object. In this release base package portals have been updated to contain a Search button in the Page Action area and the Go To Search hyperlink has been removed from the zone header area. Also note that if any of the portal pages include a log tab, the Search button is also accessible from the Log tab (note: the log tab hyperlink for adding a log entry will still remain in the log zone header). This is an enhancement from the previous release where the Log tab did not provide the ability to navigate to the Search portal directly.

Note that in addition, base package portals have also been configured to include an Add button to allow a user to initiate adding a new record after viewing an existing record. This is an enhancement from the previous release where the maintenance portals either did not provide the ability to Add or leveraged a link in a zone header on the maintenance portal.

In previous releases, the main search zone of a separate query portal included an Add link. In addition, All-in-One portals included an Add link in its List zone. In this release, those portals have been updated to configure an Add button in the Page Action area and the Add link has been removed from the zone header area.

Bookmarks Introduced

This release includes a Bookmark action in the Page area. Clicking this button allows a user to bookmark the page along with the data that is displayed on the page. The user may choose to name the bookmark as desired.

Existing bookmarks are visible in a new Bookmarks dashboard zone. The zone allows you to navigate to the bookmarked page or delete the bookmark.

Users may also manage existing bookmarks on the user page using a new Bookmarks tab. The bookmark name may be modified; the sequence may be adjusted or the bookmark may be deleted.

Security Note: The bookmark button and the bookmark dashboard zone are secured using an application service (F1-BOOKMARKS). Implementations must grant access to this application service in order for their users to access this functionality.

Maintenance Portals Show Information String

Options have been added to maintenance portals. One of the base delivered option types is a Foreign Key reference. Configuring a portal with the FK Ref option populates the info string after the title. Base package portals were updated for this behavior:

Checkbox Support for UI Auto-rendering

In this release, user interface auto-rendering logic has been enhanced to support displaying a checkbox for elements. This can be accomplished by defining an element with a data type of Boolean or referring to a field that is defined as a 'switch'.

Ability to Save Multiple Search Criteria for Queries

In previous releases, the explorer menu provided the ability for a user to "Save Preferences" for a query zone. This allowed a user to capture preferred filter values for a given query zone.

In this release the functionality has been expanded as follows:

- Users may save multiple search preferences for a given query zone, providing meaningful names for each. Note that for a multi-query zone with several search options available in the drop-down list, the list of saved searches is available at the "header" (multi-query zone) level allowing the user to choose a different saved search that will change the search option and load the filter criteria in one click.

- Users may designate one of those searches as the default search used when first entering the query zone from the menu.
- Users may choose to add the saved searches to a Favorite Searches dashboard zone. This allows for the user to drill to that query portal and load the desired saved search in one click.

Security Note: The new Favorite Searches dashboard zone and the ability for a user to save searches on a query zone are secured using an application service (F1_USRFAVSCH). Implementations may choose to configure whether or not users are permitted to save searches (and have access to the favorite searches zone).

Upgrade Note: In the previous release the ability to "save preferences" was not secured. To maintain this capability for existing users, an upgrade script links this application service F1_USRFAVSCH to all user groups in the system. Implementations may review the user groups and remove the security if desired.

Functional Note: the saved searches capability is not tied to a Profile User. If a user's portal preferences and/or favorite links/scripts are configured via a Profile User, they will still be able to save their own searches. This is a change from the "save preferences" functionality where a user would not be able to save their own search preferences if linked to a Profile User. In addition, in previous releases, the user would see the saved preferences of the Profile User. In this release, saved searches are unique to a user. No preferences from a profile user are inherited. As mentioned, security may be used to limit a user's ability to save their preferences.

Quick Edit for Initial Measurement Data

To reduce the need to navigate between portals an ability to view and update initial measurement data in a pop-up window has been added to a few key zones:

- Interval - Initial Measurement Overlay
- Scalar - Initial Measurement Overlay
- Initial Measurement Data History

The benefit of this is twofold:

- Users can immediately see initial measurement data without needing to navigate multiple places and once done viewing the data they remain on the original portal from which they launched.
- The interval data can be viewed side by side with the portal from which they launched

Restricting Users' Data Access

This enhanced functionality allows restriction of data access for users throughout the system based on the Access Groups to which they're assigned. With this functionality, users will only be able to see transactional data they have permission to view. This occurs through defining Access Groups on a market which then marks the relevant service point with the defined access requirements.

The isolated access group security can be defined in numerous ways and will still restrict access to the data. You can limit access by operating company, jurisdiction, and/or other attributes like customer type (commercial vs. residential). Once the Access Group is set on the service point, the user interface screens within the system will use whatever value is set to limit access.

Browser Support

Firefox™ is now a supported browser for Oracle Utilities Meter Data Management.

Accessibility changes

The following user interfaces were enhanced to support accessibility:

- Service Quantity Overlay zone in Usage Transaction portal. New buttons for showing interval quantities in tabular form and to export these quantities for viewing.
- Scalar Audit View in 360° portal. New buttons for showing the measurement log counts in tabular form and to export these counts for viewing.
- Interval Audit View in 360° portal. New buttons for showing the measurement log counts in tabular form and to export these counts for viewing.

Integration Enhancements

Dynamic Option Data Synchronization

Oracle Utilities Meter Data Management has been enhanced to support data synchronization of dynamic options at the service point level. A dynamic option is a special event that denotes that special pricing is applicable for a period of time. This is unusually used for dynamic pricing options like critical peak pricing and peak time rebates. Originating the synchronization of dynamic options is also supported in Oracle Utilities Customer Care and Billing (CC&B).

Issuing Service Orders for DataRaker Issues

Oracle Utilities Meter Data Management now supports the receipt of business flags to identify circumstances of a service point as identified by other edge applications. More specifically, any issues that are identified through DataRaker advanced analytics can be ingested into the system and associated to the appropriate service point as a business flag. These business flags can be represented in two ways:

- Service Point Business Flags provide informational details about the happenings at a service point. These can be configured to require manual investigation.
- Service Point Monitor Business Flags provide the ability to automatically create a service issue monitor as a result of a business flag. If the monitor results in a service investigative order the result of the field work can then either confirm or reject the existence of the issue that triggered the creation of the business flag.

Service Issue Monitor Completion Criteria

The service issue monitor functionality has been enhanced to provide an evaluation of the outcome of the service investigative order it has created. The completion criteria can take the form of either:

- A field activity remark
- A script

The criteria will be evaluated and if the issue for which the investigative order was created was closed the service issue monitor will complete. If the criteria have not been met the service issue monitor can be highlighted for manual intervention to assess next steps (i.e. discard the service issue monitor or create another service issue monitor).

Bill Cycle Synchronization from CC&B

When Service Order Management is implemented, measurement cycles are maintained for Meter Data Management service point and will no longer exist for Customer Care and Billing service points. This becomes an issue during service agreement activation when the account's bill cycle is identified through its association to the service point's measurement cycle.

In this release, bill cycles in Customer Care and Billing and their schedules are now synchronized to Meter Data Management. In addition, measurement cycle and bill cycle relationship is also established in Meter Data Management. This relationship will be used to identify the bill cycle that will be assigned to an account during service agreement activation via a service call to Meter Data Management. A change to Meter Data Management service point's measurement cycle could also

potentially trigger a change in the account's bill cycle. CC&B will be notified of this change via a service call staged from a new service point business object audit algorithm.

Multiple Time Zone Support Enhancements

Initial Measurement Data Aligning Meta-Data to Storage

In prior versions the meta-data for initial measurement date/times did not match the storage (i.e. data was stored in standard time without DST adjustments but the meta-data did not indicate this). With this version the meta-data now indicates that initial measurement date/times are stored in standard.

This change ensures that date/times with explicit time zone information (i.e. in xs:dateTime format with the UTC offset provided) will be handled in the most efficient way possible since the integration layer (XAI or IWS) will correctly convert them into the base time zone (i.e. the time zone defined on the installation options - framework) in standard. Previously they would have been converted into the base time zone in legal time (i.e. adjusted for DST) and required an additional conversion into the base time zone in standard.

Important Note: It is important that service providers are appropriately configured to indicate the date/time format being used in initial measurement imports. For example, if they use xs:dateTime with a UTC offset (e.g. 2016-11-23T11:00:00-05:00) then the IMD Import Date/Time Format field should be set to "With Time Zone."

Support for xs:dateTime in Master Data Sync

In prior versions master data synchronization required date/times to be in the OUAF format (YYYY-MM-DD-HH.MI.SS). An enhancement has been made to support xs:dateTime so that date/times can be sent with explicit time zone information. This provides more flexibility in how dates can be imported via synchronization. Any date/time received in xs:dateTime format with time zone information provided will be converted, as appropriate, into the base time zone.

Important Note: if any date/times are being received in the "custom elements" element within the synchronization object it will require customer modification effort to handle the xs:dateTime to OUAF format conversion.

Time Zone on Facility

The facility maintenance object was enhanced to include a time zone. This time zone will not be validated against other time zones in the system. For example, a facility of a given time zone can be associated via network location to a service point in a different time zone.

Supporting Time Zones with Differing Shift Schedules

This enhancement ensures that the appropriate time zone is used when converting date/times from standard to legal (i.e. adjusted for DST) or legal to standard. Previously there were instances where a difference in DST shift schedules between a master data time zone and the base time zone might result in inappropriate shifting during DST. For example, if implementation had multiple US based time zones and one of those time zones was America/Phoenix which does not have adjustments for DST.

Technical Enhancements

Remove Master Data IDs from Admin Configuration Data

This enhancement eliminates the problem of special types of data that cannot easily be migrated to another environment, e.g., a measuring component for an "Average Usage Profile". This problem occurs because the source environment references a specific primary key that may not exist in the destination environment. This change includes the ability to reference master data (Measuring Component, Device, TOU Map) by an identifier rather than an environment specific primary key, thus allowing configuration data to be migrated without needing to also migrate the master data. This will help ease the task of migrating configuration data.

Server Provider Enhancements

Service Provider

A new column has been added to classify a Service Provider as either Head End System, External Application, or Market Participant.

The new column (Service Provider Type) is a standard customizable look up and is used to categorize the service provider entries into its own **Admin** sub-menus and all-in-one portal zones. **Head End System** is placed under **Device**, **External Application** under **Integration**, and **Market Participant** under **Market**.

This change is a prerequisite to the Oracle Utilities Customer to Meter (C2M) product to differentiate Oracle Utilities Meter Data Management's service provider from Oracle Utilities Customer Care and Billing's service provider.

Subtractive Interval Enhancements

Subtractive Interval Adjustment Rule

This new rule provides an ability to adjust estimated intervals for subtractive interval measuring components using the interval reading information available prior to and subsequent to the period of estimation. The rule identifies a period of contiguous estimated intervals and calculates the expected consumption using the start and end readings for that period. It then scales the estimated consumption to match the expected consumption.

This allows for standard interval VEE estimation rules to be used to fill in gaps with an approximate curve of consumption and to then align that curve to the known quantity for the period as calculated by the start and end readings.

The rule can handle multiple distinct periods of estimation within an Initial Measurement and supports retrieving start and end readings from within the Initial Measurement itself or from final measurements. When searching final measurements for start and end readings it prioritizes the use of actual readings but will fall back to lesser quality readings to ensure estimations do not cause rollovers.

Get Subtractive Interval Details

This new rule will calculate the bill determinants for subtractive interval measuring components. The distinction between this rule and the existing Get Interval Data rule is that it will also identify the start and end readings for each of the usage transaction's usage periods (similar to the Get Scalar Data or Daily Scalar Usage Rule).

The start and end reading information will be available for view in the Usage Transaction Reading Details zone on the Usage Transaction Portal.

Oracle Utilities Customer To Meter Enhancements

Changes for Oracle Utilities Customer To Meter

A variety of other changes within Oracle Utilities Meter Data Management have been made to enable the capability for a combined install with Oracle Customer Care and Billing. The new product where MDM and CC&B are combined into a single application instance is called Oracle Utilities Customer to Meter (C2M). The changes to enable this should not be noticeable in a standalone MDM install.

Oracle Utilities Smart Grid Gateway Enhancements

This section provides descriptions of enhancements in Oracle Utilities Smart Grid Gateway introduced since the previous release of Oracle Utilities Meter Solution Cloud Service.

Introduced in Oracle Utilities Smart Grid Gateway v2.2.0:

- [Enhancements to All Adapters](#)
- [Adapter for Itron OpenWay Enhancements](#)
- [Adapter for Landis +Gyr Enhancements](#)
- [Adapter Development Kit Enhancements](#)

Introduced in Oracle Utilities Smart Grid Gateway v2.2.0.1:

- [Enhancements to All Adapters](#)

Enhancements to All Adapters

Data Extracts for DataRaker

The Oracle Utilities Smart Grid Gateway adapters have been enhanced to provide an output of initial measurement data directly to DataRaker from Oracle Utilities Smart Grid Gateway. This data is raw measurements (i.e. unvalidated and unchanged) to suit the needs of DataRaker analytics.

Prioritization of On-Demand Reads

The Oracle Utilities Smart Grid Gateway adapters have been enhanced to ensure any data collected as part of an on-demand read will be processed upon reception into Oracle Utilities Meter Data Management. This enhancement leverages a new Execution Method flag on initial measurement data to ensure this data can process immediately when received rather than being queued up for batch processing.

Adapter for Itron OpenWay Enhancements

Interrogation Enhancements

The Schedule Read functionality has been enhanced to provide greater usability. The following changes were made in version 2.1.0.3 subsequent to the original release:

- The first interrogation created after a Schedule Read activity is created will now be based on when the creation time rather than assuming that the first requested read should start at midnight.
- The ability to send requests in advance of the intended interrogation window to allow the request to be distributed throughout the Itron OpenWay network prior to the need for responses to be generated, thus limiting cross-traffic.
- An enhanced information string for Schedule Read activities that will clearly identify the meter population being interrogated, information about the last interrogation, and the recurrence information.
- When interrogations are missed there is now an ability to control how those missed interrogations will be requested. They can either be encapsulated in a single request (as they were prior) or requested one period at a time (based on the number of hours configured per request). The new leaner request option is intended to alleviate bandwidth issues when large numbers of meters are read for large periods of time (i.e. if the network is tuned for the standard request period then it does not make sense to request multiples of that duration).

The following changes are new with version 2.2.0.0:

- Interrogation requests canceled in Itron OpenWay will now also be canceled in Oracle Utilities Smart Grid Gateway
- There is now greater control over how failed interrogation requests are handled. Specifically there has been functionality introduced to automatically discard any interrogation communication out records that have exhausted their automated retries. This should alleviate issues where the communication out failed to make a successful request and remained in error until a user manually discarded it.

Enhanced Usage Mapping

Based on feedback around common modifications made to the import of usage data the following enhancements were made in version 2.1.0.3 subsequent to the original release:

- The ability to configure a Wh to kWh conversion as part of the mapping of the Itron OpenWay external UOMs to the interval UOM codes.
- The precision of incoming usage will be truncated to the maximum allowable digits in MDM/SGG. This is currently a maximum of 6 digits after the decimal point.

Filtering of Usage and Events

This new filtering option allows a user to configure an acceptable list of event codes and/or units of measure within a set of extendable lookups. Oracle Utilities Smart Grid Gateway uses the configured lists to filter out any initial measurement data or events that don't meet the configured criteria. This helps ensure that "noise" from the meter can be filtering out such as meaningless events that are generated very frequently.

Adapter for Landis +Gyr Enhancements

The Adapter for Landis+Gyr has been enhanced with several new commands to support a more robust commissioning process. Three new interactions with the Landis+Gyr system have been added to this release to support a more robust commissioning process. These include the following:

- Add Meter To Inventory: this API is used to register the meter in Landis+Gyr whenever a new meter is received into inventory.
- Meter Exchange Notification: this API is used to indicate to Landis+Gyr that a meter has been installed at a particular location.
- Meter Retire Notification: this API is used to archive a meter within Landis+Gyr when a meter has been retired.

Adapter Development Kit Enhancements

Compatibility to Accept Native IMD Format

The Adapter Development Kit has been enhanced to natively accept the same initial measurement data format that Oracle Utilities Meter Data Management accepts.

Endpoint URI Override Domain Value Map

The Adapter Development Kit and the Landis+Gyr, NES, Sensus, Silver Spring Networks, and Itron OpenWay adapters have been enhanced to include a "Endpoint Override" Domain Value Map (DVM) that allows overriding Endpoint URIs defined during deployment and installation. The default approach to changing Endpoint URIs is redeployment or reinstallation of the BPEL composites. This DVM allows defining specific keys that provide an alternate URI that will override the original installed value. Endpoint Override DVMs can be edited using the Oracle SOA Composer.

Oracle Utilities Cloud Service Foundation 17.1 Release Notes

This section provides a description of Oracle Utilities Cloud Service Foundation, v17.1.

Process Automation Tool

The process automation tool allows customers and implementers to orchestrate and automate a set of infrastructure related multi-step processes. The tool provides the ability to monitor the progress of such process and each of the steps. The process is called Infrastructure Process. An Infrastructure Process has steps that are executed one by one according to their sequence as long as the previous step ended successfully. When a step in a process fails, the process will stop and wait for a user to take further actions.

An Infrastructure Process can span up to two product environments. For example, a configuration data migration (using the Configuration Migration Assistant) can be migrated from one product environment to another. That is, the export data can be created on the source environment, moved to the target environment and imported to the target environment, all as a single Infrastructure Process. In this case the Infrastructure Process will be created on the target environment and will pull the configuration from the source environment.

Pre-Configured Process Types

An Infrastructure Process references a type that includes the steps that are a part of that process. The base solution provides the following Infrastructure Process Types to support various configuration migration use cases:

CMA Accelerator Load

Imports an exported file created by the Configuration Migration Assistant export process.

CMA Migration

A wholesale or piecemeal configuration migration (using the Configuration Migration Assistant) for exporting configuration data from a source environment and importing it to a target environment.

Integration Configuration

Supports the migration of integration configuration data from a source to a target environment for DVM data and integration configuration properties configuration types

Process Automation System Setup

The system setup required for the process automation tool is done automatically as part of environment provisioning process. However, security setup is required, which is done by the customer.

The security setup script requires a User ID, a Password of a special user that was created by the customer's security administrator. Please refer to the product documentation for more information about the setup process in general and the security setup in particular.

Known Issues

This section lists issues that were found but not resolved in Process Automation Tool at the time of release.

Bug Number	Description
Bug 26139059	On infrastructure process search, status drop down incorrectly shows more statuses than the ones applicable to an infrastructure process.
Bug 26138439	When creating an infrastructure process to migrate OUAF or integration data, the from environment drop down incorrectly shows more environments than applicable.

Oracle Utilities Cloud Service Foundation 17.2 Release Notes

This section provides a description of Oracle Utilities Cloud Service Foundation, v17.2.

Legacy Data Conversion

Conversion support for cloud implementations provide safe and secure mechanism for legacy data extract upload into staging area. The solution includes detailed input data file specifications for each table and/or maintenance object that is subject to conversion.

The legacy data extract upload is the preparatory step in the legacy data conversion process and it is followed by data validation, cleansing and finally, migration from the staging area into actual application tables. The solution is metadata-driven, flexible and configurable and can be customized in order to implement special data requirements.

Supported features:

- Efficient, multi-threaded batch process for legacy data extract upload
- Ability to load single or multiple extract files
- Ability to securely perform staging tables cleanup, statistics update and other table maintenance operations
- Infrastructure for development and execution of staging data reconciliation reports
- Ability to adjust and customize data load parameters

Pre-Configured Conversion Support

The base solution provides Conversion Master Configuration and conversion task types to support various legacy data conversion use cases

Load Data into Staging Table

Loading the extract file that contains the data for the single staging table, including key tables.

Load Data into Maintenance Object

Loading the extract file that contains the data for the set of tables that represent a Maintenance Object in the target application.

Conversion Support Setup

The initial system setup for conversion support is done as part of the environment post-provisioning process. This setup represents the most common legacy data conversion scenarios and should be sufficient for the typical business requirements. Custom configurations may be required to address project-specific concerns, such as extremely large data volumes or other legacy data specifics.

Conversion support provides the ability to fine-tune data load parameters and optimize process performance. Please refer to the product documentation for more information about the product-specific accelerators and data conversion considerations.

Known Issues

This section lists issues that were found but not resolved in the Cloud Service Foundation at the time of release.

Bug Number	Description
Bug 26762122	Conversion data files cannot include the CR (Carriage Return) character. This character has to be removed from the data files created on Windows prior to uploading them to the cloud. Fixed in CSF 17.2.0.0.1 and 18.1.0.0.0 (EOL).
Bug 26762126	When generating conversion artifacts, no visual indicator is provided during the generation process or when the process is completed. Fixed in CSF 17.2.0.0.1 and 18.1.0.0.0 (EOL).

Oracle Utilities Application Framework v4.3.0.4 Release Notes

This section describes enhancements, system data details and deprecation notices in Oracle Utilities Application Framework version 4.3.0.4.0 including:

- [System Wide Enhancements](#)
- [Configuration Tool Enhancements](#)
- [Batch Processing Enhancements](#)
- [Integration Enhancements](#)
- [Configuration Migration Assistant \(CMA\) Enhancements](#)
- [Miscellaneous Enhancements](#)
- [Oracle Utilities Application Framework System Data Details](#)
- [Oracle Utilities Application Framework Deprecation Notices](#)

System Wide Enhancements

This section provides information about enhancements that are system wide.

Introduce New Menu Item Search Facility

In this release, the toolbar has been enhanced to include a search option to **Search Menu**. If a user wants to access a menu entry found on the Menu or the Admin menu, but does not want to use the menu navigation to find the entry, this search option allows the user to search for the menu entry and navigate directly to that page or BPA script.

A shortcut key is also provided for accessing the search: **Ctrl+Alt+F**.

Introduce Shortcut Key for Bookmark Button

The shortcut key **Ctrl+Alt+B** has been enabled to access the Bookmark button.

Minimizing the Dashboard Suppresses Refresh of Zones

In previous releases, when a user minimized the dashboard, dashboard zones would continue to refresh when the user performed any action that would trigger a refresh. This impacted system performance if there were many zones on the dashboard, users would need to wait for the zones to refresh even though the data was not visible.

In this release, the behavior has been changed to suppress the refresh of the content of the zones in the dashboard while the dashboard is minimized. Changes in the context values that drive the dashboard content are retained while the dashboard is minimized. When the user maximizes the dashboard, at that point all the zones are refreshed per existing behavior.

Note: This behavior change means that opening a minimized dashboard will be slower than in previous releases because the refresh occurs at that point. However, users should see improved response if navigating the system with the dashboard minimized.

Support Ability to Bypass the Home Page when Launching the Application

The system supports launching the system with additional configuration in the URL to automatically navigate to a page or launch a BPA script (or both). When a page is provided (using the 'location' attribute in the URL), the system navigates the user to that page. If a BPA script is also provided, the BPA script is executed after navigation. If a BPA script is supplied with no 'location' attribute, the system navigates to the home page prior to executing the script.

There are use cases where the application should be launched with a script that has logic to determine the appropriate target page. For example, the base script **F1-GotoPrtl** (Navigate to portal for an MO and key values) expects an MO code and primary keys to be supplied. Its logic determines the appropriate portal for this record and then navigates to that record. In this scenario, the system navigates to the user's home page prior to executing the script, which slows down the launching. It is especially problematic for users whose home page loads a lot of information by default.

In this release a new attribute has been provided to skip the navigation to the home page: **initNav=false**.

The following is an example of a URL with this setting:

```
<system-url>/cis.jsp?script=F1-GotoPrtl&mo=F1-
MIGRPLAN&pkValue1=F1-AlgorithmType&initNav=false
```

Support URI Validation and Substitution

The following sections highlight enhancements related to defining a URI (URL, File Path, File URL).

Restrict URI Reference Based on a Property Setting

In this release, the product has introduced the ability to define a whitelist of URI references in the product. A setting in the properties file is used to indicate whether URI references should be validated against the whitelist. The definition of the whitelist is done in a file called **whiteList.xml**.

Note: Refer to the *System Administration Guide* for more information.

Note that this was also implemented as a hot fix to 4.3.0.3.0.

Implementation of this functionality requires the code to identify the fields that are capturing a URI value and invoke an API to perform this validation both when configuring a field that captures this type of data and at runtime when using the URI. A new extended data type of URI has been added for the metadata Field and for the schema element syntax. For records that are business object (BO) driven, the validation of a URI element is automatically provided as long as the element is configured with a URI data type either directly or through its Field definition. However, records capturing URI that are not BO driven must include explicit code to call this new API. In all cases the code that uses the URI must be enhanced to invoke this API.

Support the Use of Substitution Variables

In this release, the system provides support to allow fields that capture URIs to referencing a substitution variable for all or part of the URI definition. This allows the system administrators to define the proper URI locations in a properties file whereas the configuration users only need to know the variable name. The name of the XML file that holds the substitution variables is defined as a property setting. The system provides a template to generate a file with the name **substitutionVariableList.xml**. To define a

URI substitution, define the name of the parameter and the value. The name may then be used as the variable name surrounded by the symbol @ in configuration.

For example: When defining a location for an extract file in an extract batch job, instead of typing a file path of `h:\oracle\serverName\1.0.0.0\batch\extract\`, the batch user can enter `@FILE_EXTRACT@`, assuming there is an entry in the substitution variables file with a name of `FILE_EXTRACT`, and a value of

`h:\oracle\serverName\1.0.0.0\batch\extract\`. Another example is that the batch user could enter `@BATCH_FILES@\extract\`, assuming that the URI variable for `BATCH_FILES` is defined as `h:\oracle\serverName\1.0.0.0\batch\`.

Each entry may also indicate whether child components may be added after the parameter name. If the configuration says that it's not allowed, the second example above, for example (`@BATCH_FILES@\extract\`) would not be allowed. The default is that child components are allowed.

The product supplies a pre-defined variable name for the location of the CMA files as described in [Allow Master Configuration to be Optional](#). In addition, the 'advanced' menu in the system installation steps may prompt for installers to adjust the value of this pre-defined variable, if desired. Installations may opt to define additional substitution variables for various URI references. Refer to URI Substitution Variables in the planned deprecation section regarding product delivered variables that will be deprecated in a future release.

Note: Refer to the *System Administration Guide* for more information.
Note that this was also implemented as a hot fix to Oracle Utilities Application Framework 4.3.0.3.0.

Implementation of this functionality is covered by the API that is mentioned in the [Restrict URI Reference Based on a Property Setting](#) section.

Adjust Zones that Support Drag and Drop

In a previous release, zones that support the configurable column logic (also referred to as “drag and drop”) were enhanced to display a trash can image in the column heading. This was meant to support a quick click to remove the column, if desired. Columns were also removable by opening the configuration area, finding the column name and clicking the trash can adjacent to the column name.

In this release the trash can has been removed from the column header. Removing the column continues to be supported using the configuration area.

Limit Height for Large Explorer Columns with a Width Setting

By default, the column width for results in a data explorer zone expands to fit the data. This may be overridden at the column level by configuring a width, which ensures that columns with a large amount of data do not cause a large horizontal scroll. Instead, the data wraps, expanding the output vertically.

In this release a change has been made to columns that include a 'width' configuration to limit the height to about 8 rows of text. If more than 8 rows exist, a scroll bar for that cell is included. This reduces the amount of unnecessary vertical scrolling for the entire set of data.

Configuration Tool Enhancements

This section provides information about enhancements to the system configuration tools.

UI Hint Sections May Be Configured to 'Float'

In previous releases, a section on the display map rendered in UI hints could be configured as half width, using the values of **left** or **right**. These positions are fixed and for pages where some sections may be hidden under certain conditions. This could produce odd results, such as several left sections shown but no right sections.

In the release a new option has been added to the **sectionColumn** UI hint: **float**. Sections with this configuration will render on either the left or the right side of the display based on available space. (This is available on **group** and **list** nodes as well).

UI Hint Sections May Be Half Width on Maintenance

In previous releases, a section could be designated as full width or half width (indicating left or right) for a Display map, but not for a Maintenance map. The sections on a Maintenance map were always full width. In this release, a new UI Hint has been provided to allow for a section to be half width for maintenance rendering: **editColumn**. It supports values of **full** (the default), **left**, **right** and **float**. (This is available on **group** and **list** nodes as well).

Enhance Groovy Scripting Capabilities

This section provides details about enhancements to Groovy scripting functionality.

Groovy Library Scripts

In this release, the system has introduced support for creating libraries of common routines and methods written in the Apache Groovy programming language that may be invoked from other scripts.

The following points highlight more information about this enhancement:

- A new script type of **Groovy Library Script** has been added which provides a basis for creating groups of common methods. Scripts of this type must include only Groovy-based step types. The methods defined can accept arguments and return values of any type.
- A **Groovy Library Script** must include a new step type of **Groovy Library Interface** which lists the publicly available methods defined within the script.
- The system provides a new public method called **createLibraryScript** which is used to instantiate the interface for a Groovy library and enable other **Groovy Members** step types within the script to invoke any of the library methods.

Note that this functionality is only available to server based scripts which are able to configure **Groovy Members** steps. Refer to *The Big Picture of Server Based Scripts* topic in the *Defining Script Options* chapter of the *Administrative User Guide* for an overview of server scripts.

Ability to Launch Groovy JavaDocs

For system protection, only a subset of system Java classes is accessible to Groovy code. In this release, a Groovy-specific Java Docs viewer is provided to allow users to view only the allowed classes. The viewer may be launched via a new **Groovy JavaDocs** button on the Application Viewer toolbar and also via a link in the context sensitive “Script Tips” dashboard zone.

Ability to View Third Party Whitelist

The system restricts the third party Groovy classes that are accessible from within scripts for the same reasons as it restricts the system Java classes. In this release, the “Script Tips” dashboard zone now includes a link that displays the list of accessible (or “whitelisted”) classes.

Restrict SQL Functions Based on a Property Setting

In this release, a property setting has been provided to restrict the functions that may be used when defining an SQL either through a data explorer zone, through a Groovy script or through the Select Records plug-in algorithm for the plug-in driven batch programs. If the setting is enabled, then an error is issued at runtime if there are functions found that are not in the whitelist. The whitelist is documented in the managed content **F1-SQLFunctionWhiteList** (Whitelist of SQL functions). A link to view this whitelist is available in the Tips zone on the zone maintenance page.

Batch Processing Enhancements

This section provides information about batch processing enhancements.

Individual Security Added to Batch Control

In previous releases, an implementation was able to secure which users were able to submit a batch job (i.e. to create a Batch Job Submission entry) and which users were not. However, there was no ability to define more granular controls at the batch control level. In this release, application service has been added to the Batch Control, allowing an implementation to control which users are able to submit which batch controls. The user's security for a batch control's application service is checked when a batch job submission record referencing that batch control is created.

For base delivered batch controls, individual application services have been supplied for each batch control. Refer to the [New/Updated Application Services](#) section for a list of affected services.

Note the following for upgrade purposes:

- All user groups that currently have Add security access to the Batch Job Submission application service are granted access to all application services for all batch controls.
- Custom batch controls are updated with the F1-DFLTAPS application service. If implementations wish to provide more granular security for their custom batch

controls, they should determine or create an appropriate application service and update the appropriate batch controls.

Additional Support for Ad-hoc Batch Parameters

In this release several enhancements have been included to provide access to ad-hoc batch parameters for various batch related plug-in spots.

Plug-in Driven Batch Programs Support Adhoc Parameters

In this release, the two plug-in driven batch programs provided in the product have been enhanced to allow for ad-hoc parameters to be defined for a given batch control. These parameters are provided to the Select Records algorithm and Process Record algorithm, allowing the algorithms to use this information for processing. Note that the two “template” batch controls provided for these (**F1-PDBG** - Plug-in Driven Generic Template and **F1-PDBEX** - Plug-in Driven Extract Template) have been updated to use higher sequence numbers for the standard “system” parameters and for the extract related parameters. This allows for implementations to enter specific parameters (that are probably more business oriented) to have lower sequence numbers and therefore appear first.

For any adhoc parameters that you wish to use as bind variables for the SQL used to select the records for a plug-in driven batch, your select records plug-in may be used to identify the relevant batch parameter passed as input and populate the output bind variable appropriately. Refer to the [Select Records Plug-in Enhanced to Support Field Name for Bind Variables](#) section for information about defining a field name when returning custom bind variables for the Select Records plug-in spot.

Additional Parameters Added to Several Batch Plug-in Spots

In this release, several batch control related plug-in spots have been updated to support additional hard parameters.

- Select Records includes the batch control parameters (defined in the parameter collection on the batch control page) as name/value pairs along with the batch code, run number, number of threads and batch business date.
- Process Records includes the batch control parameters (defined in the parameter collection on the batch control page) as name/value pairs along with the number of threads. (This plug-in spot already receives batch code, run number and batch business date.)
- Post-Processing includes the batch control parameters (defined in the parameter collection on the batch control page) as name/value pairs along with the number of threads and the batch business date. (This plug-in spot already receives batch code, and run number.)

Select Records Plug-in Enhanced to Support Field Name for Bind Variables

In a previous release, the Select Records plug-in was introduced to support plug-in driven batch jobs. Algorithms for this plug-in spot define the SQL as the first parameter and in addition, the algorithm can return name/value pairs for defining custom bind variables for the SQL. In this release, the collection of bind variables now includes the appropriate field name (from the CI_MD_FLD table) that provides information about the data type and length. This information is important for the SQL binding logic to properly substitute the values using an appropriate length. Otherwise, the SQL may require 'rtrim' to be included to find the data, which may cause performance issues.

If your implementation has created any custom Select Records plug-in that return specific bind variables as name/value pairs, it is highly recommended that you consider updating the algorithm to provide a field name as well.

Introduce Error Post-Processing Plug-in Spot

In a previous release, a Post-processing system event (plug-in spot) was introduced to support performing a task after all threads for a successful batch job are complete. In this release, a new system event (plug-in spot) has been provided for batch jobs that do not complete successfully. The system event, called **Error Post-Processing**, allows an implementation to configure an algorithm that automatically performs a task when a batch process fails.

Support for Maintaining/ Administering the Oracle Scheduler

In this release, several business services have been included to allow implementations to dynamically maintain, monitor and execute application batch processes that are managed by Oracle Scheduler. These are just APIs (we are NOT delivering user interfaces). The business services are also exposed as REST API based services for integration with a management console, such as Oracle Enterprise Manager.

Refer to the *Server Administration Guide* for more information.

Batch Run Tree - Change Label of Last Update Date

On Batch Run Tree, the last update date/time for the most recent batch run is displayed at the top of the page along with the Batch Control and Run information. The label had been Date Time, which is confusing because it may lead a user to associate this date and time with the current run being viewed. To be more explicit, the label has been changed to **Last Update Timestamp**.

Integration Enhancements

This section provides information about integration oriented enhancements.

Support for Multiple Security Policies

In this release, the system has added support for defining multiple security policies for an inbound web service (IWS).

The following points highlight the changes that were included:

- A sequence has been added to the Inbound Web Service/Annotation list. This allows an implementation to indicate the appropriate order for execution of the annotation policies.
- The base annotation type **F1POLICY** has been updated to include a parent annotation type (**F1POLICIES**). The parent annotation type is used at runtime when multiple annotations are found to properly build the array of annotations.

Support OWSM Security Policies

In this release annotation types have been provided to allow Inbound Web Services to be protected by OWSM security policies. The base product supplies a new annotation type **F1-OWSM** - Annotation for OWSM Security Policy along with a parent annotation type **F1-OWSMS** - Parent for OWSM Policy.

Enhanced the WS-Policy Annotation Type to Allow Direction Override

In this release, the **F1POLICY** annotation type (Annotation for Standard WS-Policy) has been enhanced to expose the 'direction' parameter so that implementations may override the default value, if desired.

Support Password Encryption for Service Catalogue Configuration

The master configuration record Service Catalogue Configuration (**F1-ServiceCatalogConfig**) allows for an implementation to configure one or more subordinate servers along with authentication details (user/password). In this release support has been added to allow the password to be encrypted using the standard system support for encryption. Additional configuration is needed to define the **Encryption** feature configuration to fully support this functionality. Refer to the online help for service configuration for more details.

Configuration Migration Assistant (CMA) Enhancements

The following sections highlight enhancements to CMA functionality.

Allow Master Configuration to be Optional

In this release, the product has been enhanced to provide default values for the information configured on the Migration Configuration Assistant master configuration record. This allows an implementation to reduce the number of steps when provisioning a new environment that uses CMA to import new records.

The change relies on default export and import directories to be defined using the Substitution Variables, with the variable name **@F1_CMA_FILES@**. The system will default the export directory **@F1_CMA_FILES@\export**. The system will default the import directory to **@F1_CMA_FILES@\import**.

The file suffix is now defaulted to “cma” if not configured on the master configuration. This has been the recommended value.

Refer to the [Support the Use of Substitution Variables](#) enhancement for more information.

Enhance Migration Requests to Facilitate Migration Requirements

This release includes several enhancements to the migration request to support common requirements for defining records to migrate. To support the enhancements, two new

fields have been added to Migration Request to allow categorization/classification of the migration request records.

- Migration Request Class - this is an internal field that is used to support the new business objects that are described in subsequent sections below.
- Migration Request Category - this is an extendable lookup field and is provided to allow for the product or an implementation to categorize the migration request to aid in searching. The product provides one value as base: **Accelerator**. This may be used for migration requests that are defined to include data that is part of an accelerator. Records may be configured to indicate that a reference ID is required. However, this only applies to Entity List migration requests.

These fields have been added as search criteria to the migration request search zone.

Introduce a Migration Request BO Specific to a List of Entities

A common use case for migration of data is to copy a specific list of records (entities) that are associated with a particular enhancement or 'sprint' or release. Rather than using selection criteria for a migration request instructions (which are useful for a “bulk” migration), users often prefer to explicitly list records. The Migration Request business object provided in a previous release allows a user to define specific keys. However, the user interface is not very friendly.

In this release enhancements have been provided to facilitate defining a migration request with an explicit list of records. The following points highlight what is provided for this functionality.

- A new migration request business object has been provided: Entity List Migration Request (**F1-EntityListMigrationRequest**). It is similar to the business object provided in a previous release (F1-MigrReq). However, its user interface only supports defining records explicitly. In addition, its user interface uses Maintenance Object rather than Migration Plan as the driver. The migration plan to use for the instructions is derived using an option on the maintenance object. Records created with this business object are assigned the migration request Class value of **Entity List**.
- A special zone has been provided for the migration request portal for **Entity List** migration requests to add records to the request. This zone is dynamic. The user chooses a maintenance object and other filter criteria to get a list of objects. One or more objects may be selected for inclusion into the migration request. The user may provide a reference ID to associate with the records along with comments.
- A special zone has been provided for the migration request portal for **Entity List** migration requests to view and remove records linked to the request.

As part of this enhancement, the F1-MigrReq business object has been enhanced as follows:

- The description has been changed to **Criteria-based Migration Request**. This migration request is still useful for migration requests that select records based on selection criteria or selection algorithms or specific keys or a combination of any of the three.
- Records created with this business object are assigned the migration request Class value of **Criteria-based**.

Note that this business object has not been enhanced to allow for a reference ID or comments.

Introduce the Ability to Group Migration Requests

In this release, Migration Request has been enhanced to support referencing one or more other migration requests. This allows for a product or an implementation to define separate migration requests that represent logical groupings of migration plan instructions for ease of maintenance, but to combine all the separate migration requests into a single “grouped” migration request for streamlined export/import purposes. Multiple levels of grouping are supported. In other words, one migration request may reference multiple migration requests, which in turn are grouping other migration requests.

The following enhancements are included to support this functionality:

- A new migration request business object has been provided: Group Migration Request (**F1-MigrationRequestGroup**). Records created with this business object are assigned the migration request Class value of Group. The product does not supply any business object that supports defining a combination of migration plan instructions and migration request references.
- The migration request search includes a new option to search by a referenced migration request.
- The migration request maintenance portal now includes a zone that appears if the migration request being maintained is referenced in a separate migration request. This zone lists the migration requests that reference this one.

In addition, the Framework product delivers a new Group migration request called Framework Configuration (**F1-FrameworkConfig**) to aid in wholesale migrations. This migration request groups other framework delivered migration requests. Some of these migration requests are also new to this release.

- General System Options (**F1-GeneralSystemOptions**) - This is an existing migration request. It includes most of the administration tables in framework that are considered more business oriented (rather than system configuration oriented). Refer to [New/Updated Migration Plans/Migration Requests](#) for details of changes to this migration request.
- Framework Integration Configuration (**F1-IntegrationConfig**) - This is a new migration request. It includes all the configuration tables that are used to define integrations with other systems. Refer to the migration request for more information.
- Migration Admin (**F1-MigrationAdmin**) - This is an existing migration request. It includes the CMA configuration records (migration plan and migration request).
- Security Configuration (Without Users) (**F1-SecurityConfigWithoutUsers**) - This is a new migration request. It includes all the security configuration tables, but does not include the user configuration. Refer to the migration request for more information.
- Framework System Configuration (**F1-SystemConfig**) - This is a new migration request. It includes all the configuration tables that are considered “system” data or “configuration tools” data. Refer to the migration request for more information.

Edge products and/or implementations may choose to include the **F1-FrameworkConfig** migration request into another grouping migration request so that framework objects are included in a migration without having to explicitly list them. This

ensures that in the future, when new framework administration tables are introduced and included in one of the migration requests referred by **F1-FrameworkConfig**, no additional configuration is needed by edge products or implementations to start migrating that data.

Provide the Ability to Mark Multiple Objects as Approved, Rejected or Needs Review

In this release, the following zones have been enhanced to allow for updating multiple objects to Approved, Rejected or Needs Review:

- On the **Migration Data Set Import** portal, the **Migration Data Set Impacted Object Summary** zone now includes the multi-select actions of Approve, Reject and Needs Review.
- On the **Migration Transaction** portal, the **Migration Transaction Objects** zone now includes the multi-select actions of Approve, Reject and Needs Review.

In addition, the **Migration Data Set Objects in Error** zone on **Migration Data Set Import** provides the ability to Reject one or more records.

Provide More Detail for a Completed Migration Data Set Import

In a previous release, when a Migration Data Set Import has finished all its tasks, its status was set to Applied, even if some of the migration objects were in a status of **Cannot Apply**. In this release some enhancements have been done to provide more information for a user reviewing the results of an import:

- The description of the final status (APPLIED) has been changed from Applied to Completed.
- The Completed status is configured to support an optional Status Reason. The product supplies two base Status Reason values for this BO for the Completed state:
 - F1-NO-OBJ-APPL - No Objects Applied
 - F1-SOME-NOT-APPL - Some Objects Not Applied
- The algorithm that transitions a Migration Data Set Import record to the Completed status will review the status of the related migration objects and populate the status reason, if applicable. If all objects are in the Cannot Apply state, it populates a Status Reason of 'No Objects Applied'. If some objects are in the Cannot Apply state, it populates the Status Reason of 'Some Objects Not Applied'. If no objects are in this state then the status reason is not populated.
- The display of a Migration Data Set Import record now includes the counts of Applied Objects and the number of objects in the Cannot Apply state.

Note: This functionality was made available in 4.2.0.3.0 as a hot fix using bug 23228369.

Enhance the Information for Migration Data Set Import

Previously, the Migration Data Set Import information string only showed the ID of the data set. In this release, the information string has been enhanced to include the Export

description, the Status description, the status reason description (if populated) and the creation date and time.

Note: This functionality was made available in 4.2.0.3.0 as a hot fix using bug 23228369.

Enhance the Migration Data Set Import Query Results

In this release the results of the migration data set queries have been adjusted.

- The separate columns for migration data set id, status and export description have been consolidated into one column showing the migration data set import information string (that now includes all these fields). This column has been enabled to include the worklist capability.
- The Status Date/Time and Export Date/Time columns have been removed.
- New columns have been added showing various counts: number of Applied objects, number of objects in the Cannot Apply state and the number of objects that are Unprocessed (still in a non-final/non-rejected state).

Enhance the Migration Data Set Detail Zones

In this release the zones on the Migration Data Set Import portal that show the Transactions and the Objects linked to the data set have each been enhanced to only show records in a non-final state by default. The existing user filter for Status has been enhanced to include an entry for limiting to non-final states as well as an entry to show records in all status values. This allows a user to choose to limit the search to records in a given state, or all states or to return to the default option of only non-final states.

Support for Migrating Individual Lookup Values

In previous releases, the system supported migrating a Lookup and all its values. In this release, support is provided to migrate individual lookup values. To support this, a new Lookup Value MO has been provided. Along with that a migration plan to migrate specific lookup values has been provided. Note that this migration plan has not been included in any base migration requests as they are meant for “wholesale” migrations whereas this new migration plan is expected to be used for migrations that target an explicit list of records.

Miscellaneous Enhancements

This section describes miscellaneous enhancements.

Introduce New Business Service to Interrogate Warnings

The way the system handles warnings to an online user is that warnings are accumulated and issued altogether and the end of all the processing. All the updates are rolled back at this point. If the user Cancels, no further processing is needed. If the user clicks OK, all the processing is re-executed and all warnings are ignored.

For programs that perform logic that cannot be rolled back (such as sending a real-time message to an external system), ideally the logic should check to see if warnings are being

accumulated and only perform the logic if warnings have not been accumulated. i.e., the logic should only occur once the user has clicked **OK**.

An API in Java exists for programs to check this condition. In this release a new business service has been provided to expose this information. The business service is **F1-CheckWarning**.

Note: Processing that cannot be rolled back should be the last possible step in a logical transaction because there is no way to know if a warning may be issued after the logic is performed.

Changes to Batch and User Logging

In this release, the system has been enhanced to limit the information that is captured in the logs that are visible by a user to suppress the information that is proprietary to the system. In addition, information that is captured in a more technical log that is reviewed by a system administrator suppresses customer data such as bind variables.

Refer to the *Server Administration Guide* for details of the formats.

Oracle Utilities Application Framework System Data Details

This section provides information about new and updated system data delivered in this release that may need to be reviewed for possible impact by implementations.

New/Updated Application Services

The following application services were added or updated. Please review and determine which user groups, if any should be granted access to the application service/access mode.

Application Service	Description	Access Mode
The following services were added for the Individual Security Added to Batch Control enhancement.		
F1-ARQPR	Request Monitor	E
F1-AVALG	Application Viewer - Extract Algorithms	E
F1-AVBT	Application Viewer - Extract Batch Control	E
F1-AVMO	Application Viewer - Extract MOs	E
F1-AVTBL	Application Viewer - Extract Table data	E
F1-AVTD	Application Viewer - Extract To Do Types	E
F1-BFCRL	ILM Crawler - Business Flag	E
F1-BSFLG	Business Flag Monitor	E
F1-BUNPR	Bundle Monitor	E
F1-DTDOM	Outbound Message Error To Do Entry Cleanup	E
F1-FCTRN	Fact Monitor	E

Application Service	Description	Access Mode
The following services were added for the Individual Security Added to Batch Control enhancement.		
F1-FKVBP	Foreign Key Validator	E
F1-FLUSH	Flush All Caches	E
F1-ILMIN	ILM Crawler Initiator	E
F1-LANG	New Language	E
F1-LDAP	LDAP Import	E
F1-LKPIL	Standard Lookup Initial Load	E
F1-MGDIM	Migration Data Set Import Monitor	E
F1-MGDPR	Migration Data Set Export Monitor	E
F1-MGOAP	Migration Object Monitor - Apply	E
F1-MGOPR	Migration Object Monitor	E
F1-MGTAP	Migration Transaction Monitor - Apply	E
F1-MGTPR	Migration Transaction Monitor (Deferred)	E
F1-NDPUR	Notification Download Purge	E
F1-ORCRL	ILM Crawler - Object Revision	E
F1-OUCRL	ILM Crawler - Outbound Message	E
F1-PDBEX	Plug-in Driven Extract Template	E
F1-PDBG	Plug-in Driven Generic Template	E
F1-REQTY	Request Type Monitor	E
F1-REVPR	Object Revision Monitor	E
F1-SAKRQ	Sync Request Allocate Keys Monitor	E
F1-SICRL	ILM Crawler - Inbound Sync Request	E
F1-SRCRL	ILM Crawler - Sync Request	E
F1-SRLRQ	Sync Request Load Records Monitor	E
F1-STATSM	Statistics Control Monitor	E
F1-STCRL	ILM Crawler - Service Task	E
F1-STKDF	Service Task Monitor (Deferred)	E
F1-STKTR	Service Task Monitor	E
F1-SUBRQ	Request Monitor (Deferred)	E
F1-SYNEF	Sync Request Extract	E
F1-SYNIL	Sync Request Initial Load	E

Application Service	Description	Access Mode
The following services were added for the Individual Security Added to Batch Control enhancement.		
F1-SYNRQ	Sync Request Monitor	E
F1-SYSRQ	Sync Request Monitor (Deferred)	E
F1-TDCRL	ILM Crawler - To Do Entry	E
F1-TDEER	To Do Entry External Routing	E
F1-TDPG	Purge Completed To Do Entries	E
F1-XMLPG	XAI Upload Staging Records Cleanup	E

Application Service	Description	Access Mode	Comments
F1-RETRCMASSETTINGSSC	Retrieve CMA Configuration BS	E	Added for a new business service that may be used to retrieve CMA master settings.
F1NAVEMP	Launching Application	E	Special portal for Support Ability to Bypass the Home Page when Launching the Application.

New/Updated Migration Plans/Migration Requests

Migration plans have been added for the following maintenance objects in this release:

- ETL Mapping Control (F1-ETLMappingControl)
- Installation Options (F1-InstallationOptions).

Note that in a previous release, the product supported installation algorithms only. This migration plan allows for copying of main fields on installation, the algorithm collection and the messages collection. In addition, this migration plan includes a pre-compare algorithm that retains the value of the Environment ID and the License Key for the target installation record.

- Lookup Value (F1-LookupValue). This is for the functionality described in the [Support for Migrating Individual Lookup Values](#) section.
- Performance Target Type (F1-PerformanceTargetType)
- Performance Target (F1-PerformanceTarget)
- Statistics Control (F1-StatisticsControl)
- User Group - without users (F1-UserGroupWithoutUsers).

In previous releases we had supplied a migration plan for User Groups that includes all collections for the user group. This migration plan allows an

implementation to move a user group and its application service configuration without copying users (that may not be valid in the target region).

- Message Options (F1-MessageOption)
- JMS Queue (F1-JMS-Queue)
- JMS Topic (F1-JMS-Topic)
- JNDI Server (F1-JNDI-Server)

The following changes were made to the General System Options migration request (F1-GeneralSystemOptions).

- Migration plans for the following MOs were added:
 - Attachment
 - Bucket Configuration
 - Characteristic Type
 - ETL Mapping Control
 - Extendable Lookup
 - Installation Options
 - Managed Content
 - Performance Target
 - Performance Target Type
 - Report Definition
 - Request Type
 - Service Task Type
 - Statistics Control
 - To Do Type
- Migration plans for the following MOs were removed:
 - Installation Algorithms

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 V4.3.0.5, or is planned for removal.

Deprecated Functionality

This section lists the functionality has been deprecated at the time of this release.

Support for Abbreviated Time Zone Names

The time zone page includes a drop down for defining a Time Zone Name. In previous releases, the list includes many three-digit “abbreviated” time zone names. However, their use is deprecated because the same abbreviation is often used for multiple time zones (for example, “CST” could be U.S. “Central Standard Time” and “China Standard Time”), and the Java platform can then only recognize one of them.

In this release, the Time Zone name drop down no longer includes the abbreviated values.

Upgrade Note - Please review your time zone records and set the Time Zone name to an appropriate valid value.

Items Planned for Future Deprecation

The following items will be desupported in a future release.

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.
 - Business Object **F1-EnvironmentRefPhysicalBO**
 - Maintenance Object **ENV REF**
- 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 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 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 database tables F1_IWS_SVC_OPER_L, F1_IWS_ANN_CHAR and F1_IWS_ANN_TYPE_CHAR will be removed in a future release.

URI Substitution Variables

In a previous release several variables were provided out of the box however, no product functionality was using them. In a future release these variables will no longer be delivered as it was deemed confusing to supply variables that were not related to specific product functionality. The following variables will no longer be delivered:

- F1_BI_EXTRACTS
- F1_INTERNAL_FILES
- F1_CUST_APP_BASE
- F1_PROCESS_DIR
- F1_SVC_CATALOG_WSDL_DIR
- F1_PDB_EXTRACTS

The suggestion for implementations is to not use any of the above names. CM variable names should be used instead.

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. Please review any existing algorithms and create appropriate Pre-Compare algorithms instead.

BO Read in F1-MainProc when Pre-Processing Exists

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

In a subsequent release, to solve a UI Hints issue related to child BOs, a BO 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 BO Read is no longer necessary in F1-MainProc. Because there are many pre-processing scripts that are properly performing the Read of the BO, ideally the BO Read should be removed from F1-MainProc so that multiple reads are not performed.

However, there may have been pre-processing scripts introduced after the BO Read was included in F1-MainProc that were coded to not perform a BO read in the pre-processing script. Because of this situation, the BO Read is still performed as part of the processing of F1-MainProc.

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

Desupport of Embedded Installation

WebLogic 12.1.3 is currently supported for both embedded and native installations. In future releases of Oracle Utilities Application Framework, using a later version of WebLogic, for example 12.2.*, embedded installations will be not be supported. Only the native installation will be supported.

Removal of YUI Library Support

Due to the discontinued support of the open-sourced Yahoo! User Interface Library (YUI), all YUI components will be removed from the product in a future release. The recommendations for implementations is to review custom use of YUI library resources and plan to replace the resources accordingly.