

Oracle Utilities Mobile Workforce Management

Release Notes

Release 2.2.0.0

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Preface

These release notes provide an overview of the enhancements, known issues, and other changes in this release.

Audience

This guide is intended for anyone installing or using Oracle Utilities Mobile Workforce Management 2.2.0.

Related Documents

For more information, refer to these Oracle documents:

Installation, Configuration and Release Notes

- *Oracle Utilities Mobile Workforce Management Release Notes*
- *Oracle Utilities Mobile Workforce Management Quick Install Guide*
- *Oracle Utilities Mobile Workforce Management Installation Guide*
- *Oracle Utilities Mobile Workforce Management DBA Guide*
- *Oracle Utilities Mobile Workforce Management Configuration Guide*

User Guides

- *Oracle Utilities Mobile Workforce Management Server Application User's Guide*
- *Oracle Utilities Mobile Workforce Management Mobile Application User's Guide*

Map Editor Installation and User Guides

- *Oracle Utilities Mobile Workforce Management Map Editor User's Guide*
- *Oracle Utilities Mobile Workforce Management Map Editor Installation Guide*

Framework Guides

- *Oracle Utilities Application Framework V4.2.0.1 Business Process Guide*
- *Oracle Utilities Application Framework V4.2.0.1 Administration Guide*

Supplemental Documents

- *Oracle Utilities Mobile Workforce Management Server Administration Guide*
- *Oracle Utilities Mobile Workforce Management Batch Server Administration Guide*
- *Oracle Utilities Mobile Workforce Management Security Guide*

Conventions

The following text conventions are used in this document:

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

Release Notes

This document provides general information about the Oracle Utilities Mobile Workforce Management 2.2.0 release including new functionality, known issues and other important information.

Prior to installing this release, it is important that you review all of the release notes and review your business processes as they relate to the new enhancements. There may be steps to complete or information to review before accepting the release. Refer to the quick install guide and installation guide for information regarding supported platforms and installation steps.

This guide includes the following:

- [Release Overview](#)
- [Integration Information](#)
- [New Functionality](#)
- [Oracle Utilities Application Framework Enhancements](#)
- [Known Issues](#)
- [End of Support Notices](#)
- [Demo Data Information](#)

Release Overview

The release includes all the components and features previously released in earlier service packs, plus a number of fixes tested and released together. There are features introduced in this service pack which are highlighted in the [New Functionality](#) section.

Refer to the Quick install guide for a full list of the media pack components and application components included with this release.

Refer to the release notes available with previous service packs for functionality delivered with those versions.

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

Relationship Between 2.2.0 and Prior Versions

This release supports the following update paths:

- **Initial Install:** If you are installing Oracle Utilities Mobile Workforce Management v2.2.0.0.0 for the first time, you can install directly.
- **Upgrade Install:** Oracle Utilities Mobile Workforce Management v2.2.0.0.0 supports a direct upgrade from Oracle Utilities Mobile Workforce Management v2.1.0.5.0. If you are on an earlier version then you must upgrade to v2.1.0.5.0 prior to upgrading to v2.2.0.0.0.
- **Oracle Utilities Application Framework:** Please ensure that you have installed Oracle Utilities Application Framework v4.2.0.0.0 and the Oracle Utilities Application Framework v4.2.0.0.0 Prerequisite Single Fixes and Oracle Utilities Application Framework v4.2.0.0.0 Service Pack1 (also known as v4.2.0.1.0) before installing this release. Refer to the installation guide for more information.

Supported Platforms Notice

See the Supported Platforms section of the *Oracle Utilities Mobile Workforce Management Quick Install Guide* included in this release for an updated list of supported platforms.

Changes in Supported Platforms

The following platforms were newly certified in this release:

- Browser based MCP
The mobile client can now be accessed through a URL on any supported web browser.
- AIX 7.1 TL4
- Oracle Linux 6.4
- Red Hat Enterprise Linux 6.4
- Sun Solaris 11

Database Changes

This release includes database enhancements. For more information about these changes refer to the Oracle Utilities Mobile Workforce Management Database Administrator's Guide.

Integration Information

The following integrations are supported in this version of Oracle Utilities Mobile Workforce Management:

- **Oracle Utilities Advanced Spatial and Operational Analytics, 2.4.1**
When using Oracle Utilities Mobile Workforce Management v2.2.0 with Oracle Business Intelligence for Utilities, you must upgrade to Oracle Utilities Advanced Spatial and Operational Analytics v2.4.0 Service Pack 4. This release is not compatible with previous releases of Oracle Utilities Advanced Spatial and Operational Analytics. For more information, see the release notes and installation documentation for Oracle Utilities Advanced Spatial and Operational Analytics, v2.4.0 Service Pack 4 available on the Oracle Technology Network.

Please note that in release 2.5 the product name for Oracle Utilities Advanced Spatial and Operational Analytics was updated to "Oracle Utilities Analytics".

- **Oracle Integration Pack for Oracle Utilities Field Work 3.1**
The Process Integration Pack for Oracle Utilities Field Work supports the creation and

synchronization of field work records between Oracle Utilities Customer Care and Billing, Oracle Utilities Work and Asset Management, and Oracle Utilities Mobile Workforce Management. Please refer to integration documentation available on the Oracle Technology Network for more information.

New Functionality

The following sections provide details on the new features implemented in this release with a summary of new user interface and functionality enhancements and some implementation and training information. While these notes provide high level configuration information, please refer to the configuration guide for comprehensive guidelines on configuring and implementing the enhancements. You can also reference the [demo environment](#) for examples.

- [General Enhancements](#)
- [Activity Enhancements](#)
- [Scheduler Enhancements](#)
- [MCP Enhancements](#)

General Enhancements

Attachments

Extended the attachment functionality to support both upload and download of attachments with all file types on laptops. This supports mobile workers in sending and receiving additional information regarding activities such as pictures of an activity site, detailed reports completed in Word documents, recorded sound or video, etc.

The following changes were implemented for this enhancement:

- The **Attachments** portal allows you to create and upload “common” attachments. Common attachments are simply attachments that are created as records in the system and can be referenced on other records such as activity types.
- The **Attachments** zone in the **Activity** portal shows any attachments related to the activity added directly via the zone, or added by mobile workers in the field.
- Added the **Attachments** zone to the **Activity Type** portal. Common attachments can be added to activity types so that any activity created with that type will include the attachment and will be made available to crews and mobile workers when they receive the assignment. For example, a common set of instructions can be deployed every time a certain activity type is assigned to a mobile worker. You can set options so that mobile workers either receive the attachment immediately with the assignment, or they need to download it manually (to save bandwidth, time and storage space). If the attachment should be automatically pushed to the mobile device, it must be added as a deployment part.
- Dispatched assignments with attachments show a paperclip icon next to the assignment entry in the mobile device **Task List** to indicate that an attachment is present.
- Added an **Attachments** activity menu option on the mobile device that lists all attachments related to the activity. This includes attachments that were sent from the server or those that were created in the field.
- Added an **Attachment Storage Size** field to **MDT Type**. This indicates the maximum size, in megabytes, allowed for attachments. When a user attempts to download an attachment, the system validates that the total size of the download plus what is already on the MDT and will not exceed the maximum value indicated in the **Attachment Storage Size** field for the MDT. If this value is not

specified for the MDT Type then there is no file size validation while uploading\downloading attachments on the MDT.

Implementation Notes

- As with existing capture content capabilities, each type of attachment must be defined on the **MDT Type** as a supported capability by devices of that type.
Note: It is your organization's responsibility to have the appropriate tool or application to view the attachment on the mobile device.
- Also review **MDT Types** to determine the max size for each device being used in the field and use the **Attachment Storage Size** field to set the appropriate value.
- Several standard attachment file types are delivered out of the box, such as PDF, Word, Excel, or other document types. However you can add additional file types by creating additional custom business objects similar to the base business objects.
- Consider where attachments must be automatically pushed to mobile workers and add these to designated deployment parts.

Training Notes

Dispatchers and mobile workers will need to be trained on your business practices related to when and how to capture and upload attachments for activities. Workers will also need to learn how to download attachments that are included with activities. If attachments are set so that they are not automatically sent to the mobile device, workers will need to learn how to obtain these attachments when they need them.

Limitations

- When considering limitations for this enhancement, it is important to make a distinction between uploading and downloading attachments.

Upload: As noted above, the new upload functionality is only available for laptops. For Windows Mobile and Android mobile devices, pictures or audio files (considered “captures”) can still be attached and viewed, but not other types of files.

Download: All attachments can be downloaded on all devices, however if the file type is not supported on the device, it cannot be opened or viewed. This applies, in particular, to Windows Mobile devices which do not support viewing most file types.

View: All attachment files can be viewed on laptops and Android devices as long as the required third party software or application is installed. As mentioned above, all attachments can be downloaded to Windows Mobile devices, however, they cannot be viewed.

- Not supported for [Browser Based MCP](#). This applies for captures and attachments.

BI Configuration Portal

Modified the **BI Configuration** portal to support integration with Oracle Utilities Business Intelligence. Please refer to the Oracle Utilities Business Intelligence documentation for detailed information.

Configuration Migration Assistant

Added migration plans and requests to be used with the Oracle Utilities Application Framework Configuration Migration Assistant (CMA) tool. This tool allows you to easily migrate control data between environments (for example, from user acceptance to production). CMA functionality is described in detail in the *Oracle Utilities Application Framework Administration Guide*.

Contractor Management

Added new functionality to support the management of contractors or supplemental work capacity. This enhancement incorporates two models for contractor resources: A shift based model and a capacity based model. You can use both models in one implementation since each contractor is set up and managed on an individual basis.

- **Shift model** - In the shift model, contractors are set up, configured, and scheduled as if they are internal employees.
- **Capacity model** - In the capacity model, contractor companies are assigned work based on agreed upon capacities of work of a certain type, in specific areas and for a period of time. Work capacity maybe specified as a number of hours or a number of activities. Contractor resources are fully managed and scheduled outside of Oracle Utilities Mobile Workforce Management.

The following changes were implemented for this enhancement:

- The **Resource Group Type** and **Resource Group** portals were added to manage contractor companies.
- A new **Contractor Eligibility** portal was added to the **Main** menu to allow the creation and management of eligibility rules for contractors. These rules establish preferences between your organization and contractor companies. When scheduling work, service classes, service areas and eligibility preferences are used to determine which contractor can be used. You can also configure the **Contractor Eligibility** plug in on the activity business object to implement additional business rules as necessary.
- The **Capacity Type** and **Capacity** portals were added to manage contractor availability to work activities. Capacities are defined based on the number of hours or the number of activities that the contractor is available to work. This helps the scheduler to determine which contractor is available to work a particular activity.
- A new **Capacity Weekly Template** portal was added to define weekly work templates for specific contractors. These templates are used to automatically generate capacity for a contracted period for the contractor.
- A new **Contractor Work Management** portal was added to the **Main** menu to allow contractors to manage their individual capacities. When using this portal, a contractor can only see their work; they cannot see other contractor's information or your company information. The portal can only be accessed by contractors who have access to your internal application.
This portal is not used by the contractor company if their application is integrated with your organization's application via web services.
- A **Contractor** field was added to screens related to managing resources such as Crew, Mobile Worker, and Vehicle.
- **Activity Type** was modified with an **Eligible For Contracting** field which indicates whether or not a contractor can work on activities of that type. The setting of this field controls whether the activity should be worked by an internal resource only, a shift based contractor, or any contractor.
- **Activity** was also updated with this field as well as contractor preferences and restrictions. A **Contractor** field was also added to reflect the contractor to which the activity is committed.
- Activity assignment functionality was modified to incorporate using capacities into shift management (such as how activities are allocated or dispatched, assignment approval, capturing completion details, and so on).
- Added the ability to add users as contractors. This is required for any contractor who will access the system.

- The **CDI** portal includes new activity search criteria to filter by contractor eligibility, Contractor resources are highlighted on the Scheduling Gantt, and there is a new **Contractor Capacity** tab in the **CDI** portal showing activities by contractor, committed, completed, and remaining capacity.
- Added the ability to select a capacity in the shift chooser.

Implementation Notes

- Review your business practices to determine how contractors will be incorporated.
- Use the **Resource Group Type** and **Resource Group** portals to begin defining contractor types and contractors within your system. Define a Company resource group type and a company resource group for your own organization.
- Set up contractors as users in the **User** portal. Your organization should define contractors in user groups then provide them with access only to the certified transactions that apply data security.
- Use the **Contractor Eligibility** portal and the **Capacity** portals, as applicable, to begin setting up eligibility rules and capacities for contractors.
- Use the **Capacity Weekly Template** portal to establish shift-like templates for managing contractor work.
- Review **Activity Types** to determine which types of activities can be worked by contractors.
- Review scheduler configurations to determine how the scheduler should make work assignments when taking contractors into consideration. For example, contractors might be more expensive or have different availability.

Training Notes

Contractors will need information on how to access Oracle Utilities Mobile Workforce Management to review, accept and/or decline, and complete work that is scheduled to them.

Dispatchers and other work planners will need to be educated on your business practices related to working with contractors.

Draw Map Areas

Added functionality allowing users to draw map areas to define alert areas, service areas, and other geographic areas. Based on this functionality, your implementation can do the following:

- Draw alert zones or general geographic zones.
Draw shapes to circle, outline with a rectangle, or connect points to create polygon shaped areas.

Alert zones and geographic areas can be drawn directly on the map and can be used to alert the dispatcher if a GPS enabled mobile worker enters or exits that zone. This can be used to establish hazard zones to help with crew safety or, for instance, to identify vehicles that are outside of an established service territory to indicate if they've been stolen or if workers are using them for non-work purposes.
- Visualize service areas and scheduling areas on a map.
Service areas and scheduling areas must be drawn in an external Geographic Information System (GIS) tool. For service areas, the resulting ordinates (comma delimited latitude and longitudes) can then be copied and pasted into the coordinates on the **Map** tab of the corresponding object. **Scheduler Areas** cannot be manipulated on maps in this way, but rather can only be done in GIS.
- Select postal codes to define drawn areas. ****With separately licensed Oracle Spatial Enterprise Edition ONLY.**
- Assign the service area for an activity based on its geocode (versus just the postal code).

- Use BPA scripts to populate postal codes to define scheduling areas.

The following changes were implemented for this enhancement:

- Added a new **Alert Area** portal to the **Main** menu which allows you to add or update alert areas.
- Added a new **Geographic Area** portal to the **Admin** menu which allows you to add or update geographic areas. These appear in the CDI similar to alert areas, and can be configured to represent any map area. For example, you may want to represent the entire company territory, certain dense population areas and so on.
- Updated the **Service Area** portal on the **Admin** menu with a **Map** tab that displays the geographic boundary of the service area.
- Enhanced the **Determine Service Area** algorithm to use service area boundaries if available to determine an activity's service area based on its location geocode.
- Updated the **Scheduler Area** portal on the **Admin** menu with a **Map** tab that displays the geographic boundary of the scheduler area.
- Updated the **CDI** portal to display areas as layers on the map.

Gantt Filtering and Sorting

Updated processing so that dispatchers have access to more details about shifts with better filtering and searching capabilities.

- Click column headings to sort by multiple columns and reorder the columns as necessary.
- Add more information to the initial Gantt display such as adding or removing the shift type or hierarchy levels. Save a default view based on column order, selections, and resized widths.
Users click the **Customize Columns** to add or remove columns. Save the display to a list of **My Displays** for easy switching between displays. Set a key display as the default that opens when initially accessing the **CDI** portal. Only column views can be set as defaults.
- Find crews based on filter criteria such as hierarchy, equipment, or assignments.
Users click the **Filters** icon to pare down the list of visible shifts or further filter by criteria such as by coverage, by capability, and so on. Filters can be saved, but not defaulted. Once a filter is saved, it appears in the **My Filters** list.
As an example, dispatchers might set up a filter to show emergencies in a particular territory if this is information they need to view on a regular basis.
- Highlight activities to select for further action.

Hierarchies - Crew and Service Area

Prior to this enhancement, organizations only used hierarchical structures (groupings of mobile workers, resources or service areas) with Oracle Utilities Business Intelligence. This enhancement expanded hierarchy functionality.

The following changes were implemented for this enhancement:

- Added a **Crew Hierarchy** portal and **Service Area Hierarchy** portal to the **Admin** menu to allow creation and the maintenance of hierarchies for more convenient hierarchy management.

For example, mobile workers can be grouped by the type of work they do, how they are managed, internal versus external, etc. Service areas can be subdivided into territories, regions, offices, etc.

- Hierarchies can be viewed in the **Scheduling Gantt** display

- New filtering by hierarchies functionality can be very helpful toward organizing information and allowing dispatchers and other users to more easily locate the crews, service areas, and activities that require their attention.

Searching for crews and service areas by hierarchy is enabled in various query portals including the CDI portals.

- Added the ability to download and upload hierarchies to and from a spreadsheet to make updates.
 - Download a hierarchy from the info zone (using standard **Export** functionality), make changes, then upload it back into the system.
 - Load a hierarchy into the application by clicking the **Upload Hierarchy** link on the hierarchy zone and upload a properly formatted spreadsheet file.

During the upload, records are created in the order that they are listed in the spreadsheet. This means that if an entity is referenced as a higher level to another entity, the higher level should be listed first in the sheet.

Implementation Notes

Implementations with existing hierarchies:

Clients who have already set up hierarchies in prior released versions of Oracle Utilities Mobile Workforce Management should be aware of the data migration required for this enhancement. If you already have hierarchies, they are configured as extendable lookups referenced on the Crew business object (**M1-Crew**) and the Service Area business object (**M1-ServiceArea**). For the new functionality, these must be moved to the new Hierarchy maintenance object, **M1-HIERARCHY**.

An upgrade script is provided to convert existing hierarchy data from your current extendable lookup storage to the new hierarchy maintenance object. This script completes the data migration as part of the release installation. Your implementation should review the results to verify that the information was migrated successfully. As noted above, you can download the full hierarchy from each hierarchy portal using standard Export functionality in the info zone.

All implementations:

- Hierarchy levels are created as lookups:
 - M1_CREW_HIR_LEV_FLG
 - M1_SER_ARE_HIR_LEV_FLG

You can define up to 3 levels with level 1 being the highest, level 2 below level 1, and level 3 below level 2. Enable each level by populating the override description to describe its role in your business structure.

- Create your full hierarchy structure via manual entry or by uploading a spreadsheet.
- After setting up the levels, access each **Service Area** and **Crew** record to associate the record to the lowest level in your hierarchy. Navigate to the record and add the hierarchy value in the appropriate hierarchy field.

Training Notes

Dispatchers and other users who access the CDI, search for crews, shifts and activities, and any other users who may be responsible for functions related to the new search and filtering capabilities in the system should be made aware of these updates and their enhanced ability to perform searches based on hierarchies.

Map Edits

Prior to this enhancement, when new map updates were sent from HERE maps (formerly Nokia / NAVTEQ), they would overlay the existing maps, overwriting any edits made by the implementation or user via the Map Editor tool. This enhancement modified functionality so that edited maps can be reapplied onto an updated version of HERE maps. These maps are used by organizations to signify road changes, road construction or hazards, to change the road speeds, to remove roads with traffic restrictions, etc, so retaining any edits is critical to the proper function of the system and scheduling.

Please refer to the Oracle Utilities Mobile Workforce Management Map Editor User's Guide for more information.

My Calendar

Added a new **My Calendar** portal to the **Main** menu which can be used by any user that is defined as a mobile worker, allowing them to easily access their shifts and to review their activities to enter completion information. This portal can also be set as the home page for such users.

Route Replay Displayed on Shift

Enhanced functionality so that users can review a crew shift's actual work route as well as the planned work route. Activities are shown in the order that the shift was worked with each route shown in a different color and a visual indication if tasks were worked out of sequence.

Note: To show the actual work route the crew must be GPS enabled.

The following changes were implemented for this enhancement:

- A new **Route** tab was added to the **Crew Shift** portal. This tab and the **CDI** both show the same route replay information:
 - Street level display of the planned shift and actual shift route represented in different colors.
 - Visual indicators on hover show if tasks were postponed or worked out of sequence.
 - The display also shows the crew's current location if the shift is in progress. This information comes from the crew's GPS coordinates.

Training Notes

Dispatchers and any other users who monitor shifts will require training on any new business processes that arise as a result of this enhancement.

Utility for Mobile UI Map Testing

Added functionality to provide a tool to help implementations test and view mobile UI map changes within the application. This provides improved efficiency in building mobile UI maps to help reduce implementation time lines.

The following changes were implemented for this enhancement:

- Users access the **UI Map** portal and make the necessary edits, enter a MDT Tag in the **Mobile Map** zone on the dashboard, and click the **Test** button in the **Mobile Map** zone on the dashboard.
- A new window opens to display the changes on the MDT. When this is initially launched, the MDT needs to have already downloaded a deployment and be displaying an application screen (not one of the initial MCP screens such as Register, Logon, or Deployment).

Implementation Notes

- Test both the **Mobile UIMap** and the **Refresh Deployment** integration by adding the **M1-MCPDVTTool** deployment part in the existing **Mobile Application Deployment Type**.

- The **M1-MCPDVTool** deployment part can also be included as a standalone DeploymentType with the initial service script set to MCPDeveloperToolInitialScript. This will allow you to logon to the MDT and the device will be ready to receive RSI messages from the server to test UI Maps.

Note that if your implementation adds any new UI Maps or changes any existing custom UI Maps they must be set as “XHTML Document” or “XHTML Fragment”.

Limitations

This is not supported for browser based MCP.

Activity Enhancements

Access to Shift Chooser

Added functionality to provide dispatchers with better access to the chooser directly from the **CDI** portal and from activities. This simplifies the allocation process by reducing the number of steps it takes to access the Chooser. The enhancement replaces the previous functionality where the user had to select the **Allocate** button and then the **Chooser** option was presented.

The chooser button was added to the following:

- Activity Maintenance
- CDI Activity Search
- Gantt: Task Context Menu (on task bar)
- Gantt: Task Menu Lookup (menu option)

Training Notes

Train dispatchers on new ways to access and utilize chooser functionality based on your business processes.

Complex Activities

Added functionality to support long duration activities which require multiple shifts to complete. These types of activities are referred to as “complex activities” or “multi shift tasks” and are typical of, but not limited to, construction work.

The following scheduler behavior and processing applies to complex activities:

- The complex activity is split into several crew visits to the site and progress is tracked per visit. Each visit is assigned to a shift. Work can be limited to the same crew, or multiple crews may be allowed.
- Visits are scheduled sequentially unless a user manually allocates them differently. Visits can overlap for a certain percentage of the time (for example to allow time for one mobile worker to pass on or debrief another mobile worker that is taking over the activity).
- A minimum onsite time per visit can be specified.
- When a crew completes a visit, the crew or dispatcher can indicate whether the work is complete or adjust the remaining time if it is not complete. As a result, the scheduler re-optimizes the whole complex activity, and may add or subtract future visits and/or adjust their length. If more time is needed to complete the activity, the scheduler simply creates another visit or appends to an existing visit.
- Future planned visits are adjusted based on the remaining time indicated.
- Once the activity is complete, remaining visits are removed from the schedule and the activity cannot be extended.

As an example, a complex activity might be set up that is 20 hours in length to be scheduled over 4 work days with the minimum visit time set as 2 hours. The scheduler would split the activity into 4 visits (visit 1 is 6 hours, visit 2 is 6 hours, visit 3 is 4 hours, and visit 4 is 4 hours).

Implementation Notes

Enable this functionality by completing the following

- Create new task types using the complex activity type business object **M1-ComplexActivityType**.
- Configure the **Prepare Completion Data** plug in to prepare completion information for the task to be sent to the host if the base logic does not fully meet your business requirements.

Standard activity configurations apply to complex activities such as defining the overall effective, preferred, and access time windows; adding override time windows to exclude certain hours of the day for work; validating the activity against the Service Area, Service Class, skills and equipment, and other costs and constraints; enabling the Dispatcher to manually allocate and dispatch visits; and enabling the mobile worker to reject, decline, postpone, or suspend a visit.

Training Notes

Crews/mobile workers will require training on how to manage their work based on the business process decisions you make regarding using complex activities.

Limitations

Please take the following into consideration when incorporating this enhancement into your business process:

- The following are not supported with complex activities in this release:
 - A complex activity cannot use transfer of goods functionality
 - Complex activities cannot be set up as appointments
 - A complex activity cannot include a site delay
- A crew cannot create a complex activity or a visit in the field (as a pickup activity)
- A complex activity is considered mandatory work
- A complex activity cannot be emergency work
- Complex activity work is not eligible to capacity contracting
- A complex activity cannot be dependent on any other activity. They cannot be part of a chain dependency or part of a job dependency.
- Neither complex activities nor visits can be extracted to Oracle Utilities Business Intelligence.

Planned Breaks While On Site

Modified processing to allow crews to take a break onsite without forcing them to suspend their current activity. This is configured on the activity type and is always enabled for complex activities.

Crew Time Usage

Modified processing to allow crews to review and correct time usage reports when completing certain activities. This is configured on the activity type and is always enabled for complex activities. When enabled this information is also sent to the host system as part of completion information.

Keeping Activities with the Same Crew

Modified functionality so that crews are able to retain activities for future shifts. For example, if an activity is suspended, the crew can request “fix to crew” so that they can work on it the next day or

during a future shift. The crew can make this request when postponing, suspending or manually returning an assignment. At the end of their shift, each crew receives a reminder to mark any activities that weren't completed and note whether to keep that activity with their next appropriate shift.

Note that “fix to crew” functionality will only apply to activities in certain logical situations. Emergency activities would generally not use this function, however there is no system limitation preventing it. Complex activities do not use “fix to crew” because they incorporate similar yet alternate functionality to manage how the continuing activity is allocated to workers and shifts.

This enhancement is intended to work with the enhancement for handling keys and in other appointment/access situations. If, for example, the crew/mobile worker has picked up a key to work an activity, the activity should not be reassigned to another crew because the initial crew is in possession of the key. If the crew/mobile worker is unable to complete an appointment for some reason or if they are in possession of a part needed to complete the work, they should keep the activity so that they can continue with work that they have started and are already familiar with.

The following changes were implemented for this enhancement:

- Dispatchers and users use the **Fix to Crew** action on the maintenance screen for the activity to cause an activity to stay with the same crew. In this case, the scheduler only considers shifts with that crew when scheduling the activity.
- The **CDI** highlights activities that are fixed to a crew.
- If an activity has been retained to a crew and a dispatcher attempts to manually allocate that activity to a shift, the system displays a warning that the activity is retained to a crew. The dispatcher can then confirm and choose to honor the retained activity or remove the crew and recall the assignment.
- Mobile workers request to keep an activity with them on their mobile device.

With respect to this enhancement, the system handles jobs in the following ways:

- If one activity in a job is fixed to a crew all other activities are also fixed to same crew.
- In a partially completed job, only remaining non-worked activities remain in the job so that they can be rescheduled.
- The **Job Activities** zone displays all of the activities that were part of the original job.

Training Notes

Crew members/mobile workers will need to be trained on new business practices that you might incorporate based on this new functionality. Your organization will want to establish guidelines around when activities should be retained to the workers that started them.

Handling Keys

Added functionality so that the system alerts mobile workers that they are required to pick up keys (or access cards) before they can work on an activity. Obviously if key or card is needed to gain access to a work site or facility, the mobile worker cannot start an assigned activity without it. Once they have the key or card, the activity cannot be assigned to another crew or resource, so this also ties in with the enhancement to keep an activity with the same crew or resource until the activity is complete.

This enhancement leverages depot functionality, so a distribution depot must be set up for every location where keys would be picked up. If your organization does not use depots in general, but will want to track key pickup in the way described, you must set up key related depots.

After receiving the key information from the host system, such as the key ID and the depot where the key is located, the scheduler creates a depot task to pick up the key as part of scheduling the activity. If the same crew/mobile worker has multiple activities that require them to pick up keys at

the same location, the scheduler creates one task to pick up all of those keys. The workflow dictates that the crew returns all keys at the end of the shift.

The following changes were implemented for this enhancement:

- Activity related business objects were enhanced to include key details.
- Added **Task Type** to **Depots** and **Depot Profiles** to help distinguish the type of task that would occur at the depot whether it is picking up keys or another general depot task. The task type provides a “user friendly” name or description for the depot task which was formerly missing from the user interface. This is important on the server version and also for the depot task as it appears on mobile devices.
- Enhanced the scheduler recognize key pre-requisites and restrict activities that require keys to activities that log off at the same location as the key.
- Added functionality to mobile so that now depot tasks list the depot activities that are part of the task. The mobile device also now shows depot task activities that are not dispatched but need to be previewed by the crew.

Implementation Notes

- Review your existing business process for handling keys to determine if this functionality can replace it.
- Define task types for depots in the **Task Type** portal. Include task types for key pickup.
- Set up distribution depots for every location where keys would be picked up. Associate the task type for key pickup.
- Review existing depots and depot profiles and add task types as appropriate.

Training Notes

Educate crews/mobile workers on your updated business practices for handling key pickup prior to starting activities.

Limitations

- Activities that require keys are restricted to shifts that have the same logoff location as the location where keys are picked up. This is assumed to occur as part of the shift practices. The system does not validate whether or not a key was actually dropped off.
- Depot activities cannot use keys since an activity can only be in a single depot run. This means that there cannot be depot activities that require “goods” to be picked up from depot A and “keys” picked up from depot B. Then the activity would have to be in two depot runs to pickup both goods and keys. This is not allowed in the current release.

Period of Unavailability Enhancements

Enhanced functionality so that periods of unavailability (POUs) can be set for daily, weekly, monthly, or yearly recurrence.

Also added functionality so that POUs can be managed for multiple resources at one time:

- The **Resource Search** on POUs was changed to **Crew Search** and was modified to display the crews that are not currently allocated to the POU.
- A new **Invited Crews** zone was added to display a list of crews that are currently allocated to the POU.
- Both zones allow you to select multiple crews then add or remove them as needed.

Implementation Notes

- Review existing POUs or create new ones to take advantage of these enhanced functions.

Training Notes

Users will require training on the change from **Crew Search** to **Resource Search** in the **POU** portal, and how to work with the **Invited Crews** zone.

Activity Priority

This enhancement adds the ability to prioritize one activity over another activity of the same activity type, or to prioritize one activity type over another activity type. This is set with a numerical value on the activity. Activities with a higher priority are scheduled vs. not scheduled, scheduled to an earlier shift, or scheduled earlier in the shift.

For example, if there are two connect activities, one at a hospital with a higher priority and one at a seldom used warehouse with a lower priority, and multiple shifts, the higher priority hospital activity will get scheduled today and earlier in the day (whereas the lower priority one may not get scheduled on that day at all).

Note that the scheduler only acts upon activity priority. When an activity is created, the priority is defaulted from the activity type unless it is specified by the host. However, the priority on the activity itself is what the scheduler ultimately considers. If your organization needs to maintain the concept of priority based solely on activity type, you must carefully establish the ranges of priority within each activity type.

Priority is set on the activity type, but can be altered on the activity.

The following changes were implemented for this enhancement:

- Enhanced the **Priority Profile** portal on the **Admin** menu to allow you to define allocation factors used to prioritize the scheduling of activities.

Note: The meaning of the priority function defined by a priority profile has changed: Prior to release 2.2.0 it was a factor over the allocation priority cost only which was applicable to optional work only. As of release 2.2.0, it is a factor that applies over an activity's scheduling priority over time whether it is mandatory or not. Also, mandatory work is considered optional until the activity's end time window is within the horizon if it is a single day activity.

- A **Priority** section was added to activity type and activity. The values in this section determine the importance of the activity relative to other activities. Activities of a higher priority are scheduled first or earlier. The **Scheduling Priority** field in this section was formerly named **Shift Promotion** on activity type.
- The numeric value entered in the **Scheduling Priority** field on an activity represents the priority level. Scheduling Priority is always 0.01 to 10 with 10 being the highest priority. As noted above, if this is not specified for an individual activity, it is defaulted from the activity type.
- A **Business Priority Number** field was added to the activity to capture the business value of the activity such as cost or other currency amount, number of customers, relative customer importance etc., and is used to derive the scheduling priority number. This is a way to derive the scheduling priority number based on real business numbers. The conversion from a business priority number to scheduling priority is configured in the **Priority** section on the activity type.

For example, collection activities can be prioritized highest overdue amount first. The host system would include a business priority number equal to the amount overdue. Given this, the activity type logic would derive the scheduling priority based on ranges of amounts overdue:

- Up to \$100 converts to a scheduling Priority of 1
- Up to \$1000 converts to a scheduling priority of 5

- Up to \$999,999,999 might convert to a scheduling priority of 10
- (with other ranges in between)

Another example is for the host to include a business priority number equal to the number of customers impacted so that the activity that impacts the most customers is prioritized higher. The activity type logic would convert the number of customers impacted into a scheduling priority of 1 to 10.

Note that on the activity type, a scheduling priority can be defined and ranges can be defined. When determining priority, the system attempts to use the ranges first, based on information from the activity, however if the priority cannot be determined from the range, the value in the **Scheduling Priority** field is used.

- In the **CDI** portal, activities are sorted by their priority then by sort order. Emergency activities are still prioritized over all other activities, regardless of priority.
- When requests to add or update activities are sent from the host system, the business priority and scheduling priority can be included as part of the request. This also applies for appointment booking requests. If both values are included, the scheduling priority overrides the business priority number.
- Note that allocation priority defined on **Priority Profile** has changed. It used to be a multiplier over the allocation cost. Now it is a multiplier over scheduling priority.

Implementation Notes

- Setting a priority profile is now required for mandatory work, so existing allocation priority values must be manually reviewed and adjusted to match the new usage in relationship to the scheduling priority set on the activity.
- A default priority value of 1 is applied to all activity types during the installation of the release. Review all existing activity types to determine how priorities should be revised.
- Review the **Scheduling Priority Profile** section of the Priority Profile portal and adjust values as needed.

Procedures

Added functionality to allow the generation of procedural instructions or questionnaires to be completed by mobile workers prior to starting a shift, using a vehicle or starting work on an activity. Usually they relate to safety precautions or regulatory requirements. For example, the mobile worker may need to complete a vehicle inspection at the beginning of a shift, or review safety instructions for a hazardous task.

Procedures are associated to activity types, vehicle types, and service classes.

- Procedure types added to the service class indicate which procedures must be completed when the primary function on a shift changes (start of shift, return from break, change of crew, etc).
- Procedure types entered on vehicle types determine the procedures required when a vehicle is used or changed on a shift.
- Procedure types entered on activity types determine the procedures required before the shift can start work on the activity.

Your business practices will determine how the mobile worker should proceed in cases where the procedure fails, whether or not procedures can be over-ridden, and whether or not the mobile workers are required to take attendance for the completion of procedures.

The following changes were implemented for this enhancement:

- The **Procedure Type** portal was added to the **Admin** menu to allow the creation and maintenance of the procedure types needed to establish details such as whether

procedures of that type are for activity types, vehicle types or service classes, override and attendance settings, and so on.

- The **Procedure** portal was added to the **Main** menu. As procedures are created, processed and completed, the system creates a Procedure record to track the information, attendance (if applicable), and results. Procedures cannot be manually created in this portal.
- A **Procedure** zone was added to activities to indicate which procedures are required and what was completed for an activity.
- The base product's procedure type and procedure business objects implement a simple questionnaire form. If your implementation uses the base procedure business objects, the **Procedure Steps** section on the **Procedure Type** indicates the specific procedure or steps that need to be followed to complete the procedure. Using procedure based message categories, such as "vehicle inspection message" category or "activity safety message" category, you can create the questions and answers that will make up the procedure steps. These can be yes or no questions, text, numbers in a valid range, etc.

If more complex procedure forms are required, implementation teams can create the form using UI Maps and scripts. You can also add settings to prevent a shift from starting if the questions are not answered correctly or if the procedure otherwise fails.

Implementation Notes

- Analyze your current procedures and procedure forms to determine how they can be transformed to be used with this feature.
- Create message categories to define procedure steps and add them to your mobile application deployment types.
- Create more complex procedure forms as needed.
As mentioned, a standard form is delivered as part of the release. To support more customized forms, you will need to invest more implementation time.
- Create procedure types.
- Review existing and/or create new activity types, vehicle types, and service classes to associate procedure requirements as needed.

Note: Make sure that when you configure procedure types and steps, that the mobile workers can pass them and/or there are easy to follow and well documented processes in place for when they do not pass or need to be overridden. For example, you may want to enforce a requirement that the worker must enter comments if they override a procedure.

Training Notes

If you choose to use this functionality, mobile workers will require training on how to process the procedures before starting work. For example, how to complete procedures in general, how to enter answers on the mobile device, what to do in cases where the procedure fail, and so on. The details will depend entirely on your business practices and how you choose to implement this functionality.

Timesheets

Added functions which allow your organization to more easily use the time information which is collected within the application and export it to an external timesheet system. This new functionality also allows mobile workers to review, accept, and sometimes change/correct their reported time for work, travel, or non-work events (such as breaks, non-productive tasks and periods of unavailability) for their shifts.

The system groups time on the shift into usage "time buckets" such as work, travel, idle, break, POU, depot, etc. Your implementation can change these groupings as needed by adding more time buckets to the **M1-TimesheetTimeType** extendible lookup and referencing them on the various

task types. For example, all travel can be grouped together, all inspections grouped together, all installations grouped together. You can also configure activity types to allow the mobile workers to adjust their time from what is automatically calculated at the end of the shift. This applies for labor, travel and break time for all types of activities.

The following changes were implemented for this enhancement:

- Added the **Timesheet Time Type** extendable lookup to define various time "buckets". Enhanced task types to reference specific timesheet time types as needed.
- Added the **Timesheet Type** portal to the **Admin** menu to allow the creation and maintenance of the types of timesheets needed to establish details such as whether timesheets of this type are for a mobile worker or a crew process.
- Added the **Timesheet** portal under **Resource Management** on the **Main** menu to display details related to the timesheet. Timesheets are created automatically at the end of the related shift and the recorded time is displayed here for review and approval, as needed.
- Added timesheet details to the **Master Configuration** under **Global Configuration**. If values are not entered here, timesheet functionality is not enabled.
- A new **M1-TIMSHT** batch control was added to manage timesheets. This is mainly used to generate timesheets for non-MDT crews, but it also handles MDT crew timesheets that are waiting for task completion or remote messages to be resolved. If this batch job is not running, the functionality may not work properly.
- A **Crew Shift Timesheet** zone was added to the **Crew Shift** portal to list all timesheets for that shift after they are generated.
- You can add custom logic to export timesheet information to an external timesheet system or other application.
- Enhanced mobile application and server end of shift processing to support timesheet creation and review. Mobile workers complete timesheet verification on their mobile device while non-mobile workers can complete timesheets "in office" as part of their general shift completion workflow. When timesheets are created at the end of the related shift the information is presented to the mobile workers for review, acceptance and completion.

Implementation Notes

- Examine your business processes and work with your timekeeping department to make decisions regarding the mobile worker's interaction with the timesheets.
- Create timesheet types and add them to your deployments.
- Create timesheet time types using the **M1-TimesheetTimeType** extendable lookup if needed and reference them on the appropriate task types.
- Enable timesheet functionality on **Master Configuration** under **Global Configuration**.
- Ensure that the **M1-TIMSHT** batch control is running.
It does not need to run frequently as it is only used to handle exception conditions.

Training Notes

Mobile workers will require training on how to review and accept timesheet information on their mobile devices and/or in the office as part of their shift completion tasks. If your organization allows workers to modify time information or you implement other custom interaction for users with their time, training will be needed for this processing as well. These details will depend entirely on your business practices and how you choose to implement this functionality.

Variable Shifts

Enhanced shifts so that they can be set “variable” (as opposed to fixed) to provide mobile workers with flexibility on when they can start and end work. Now when you are creating a crew shift or crew shift template, you can indicate whether or not the shift has a variable start time based on the activities scheduled to the shift.

The following changes were implemented for this enhancement:

- Added new fields to **Crew Shift Type**, **Crew Shift** and **Crew Shift Template** to manage variable shifts.
The **Shift Duration** establishes the total amount of time allotted for the shift, and a **Round Start Time Option** can be set to establish whether or not the scheduler should round down the estimated shift start time. For example, if the first activity on the shift were scheduled to start at 8:41 and you have the rounding set to “quarter hour”, the shift would start at 8:30.
- The scheduler sets the shift start time as the start time of the first activity scheduled to the shift, minus any travel time.

The shift start time is locked at some point prior to the earliest shift start time so that the schedule does not change without giving the mobile workers enough time to know about the change. Once the estimated shift start time is locked, the shift is sent to the scheduler as a fixed shift. The amount of time prior to start that the shift is locked is set by the value in the **Advanced Dispatch Offset** field.

For example, a variable shift with a range of 8:00 AM to 8:00 PM and a duration of 9 hours can start anytime between 8:00 AM to 11:00 AM (the start window is defined as the earliest shift start time to the latest end time, minus the duration - a three hour offset in this example). Depending on the shift start time, the shift will end 9 hours later for an end time between 5:00PM and 8:00PM. If the first activity is scheduled after the latest shift start time, the shift will start at 11 to ensure that the requirement for a 9 hour duration is met.

Implementation Notes

- Review existing shift types, shifts and shift templates or create new ones to incorporate shifts that can be scheduled as variable.

Training Notes

Mobile workers will require training on how to manage their work based on the business process decisions you make regarding using variable shifts. The main implication of this enhancement is that if a shift is variable, workers will be notified differently of when their shift starts. Depending on your business practices, they may need to get their start time the night before or possibly a day before.

Work Profile

Some activities include a requirement to be completed during certain days or times. For example, cutting a meter for non-payment is not allowed on weekends or hydrant flushes can only be performed during the graveyard shift.

This enhancement adds functionality to establish a work profile for activities, so that regulatory restrictions or other limitations or conditions that apply for the activity can be scheduled and managed accordingly (e.g. business hours, off hours, evening, early morning, not weekends, etc.).

With a work profile properly defined and referenced on an activity type, the system ensures that activities of this type are not scheduled outside of the established allowed time windows.

The following changes were implemented for this enhancement:

- A new **Work Profile** portal was added to the **Admin** menu to allow the creation and maintenance of the work profiles needed to:

- Establish the business *hours* that are valid for the activities that use it.
- Establish a minimum *business day duration*, if needed, to ensure that only time windows that are long enough are considered when defaulting the activity due date. This is only used if the activity type is configured to default the due date (i.e., the due date comes in blank from the host).
- Specifies a maximum lateness duration, in minutes, to ensure that the restriction is more closely adhered to when necessary.
- Default due date requirements were enhanced to specify business days or hours (versus calendar days or hours). This is also more specific to when activities come from the host without an end time window. The system uses these rules based on the work profile to determine the end time window.

As an example, a work profile is created specifying that work can be performed between 9 AM and 4 PM Monday - Thursday and 9 AM and 1 PM on Friday, and must be performed within 24 business hours. If an activity comes in from the host for an activity type with this work profile on Thursday at 3 PM with no end time window, the default due date and time is set to the following Wednesday at 2 PM (1 hour on Thursday, 4 hours on Friday, 7 hours on Monday and Tuesday, and 5 hours on Wednesday).

Regardless of whether due date is defaulted or provided by the host the system will generate time windows to match the work profile.

Implementation Notes

- Create work profiles according to your business requirements.
- Review activity types to see where work profiles are needed and associate a work profile as necessary.

Training Notes

Users may need education to understand how activities are scheduled based on work profile restrictions.

Scheduler Enhancements

Several enhancements in this release improve scheduler monitoring and the ability to diagnose unexpected scheduler behavior.

Scheduler Diagnostics

Added functionality to help monitor schedulers and to access information to diagnose scheduler behavior. This enhancement answers a highly desired need for more visibility into what is happening with schedulers such as specific scheduler status (Running, Not Running, Requested Offline, etc), providing reasoning for why activities not being scheduled, reasons for errors, and other diagnostic information.

The following changes were implemented for this enhancement:

- A scheduler manager process is now managed by a batch process. A mandatory unique scheduler batch control must be configured for each scheduler and referenced on the corresponding scheduler definition record as a result of this enhancement.

This batch control ensures that every scheduler is managed and monitored according to standard system batch processing. Schedulers can no longer run without a supporting background process. Leveraging the batch processing framework allows the system to interrogate the scheduler process to verify that it is actually running. It also allows the scheduler to broadcast various statistics such as how many tasks it manages currently, how many shifts, etc.

- More detailed status information has been added for each scheduler. This information can be accessed in the **Scheduler** portal **Scheduler List** and in the new **Scheduler Runtime Details** zone in the **Scheduler** portal.
- The **Schedule** tab on the activity portal was enhanced to provide a scheduling status message as to why an activity is not scheduled. For example, there is no running scheduler covering the activity location, there is no shift with the appropriate skills, the activity is out of the scheduling horizon, there are activity data errors, etc. A **More Information** button is displayed next to the status message when the activity is not scheduled due to shift compatibility issues. Clicking the button provides the cause such as there is no shift with the appropriate skills, there is no shift that overlaps the activity time windows, etc.
- Added a **Covering Schedulers** zone the **Service Area** portal that shows all schedulers covering that service area.
- A new **To Do In Scope** dashboard zone and **Dispatcher To Do List** portal were added to provide dispatchers with a summary of all To Do entries raised for entities that they monitor. While this can be used to monitor To Do entries related to scheduling issues, the intent of this new portal and zone is to provide better visibility to all To Do entries that require the dispatcher's attention.

Implementation Notes

A mandatory scheduler batch control must be configured as a result of this enhancement.

- Create a new batch control based on M1-SM for every scheduler and reference it on the corresponding scheduler definition record. Schedulers can no longer run without a supporting background process.

Training Notes

Users responsible for monitoring scheduling and activities will require training on how to access diagnostics and how to respond to the information.

Batch Control Global View

Added functionality to help users better review and monitor all batch processes. Users can query to see scheduler batch processes only or all batch processes.

The following changes were implemented for this enhancement:

- Added the **Batch Control Global View** portal to the **Main** menu. The portal provides a “level of service” indication which describes how well the batch control is functioning. It also provides more detailed information about the batch control in the **Current State** zone.

The Level of Service indicator shows “Disabled” if the batch control has not been configured to display a level of service.

Implementation Notes

All of the updates required for this enhancement are part of the upgrade script.

Training Notes

- This new feature enables you to much more effectively manage all the batch jobs you have. Your organizational users will require training on how to effectively use the features, including the **Batch Control Global View** portal to access information and troubleshoot.

Cost Profiles

Added functionality so that your organization can create pre-defined sets of cost control parameters that are configured for different circumstances or based on how conditions change work priorities. For example:

- Time of year - winter work, summer work, etc.
- Strong thunderstorms - where different types of work may be preferred
- Sudden drop in temperature - where regulations prohibit turning off power to customers for non-pay
- Sudden high temperatures - where regulations prohibit turning off water to customers for non-pay
- A large backlog of certain types of work, where it has been determined it is ok to work more overtime

A user with the required authority can switch between profiles so that the scheduler responds and optimizes work accordingly. These changes can be made without shutting down the scheduler.

The following changes were implemented for this enhancement:

- A new cost control business object was added to enable a cost control type scheduler configuration.
- Cost control parameters are now referenced as **Cost Profile** records.
- A **Cost Profile** field was added to the **Scheduler Configuration** record.
Change profiles for a scheduler by navigating to the **Scheduler Configuration** for the scheduler and changing the selection in the **Cost Profile** field.

Implementation Notes

Prior to applying release 2.2.0, review your existing scheduler configurations and cost control parameters and develop a plan for how your organization might effectively switch cost profiles in various scenarios.

As a result of this enhancement cost control parameters are no longer defined directly on scheduler configurations. Rather, the scheduler configuration references a cost profile record. One cost profile can be referenced by many scheduler configurations.

The installation process creates a new cost profile for each existing scheduler configuration moving the cost control parameters to the newly created cost profile record.

Note: Some clients may have scheduler configurations that use the same cost parameters. As a result, redundant cost profile records may result after applying the upgrade. To take full advantage of this feature you can pare this down to one cost profile that represents the necessary cost parameters, and use it across any scheduler configurations that should share that cost profile.

Your implementation effort should include verification of the cost profiles that result from this migration as well as verification of your existing scheduler configurations and schedulers to ensure that the referenced cost profiles are correct.

Training Notes

Users responsible for monitoring schedulers will require training on your business practices associated to when and how to change cost profiles based. For example, you may establish guidelines that a cost profiles for schedulers would change based on receiving storm warnings, changes in seasons, or other conditions that might affect how you want your schedulers to factor cost.

Scheduler Parameters

Added several new scheduler parameters to support various enhancements:

Cost Parameters

- Complex Activity Span Cost
- Cost for a Non-Preferred Contractor

- Cost for a Non-Preferred Shift Class
- Stop Promotion Factor
- Under Scheduled Visit Cost

Scheduler Parameters (Non-Cost)

- Absolute Round Extension
- Allocation Swap Final Frequency
- Allocation Swap Initial Frequency
- Chain Insert Final Frequency
- Chain Insert Initial Frequency
- Chain Move Final Frequency
- Chain Move Initial Frequency
- Depot Move Final Frequency
- Depot Move Initial Frequency
- Expected Average Work Rate of Visits
- Force Use of Site Functionality
- Maximum Overlap Between Visits
- Memory Logging
- Over-Scheduling Warning Threshold (hours)
- Relative Round Extension
- Segment Swap Final Frequency
- Segment Swap Initial Frequency
- Under-Scheduling Warning Threshold (hours)

Scheduler Documentation

The configuration guide was also enhanced to include a Scheduler Configuration Guide Addendum, a comprehensive, stand-alone guide which provides more detailed information regarding business drivers as they are tied to cost parameters and sample settings.

MCP Enhancements

Validation for Out of Sync Deployments

Added functionality to assist in keeping mobile application deployments up to date with the correct version of the software. As a result of this enhancement, the system provides more detail when a deployment is out of date, and provides more automated tools to help with synchronization.

Deployments become out of date when a new MCP version is released, the deployment type configuration changes, or any other data that supports the deployment changes. A batch process runs periodically to evaluate existing deployment records and detect updates to this information. If it detects a mismatch between what is included in the deployment and the most current metadata, the deployment record is marked as out of date. This information is also displayed in the **Deployment** portal

This functionality also warns mobile users when they are using an out of date deployment.

The background process also purges out of date deployments older than a specified number of days specified as a batch parameter. This allows you to keep a specific number of most recent deployments at all times.

The following changes were implemented for this enhancement:

- Added the **M1-DPUTD** background process to periodically evaluate and delete out of date deployments.
- If a deployment is determined to be out of date the system creates a **To Do** entry referencing the existing deployment and indicating that it needs to be re-generated by the System administrator.
- When a mobile user logs on and tries to download an Out of Date Deployment, the system displays a warning. The user is allowed to continue but is advised to contact their administrator to synchronize their deployment.
- Added an **Out of Date Items** zone in the **Deployment** portal which lists any deployment items that are out of date. . This provides a change list of items that were modified after the current deployment was generated.

Implementation Notes

Review the new batch control, **M1-DPUTD**, and set the parameters to make sure that deployments will be monitored and purged according to your business practices.

Training Notes

Mobile workers will require training on what to do if they receive an out of sync warning on their mobile device.

Browser Based MCP

This enhancement introduces a thin-client, browser-based option for the mobile application. In this option, the user interface is delivered to the client via HTML where it is rendered in a normal browser (i.e., Android Browser, Apple, iPhone / iPad Safari, Google Chrome, Windows Phone / Windows Mobile, Firefox, etc.) Mobile users must be connected to a network to access the application.

This should not be confused with the server application. Connected MCP allows you to use the mobile application in a connected mode.

The following changes were implemented for this enhancement:

- Enhanced **MDT Type** to support a connected MDT platform.
- Since this is a web based application, MDT registration is not required.
- Connected MCP will still use an **MDT ID** internally. This is associated to each browser session. The MDT ID is determined by the new **Determine Connected Device** plug-in. The algorithm allocates an available connected MDT ID to the user prior to starting their shift from an existing pool of connected MDT records. If all connected MDT records are currently allocated to other users, the algorithm duplicates an existing connected MDT and allocates the new MDT to the user. If the user is already associated with an existing MDT then this MDT is returned. This includes validation so that the same connected MDT cannot be used on more than one started shift. At the end of a shift when transactional data associated with this MDT ID is purged, the data associated with the MDT ID is cleaned and the MDT ID is returned back to the pool of available connected MDT IDs.
- The new **M1-CLMDT** batch process was added to purge processed RSI records older than the number of days specified as a batch parameter. In disconnected mode transactional data is always purged locally from the device before a new shift can be started using the same device. With connected mode, MDT IDs are generated on demand and do not represent a physical device. By default the end of shift process

purges all transactional data associated with a browser based MDT ID but if a shift was never completed, the transactional data might remain linked to the connected MDT ID data store. This background process also cleans up transactional data associated with connected MDT IDs older than the same batch parameter.

Implementation Notes

- Create at least one connected MDT record (MDT Type of Mobile Client Platform as Connected) in advance to utilize this functionality. It is recommended that you create a pool of such MDT records for a more efficient MDT allocation process. At the end of the shift, the MDT is returned back to the pool so the pool should be large enough to accommodate concurrent shifts using this mode.

Note that the **Display Option** is automatically switched on **Connected MCP** based on the device resolution reported by the browser. So the selection on the MDT Type is ignored for Connected MDTs.

- Review the new batch control, **M1-CLMDT**, and set the parameters to ensure that it is set to clean up the RSI and state of the connected MDT transactional data as required by your business practices.

Limitations

The following limitations apply for this enhancement:

- GPS data will not be captured or sent to the server. Browser based MCP users are tracked in the same way that non-MDT crews are tracked.
- Attachments, capture picture and capture sound are not supported.

Image Enhancement

As part of the 2.2.0 user experience enhancements, many images were updated from Graphics Interchange Format (.gif) to Portable Network Graphics (.png) format. If your existing customer modifications leveraged prior version base application images, you may need to update your custom code to utilize the new images.

New FileName	Old FileName	New FileName	Old FileName
appointmentTask.png	appointmentTask.gif	mailOut.png	mailOut.gif
avi32.png	avi32.gif	mailUnacknowledged.png	mailUnacknowledged.gif
camera.png	camera.gif	mailUnread.png	mailUnread.gif
cellPhone.png	cellPhone.gif	mainPhone.png	mainPhone.gif
crewAssist.png	crewAssist.gif	mapGenericCrew.png	mapGenericCrew.gif
crewAssist_sm.png	crewAssist_sm.gif	mapHighlightTask.png	mapHighlightTask.gif
deleteicon.png	deleteicon.gif	mapPOUTask.png	mapPOUTask.gif
emergencyTask.png	emergencyTask.gif	maps.png	maps.jpg
enterableData.png	enterableData.gif	minus_sm.png	minus_sm.gif
excel32.png	excel32.gif	mp332.png	mp332.gif
fileSynched.png	fileSynched.gif	mpeg32.png	mpeg32.gif
fileUnSynched.png	fileUnSynched.gif	OracleBanner.png	OracleBanner.gif
goActionsMenu.png	goActionsMenu.gif	panic.png	panic.gif

New FileName	Old FileName	New FileName	Old FileName
goCompletedTaskList.png	goCompletedTaskList.gif	pdf32.png	pdf32.gif
goEntityActionsMenu.png	goEntityActionsMenu.gif	plus_sm.png	plus_sm.gif
goMain.png	goMain.gif	scriptClose.png	scriptClose.gif
goNext.png	goNext.gif	sectionVisited.png	sectionVisited.gif
goOpenTaskList.png	goOpenTaskList.gif	shiftInService.png	shiftInService.gif
goPreviewTaskList.png	goPreviewTaskList.gif	shiftOutOfService.png	shiftOutOfService.gif
goPrevious.png	goPrevious.gif	signalBad.png	signalBad.gif
jpg32.png	jpg32.gif	signalDisabled.png	signalDisabled.gif
mailEmergency.png	mailEmergency.gif	signalGood.png	signalGood.gif
mailError.png	mailError.gif	sound.png	sound.gif
mailIn.png	mailIn.gif	txt32.png	txt32.gif
mailNew.png	mailNew.gif	wav32.png	wav32.gif
		word32.png	word32.gif

Oracle Utilities Application Framework Enhancements

This release includes Oracle Utilities Application Framework version 4.2.0 Service Pack 1, which includes enhancements. For information about these enhancements, refer to the following documents:

- The *Oracle Utilities Application Framework Service Pack 2 (V4.2.0.1.0) Release Notes*. This document provides information about specific framework modifications and is included in the documentation delivered with the Oracle Utilities Application Framework product.
- The Oracle Utilities Application Framework administration guide and business process guide. These documents are included with the documentation that is delivered with this media pack.
- The white paper *What's New In Oracle Utilities Application Framework V4*. This document will be available on My Oracle Support at <http://support.oracle.com> (Article ID 1177265.1).
- The [Known Issues in Oracle Utilities Application Framework](#) section in this document provides a list of known Oracle Utilities Application Framework issues that impact this release of Oracle Utilities Mobile Workforce Management

Known Issues

This section describes known issues at the time of release. Single fixes may be released for these issues at a later date.

- The scheduler stops scheduling if the Sched-Mode parameter within Scheduler Configuration set as “Variable”. Users should change this parameter to “Forever” for seamless scheduling.
- 14760859 - When a user gets disconnected from the network during a device registration update, an incorrect error message is displayed. The incorrect error message displayed is for a subsequent stages (i.e. deployment download).

- 17898393 - Recall from capacity contractor is not performed in some situations.
- 18041463 - The following issues are related to Attachments functionality:
 - Add and Open functionality is not supported on Windows Mobile.
 - Add functionality is not supported on Android.
 - Issue with searching attachments - the attachment query portal provided by Framework retrieves only Framework business objects, not inherited business objects.
 - Unable to add common attachments after deleting existing common attachments on a task type. Currently users can delete attachments that are already associated to a task type, causing this issue.
- 18045341 - Add an option to the chooser to return capacity only shifts.
- 18102597 - M2 Activity screens should show a message to indicate that the completion was sent to the host.
- 18126396 - Started Date and Time are not set in the PLAN_MST packet for a completed complex activity.
- 18139341 - Shift Schedule should reflect out of service/return to service time entered by crew.
- 18168760 - As part of the fix for bug 17823411 to fix a Java script error on the map when zooming in, an oraclemaps.js file has been delivered. The js file is from the MapViewer 11.1.1.7. release. Command line scripts are also provided to patch the oraclemaps.js file in an exploded mapviewer.ear folder. For further details and instructions on applying this patch please see the readme.txt file which is included in the installation media package.
- 18195731 - Period of Unavailability query freezes when using IE 9.
- 18219741 - Failing to add costs for multiple Depot-TW's could result in incorrect/negative costs.
- 18232130 - Activity specific completion information cannot be sent by an external contractor.
- 18247472 - Prevent manual allocation of Depot Stops to a capacity shift.
- 18248099 - Changing the set while iterating over it may cause elements to be missed.
- 18251269 - Due to an issue with the source files for the online help table of contents, there is a duplicate entry of Oracle Utilities Mobile Workforce Management in the online help table of contents. The contents of both entries are duplicate and current.
- 18258913 - Related Pickup Activities are causing calculation error on Timesheet.
- 18271322 - Excluding a contractor after activities are dispatched to the contractor does not recall the activity from the device.
- 18278475 - When processing RegistryMessages with action=SendSchedule, SM is not properly performing version checks.
- 18278489 - Some tab screens do not open to context sensitive online help. Please use the index and table of contents to navigate to topics as appropriate.

Known Issues in Oracle Utilities Application Framework

This section describes known issues in the Oracle Utilities Application Framework that impact Oracle Utilities Mobile Workforce Management. Single fixes for these issues will be released at a later date.

- 13362507 - Issue with incorrect text being included in data exported to Microsoft Excel.
- 16618917 - Issue with initially collapsed zone contents not displaying when the zone is expanded.
- 16897904 - Issue with date/time values when using the Tab key to navigate from field to field.
- 17607231 - Issue with To Do entry navigation when working with a script-based navigation option.
- 17703592 - Issue when retrieving information string for an edit page that contains a long list of items.
- 17966102 - Warning messages appear when starting MWM v2.2 application server.
- 18291643 - Issue when trying to start MWM environment with an SSL port enabled (copy of bug 18180822)
- Various Oracle Utilities Application Framework issues cause the Configuration Migration Assistant to respond unexpectedly. Please contact Oracle Support for work arounds.

End of Support Notices

This section describes items that are no longer supported in this release:

- Android 2.2 for MCP not supported in MWM/ORS V2.2.0.0
- Windows XP not supported in MWM/ORS V2.2.0.0
- AIX 6.1 not supported in MWM/ORS V2.2.0.0
- Internet Explorer 7

Demo Data Information

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

Demo data is posted separately and includes its own installation instructions.

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

Please refer to the configuration guide for more information or contact Oracle Support.