Oracle Utilities Network Management System

Release Notes

Release 2.5.0.0.0

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Oracle Utilities Network Management System Release Notes

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Contents

Preface

These release notes provide an overview of the features in Oracle Utilities Network Management System Version 2.5.0.0.0.

This preface contains these topics:

- Audience
- Related Documents

Audience

Oracle Utilities Network Management System Release Notes is intended for anyone installing or using Oracle Utilities Network Management System Version 2.5.0.0.0.

Related Documents

For more information, see these Oracle documents:

- *Oracle Utilities Network Management System Adapters Guide*
- *Oracle Utilities Network Management System Advanced Distribution Management System Implementation Guide*
- *Oracle Utilities Network Management System Configuration Guide*
- *Oracle Utilities Network Management System OMS for Water User's Guide*
- *Oracle Utilities Network Management System Installation Guide*
- *Oracle Utilities Network Management System Licensing Information User Manual*
- *Oracle Utilities Network Management System Operations Mobile Application Installation and Deployment Guide*
- *Oracle Utilities Network Management System Quick Install Guide*
- *Oracle Utilities Network Management System Security Guide*
- *Oracle Utilities Network Management System User's Guide*

Chapter 1

Release Notes

Enhancements in Version 2.5.0.0.0

New and enhanced features in Oracle Utilities Network Management System Version 2.5.0.0.0.

Distribution Management System (DMS)

Switching to Alternate Protection Settings

NMS can now manage switching to the proper settings group when the source for a protection device changes. When the source for a device changes by a manual operation NMS will reference a lookup table and automatically create a switching sheet that can be executed automatically by NMS, or manually by an operator to switch to the configured protection settings group. This functionality has been integrated into FLISR and suggested switching so that when a plan is generated that will change the source of a device with multiple settings groups, the switching actions to change that protections settings group will be included in the generated plans.

DMS Settings Tab Added to the Look Ahead Dialog

The DMS Settings tab has been added to the look-ahead tool. From this tab a user can see the active settings for DMS applications, and change FLISR and Optimization modes prior to instructing a switching action.

Fault Location, Isolation & Service Restoration (FLISR)

FLISR Logic to Demote to Gang Operated Mode

FLISR has a single-phase switching mode that will open the faulted phases on a downstream isolation switch and then create a parallel with a tie switch temporarily create a parallel. While this will reduce the number of customers that experience a momentary

outage, there is a potential to create a neutral imbalance that could trip the neutral overcurrent relay on the restoration feeder. FLISR will check for excessive neutral imbalance and will demote the plan to gang-operated switching actions if it detects this situation.

FLISR Plan Time-out Rule

FLISR has a new configurable time-out rule. FLISR will monitor the time from when it begins executing the FLISR switch plan, and aborts after exceeding the configured time.

FLISR Demote Device to Manual Switch if not Communicating

FLISR will demote a device to a manual switch if it has a configured quality code present, or if a configured point is asserted on that device. FLISR will not consider the device as a SCADA controllable switch and will ignore the device while generating plans.

FLISR to Support Restoring Substation Bus on Loss of Voltage

FLISR can now trigger an event to restore a substation bus when all breakers on a bus are reporting voltage and amps below a configured threshold. FLISR will open the feeder breakers and attempt to restore feeders with adjacent ties.

FLISR Weightings for Plan Prioritization

FLISR has new configurable weightings for plan prioritization which now include:

- Number of customers restored
- Number of critical customers (critical customer types configurable) restored
- Number of switching steps
- Capacitor closes sent
- Regulation set points sent
- Losses

Relieve Violations Optimization Integration to FLISR

When a FLISR plan is generated and the optimal plan has loading or voltage violations, FLISR will run the relieve violations optimization objective to attempt to change capacitor, regulation, and DER settings to relieve violations. Optimization steps will be added to the end of the FLISR plan to relieve as many violations as possible.

FLISR Multi-Tiered Switching

If restoration feeders cannot pick up the load from a faulted feeder, FLISR can now generate steps to offload adjacent feeders either by transferring load to adjacent feeders or by dispatching DER to reduce loading. Configuration has been added for the number of tiers that FLISR will consider for load transfers.

High Availability (HA)

Minimize Downtime During Patching

NMS has improved processes and decreased downtime during patching using a dual-environment configuration and Oracle Site Guard and Data Guard.

Faster Planned Failover to Disaster Recovery (DR) Site

NMS has improved processes and decreased downtime for a planned fail over to a Disaster Recovery (DR) site using a dual-environment configuration and Oracle Site Guard and Data Guard.

Operations Mobile Application (OMA)

Port OMA Client App to use Oracle JET

With NMS v2.5.0.0.0, the OMA mobile app has been rewritten to use Oracle's JavaScript Extension Toolkit (JET). As part of this migration, the OMA user interface has been refreshed and reorganized to improve presentation of information, allow easier navigation between screens, and streamline workflows to improve user efficiency.

- Core summary information and navigation is provided for tasks, switching sheets, safety documents, and the map.

- Switching sheets provide support for displaying block headers and collapsing/expanding blocks of steps.

- A "card" concept is applied to tasks, switch steps, and map selections. Information for each task, step, or map object is presented in a scrollable list of cards, with action icons displayed for the selected card.

- Seldom-used functions are moved to a top-level menu rather than always consuming space as a collapsible panel.

Ability to Display GIS Landbase in OMA Map while Offline

The landbase displayed in the OMA map is typically displayed from a live online source such as Google, HERE, etc. Previously, if a device lost network connectivity, landbase was no longer available. With this enhancement, if non-spatial landbase is built during the model build process and available in the NMS Viewer, it can also be built for the OMA maps and displayed as offline landbase. An option is provided to have OMA automatically switch to offline landbase when the OMA device loses connectivity, and revert back to normal landbase when connectivity is regained.

OMA to Support Transfer Zone Option

In NMS, the ability exists to do a Transfer Zone action to indicate that a crew has been temporarily transferred from their "home" control zone to another control zone to better match resources to current needs. This feature now shows the temporary zone in OMA and allows an OMA user to perform the Transfer Zone action to indicate they are now working in a different control zone.

Add Additional OMA Map Color Options

The OMA map supported showing conductors and underground cables colored to indicate source feeder when energized, as well as different colors for segments that are in parallel, predicted de-energized, confirmed de-energized, etc. This feature expands the color-coding options to support coloring by phase and by nominal voltage, similar to how those options function in the NMS Viewer.

Filtering of Crew Display in OMA Map

The OMA map displays crew symbols at devices when the crew is en route or onsite to a task, similar to the NMS Viewer. This feature allows filtering the crew display based on crew type, so if someone is looking specifically for a nearby tree crew or line crew, the other crew types can be filtered out from view. Additionally, the display of crews can be filtered to only

show crews working on the same feeder as the OMA user's current task, or to only show crews within a certain radius of the OMA user's current location.

Third-party Integration to OMA

The OMA map displays crew symbols at devices when the crew is en route or onsite to a task, similar to the NMS Viewer. This feature allows filtering the crew display based on crew type, so if someone is looking specifically for a nearby tree crew or line crew, the other crew types can be filtered out from view. Additionally, the display of crews can be filtered to only show crews working on the same feeder as the OMA user's current task, or to only show crews within a certain radius of the OMA user's current location.

Display Safety Documents Associated to OMA Crew

Support was added in the RESTful services and in the OMA app to display Safety Document information for Safety Documents that contain that OMA crew. A list of associated Safety documents is available with the document ID, document type, status, devices, grounds, crews, and description. If there is an associated switching sheet, then the OMA user can navigate to that. No editing of the Safety Document by the OMA user is supported.

Optimization

Maximize VAR Objective

A new optimization objective has been added that will maximize the VAR output below a substation bus up to a configured leading power factor without creating voltage or loading violations. This objective would be used to support the transmission system.

Relieve Violations Objective without DERM Module

Previously the Relieve Violations objective was only available with the DERMS module. When the DERM module is licensed the relieve violations objective will find the lowest cost option to relieve violations by changing settings to SCADA controllable DER, voltage regulation devices capacitors. When DERM is not licensed, the relieve violations objective will not consider dispatching DER.

Maximize Voltage Objective

A new optimization objective has been added that will maximize the average voltage at supply points without creating voltage or loading violations.

Independent Weighting Factors for each Optimization Mode

Weighting factors are now independently configurable for each optimization mode. A utility may want to give higher preference to changing regulation settings over caps for one objective and might want a higher preference for changing caps over regulation settings for another.

Suggested Switching (SS)

Suggested Switching Option to Exclude Devices with Inhibit Tags

A checkbox has been added to the constraints panel in the Suggested Switching wizard to exclude devices with inhibit tags. With this checkbox checked, Suggested Switching will ignore devices that have configured tags/conditions present when generating the optimal switching plan for the selected objective.

User Experience (UX)

New Docking Framework

A new window docking framework provides greater flexibility and consistency, allowing users to arrange their workspace more effectively.

All "major" tools can be undocked, redocked, or arranged into named "frames".

Windows can behave like standalone windows (i.e. be minimized or restored) or dock panels (attached within the frame of a frame or parent tool).
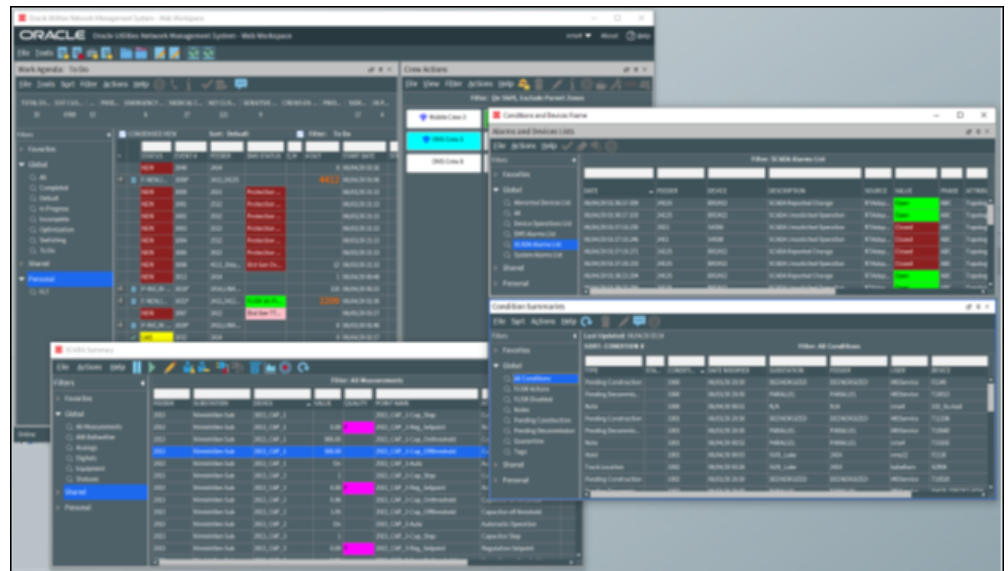
Standalone windows, dock panels, and a user-defined frame containing two tools

Saving and Loading Workspace Layouts

Users can now save and reload the layout of NMS tools as a Workspace Layout. Each Workspace Layout stores the size and position of windows and any "frames" the user has created.
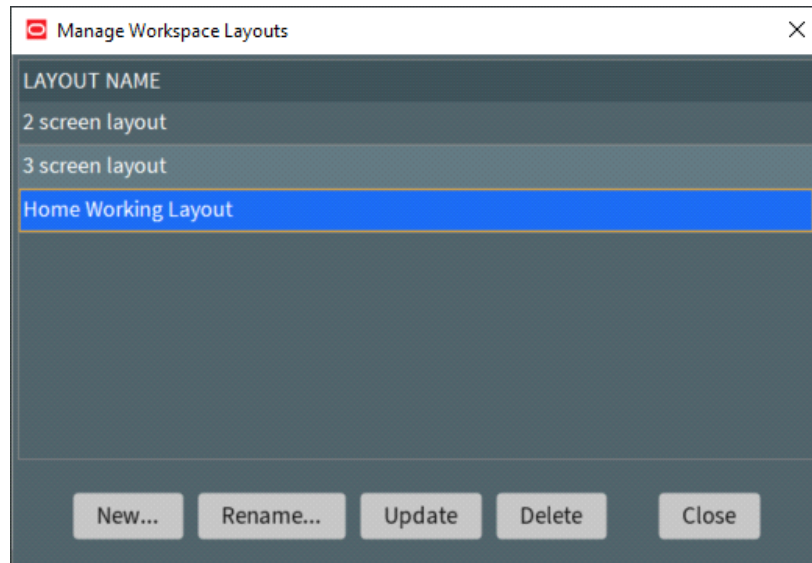
The user chooses the layout to load when logging on:
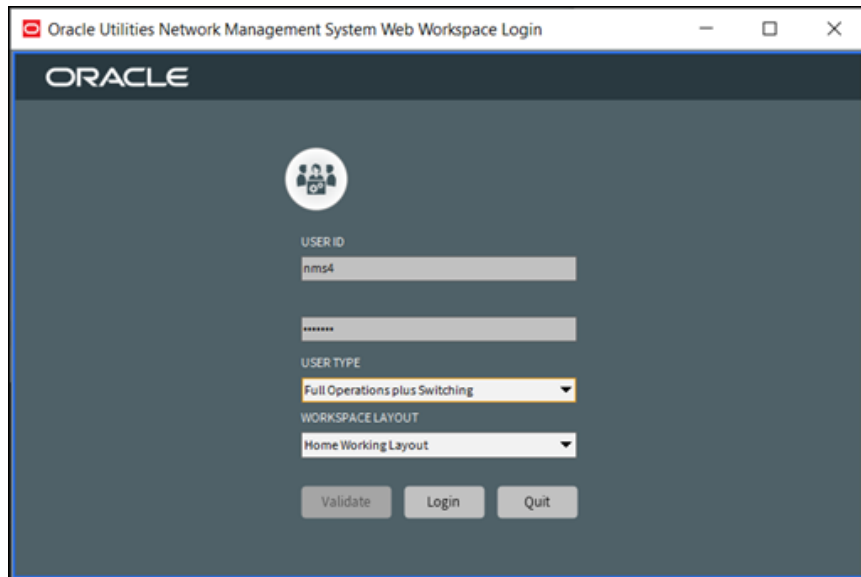
This provides an efficient means to quickly arrange window layouts when working with NMS at different desks and monitor arrangements.

Look and Feel

Improvements have been made to the coloring, layout and behavior of buttons and other controls - these improvements are described below.

Dark and Light User Interface Theme

Two new UI themes - Dark and Light - have been developed. Each of these themes leverages Oracle's UX expertise and uses approved color slates. These themes replace the existing Dark, Light, and High-Contrast themes available in the previous release.

Both themes provide a flatter, simpler look, with contrast in the right places. Spacing between UI elements has been slightly increased, and meaningless zeroes are hidden in data grids.

Form-based user interfaces like the Event Details have their fields arranged more evenly.

Clearer and consistent distinction is made between editable and non-editable fields
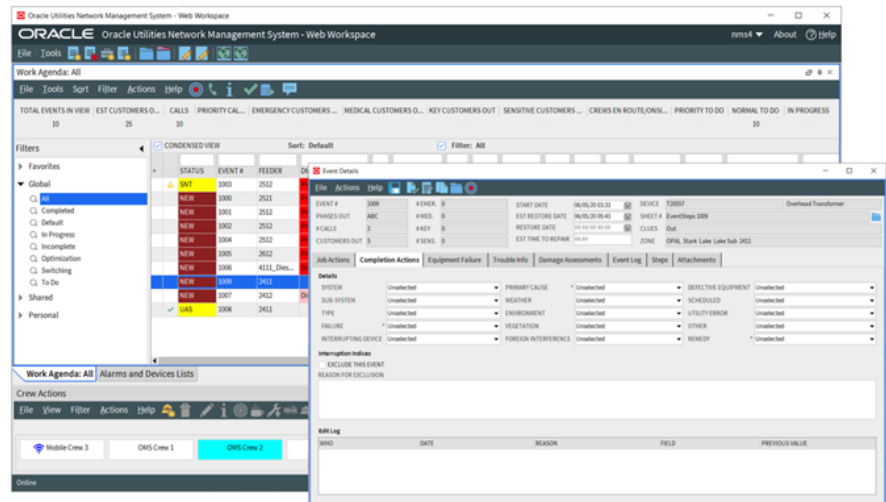
Light Theme
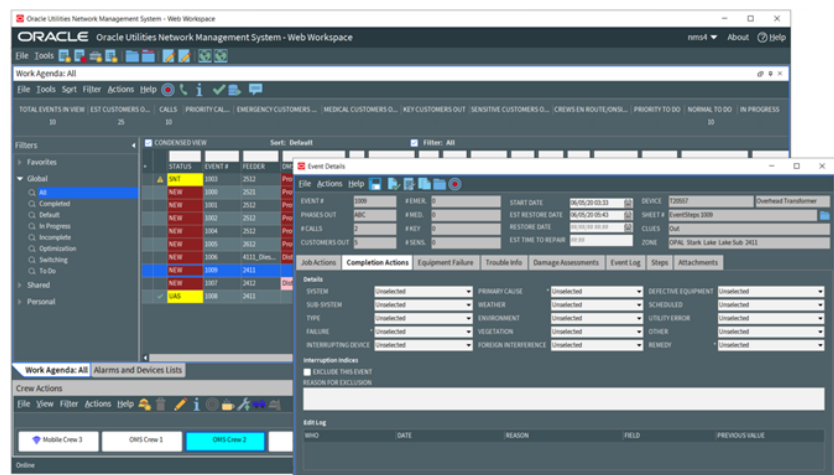
Dark Theme

Intuitive Date / Time Pickers

Date time pickers have been improved. The user now clicks in the field they want to edit then rolls the mouse wheel toward or away to quickly increment the new date or time. An animated "barrel-roll" visually reinforces the changing date/time.

This roughly halves the amount of "effort" required to edit a time or date field present in earlier NMS versions.
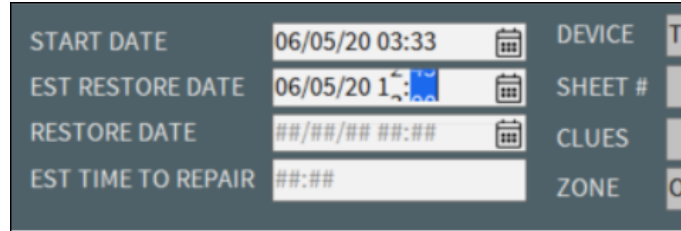
Date time picker, capturing intuitive and animated movement of time fields

Button Behavior

When clicking and holding over a button, if the user moves the mouse away from the button and releases the mouse, the action will not be performed. This is different from earlier versions of NMS, where the user needed to press the Escape key to abort a "held" button click. This new behavior is aligned with standard Windows behavior.

Efficient Popup Message Placement

A new user option - Show Messages at Mouse Location - displays popup confirmation and warning dialogs at the place the user's pointer is. This is especially useful where the product is being user on multi-monitor desk configurations, and reduces the need for users to search for and navigate to confirmation message across multiple screens:
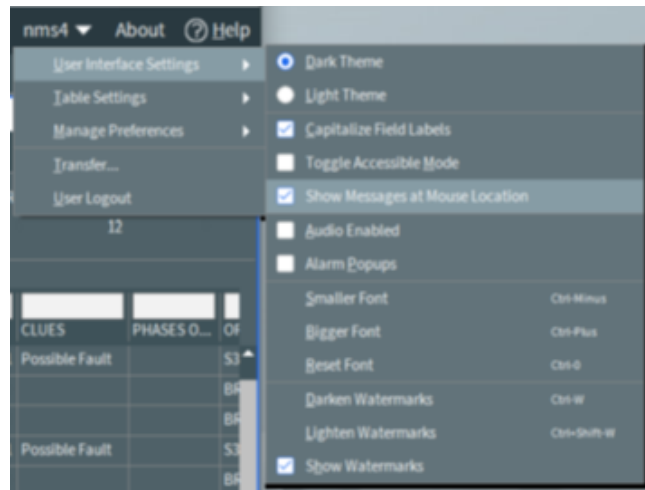
Show Messages at Mouse Location option

Filtering - Organize Filters into Structures

Filters on many NMS tools are now displayed as a dock panel to the left of the tool.

The filter panel can be easily hidden and redisplayed.

Filters are organized into three types - Global, Personal, and Shared.

Global filters are seen by everyone; Personal Filters are seen only by the user that created them. Shared filters provide the ability for users to easily share and copy filters to their Personal Filter structure.

Filters can now be organized into hierarchic structures, and commonly accessed filters can be added as shortcuts in a Favorites area.

It's easier to edit and rename filters.

NMS tools now using the new filter panel are:

- Work Agenda
- Alarms & Devices Lists
- Condition Summary
- SCADA Summary
- AMI Requests
- Feeder Load Summary
- Suggested Switching Solutions
- Conductor Impedance Mismatches
- Trouble Info (in Event Details)
- Damage Assessments
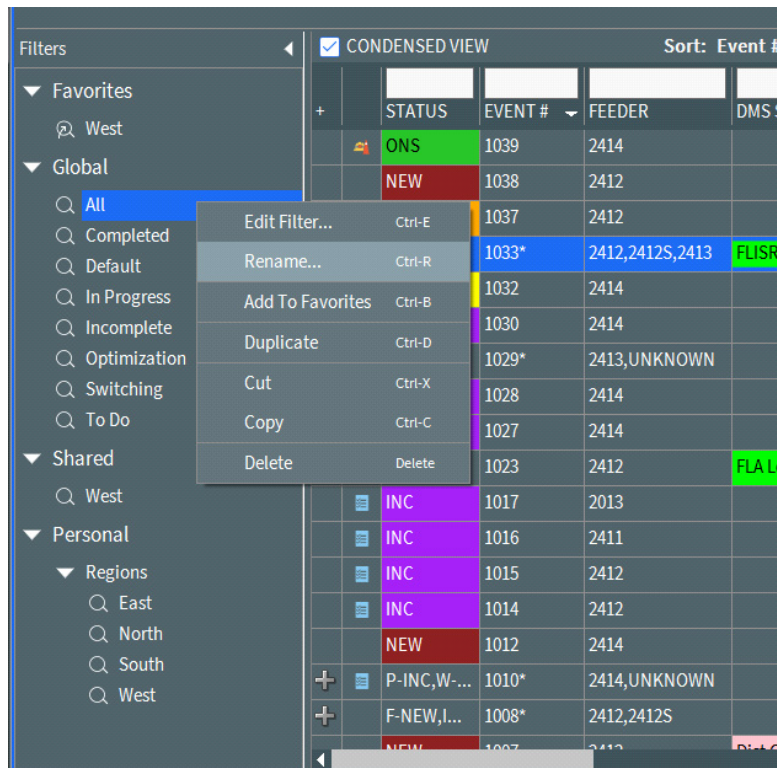
Some other tools continue to use the existing filter mechanisms. However, the intention is to migrate these remaining tools to filter panels in subsequent releases.

Filtering - Intuitive Filter Creation and Maintenance

The Create/Edit Filter dialog has been improved. Non-technical users can easily build filter queries - the User Interface helps the user to define the filter criteria using intuitive selection criteria.

Pre-upgrade filters created by users are automatically migrated to the new user interface. Editing and renaming of filters has also been made simpler.
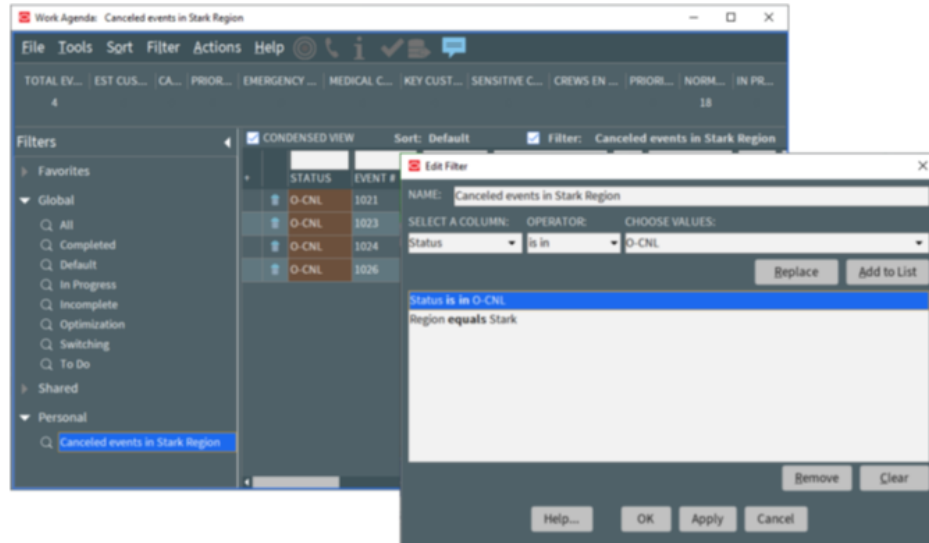
Filter dialog, showing intuitive filter criteria and selection

Conditional Formatting

A new User Interface provides an intuitive way for suitably authorized users to apply and edit conditional formatting, via a new User Interface.
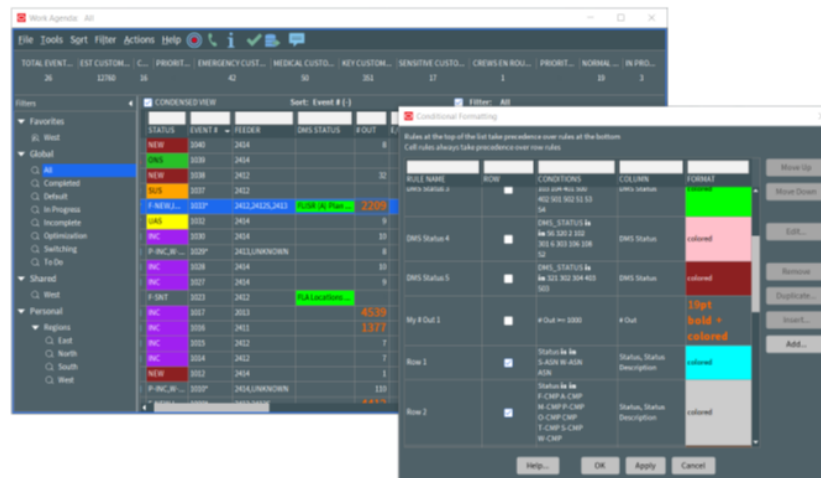
Conditional Formatting dialog

Suitably authorized users can apply and prioritize conditional formatting for each data grid.

Formatting options are easily applied, and users can also choose to display numeric column horizontal banding, to help visualize items requiring attention.

Workflow

Careful consideration is given to Work Agenda right-click functionality. New menu functions allow the most common outage sub-processes to be managed from the right-click menu. This includes fast access to items such as ERT updates and adding event notes. Crew / event associations have also been streamlined.
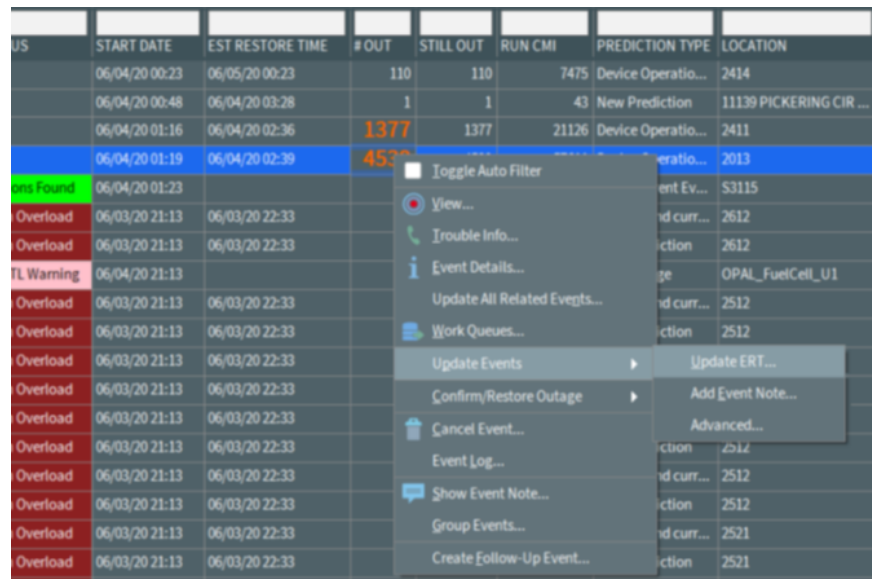
Outage right-click menu in Work Agenda

Manage Complex Outages from One Event

It is now possible to manage complex outages form a single, *lead* event. Sub-events are hidden from view in the Condensed View.

Upon completing a multi-stage outage, the user needs only to complete the mandatory fields in the Lead event - the option is given to automatically apply those changes to all sub-events.

All restoration stages are displayed in the lead event, making it easier to get a consolidated history of the restoration. For single stage outages the outage and restoration stage are displayed in the Restoration Stages list.
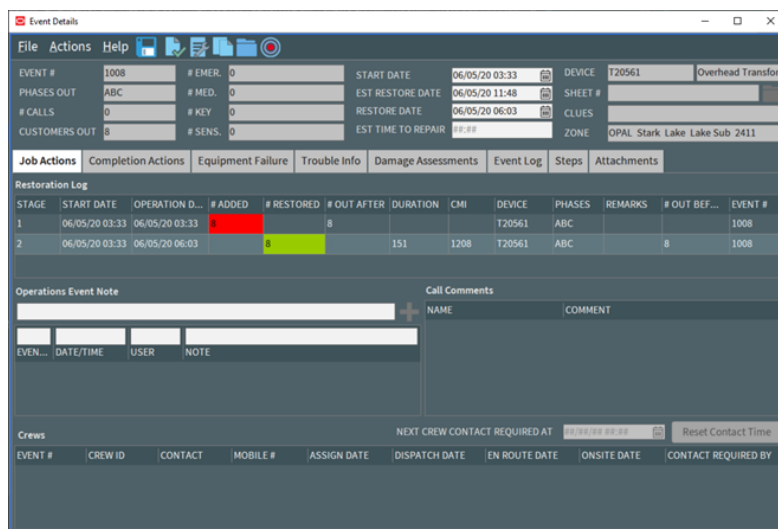
Restoration stages for a multi-stage outage

Movable Symbols with Mouse-over Tooltips

Symbols displayed temporarily on the Viewer (for example outage, crew, notes, damage assessment, etc.) can now be moved to a different position by the user. Leader lines can be hidden or displayed.

Notes can now be placed on the Viewer background - not restricted to being associated with a device.

Upon mousing over a symbol, more information about the symbol is revealed. The information displayed is configurable per symbol type.
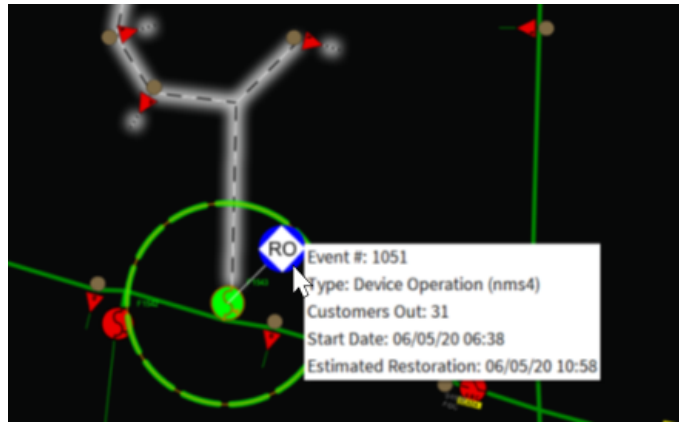
Device Mouse-over Tooltips

Device mouse-over tooltips provide a lightweight, more discreet alternative to the existing information balloon functionality.

The user can mouse over a device to see more information about it. The information displayed is configurable per device type.

Users can choose to keep the tooltip open, and then quickly hide it when no longer required.

Web Switching (WSW)

Capture Switching Operations into Selected Event

Steps now can be recorded into a Steps tab in Event Details, rather than needing to go into a separate switching sheet. It supports recording from the control tool as well as using the Manual Step Addition form, and can remove the need to use an associated Emergency Switching sheet just to track operations associated to an unplanned event. It does not support any switching sheet tabs other than Steps, and does not include block headers or study mode. It does support Copy as Go-Backs. Operations can only be in one location - an event's Steps tab, a switching sheet's Steps tab, or the Miscellaneous Log.

Warn User if Switching Isolate Block Edited After Restore Block

An option has been added to warn a user if edits were done in an Isolate block of a Switching sheet more recently than any edits in a Restore block of that sheet. This can alert a user that they may have neglected to update go-back steps or do other corresponding changes to a Restore block after needing to modify (add, edit, or remove steps) in an Isolate block. The block names for this optional validation are configurable

Web Workspace (WW)

Recognize Nested Outages that Occur First

When a nested outage is found after an upstream outage and the device is opened in the de-energized network, the option existed to create a nested outage. However, if the nested outage was found first, no nested relationship was recognized. Now if an upstream outage is found that would "nest" a downstream outage, that relationship is recognized and established automatically.

Recognize Nested Outage within Predicted De-Energized

Normally nested outage relationships are only done within confirmed de-energized sections. An ability is added to identify nested outages within a predicted de-energized section of the network.

Consolidate Crew Info and Active Job Info

The Crew Info and the Active Job Info windows have been combined into a single window. Now the Crew Info window displays all of the content and supports all of the actions that were previously in the Active Job Info window.

Improve Handling of Hazards and Damage Assessments

Several improvements were made in representing and managing hazards and other damage assessments. These include:

- The ability to automatically create a hazard damage assessment with a related non-outage event based on configurable hazard clues from customer calls

- Populate the hazard damage assessment with caller name, address, phone number, and call comments

- Allow multiple hazard damage assessments created from calls on the same transformer group into the same single non-outage event

- When an assessor-type crew is assigned to a damage assessment and arrives onsite, update the status of the damage assessment to Assessing

- When trying to complete an event with unresolved damage assessments, optionally present a dialog warning the user of active damage assessments along with options to mark the remaining assessments as Fixed or Obsolete

- Filters for crew type and work queue in the Damage Summary panel for the selected control zone in the Trouble Summary window

- Display an event-level Damage Summary on the Damage Assessments tab in Event Details

- Ability to set a Patrolling Assessment flag on a device from the Viewer or Work Agenda, which will

  - Cause any active or future events at or downstream of the device to have the Assessment work queue set until the flag is removed

  - Unset any other work queues for those events

  - Prevent other work queues from being automatically set based on call clues

Add Option to Quarantine a Feeder

A new option is available to set a "quarantine" flag

- Cause any active or future events at or downstream of the device to have the Assessment work queue set until the flag is removed

- Unset any other work queues for those events

- Prevent other work queues from being automatically set based on call clues.

Additional Information and Options on the Work Agenda to Improve Event Handling

Several additions were made to Work Agenda information and actions to allow more efficient management of events, especially related events:

- Improved summary of information in the lead event row when the Work Agenda is presenting a "Condensed View" of related events

- Support an option for actions done on the "summary row" of related events to take effect on the oldest active outage event rather than the oldest overall "lead" event

- Auto-relate active events that impact the same customer

- Support an option to right-click and create a related event, for example to be used for follow-up work while being able to complete the original event

- New column that is a comma-separated display of all unique crew types represented by the crews associated to an event

- Allow certain call clues to automatically set a work queue (e.g., a wire-down clue sets the Line work queue, a tree on wire clue sets the Tree work queue)

Ability to Move a Call to Another Event

When a customer calls in to report an issue at another location, perhaps a wire down in a neighbor's yard, the call can now be associated to a different event as an "informational" call. This allows the call comments and other information to be available as part of the calls on the other event, but does not cause the other event to repredict. For example, if the call is moved to a PSO event, it will remain a PSO event and not roll up to a PDO.

Improve ERT Calculation and Updating

Several enhancements were made to provide more flexibility in how estimated restoration times (ERTs) are calculated and updated. These include:

- When Storm Management is licensed and configured, set the initial ERT based on the Storm Management lookup of outage type, control zone, shift, day type, and season. This allows better granularity than just the usual device type and control zone.

- Add the ability to auto-extend the ERT for an unrestored outage by a configured amount of time when it is within a configured number of minutes of expiration. This supports specifying which ERT sources can be auto-extended and can be configured differently by control zone.

- Allow specifying an initial default Estimated Time to Repair value for outages, which then would be overridden if damage assessment is populated for the event.

- Provide an option to have an ERT Override be able to override all ERTs for the control zone or system, rather than just ones with lower precedence. This would allow the option to override manually set ERTs for events done by users or crews. This is a check box option available whenever an ERT Override or ERT Delay is applied.

- In Storm Management, provide an option to the ERT override to remove a sub-zone from a higher-level override. This allows setting an override at a company or region level but then excluding a from the override if it is not impacted or is in better shape to have normal ERT calculations applied.

More Flexibility with Assigning / Dispatching of Crews

Several enhancements were made to provide more flexibility in the assigning / dispatching of crews. These include:

- Supporting an option for a "two-step" assign process where an Assign action shows the assignment within Web Workspace, but does not send the assignment out across interfaces (for example, to OMA or other integrated mobile workforce solutions). A separate Dispatch option would then send the work out to the crew, or indicate that it had been verbally dispatched to the crew.

- Show all associated crews in the Crews table in Event Details, including the various crew status times (Assigned, Dispatched, En Route, Onsite), and be able to change the status of a crew from Event Details.

- Be able to multi-select crews and assign them to one or more events, similar to being able to multi-select events and assign them to a crew.

More Information and Options with Group Events

A project can now constrain which events are allowed by be merged using Group Events based on event type and event status. The Group Events dialog now shows the Event Status and Feeder next to the Event ID for selected events, and if an error occurs when attempting to merge events, an error message is displayed next to the event or events that are preventing the merge. Options are presented to remove the problem events, relate them instead of merging them, or cancel the attempted merge.

Add Option to Make a PDO or PSO "Stable" and Not Repredict

A new option in the Viewer and Work Agenda allows a user to make a probable device outage (PDO) or probably service outage (PSO) stable. This action changes the symbol in the Viewer and a Stable? column in the Work Agenda, and prevents the outage from moving based on subsequent calls, AMI power-offs, or upstream device operations. The user can also remove the Predicted Stable status, which will allow the outage to then behave as a standard PDO or PSO once again.

Add Ability to Quarantine a Section of the Network

A new option allows a user to select a device such as a feeder breaker and set a Quarantine flag, which will allow delegation of all events to a separate group's work queue so they coordinate all work on that feeder or other network section. Similar to functionality added for the Assessment work queue, but with higher precedence, setting this flag will:

- Cause any active or future events at or downstream of the device to have the Quarantine (or other project-configured) work queue set until the flag is removed.

- Unset any other work queues for those events.

- Prevent other work queues from being automatically set based on call clues

- Provides an indication in the Web Workspace footer that there are Quarantine flags set, with navigation to see the list of flagged devices/feeders.

- Adds a "Focus on Feeder Breaker" option to the Viewer to easily navigate to the source feeder breaker for a device.

- When quarantining a feeder or other network section, display a warning dialog if there are crews working on events in the quarantined section with details about the events and crews.

Provide an Indication of Radial Outages

A new Radial column was added to the Work Agenda, which is Yes if the network below the outage device cannot be energized by opening a different device. This allows a utility to organize radial outages if they wish to delegate them to crews to safely work without concern of another crew on another event possibly energizing from a different direction. A user can override the system's determination of whether or not an outage is radial in cases where they believe the analysis is not correct.

Improvements in Dealing with Multiple Events

Some enhancements were done to improve working with partial restoration events, and couple of other enhancements were added to improve operator efficiency when working with multiple events in general.

For specifically related events, these include:

- More details in the Restoration Log within Event Details, including a row for the initial customers out and populating it even for single-step restorations.

- Show a Still Out column in the Work Agenda next to the original # Out column, to make it easier to tell at a glance from the Work Agenda the progress of the restoration of that outage.

- Show an Original Device and Current Device in the Work Agenda, which is especially helpful in the Condensed view. The Current Device could be a comma-separate list of devices if for example a recloser was predicted outage and the real problem was two downstream tap fuse outage with calls that caused the prediction to roll up.

For generally working with multiple events, these include:

- Add the "Update ERTs" option to the Update Events dialog

- For the Release Crews dialog, add a separate row for each crew and event combination, since a crew can be associated with multiple events.

- In the Release Crews dialog, display the Event ID, Device, and Feeder for each row.

Display Nominal Connected kVA for De-Energized Devices

In the Viewer, the Device Details balloon displays Power Flow Results including kVA for energized devices when a project has implemented Power Flow. When selecting a de-energized device, however, no kVA information is presented. This enhancement adds a "Connected kVA Results" tab that displays the nominal connected kVA information.

Support for Additional Control Zone Levels

Previously NMS supported a maximum of 6 control zone levels. This has now been enhanced to support up to 10 total control zone levels.

Improved Support for Control Zone Sets

A few improvements were done to the display and use of control zone sets. These include:

- Only displays control zone sets that the user is allowed to subscribe to, and don't display an "excluded" control zone set.

- Adds a description column to the display of control zone sets in the Authority Tool so it is clearer what the control zone set includes.

- Improves the population of the right-hand fields in the Authority Tool when a control zone set is selected (Rule Set, OMA Self-Assign Events) to be a comma-separated list of all applicable values.

- Changes Rule Set, Enable OMA Self-Assign, and Disable OMA Self-Assign to apply to all control zones in the selected control zone set.

Upgrading to Version 2.5.0.0.0

The upgrade path to Oracle Utilities Network Management System V2.5.0.0.0 is a complete delivery of new binaries, libraries, and configuration files. There are identified migrations based upon your previous release of Oracle Utilities Network Management System, if any.

For details on supported platforms, refer to the installation documentation shipped with Oracle Utilities Network Management System V2.5.0.0.0.

Discontinued Platforms

The following platforms are not supported in the NMS V2.5.0.0.0 release:

- IBM AIX

- Microsoft Windows 7

- Microsoft Windows 8

- Microsoft Internet Explorer

Discontinued Adapters and Integrations

The following adapters and integrations are not supported in NMS V2.5.0.0.0 release:

- Triangle MicroWorks ICCP Adapter (a.k.a., Tase2adapter).

- Oracle Utilities Network Management System Integration to Oracle Utilities Mobile Workforce Management (NMS - MWM).

- Oracle Utilities Network Management System Integration to Oracle Utilities Customer Self Service (NMS - CSS).

Supported Platforms

For details regarding supported platforms, please see the *Oracle Utilities Network Management System Licensing Information User Manual*.