

Oracle Utilities Network Management System

Release Notes.

Release 2.5.0.2

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Oracle Utilities Network Management System Release Notes, Release 2.5.0.2

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Preface

These release notes provide an overview of the features in Oracle Utilities Network Management System Version 2.5.0.2.

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 2.5.0.2.

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 2.5.0.2

New and enhanced features in Oracle Utilities Network Management System Version 2.5.0.2.

AMI Integration

Support separate meter status columns for solicited and unsolicited

The AMI Customers tab now has separate columns for solicited meter statuses from ping requests (Ping Result, Result Date) and unsolicited meter statuses from last gasp power-offs and first breath power-ups (Status, Status Date). The AMI Power History will indicate whether or not the status was solicited.

METER #	ENABLED	STATUS	STATUS DATE	PING RESULT	PING RESULT DATE	LOAD SIDE	VOLTAGE
2203323	Yes	ON	11/09/21 11:05	OFF	11/09/21 10:55		
2203324	Yes						
2203325	Yes						
2203326	Yes	ON	10/08/21 17:56	ON	11/08/21 15:34		

Improve support for "UNKNOWN" meter status response

Previously if an UNKNOWN meter status was received it could optionally be stored but could not satisfy a meter ping request. NMS would continue to ping the meter until an ON or OFF status was received or the maximum number of attempts were made. Now an UNKNOWN status can satisfy the ping request and no further pings will be sent for that request.

Auto-refresh of ping results

Previously the AMI Customers table and AMI Requests window did not dynamically refresh when ping results were returned, requiring a user to manually hit a Refresh option periodically to see if responses were received. The ping results now dynamically refresh and update the AMI Customers table and AMI Requests window.

Distributed Energy Resource Management (DERMS)

Multi-temporal Optimization for Network Capacity Allocation (NCA)

NCA clears flexibility service bids for areas with high DER penetration. It ensures that the services being offered will not cause network constraints. Previously the NCA analysis checked for overload violations. The new multi-temporal optimization engine enables NCA to check for overload and voltage violations. Additionally, the duration required to perform a NCA analysis has been greatly reduced.

Fault Location, Isolation, & Service Restoration (FLISR)

Bus fault restoration logic

Bus fault protection triggers when a fault occurs on or close to the substation bus (x-protection), or when a breaker fails to operate and backup bus protection is triggered (y-protection).

When x-protection is triggered, FLISR assumes that the fault is either on the bus or close to the bus. In this scenario, FLISR will open the first downstream SCADA operable switches and restore using adjacent feeder ties.

When y-protection is triggered the protection scheme will attempt to open all the breakers on the bus, including the breaker that did not trip open for the fault. FLISR will first check if all the breakers on the bus have opened. If the breakers have opened, then FLISR will close the unfaulted feeders and bus tie (if it is nominally closed), then open the first switch without fault indication on the faulted feeder and restore with adjacent feeder ties. If the faulted feeder breaker was not opened by the y-protection scheme, the FLISR will open the first unfaulted switch on the faulted feeder, and the first downstream switch on the unfaulted feeders and restore with adjacent feeder ties.

Fault Location Analysis

Momentary and Sustained Processing

FLA events are now categorized as sustained or momentary. A FLA momentary event mean that the fault was temporary and that the reporting protective device successfully reclosed. A FLA sustained event means that the fault was present for long enough for the protective device to trip to lock out.

FLA can now be configured to process momentary and sustained, sustained only, or be disabled. New FLA global and feeder level modes have been added:

- Enabled for sustained and momentary
- Enabled for sustained
- Disabled

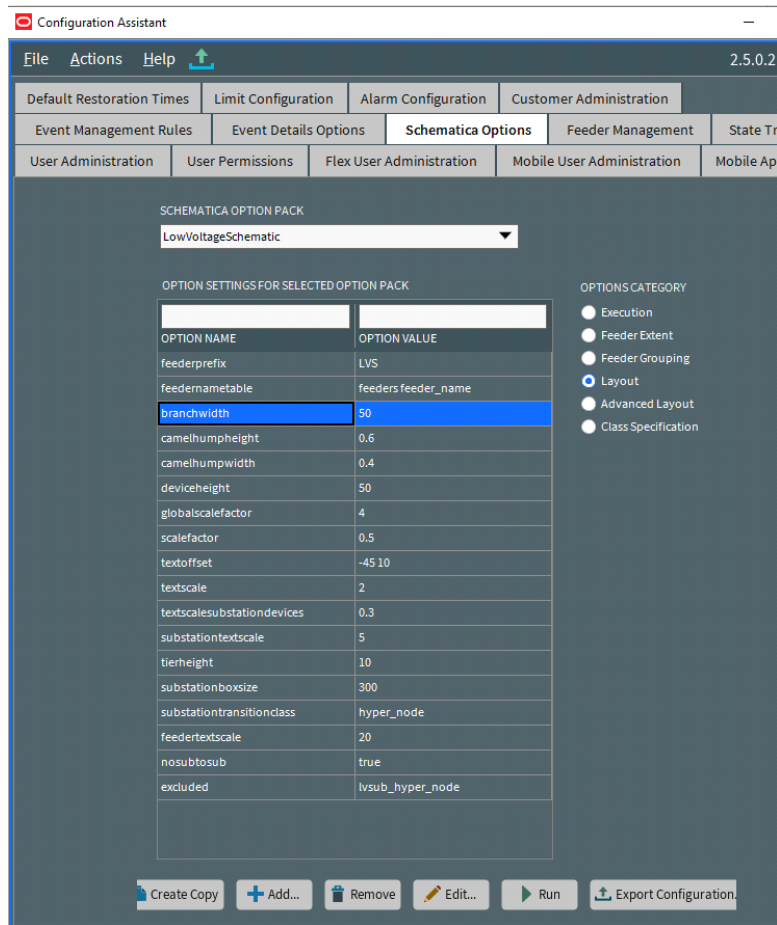
The most restrictive mode between global and feeder will take precedence.

Model Management

Schematica Enhancements

Two improvements were made to the schematics generation module Schematica.

1. Display of switch gear boxes: network components that are part of the same switch gear box will have a box drawn around them in the generated schematic diagram to visually indicate this.
2. Configuration of parameters for schematics generation: previously these were command-line arguments to the schematica program. A new tab has been added to the Configuration Assistant to allow the user to choose among predefined option packages, edit or save a new option package, easily view and modify parameters, and run the schematic generation.



Operations Mobile Application (OMA)

Migrate OMA to PWA technology

The Operations Mobile Application (OMA) is moved from a hybrid application to a Progressive Web App (PWA). This greatly simplifies the building and deploying of OMA as it can be built once on any platform supporting NodeJS and then is installed from a web server via Chromium browsers (Google Chrome or Microsoft Edge) on Windows, Android or Linux platforms, and via Safari browsers on iOS and MacOS. All Cordova plug-ins have been replaced with standard web components as part of this move to the PWA technology.

Optimization

Measurement and Verification (M&V) Data

VVO now captures additional data that can be used for M&V analysis, specifically for the CVR objective. Utilities are required to report the benefits of CVR to their regulators. There are various methodologies that utilities use to estimate the performance of their CVR programs. Some of the key metrics include: average voltage reduction, average load reduction, CVR factor, and estimated energy savings. To generate these metrics utilities

will often run an evaluation period where they will turn CVR on and off periodically to estimate the load and voltage reduction. NMS now captures the following data for each substation bus and feeder whenever power flow solves:

- VVO mode
- Min/Max/Average measured voltage by phase
- Feeder head kW and kVAR by phase
- DER kW/kVAr output by phase
- Line losses by phase
- Weather data
- Customers connected to feeder
- Abnormal devices

This data can be exported to a CSV file from Feeder Load Management.

SCADA

NMS v2.5.0.2 provides numerous significant enhancements around SCADA. The main enhancements are described below.

Active Alarms Display

New features have been added to the Active Alarm Display to help inform the user on the current status of existing alarms in the system. These are:

- The alarms will now be sorted by the Alarm Insert Time in descending order by default. This ensures that when the display is invoked, it will present the most recent alarms to the user.
- A new column has been added to the display to show the acknowledgement status of the alarm.
- Show or hide the milliseconds display in time fields for clarity.
- Multiple analog alarms for different phases on a device shall be grouped under one parent alarm.
- Added information on the number of child alarms when viewing the main alarm list.
- An indication will be given to the user when the alarm display has been filtered.
- The alarm display can be filtered on priority or acknowledgment status by selecting columns in the alarm banner.

PRIORITY	ALARM TIME	CLASS	CATEGORY	SUBSTATION	FEEDER	DEVICE	ATTRIBUTE	ALARM MESSAGE	PHASES	PHASES PRESENT
Medium	03/03/22 09:49:34.736	Scada	Communications				Scada Communications	RTU S2992: Status set to Failed.		
High	03/03/22 03:10:42.466	Nms	Analog	Washington Sub	4121_Bus	BR4115	...Phase C Current (A)	Lo limit exceeded, 0 Amps (Limit 10 Amps)	ABC	ABC
High	03/03/22 03:10:42.466	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	...Phase C Current (A)	...Lo limit exceeded, 0 Amps (Limit 10 Amps)	ABC	ABC
High	03/03/22 03:10:42.466	Nms	Analog	Washington Sub	4121_Bus	BR4115	...Phase C Line To Neutr...	Lo limit exceeded, 0 kv (Limit 95 kv)	AN,BN,CN	ABC
High	03/03/22 03:10:42.466	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	...Phase C Line To Neutr...	Lo limit exceeded, 0 kv (Limit 95 kv)	AN,BN,CN	ABC
Low	03/03/22 03:10:30.153	Interfaces	SMS				SMS System Alarm	...nms-svc-hot:PFService running - 34 sec		
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23103	Automatic Operation	Unexpected OFF	C	C
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23203	Automatic Operation	Unexpected OFF	C	C
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23204	Automatic Operation	Unexpected OFF	C	C
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23083	Automatic Operation	Unexpected OFF	A	A
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23084	Automatic Operation	Unexpected OFF	A	A
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23054	Automatic Operation	Unexpected OFF	B	B
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23055	Automatic Operation	Unexpected OFF	B	B
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23056	Automatic Operation	Unexpected OFF	B	B
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23057	Automatic Operation	Unexpected OFF	B	B
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23064	Automatic Operation	Unexpected OFF	B	B
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23065	Automatic Operation	Unexpected OFF	B	B
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23066	Automatic Operation	Unexpected OFF	B	B
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23067	Automatic Operation	Unexpected OFF	B	B
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23072	Automatic Operation	Unexpected OFF	A	A
Low	03/03/22 03:08:01.478	Nms	Digital	Harrison Sub	3313	SecT23073	Automatic Operation	Unexpected OFF	A	A

Multiple active alarm displays can be initiated from different locations within NMS. There are options to open an alarm display for a device location from:

- The Control Tool.
- The SCADA Summary Tool.
- A device or substation in the viewer.

By default, conditional formatting has been applied for alarm priorities on the following displays. These can be changed if required:

- Active Alarms Banner
- Active Alarms List
- Alarm History List
- Alarm Definitions table

Provided with this release is a migration script. This script will allow existing alarms to be re-configured to the new format to prevent the need for reconfiguring existing alarms or notifications.

Alarm History Display

A new display has been included in NMS that provides the user with the ability to view alarm history. A historical alarm is one that may have been viewed or superseded in the main active alarm display or a lower priority alarm that does not require acknowledgment, but is required for auditing purposes. This display can then be filtered on a device or location to review all the alarms that have been raised in association with the selection.

PRIORITY	ALARM TIME	CLASS	CATEGORY	SUBSTATION	FEEDER	DEVICE	ATTRIBUTE	ALARM MESSAGE	PHASES	PHASES PRESENT
Low	03/03/22 05:00:29	Nms	Analog	Perry Sub	3432_Bus	BR3432	Phase A Current (A)	Return to Normal, 12.0712 Amps (Limit 10 Amps)	A	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase C Current (A)	Lo limit exceeded, 0 Amps (Limit 10 Amps)	C	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase A Current (A)	Lo limit exceeded, 0 Amps (Limit 10 Amps)	A	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase B Current (A)	Lo limit exceeded, 0 Amps (Limit 10 Amps)	B	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase C Current (A)	Lo limit exceeded, 0 Amps (Limit 10 Amps)	C	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase A Current (A)	Lo limit exceeded, 0 Amps (Limit 10 Amps)	A	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase A Line To Neutral ...	Lo limit exceeded, 0 kv (Limit 95 kv)	AN	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase B Current (A)	Lo limit exceeded, 0 Amps (Limit 10 Amps)	B	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase B Line To Neutral ...	Lo limit exceeded, 0 kv (Limit 95 kv)	BN	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase C Line To Neutral ...	Lo limit exceeded, 0 kv (Limit 95 kv)	CN	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase A Line To Neutral ...	Lo limit exceeded, 0 kv (Limit 95 kv)	AN	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase B Line To Neutral ...	Lo limit exceeded, 0 kv (Limit 95 kv)	BN	ABC
High	03/03/22 03:10:42	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase C Line To Neutral ...	Lo limit exceeded, 0 kv (Limit 95 kv)	CN	ABC
Low	03/03/22 03:10:30	Interfaces	SMS				SMS System Alarm	nms-svc-hostPFService running - 34 sec		
Low	03/03/22 03:09:45	Interfaces	SMS				SMS System Alarm	nms-svc-hostPFService failed		
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase C Current (A)	Return to Normal, 286.6 Amps (Limit 10 Amps)	C	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase A Current (A)	Reasonability exceeded 1143.82 Amps	A	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase A Line To Neutral ...	Return to Normal, 8.07707 kv (Limit 97.5 kv)	AN	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase B Current (A)	Reasonability exceeded 1147.05 Amps	B	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase B Line To Neutral ...	Return to Normal, 8.08013 kv (Limit 97.5 kv)	BN	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase C Current (A)	Reasonability exceeded 1152.55 Amps	C	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	Phase C Line To Neutral ...	Return to Normal, 8.08769 kv (Limit 97.5 kv)	CN	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase A Current (A)	Return to Normal, 286.522 Amps (Limit 10 Amps)	A	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase A Line To Neutral ...	Return to Normal, 8.07096 kv (Limit 97.5 kv)	AN	ABC
Low	03/03/22 03:08:28	Nms	Analog	Washington Sub	4121_Bus	BR4115	Phase B Current (A)	Return to Normal, 286.542 Amps (Limit 10 Amps)	B	ABC

The Alarm History Display has similar features to the Active Alarm Display. The display can be filtered using column headers but also has a selection of Global filters which allow the user to select alarms in the last day, hour or week. Additionally, users have the ability to create their own alarm views through the ability to create their own private filter that can then be shared with other users or added to their own Favorites.

Alarm Configuration

Additional functionality has been added to the Alarm Configuration tool in the Configuration Assistant. As alarms are configured a new alarm preview tab has been added that will allow users to visualize how alarms will appear in both the Active and Historic Alarm displays. Users can select an alarm from the alarm list and choose to preview in the display. They can also choose to acknowledge alarms in the preview tab to further identify how alarms will behave under the defined configuration. When they have completed the checks, the alarms can then be removed from the preview.

The screenshot shows the Configuration Assistant interface with the Alarm Configuration tool active. The main window displays a table of alarm definitions with columns for NAME, TRIGGER TYPE, TRIGGER VALUE, PRIORITY, CLASS, CATEGORY, REQUIRES ACK, STANDING, LATCHED, SINGLE, and ACK OUTSTANDING. Below the table are buttons for adding definitions, adding rows, removing, editing, clearing preview, refreshing, recaching services, and exporting the table.

At the bottom, there are two panels: ACTIVE ALARMS and HISTORIC ALARMS. The ACTIVE ALARMS panel shows a table with columns for ATTRIBUTE, PRIORITY, ALARM TIME, CLASS, CATEGORY, and ALARM. A context menu is open over the first row, showing options for Acknowledge, Silence, and Clear. The HISTORIC ALARMS panel shows a table with columns for ATTRIBUTE, PRIORITY, ALARM TIME, CLASS, CATEGORY, and ALARM MESSAGE.

NAME	TRIGGER TYPE	TRIGGER VALUE	PRIORITY	CLASS	CATEGORY	REQUIRES ACK	STANDING	LATCHED	SINGLE	ACK OUTSTANDING
RTU Switch Alarm	Manual		Info	Nms	Digital	No	No	No	No	No
RTU Switch Alarm	Override		Info	Nms	Digital	No	No	No	No	No
RTU Switch Alarm	Inhibit		Info	Nms	Digital	No	No	No	No	No
Switch Normally Closed	Expected		Low	Nms	Topology	No	No	No	No	No
Switch Normally Closed	Unexpected	OPEN	High	Nms	Topology	Yes	Yes	No	No	No
Switch Normally Closed	Unexpected	CLOSED	Medium	Nms	Topology	Yes	No	No	No	No
Switch Normally Closed	Intermediate		Low	Nms	Topology	No	No	No	No	No
Switch Normally Closed	Manual		Info	Nms	Topology	No	No	No	No	No
Switch Normally Closed	Override		Info	Nms	Topology	No	No	No	No	No
Switch Normally Closed	Inhibit		Info	Nms	Topology	No	No	No	No	No
Switch Normally Open	Expected		Low	Nms	Topology	No	No	No	No	No
Switch Normally Open	Unexpected		Medium	Nms	Topology	Yes	No	No	No	No
Switch Normally Open	Intermediate		Low	Nms	Topology	No	No	No	No	No

ATTRIBUTE	PRIORITY	ALARM TIME	CLASS	CATEGORY	ALARM
+2 Switch Normally Closed	High	03/03/22 11:19:09	Nms	Topology	...Expect

ATTRIBUTE	PRIORITY	ALARM TIME	CLASS	CATEGORY	ALARM MESSAGE
Switch Normally Closed	Low	03/03/22 11:19:09	Nms	Topology	Expected VALU
Switch Normally Closed	High	03/03/22 11:18:45	Nms	Topology	Tripped VALU

SCADA Limits Processing

The functionality around limits has been enhanced with the ability to configure and manage limits being made available within the Configuration Assistant tool. The ability to apply limit groups has been added which provide a set of limits that can be applied. These limit sets describe a range of limits that can be applied to a measurement for example, limit sets that are aligned to seasons. The limits can be defined by either absolute values or percentage values based on a nominal value, a device attribute or a SCADA measurement.

The screenshot shows the Configuration Assistant interface with the 'Limit Configuration' tab selected. The interface is divided into three main sections:

- Limit Groups:** A table listing different limit groups. The selected group is '13.8 kV BREAKER Phase Voltage'.

ID	GROUP NAME	DESCRIPTION
5	69kV/13.8 xfm MVA	69kV/13.8 step transformer MVA
6	13.8 kV BREAKER Phase Voltage	13.8 kV BREAKER Phase Voltage
7	13.8 kV BREAKER Amps	13.8 kV BREAKER Amps
- Limit Sets:** A table showing sets defined for the selected group.

LIMIT_GROUP_ID	SET ID	SET NAME	TYPE	HYSTERESIS
6	1	Spring	Percent	0.3
6	2	Summer	Percent	0.3
6	3	Fall	Percent	0.3
6	4	Winter	Percent	0.3
- Limit Bands:** A table defining the value ranges for the limits.

BAND ID	BAND NAME	MIN VALUE	MAX VALUE	DESCRIPTION	PRIORITY	ENABLED
-2	LoLo		0	95 LoLo Limit (0 to 95%)	1	Y
-1	Lo		95	97.5 Lo Limit (95% to 97.5%)	1	Y
0	Normal		97.5	105 Normal Range (97.5% to 105%)	1	Y
1	Hi		105	106 Hi Limit (105% to 106%)	1	Y
2	HiHi		106	5000 HiHi Limit (106%+)	1	Y

When the alarm limit bands are traversed, the system includes the ability to raise an alarm to inform users that the relevant measurement has gone higher or lower than the normal value defined in the limits. These alarms can be grouped and automatically acknowledged in the Active Alarm Display, through configuration.

The screenshot shows the 'Alarms' window with a summary bar and a table of active alarms. The summary bar shows counts for different severity levels: CRITICAL (12), HIGH (266), MEDIUM (82), LOW (360), INFO, ACKNOWLEDGED, and UNACKNOWLEDGED.

PRIORITY	ALARM TIME	CLASS	CATEGORY	SUBSTATION	FEEDER	DEVICE	ATTRIBUTE	ALARM MESSAGE	PHASES	PHASES PRESENT
+3 High	03/03/22 03:10:42.466	Nms	Analog	Washington Sub	4121_Bus	BR4115	...Phase C Current (A)	Lo limit exceeded, 0 Amps (Limit 10 Amps)	ABC	ABC
+6 High	03/03/22 03:10:42.466	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	...Phase C Current (A)	...Lo limit exceeded, 0 Amps (Limit 10 Amps)	ABC	ABC
+3 High	03/03/22 03:10:42.466	Nms	Analog	Washington Sub	4121_Bus	BR4115	...Phase C Line To Neutr...	Lo limit exceeded, 0 kv (Limit 95 kv)	AN,BN,CN	ABC
+3 High	03/03/22 03:10:42.466	Nms	Analog	Washington Sub	4111_Diesel...	BR4111	...Phase C Line To Neutr...	Lo limit exceeded, 0 kv (Limit 95 kv)	AN,BN,CN	ABC

In order to prevent alarms being raised when a measurement value continually moves above and below a limit band value in small increments, the system has a hysteresis value that can be applied. So when moving down a band from a high limit or moving up a band from a low limit, an alarm will only be raised when the new value is greater than the band limit plus the hysteresis value.

SCADA Summary Updates

The SCADA summary display has been updated to display the current Limit Group and Limit Set that have been applied to a device. An option has been added that will allow the user to change the Limit Set that has been applied.

There may also be a need, in some circumstances, to provide a temporary set of limits to a measurement. The ability to apply a temporary override of limit values is also available. The user can select to apply the temporary limit, define the temporary value and how long this temporary value should be applied for.

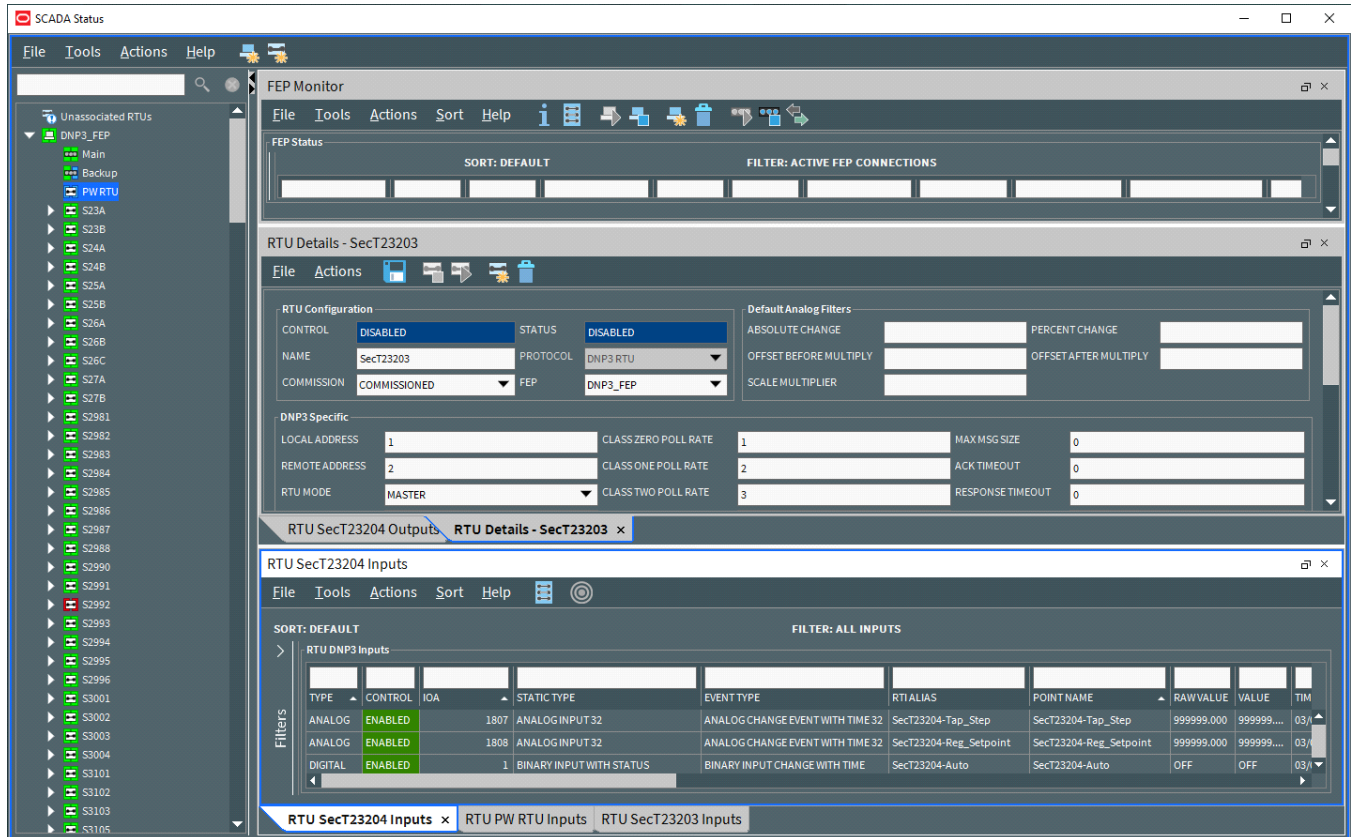
Integrated SCADA Commissioning Functionality

Oracle NMS 2.5.0.2 contains new functionality to enable the configuration, management and control of SCADA-enabled devices directly from NMS. Access to the SCADA Commissioning functionality mentioned here is privilege-controlled. Only user types with the appropriate membership granted will be able to access this functionality.

Create, Configure, and Monitor the SCADA system

The SCADA Status tool provides the ability to oversee the SCADA system. The display will provide the user with the ability to identify the current status of the SCADA system communication with the field devices. It will also provide the ability to:

- Create, configure and remove Front End Processors (FEPs), Remote Terminal Units (RTUs) and individual points for monitoring and controlling field devices.
- Enable and disable FEPs, RTUs and points and switch between multiple connections to the devices (for example, main and backup side of a FEP).
- Associate SCADA controlled devices in the NMS network to output points to allow for remote control and display the updated status on the network diagram
- Associate network devices in the NMS to input points to associate analog readings from the field and display on the network diagram
- Review and reset statistics for FEPs such as the number of analog and digital changes and the rate of change for analogs and digitals.



Protocol Support

Remote Terminal Units can be assigned a protocol with which it communicates with the field devices. Support has been added for the ICCP, DNP3 and IEC 104 protocols in this release. When a protocol is defined for an RTU, the RTU details screen is updated to display the relevant configuration options for the selected protocol.

Support Commissioning States

The ability to define the commissioned state of a SCADA-enabled device has been added. This allows the ability to define RTUs and individual points as either:

- Commissioned
- Tested
- Uncommissioned
- Decommissioned

SCADA Commissioning Templates

The ability to define templates which will include information on the network devices and points to be associated with the SCADA information has been added. When generating the SCADA information for an RTU, for example, the most relevant template

can be selected and applied to the RTU allowing for the automatic creation and, where possible, linking to existing network devices.

User Experience (UX)

Clearer visual differentiation between Real-Time and Study modes

NMS has improved the indication for when a window is in Study mode. A configurable green gradient border is around windows and dialogs that are in study mode, whereas the windows have no gradient border in real-time mode.

Affected windows and dialogs include:

- Viewer
- Trace
- Control Tool
- Look Ahead
- Switching Sheets
- Safety Documents
- Feeder Load Summary
- Feeder Load Management
- Feeder Details
- Study Session Parameters
- Commissioning Tool
- Storm Management

The screenshot shows the Oracle Utilities Network Management System (NMS) interface. A 'Look Ahead Dialog' is open for an Overhead Transformer (T11431). The dialog displays a table of customer counts and a 'Study Mode' view of the transformer's network diagram.

Drop Count	Pickup Count	ATO Customers	View Conditions	View Abnormal	View Critical	View Cap. and Reg.	Violations	View DER	DMS Settings
Total Customers	12	1024		12	1012				12
Crit Customers	4	106		4	99				7
KEY Customers	4	102		4	95				7
EMR Customers		4			4				
MED Customers									
SENS Customers		2			2				
DER KVA		480			470				10

The 'Study Mode' view shows a network diagram of the transformer (T11431) with a scale of 200 ft and 50 m. The diagram includes a transformer symbol and several customer symbols connected by lines. The status bar at the bottom indicates 'Violations: Disabled', 'FLISR: Disabled', 'Optimization: Disabled', 'Protection Schemes: Disabled', and 'ANMS: Disabled'.

Web Switching Management (WSW)

Ability to export/import switching sheets

NMS now allows the export and subsequent import of switching sheets. This can be helpful when you want to export training scenario sheets prior to updating a training environment and then import them back, or copy a switching sheet from production to a non-production environment for testing or troubleshooting. This feature is available for training scenarios, templates, planned, and emergency switching sheet types. Sheets are exported in a .json format and can be viewed by any application able to view .json files.

Web Workspace (WW)

Ability to display filled polygons in viewer

Added support for polygons in the NMS model. Projects can now add polygons to the model and display them in the viewer with a custom fill pattern, color and opacity specified in the device attributes. One example is the calculation of Fire Potential in an area and being able to display polygons filled or colored to indicate the level of risk for the specified polygon region.

Upgrading to Version 2.5.0.2

The upgrade path to Oracle Utilities Network Management System v2.5.0.2 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 v2.5.0.2.

Supported Platforms

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

Deprecated Platforms

- Linux 7
- Solaris will no longer be offered for new implementations (existing customers still supported).