GE
Grid Solutions

UR Family

Version 8.0x

Release Notes

GE Publication Number: GER-4882G

Overview

This document contains the release notes for firmware and software version 8.02, 8.03, 8.04 and 8.05 of the GE Universal Relay (UR) family of products.

Applicable to products: B30, B90, C30, C60, C70, C95, D30, D60, F35, F60, G30, G60, L30, L60, L90, M60, N60, T35, T60

Date of release 8.02: 3 July 2020

Date of release 8.03: 2 November 2020

Date of release 8.04: 3 November 2020

Date of release 8.05: 3 September 2021

In the following descriptions, a category letter is placed to the left of the title. See the table at the end of this document for descriptions of the categories.

Major firmware releases can introduce new protection and control elements that can affect the device's Modbus memory map. Check the summary of released features to find out if it applies to a particular release.

Highlights 8.02

- **New** – Subcycle Distance Package D60 and L90 (software option dependent), which includes the following features:
  - Subcycle Distance element
  - Cross-Country fault detection for solidly grounded systems
  - Cross-Country fault detection for isolated or Petersen coil grounded systems
  - Increased number of phase/ground distance zones to six
  - Extended common distance zone timer to zones 3 to 6
- **New** – Transformer Interturn Fault Detection
- **New** – Harmonic/Inrush Detection (Harmonic Blocking)
- **New** – Transient Ground Fault Detection (TGFD)
- **New** – Editable prefix and instance number of IEC 61850 Logical Nodes

- **New** – C95 bay controller

Highlights 8.03

- Improved Subcycle Distance and Cross Country elements
- Improved synchronization of a hybrid DSP/Process Bus Module line differential system
- Improved Restricted Ground Fault (RGF) element
- Corrected firmware to prevent loss of connectivity in PRP/failover mode after rebooting certain network switches
- Updated software

Highlights 8.04

- Corrected memory leaks

Highlights 8.05

- Corrected firmware to activate Subcycle Distance in the ground distance elements, when the ground CT is not configured in the distance source
- Corrected FW in relays without DSP modules (C30, B90 and N60) to have a uniform protection pass

Firmware

Firmware 8.02

- Bus Differential Systems – B30, B90
  - Improved B90 Breaker Failure element with per phase times
  - Differential and restraint currents in B30 and B90 are displayed without any cutoff
  - Bus differential directional flag can be set if there is at least one contributor in the zone
  - Corrected bus restraint current calculation for feeders 7 and up in B30 with process bus
  - Corrected oscillography for sources 7 and up in B30 with process bus
- Line Protection Systems – D60, L90
  - Improved distance protection operation time to be less than one cycle
  - Distance protection has now six zones
  - Zone start timer available now for all zones
  - Improved distance functionality during cross-country faults
  - Improved distance functionality in the high-resistance or resonant grounded systems
  - Enhanced phase selector performance during power swing
  - Removed current and voltage harmonics and THD metering from D60 and L90
  - L90 relay now allows higher CT ratio mismatch between CTs at local and remote terminals of the line
  - Corrected issue where L90 87L stops transmitting data to remote relay when 87L is blocked via differential block setting
- Transformer Protection Systems – G30, T35, T60
  - Removed voltage harmonics and THD metering from T60
  - Improved partial blocking functionality of transformer differential when Stream Trouble occurs in models with process bus module
- Common Protection and Control Elements
  - Added Transient Ground Fault Detection (TGFD) element
  - Added Universal Harmonic Detector element
  - Improved phase selection supervision to phase distance zone 3 element during switch-off
  - Improved frequency rate of change element for fast frequency swings
  - Corrected performance of breaker failure reset time in models with process bus module
  - Corrected drop-out of phase distance operate FlexLogic operands when TRIP Z2PH TMR INIT operand is on
- Phasor Measurement Unit (PMU) – Synchrophasors
  - Improved synchrophasor frequency and ROCOF measurement
  - Added new "PMU Frequency Format" setting to the PMU basic configuration menu to allow floating point format
- Common Platform Functions
  - Removed duplicate “Relay out of service” event when switching from Test mode to Test-Blocked mode
  - Corrected events display for digital elements 49 to 96
  - Corrected discrepancies between urscl.log text file and the corresponding web page
  - Corrected functionality of the DNP paired control points

  - Aligned timestamp of a Boolean included in IEC 61850 fast/slow dataset with the event recorder timestamp
  - Corrected Process Bus Module functionality of crosschecking operands for banks 7 and up
  - Corrected angle wrapping to FlexElements angle subtraction to the range -180 deg to +180 deg
  - Corrected assertion of Process Bus Module PTP Failure operand
  - Corrected list of FlexAnalogs/FlexLogic operands for B30, C30, L60
  - Changed ID displays for contact inputs/outputs
  - Improved printing of special symbols in event recorder files and oscillography
  - Corrected timestamp in settings monitor log file for large number of events
  - Corrected recording of "BATTERY FAIL" event multiple times
  - Corrected HardFiber Brick order code enumeration
- Communications
  - Customization of prefix and instance of Logical Nodes is now allowed
  - Resolved Wind River TCP/IP stack (IPnet, Urgent/11) vulnerabilities published in ICSA-19-211-01
  - Resolved DNP3 vulnerability published in ICSA-20-105-02
  - Changed firmware to prevent updates to associated "t" data attributes for IEC 61850 "stSeld" data attributes
  - Corrected tagging of HSR/DHSR traffic from port 1b in the Process Bus Module
  - Changed firmware to prevent generating an IEC 61850 IID file if an MMS client repeatedly writes the same IEC 61850 report settings to the relay
  - Added new setting to select whether "position-reached" condition is checked in CSWI, XCBR, XSWI IEC 68150 controls
  - Corrected IEC 61850 Ed. 1 GOOSE subscription in the E3-2.0 implementation model
  - Corrected potential failure to synchronize to SNTP server when duplicate frames are present in the network
  - Improved time to apply SV frames processing based on Sim bit
  - Corrected IEC 61850 LGOS.SimSt status when simulation GOOSE messages are received via the Process Bus Module
  - Corrected non-conformance to IEC 61850 schema in Private data section of IID file
  - Corrected IEC 61850 description strings for a number of logical nodes
  - Corrected IEEE 1588 time synchronization for relays with Process Bus Module using PTP Function set to Master-Slave mode
  - Corrected Process Bus Module PTP clock accuracy when synchronizing clock accuracy is degrading to 1 ms or greater
  - Improved compliance of IEC 61850 trigger options to IEC 61850-7-3
  - Added support for INT64 for RxGOOSE in the IEC 61850 E3-2.0 implementation model

Bus Differential Systems – B30, B90

E **Improved B90 Breaker Failure element with per phase times**

Products: B90

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, the initiation signal and timers of the B90 Breaker Failure element were implemented on three-pole basis that had a possibility of maloperation in case of an external fault,

evolving from one phase to the other phase due to a common timer for all three phases.
In the new release, an option is provided to initiate breaker failure on per phase basis and with each phase having its own timer.
GE tracking number: 802-1

G **Differential and restraint currents in B30 and B90 are displayed without any cutoff**
Products: B30, B90
Impacted firmware: All to 7.91
Corrected firmware: 8.02
Workaround: None
Description: The relay applies current cut-off to the metering of differential and restraint currents but does not apply it to the differential element itself.
In the new release, the cutoff current is removed from the metering of the differential and restraint current to match the algorithm of the differential element.
GE tracking number: 802-7

G **Bus differential directional flag can be set if there is at least one contributor in the zone**
Products: B30, B90
Impacted firmware: All to 7.91
Corrected firmware: 8.02
Workaround: None
Description: In the new release, the Bus Differential element resets the directional flag if there are no differential zone contributors. At least one zone input has to qualify as a contributor to set the directional flag. For details, see the Theory of operation chapter in the B30 or B90 instruction manual.
GE tracking number: 802-8

P **Corrected bus restraint current calculation for feeders 7 and up in B30 with process bus**
Products: B30 with Process Bus Module (order code 85, 86, 87) using feeders 7 and up
Impacted firmware: 7.90, 7.91
Corrected firmware: 8.02
Workaround: None
Description: The bus restraint current calculation for feeders 7 and up can be incorrect due to use of a potentially incorrect current cutoff value.
The new release corrects the issue.
GE tracking number: 802-33

R **Corrected oscillography for sources 7 and up in B30 with process bus**
Products: B30 with Process Bus Module (order code 85, 86, 87)
Impacted firmware: 7.90, 7.91
Corrected firmware: 8.02
Workaround: None
Description: The oscillography for sources 7 and up can be incorrect.
The new release corrects the issue.
GE tracking number: 802-34

Line Protection Systems – D60, L60, L90

E **Improved distance protection operation time to be less than one cycle**

Products: D60, L90

Impacted firmware: All to 7.91

Corrected firmware: 8.00

Workaround: Not applicable

Description: With this release, both phase and ground distance function operating times are improved significantly with a new subcycle algorithm. For magnetic VTs and passive CVTs, distance operate time is below 3/4 cycle for SIRs up to 30, while for active CVTs for SIRs up to 1. Subcycle distance is operating in parallel with conventional algorithm and can be enabled or disabled by the user. Subcycle functionality is available with a "Subcycle distance package" order code option.

GE tracking number: 800-1

E **Distance protection has now six zones**

Products: D60, L90

Impacted firmware: All to 7.91

Corrected firmware: 8.00

Workaround: Not applicable

Description: With this release, a sixth zone is added to the existing five zones in both phase and ground distance functions. As with the other five zones, the sixth zone is fully and independently configurable. The sixth zone is available with a "Subcycle Distance Package" order code option.

GE tracking number: 800-2

E **Zone start timer available now for all zones**

Products: D60, L90

Impacted firmware: All to 7.91

Corrected firmware: 8.00

Workaround: Not applicable

Description: Previously, only the zone 2 timer can be started from any other zone pickup to ensure a fault is cleared by the zone 2 timer if a fault evolves from one type to another or from one location to another.

With this release, this functionality is extended to all zones. This functionality is available with a "Subcycle Distance Package" order code option.

GE tracking number: 800-3

E **Improved distance functionality during cross-country faults**

Products: D60, L90

Impacted firmware: All to 7.91

Corrected firmware: 8.00

Workaround: Not applicable

Description: In previous releases, the distance function can maloperate during faults due to difficulty of the faulted phases selection. Phase selection was improved to ensure correct operation.

With this release, functionality of the distance function and pilot schemes is improved during cross-country faults (one fault on the protected line while another on the adjacent line) in the solidly grounded systems. This functionality is available with a "Subcycle Distance Package" order code option.

GE tracking number: 800-4

E **Improved distance functionality in the high-resistance or resonant grounded systems**

Products: D60, L90

Impacted firmware: All to 7.91

Corrected firmware: 8.00

Workaround: Not applicable

Description: With this release, functionality of the distance function and pilot schemes is improved during faults in the high-resistance or resonant grounded systems. With a single-line-to-ground fault in the high-resistance or resonant grounded systems, the system can continue operate for some time because no high-current occurs but the voltage in healthy phases increases. In case a second fault occurs anywhere in the system, the distance function is now able to detect if a fault is within a protection zone and trip just this line according to phase preference logic. This functionality is available with a "Subcycle Distance Package" order code option.

GE tracking number: 800-5

P Enhanced phase selector performance during power swing

Products: D60, L60, L90

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: The phase selector is modified, including the use of power swing 50DD instead of source 50DD for triggering phase selector and compensating the memorized pre-fault vectors based on the slip frequency. This improves the phase selector operation for faults occurring during power swing.

GE tracking number: 802-4

G Removed current and voltage harmonics and THD metering from D60 and L90

Products: D60, L90

Impacted firmware: 7.40 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: The new release removes current and voltage harmonics and THD metering.

GE tracking number: 802-47

E L90 relay now allows higher CT ratio mismatch between CTs at local and remote terminals of the line

Products: L90

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, the “Current Diff CT Tap 1” and “Current Diff CT Tap 2” settings had a range of 0.2 to 5.0.

In the new release, the range increases to 0.05 to 20. The L90 can support mismatch of up to 20 times, between the CT ratios of CTs located at local and remote terminals of the line. The range of the settings CURRENT DIFF CT TAP 1, 2 is now increased to 0.05 to 20.00. However, apply the difference in CT ratios higher than 5 with extreme care because an external fault current can cause different CT performance, especially when CTs at opposite ends of the line can saturate asymmetrically. A big difference in CT ratios, resulting in high CT TAP settings is recommended to be validated for a given application using the L90 CT Saturation Analysis tool from the GE Multilin web site.

GE tracking number: 802-3

H Corrected issue where L90 87L stops transmitting data to remote relay when 87L is blocked via differential block setting

Products: L90 with Process Bus Module (order code 85, 86, 87) and/or digital signal processor (DSP)

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: The L90 87L stops transmitting data to the remote relay resulting in Channel Status, PFLL status, and direct I/O failed when 87L is blocked via the differential block setting.

The new release corrects the issue.

GE tracking number: 802-21

Transformer Protection Systems – G30, T35, T60

G **Removed voltage harmonics and THD metering from T60**

Products: T60

Impacted firmware: 7.40 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: The new release removes voltage harmonics and THD metering.

GE tracking number: 802-48

P **Improved partial blocking functionality of transformer differential when Stream Trouble occurs in models with process bus module**

Products: T35, T60

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: The transformer differential element is blocked due to an SV Stream Trouble event affecting a winding for which the state of the FlexLogic operand assigned to the "Winding Status" setting is off (that is, even if the winding is not included in the transformer differential).

The new release corrects the issue.

GE tracking number: 802-37

Common Protection and Control Elements

N **Added Transient Ground Fault Detection (TGFD) element**

Products: D60, F35, F60, L90, T35

Impacted firmware: All to 7.91

Corrected firmware: 8.00

Workaround: Not applicable

Description: With this release, Transient Ground Fault Detection is available to detect ground faults in the high-resistance or resonant grounded systems. A patented algorithm operates using transient reactive and active power to provide great sensitivity to detect ground faults in such systems.

GE tracking number: 800-6

N **Added Universal Harmonic Detector element**

Products: C60, D30, D60, F35, F60, G30, G60, L30, L90, N60, T35, T60

Impacted firmware: All to 7.91

Corrected firmware: 8.00

Workaround: Not applicable

Description: A universal harmonic detector is now available in URs, which can be configured to measure DC, 2nd, 3rd, 4th, and 5th harmonics. The harmonic detector can be used to block instantaneous

protection during transformer inrush or detect DC offset in currents that can potentially jeopardize sensitive protection.

GE tracking number: 800-7

E **Improved phase selection supervision to phase distance zone 3 element during switch-off**

Products: D30, D60, G60, L60, L90

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, during SLG fault current clearance (switching off), the phase distance zone 3 element can accidentally pick up for less than one power cycle.

The new release improves phase selection supervision to the phase distance zone 3 element during switch-off to prevent accidental phase distance zone 3 pickup.

GE tracking number: 802-15

P **Improved frequency rate of change element for fast frequency swings**

Products: D30, D60, F60, G30, G60, L30, L90, N60, T60

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, the validation conditions used for validating the measured frequency for ROCOF were very stringent. There was a possibility that for fast-occurring frequency swings in the system, ROCOF may not be able to follow the trend of the frequency change correctly due to the invalidation of the measured frequency.

In the new release, the validation conditions that are used to validate the measured frequency used by ROCOF have been modified, thereby improving the robustness of the algorithm during such conditions.

GE tracking number: 802-2

P **Corrected performance of breaker failure reset time in models with process bus module**

Products: B30, C60, C70, D60, F60, G60, L30, L60, L90, M60, T60 with Process Bus Module (order code 85, 86, 87)

Impacted firmware: 7.80 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: The performance of the breaker failure element fast OC reset time slightly exceeded the specification by 2 to 4 ms.

In the new release, the performance of the breaker failure fast OC reset time is corrected to meet the specifications.

GE tracking number: 802-46

P **Corrected drop-out of phase distance operate FlexLogic operands when TRIP Z2PH TMR INIT operand is on**

Products: D30, D60, G60, L60, L90

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: The phase distance Z2 FlexLogic PH DIST Z2 OP operate operands do not drop out when the distance pickup operands drop out, while TRIP Z2PH TMR INIT is on.

The new release corrects the issue.

GE tracking number: 802-32

Phasor Measurement Unit (PMU) – Synchrophasors

P **Improved synchrophasor frequency and ROCOF measurement**

Products: C60, C95, D60, F60, G60, L30, L90, N60, T60

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, the synchrophasor frequency and ROCOF measurements are sensitive to the synchronization clock jitter. UR relays can report occasionally high frequency and ROCOF values for a very short time due to such jitter.

The new release improves the robustness of the algorithm in the presence of synchronization clock jitter.

GE tracking number: 802-5

C, E **Added new "PMU Frequency Format" setting to the PMU basic configuration menu to allow floating point format**

Products: All with PMU software option (C60, C95, D60, F60, G60, L30, L90, N60, T60)

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, the PMU frequency and ROCOF are reported always in 16-bit integer format.

In the new release, a new “PMU Frequency Format” setting is added to the PMU Basic Configuration menu. This setting selects between reporting the PMU frequency and ROCOF as 16-bit integer or 3- bit floating point numbers.

GE tracking number: 802-6

Common Platform Functions

C **Removed duplicate “Relay out of service” event when switching from Test mode to Test-Blocked mode**

Products: All

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: When switching from Test mode to Test-Blocked mode, a duplicate “Relay out of service” event is created.

The new release corrects the issue.

GE tracking number: 802-19

D,R **Corrected events display for digital elements 49 to 96**

Products: All

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, events related to digital elements 49 to 96 do not include (DExy) in the event. For example, the pickup event for digital element 49 is displayed as “Dig Element 49 PKP” instead of “Dig Element 49 PKP (DE49).”

The new release corrects the issue.

GE tracking number: 802-22

R **Corrected discrepancies between urscl.log text file and the corresponding web page**

Products: All

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None. Potential mitigation is possible according to the Wind River security advisory.

Description: Some messages related to the Process Bus Module may not be present in the urscl.log file, even though they are displayed in the SCL log file webpage.

The new release corrects the issue. The webpage and the urscl.log text file match fully.

GE tracking number: 802-25

C **Corrected functionality of the DNP paired control points**

Products: All

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: The number of virtual inputs increased from 64 to 128. This change broke the functionality of the DNP paired control points.

In the new release, the DNP paired control points are functional.

GE tracking number: 802-26

C **Aligned timestamp of a Boolean included in IEC 61850 fast/slow dataset with the event recorder timestamp**

Products: All with an IEC 61850 software option

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: The timestamp of the change of a Boolean included in a fast/slow dataset is inconsistent with the timestamp in the event recorder.

The new release corrects the issue.

GE tracking number: 802-27

D,R **Corrected Process Bus Module functionality of crosschecking operands for banks 7 and up**

Products: All with Process Bus Module (order code 85, 86, 87) using crosschecking

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: Crosschecking operands “ACBank Orig in Use” are not functional for banks 7 and up.

The new release corrects the issue.

GE tracking number: 802-28

G **Corrected angle wrapping to FlexElements angle subtraction to the range -180 deg to +180 deg**

Products: All

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: FlexElements do not apply angle wrapping correctly when comparing angles of two analog values. For example, the difference between an angle of 170 degrees and one of -170 degrees was 340 degrees.

In the new release, subtraction of angles by FlexElements is done by applying angle wrapping to the

range of -180 to 180 degrees (-0.5 pu to +0.5 pu). In the example used, the difference is now 20 degrees. This applies if both settings "Flexelement +IN" and "Flexelement -IN" are set and are angle quantities.

GE tracking number: 802-29

R,D Corrected assertion of Process Bus Module PTP Failure operand

Products: All with Process Bus Module (order code 85, 86, 87)

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: The Process Bus Module PTP Failure operand turns on unnecessarily when the relay powers up, for a change to the Process Bus Module PTP settings, or when there is a change in the PTP state, such as switching the PTP grandmaster.

The new release corrects the issue.

GE tracking number: 802-35

D Corrected list of FlexAnalogs/FlexLogic operands for B30, C30, L60

Products: B30, C30, L60 with Process Bus Module (order code 85, 86, 87)

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: For some order codes, the relay displays a number of FlexLogic operands that do not apply. Specifically, this means alternate source switching operands for C30, L60. For B30, the number of bus differential and restraint FlexAnalogs exceeded the number actually available for use.

The new release corrects the issue.

GE tracking number: 802-36

P Changed ID displays for contact inputs/outputs

Products: T35, T60

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: Not applicable

Description: In previous versions, the contact input/output IDs display as

CONTACT INPUT Sxy ID and CONTACT OUTPUT Sxy ID,

where Sxy is the terminal number, for example H5a.

In the new release, they display as

CONTACT INP Sxy ID and CONTACT OT Sxy ID

GE tracking number: 802-38

R Improved printing of special symbols in event recorder files and oscillography

Products: All

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: The event recorder and the oscillography files do not show correctly all special symbols, such as degree, phase, Omega, or micro.

Special symbols display correctly in the new release.

GE tracking number: 802-41

R **Corrected timestamp in settings monitor log file for large number of events**

Products: All
Impacted firmware: All to 7.91
Corrected firmware: 8.02
Workaround: None
Description: The timestamp in the settings monitor SETTING_CHANGES.LOG file is incorrect when the number of events exceeds 1024 events.
The new release corrects the issue.
GE tracking number: 802-42

G **Changed firmware to prevent editing of fault report data**

Products: B30, B90, C70, G30, G60, M60, N60, T35, T60
Impacted firmware: All to 7.82
Corrected firmware: 8.02
Workaround: None
Description: In previous versions, the fault report data can be edited from the front panel or Modbus.
The new release prevents editing.
GE tracking number: 802-43

R **Corrected recording of "BATTERY FAIL" event multiple times**

Products: All
Impacted firmware: 7.00 to 7.91
Corrected firmware: 8.02
Workaround: None
Description: The event recorder can record repeatedly the "BATTERY FAIL" event.
In the new release, only one "BATTERY FAIL" event is recorded.
GE tracking number: 802-44

G **Corrected HardFiber Brick order code enumeration**

Products: All with HardFiber Process Bus Module
Impacted firmware: 5.62 to 7.91
Corrected firmware: 8.02
Workaround: None
Description: In previous versions, the HardFiber Brick order code enumeration displays incorrectly as CC-05, CV-05, CC-01, CV-01.
In the new release, enumeration is corrected to CC-55, CV-50, CC-11, CV-10.
GE tracking number: 802-45

Communications

E **Customization of prefix and instance of Logical Nodes is now allowed**

Products: All
Impacted firmware: All to 7.91
Corrected firmware: 8.00
Workaround: None
Description: With this release, users have the flexibility to name the prefix and instance of Logical Nodes. The EnerVista UR Setup software can be used to customize and send the CID file to the UR.
GE tracking number: 800-10

C **Resolved Wind River TCP/IP stack (IPnet, Urgent/11) vulnerabilities published in ICSA-19-211-01**

Products: All

Impacted firmware: 7.00 to 7.91

Corrected firmware: 8.02

Workaround: None. Potential mitigation is possible for some vulnerabilities according to the Wind River security advisory.

Description: Previous versions are affected by the Wind River TCP/IP stack (IPnet, Urgent/11) vulnerabilities published in the July 2019 in ICS advisory ICSA-19-211-01.

The new release corrects the issue.

GE tracking number: 802-9

C **Resolved DNP3 vulnerability published in ICSA-20-105-02**

Products: All using DNP3 protocol

Impacted firmware: 6.06, 7.21 to 7.91

Corrected firmware: 8.02

Workaround: None. Apply the mitigations recommended in the ICS advisory.

Description: In April 2020, ICS-CERT published ICS advisory ICSA-20-105-02 affecting the DNP3 protocol.

The new release corrects the issue.

GE tracking number: 802-10

C **Changed firmware to prevent updates to associated "t" data attributes for IEC 61850 "stSeld" data attributes**

Products: All with an IEC 61850 software option

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, changes to the IEC 61850 “stSeld” data attribute triggers updates to the associated “t” data attributes.

In the new release, changes to the IEC 61850 “stSeld” data attribute do not trigger updates to the associated “t” data attributes.

GE tracking number: 802-11

C **Corrected tagging of HSR/DHSR traffic from port 1b in the Process Bus Module**

Products: All with Process Bus Module (order code 85, 86, 87)

Impacted firmware: 7.80 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: HSR/DHSR traffic from port 1b is tagged incorrectly as LAN A instead of LAN B. Traffic from ports 3a and 3b is tagged correctly.

In the new release, in HSR/DHSR mode, the traffic from port 1b is tagged correctly.

GE tracking number: 802-12

C **Changed firmware to prevent generating an IEC 61850 IID file if an MMS client repeatedly writes the same IEC 61850 report settings to the relay**

Products: All with an IEC 61850 software option

Impacted firmware: 7.30 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, if an MMS client repeatedly writes the same IEC 61850 report settings to

the relay, the firmware generates repeatedly an IID file.

In the new release, the relay does not generate a new IID file if there is no change in the IEC 61850 report settings written by the MMS client. Changed settings trigger the generation of a new IID file.

GE tracking number: 802-13

C Added new setting to select whether "position-reached" condition is checked in CSWI, XCBR, XSWI IEC 68150 controls

Products: All with an IEC 61850 software option

Impacted firmware: 7.30 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, the “position-reached” condition is always checked in CSWI, XCBR, XSWI IEC 61850 controls.

In the new release, a new enable/disable setting POS-REACHED is added to select whether the “position reached” condition in CSWI, XCBR, XSWI controls is checked.

GE tracking number: 802-14

C Corrected IEC 61850 Ed. 1 GOOSE subscription in the E3-2.0 implementation model

Products: All with an IEC 61850 software option and using Edition 1

Impacted firmware: 7.80 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: IEC 61850 Edition 1 GOOSE subscription in the E3-2.00 implementation model is not functional.

The new release corrects the issue.

GE tracking number: 802-16

C Corrected potential failure to synchronize to SNTP server when duplicate frames are present in the network

Products: All using SNTP

Impacted firmware: All to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, if duplicate frames are present in the network the relay can fail to synchronize correctly to the Simple Network Time Protocol (SNTP) server.

The new release corrects the issue.

GE tracking number: 802-17

C Improved time to apply SV frames processing based on Sim bit

Products: All with Process Bus Module (order code 85, 86, 87)

Impacted firmware: 7.80 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: A relay with sampled value (SV) frames processing based on Sim bit takes ~15 seconds to apply a command sent via MMS client.

The new release corrects the issue and the SV frames are processed immediately.

GE tracking number: 802-18

C Corrected IEC 61850 LGOS.SimSt status when simulation GOOSE messages are received via the Process Bus Module

Products: All with Process Bus Module (order code 85, 86, 87)

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: GOOSE messages received by the Process Buss Module are do not reflected correctly when the simulated messages are accepted (LGOS.SimSt.stVal was false).

The new release corrects the issue.

GE tracking number: 802-20

C Corrected non-conformance to IEC 61850 schema in Private data section of IID file

Products: All with an IEC 61850 software option

Impacted firmware: 7.30 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: A non-conformance in the Private data section causes the relay's Instantiated IED Capability Description (IID) file to be non-compliant with the IEC 61850 schema.

In the new release, the content of the Private element "GE_Digital_Energy_UR_GE_Publisher_IEDs" is enclosed in non-XML tags to enable third-party tools to parse the element data as non-XML.

GE tracking number: 802-23

C Corrected IEC 61850 description strings for a number of logical nodes

Products: All with an IEC 61850 software option

Impacted firmware: 7.30 to 7.91

Corrected firmware: 8.02

Workaround: Overwrite the "d" strings

Description: Some of the description strings for the following IEC 61850 logical nodes are incorrect:

B_BFaiRBRF.InRefγ31.d, TrOutPTRC.InRef09.d, BusDifPFIF.InRef10y to BusDifPFIF.InRef12y, where y is the zone number.

The new release corrects these "d" data attributes.

GE tracking number: 802-24

C Corrected IEEE 1588 time synchronization for relays with Process Bus Module using PTP Function set to Master-Slave mode

Products: All with Process Bus Module (order code 85, 86, 87)

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: In a network of UR relays with the PTP Function setting set to Master-Slave, powering cycling the PTP master relay affected the PTP slave relays.

The new release corrects the issue.

GE tracking number: 802-30

D,C Corrected Process Bus Module PTP clock accuracy when synchronizing clock accuracy is degrading to 1 ms or greater

Products: All with Process Bus Module (order code 85, 86, 87)

Impacted firmware: 7.90, 7.91

Corrected firmware: 8.02

Workaround: None

Description: The Process Bus Module PTP clock accuracy is incorrect for clock accuracy of 1 millisecond or greater.

The new release corrects the issue.

GE tracking number: 802-31

C **Improved compliance of IEC 61850 trigger options to IEC 61850-7-3**

Products: All with an IEC 61850 software option

Impacted firmware: 7.30 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In some cases the relay does not follow the rules from IEC 61950-7-3 for IEC 61850 trigger options. For example, the "dchg" trigger option is missing from the following data attributes in SPC: pulseConfig, ctlModel, sboTimeout, sboClass and operTimeout.

In the new release, the relay is compliant with IEC 61850 rules for trigger options.

GE tracking number: 802-39

C **Added support for INT64 for RxGOOSE in the IEC 61850 E3-2.0 implementation model**

Products: All with an IEC 61850 software option

Impacted firmware: 7.30 to 7.91

Corrected firmware: 8.02

Workaround: None

Description: In previous versions, an IEC 61850 CID file in E3-2.0 implementation model does not support the INT64 format for RxGOOSE members.

The new release corrects the issue.

GE tracking number: 802-40

Firmware 8.03

- Line Protection Systems – D60, L30, L90
  - Modified Subcycle Distance function to ensure correct values for Cross Country element
  - Improved interaction between Cross Country and pilot functions during remote cross country fault
  - Updated front panel display text for three Cross Country settings
  - Corrected Cross Country solidly grounded function to prevent misoperation
  - Improved synchronization of a hybrid DSP/Process Bus Module line differential system
- Phasor Measurement Unit (PMU) – Synchrophasors
  - Improved resolution on synchrophasor frequency and ROCOF values streamed in floating point format
- Common Platform Functions
  - Added distinct mode for intermediate and bad states for disconnect Switch and Breaker Control elements
  - Improved Restricted Ground Fault (RGF) element
- Communications
  - Corrected firmware to prevent loss of connectivity in PRP/failover mode after rebooting certain network switches

Line Protection Systems – D60, L60, L90

P, F Modified Subcycle Distance function to ensure correct values for Cross Country element

Products: D60, L90 with Subcycle Distance Package software option

Impacted firmware: 8.02

Corrected firmware: 8.03

Workaround: None

Description: In the previous version, the polarizing voltage in the Subcycle Distance function is supervised by the arming signal for three cycles, then reset after that.

In the new release, the supervision of the polarizing voltage by the arming signal is removed. The Subcycle Distance function comparator remains functional for the Cross Country logic even beyond the three-cycle arming window.

GE tracking number: 803-2

P Improved interaction between Cross Country and pilot functions during remote cross country fault

Products: D60, L90 with Subcycle Distance Package software option

Impacted firmware: 8.02

Corrected firmware: 8.03

Workaround: None

Description: In the previous version, when the Cross Country solidly grounded element is enabled and the phase selector attempts to reset using the “Phase Selector Reset” setting under Trip Output, the pilot scheme may not work as expected. That is, it cannot transmit necessary information, which results in delayed tripping on the remote end. In other cases, the pilot scheme functions normally.

In the new release, the pilot schemes use Cross Country phase selector information to ensure correct pilot signaling.

GE tracking number: 803-3

D **Updated front panel display text for three Cross Country settings**

Products: D60, L90 with Subcycle Distance Package software option

Impacted firmware: 8.02

Corrected firmware: 8.03

Workaround: None

Description: In the new release, the following front panel strings for the Trip Output > Cross Country element are updated. There is no change in the functionality of these settings.

- "IN>CURRENT SET" changed to "IN Current Pickup"
- "VN>VOLTAGE SET" changed to "VN Voltage Pickup"
- "Phase prio.2PG" changed to "Phase Priority"

GE tracking number: 803-7

P,F **Corrected Cross Country solidly grounded function to prevent misoperation**

Products: D60, L90 with Subcycle Distance Package software option

Impacted firmware: 8.02

Corrected firmware: 8.03

Workaround: Set a time delay in the "Trip Pilot Priority" setting under the Trip Output menu

Description: Occasionally, the following issues can occur:

- During cross country faults, the speed of the Subcycle Distance function can lead to three-pole tripping
- During close-in cross country faults, for example one forward and one reverse, it is possible that Cross Country logic is not able to detect the faulted phases correctly and can lead to three-pole tripping

The new release, inputs to the Cross Country element and logic are updated to overcome this issue using local information, that is, without relying on remote end or parallel line information.

GE tracking number: 803-8

P **Improved synchronization of a hybrid DSP/Process Bus Module line differential system**

Products: L30, L90

Impacted firmware: 7.80 to 8.02

Corrected firmware: 8.03

Workaround: None

Description: In previous versions, line differential hybrid systems with Digital Signal Processor (DSP) modules and relays with Process Bus Modules of the same line exhibit up to four degrees synchronization error.

In the new release, the firmware eliminates this error and allows use of relays with DSP modules and relays with Process Bus Modules for line differential systems protecting the same line.

GE tracking number: 803-10

Phasor Measurement Unit (PMU) – Synchrophasors

E **Improved resolution on synchrophasor frequency and ROCOF values streamed in floating point format**

Products: All with PMU software option (C60, C95, D60, F60, G60, L30, L90, N60, T60)

Impacted firmware: 8.02

Corrected firmware: 8.03

Workaround: None

Description: In the previous version, the "PMU Frequency Format" setting was added, which enables the

relay to stream synchrophasor frequency and rate of change of frequency (ROCOF) values in 32-bit floating point format. However, the relay limits the resolution of the synchrophasor frequency and ROCOF floating point values to 1 milli-Hertz (mHz).

In the new release, synchrophasor frequency and ROCOF in floating point format resolution is improved to 0.1 mHz.

GE tracking number: 803-1

Common Platform Functions

E **Added distinct mode for intermediate and bad states for disconnect Switch and Breaker Control elements**

Products: All

Impacted firmware: All to 8.02

Corrected firmware: 8.03

Workaround: None

Description: In previous versions, the disconnect Switch control element and the Breaker Control element do not suppress the in-motion states (both intermediate and bad) when close and trip actions are triggered. When the in-motion state is continued more than Toperate timer, the disconnect Switch element or the Breaker Control element declares the switch or breaker to be in bad state, which is called common mode.

The new release adds a new distinct mode to the Switch and Breaker Control elements to allow the relay to use separate timers for suppressing the bad and intermediate states. In this mode, the disconnect switch or the breaker control suppresses the intermediate or bad states for respective configured intervals and declares the current switch state when the respective timer expires. By default, the Switch and Breaker Control elements operate in common mode, as in previous versions.

GE tracking number: 803-4

E **Improved Restricted Ground Fault (RGF) element**

Products: All with Restricted Ground Fault element (F60, G30, G60, L90, T35, T60)

Impacted firmware: All to 8.02

Corrected firmware: 8.03

Workaround: None

Description: The new release improves the Restricted Ground Fault element by adding supervision of the ground current to prevent misoperation due to unbalanced phase currents during normal load conditions.

GE tracking number: 803-6

Communications

C **Corrected firmware to prevent loss of connectivity in PRP/failover mode after rebooting certain network switches**

Products: All

Impacted firmware: 7.00 to 8.02

Corrected firmware: 8.03

Workaround: None

Description: In previous versions, in PRP/failover mode, rebooting certain network switches can cause the relay to lose connectivity on one of the ports and possibly also cause CPU overload.

In the new release, the firmware is corrected to prevent network failure and CPU overload in PRP/failover mode when a network switch is rebooted.

GE tracking number: 803-9

Firmware 8.04

Summary

Improvements include the following.

- Communications
  - Corrected memory leak for relays in independent mode (Ethernet Port 2 not in Failover or PRP mode)
  - Corrected memory leak in “Routing and ARP Tables Information" webpage
  - Corrected memory management error in link and SFP monitoring task

Communications

C Corrected memory leak for relays in independent mode (Ethernet Port 2 not in Failover or PRP mode)

Products: All

Impacted firmware: 7.64, 8.03

Corrected firmware: 7.65, 8.04 and up

Workaround: None

Description: There is a recurrent memory leak, leading to exhaustion of available RAM, that results eventually in a communication failure and other unpredictable behaviors impacting basic relay functions, such as Front Panel operation and saving files to Compact Flash.

These issues occur after approximately two weeks of continuous operation, depending on the product, hardware, and software configuration. The UR asserts the LOW ON MEMORY self-test message.

The new releases correct the issue.

GE tracking number: 765-1

C Corrected memory leak in “Routing and ARP Tables Information" webpage

Products: All

Impacted firmware: 7.0x to 7.64, 7.70 to 7.81

Corrected firmware: 7.66, 7.82, 8.04 and up

Workaround: Avoid refreshing the “Routing and ARP Tables Information” webpage many times

Description: The “Routing and ARP Tables Information” webpage included a small memory leak. Refreshing the webpage a large number of times can cause unnecessary loss of memory. This issue has not been reported by any customer.

The new releases correct the issue.

GE tracking number: 766-1

C Corrected memory management error in link and SFP monitoring task

Products: All

Impacted firmware: 7.64, 8.03

Corrected firmware: 7.66, 8.04 and up

Workaround: None

Description: The task monitoring the status of the Ethernet link and the SFP modules contains a memory management error that can lead to the task being suspended. In this case, changes in the Ethernet link status are not detected.

The new releases correct the issue.

GE tracking number: 766-2

Firmware 8.05

Line Protection Systems

P **Corrected firmware to activate Subcycle Distance in the ground distance elements, when the ground CT is not configured in the distance source**

Products: D60, L90, with a Subcycle Distance software option

Impacted firmware: 8.00 to 8.04, 8.10, 8.20

Corrected firmware: 8.05, 8,11, 8.21

Workaround: None

Description: If the ground CT bank is not configured in the distance source, Subcycle Distance is not activated in the ground distance elements. Regular Ground Distance elements remain active and operational.

The new release corrects the issue. Subcycle Distance is activated even when ground CT is not configured in the distance source.

GE tracking number: 821-4

Common Platform Functions

B,P **Corrected FW in relays without DSP modules (C30, B90 and N60) to have a uniform protection pass**

Products: C30, B90 without DSP modules, N60 without DSP modules

Impacted firmware: 7.90, 7.91, 8.00 to 8.04, 8.10

Corrected firmware: 7.92, 8.05, 8.11, 8.20

Workaround: Not applicable

Description: In previous versions, a B90 or N60 relay without DSP modules or a C30 relay may not have a regular protection pass, which may lead to unexpected behavior, including an unexpected restart.

GE tracking number: 820-9

Software

Software 8.02

New customization to turn-off creation of Device Folder when creating configuration

A preference is added to the EnerVista UR Setup software to turn off device folder creation when creating a new configuration file. By default, the option allows a device folder to be created.

When folder creation is turned off, the UR configuration file(s) belonging to all the offline devices in your UR Setup environment are moved one directory level up.

This operation overwrites any UR configuration file(s) that already exist one directory level up and have the same names.

Eliminated duplicates from FlexLogic Equation Editor > Protection Element lists in a B90 v5.7x device

With EnerVista UR Setup 7.70 software when opening, creating, or converting files with firmware version 5.7x, some of the elements available for the FlexLogic appear to be duplicated when trying to configure the FlexLogic of the device.

This issue is corrected.

Added VRC signature files for already released firmware builds

Workaround: None

Description: VRC files for already released UR firmware builds are not included in the EnerVista UR Setup installer. VRC files are used for secure firmware upgrade.

In the new release, VRC files for UR firmware build versions 2.93 to 5.92 are added to the EnerVista UR Setup installer. Later firmware versions already include the files.

Added conversion of FlexLogic equations when converting offline devices between different versions

Workaround: Make sure the Logic Designer is compiled before the conversion

Description: In previous software, FlexLogic equation information may not be converted correctly between two offline devices with different versions.

In the new release, before initiating a conversion, the software prompts the user to compile the Logic Designer documents if not compiled earlier. The two prompts that can display based on your sequence of operation are as follows:

- "Please open Logic Designer and compile the design document before converting the device" – Displays when a conversion is started, if the initial device version is ≥7.40 and the Logic Designer diagram is not compiled
- "If you have not compiled the Logic Designer diagram recently, please press Cancel, open Logic Designer, compile and then convert the device; if you already compiled the Logic Designer diagram, press OK and the conversion will proceed." – Displays when the initial device version is <7.40

Corrected error message when adding a CID/URS file from user desktop

Workaround: None

Description: In a specific scenario when working with a folder on a desktop, removing the device folder, then adding the device back into the Offline Window causes the EnerVista UR Setup software to prompt the user as follows:

"Device folder <abc> exists at C:\Users\...\Desktop\abc Please change the input file name"

In the new release, the device can be added to the EnerVista UR Setup software with no error message.

Corrected FlexLogic Equation Editor that turns to Off entries having manually edited names starting with Off

Workaround: Do not use keywords like OFF and ON when defining the ID of virtual inputs, virtual outputs, and contact IO starting text

Description: In previous versions, when copying settings from the relay, FlexLogic Entry 3 (Syntax – OFF LINE on (VO1)) is changed to OFF.

In the new release, configured I/O IDs that start with "OFF" and "ON" work correctly in the FlexLogic Equation Editor. The logic is corrected to compare the entire string instead of relying on the first few characters.

Corrected overwriting of settings file imported to Offline Window

Workaround: None

Description: A settings file imported to the Offline Window was changed, then overwritten when it was removed from the Offline Window. Specifically, when a .urs file is accessed, a folder is created, the URS file placed in it, and a copy of the URS file placed one level higher. If the file names remain unchanged, anyone opening/accessing the upper-level file erroneously overwrites the new settings in the inner folder. In other words, opening a file with the same name from outside the device folder overwrites the setting file inside the device folder.

In the new release, when a device folder with the same name already exists in the software, a message displays asking the user to solve the naming conflict before adding the file. The existing settings file is not overwritten.

Removed number of characters file path limitation

Workaround: Use shorter settings file and folder names

Description: The EnerVista UR Setup software fails to add a settings file when its file name has more than 63 characters. Offline device folder name also has the 63-character limitation.

In the new release, the limitation is removed. The logic handles file and folder names as long as is supported by the Windows operating system.

Fixed Logic Designer graphics issue when converting URS file

Workaround: Compile Logic Designer diagram before conversion

Description: After converting a .urs file from version 6.0x to 7.7x in Logic Designer, the graphics have all logic inputs set to OFF even though the actual FlexLogic is correct.

In the new release, the software prompts the user to compile the Logic Designer diagram before conversion.

Corrected L90 87LP Supervision setting to save to relay, writing offline to online

Workaround: Drag and drop the Settings> Grouped Elements> Supervising Elements> 87L Trip screen to write the 87LP Supervision setting to the relay

Description: In software version 7.80, with IEC 61850 Edition 1, the setting for 87LP Supervision under Settings > Grouped Elements > Supervising Elements> 87L Trip does not get written to the relay.

In the new release, the EnerVista UR Setup software internal mapping file is corrected.

Changed logic to properly save GGIO2 CF SPCSO CtlModel settings

Workaround: None

Description: When modifying only part of GGIO2 CF SPCSO CtlModel settings, changes are not saved properly. And rest of GGIO2 CF SPCSO CtlModel settings also are modified incorrectly.

The new release has new logic to identify GGIO2 CF SPCSO CtlModel setting changes, and all settings are saved correctly.

Corrected Push Button Control setting change for Switches and Breakers (pre-7.90 order codes) with EnerVista UR Setup software 7.90

Workaround: None

Description: The following settings cannot be changed for an online or offline device with order code prior to 7.90:

- Settings > System Setup > Switches > Switch # Push Button Control
- Settings > System Setup > Switches > Breaker # Push Button Control

In the new release, settings are saved correctly for both online and offline devices.

Added option to Run as Administrator

Workaround: None

Description: After installing EnerVista UR Setup software, the Run as Administrator option in the desktop shortcut is missing on a Windows 7 64-bit computer.

The new release adds the option.

Corrected conversion that changed FlexLogic after settings file converted from version <4.80 to 4.90

Workaround: None

Description: FlexLogic in the FlexLogic Equation Editor screen are changed to OFF after converting a settings file from a version prior to 4.80 to version 4.90 or higher, but less than 7.0.

In the new release, the FlexLogic in the FlexLogic Equation Editor are not changed by the conversion.

Corrected list box "Select VO to View (1-96)" to (1-128) in Logic Designer

Workaround: None

Description: In EnerVista UR Setup software 7.90, for a given order code (B30-W00-HEH-H81-N6L-S6L), list box "Select VO to View (1-96)" should be "Select VO to View (1-128)" in Logic Designer.

The new release corrects the issue.

Removed Voltage Harmonics Source from 8Z modules

Workaround: None

Description: In EnerVista UR Setup 7.90, Voltage Harmonics Source is present in IEC 61850 screens for an order code with 8Z.

In the new release, Voltage Harmonics Source is not present for an order code with 8Z.

Eliminated random file sharing error when events are created

Workaround: None

Description: With the Event Records open, the EnerVista UR Setup software shows a file sharing error message within a few triggers of the Trip Bus element.

In the new release, the error does not display when events are created.

Removed ability to add PhsTocPTOC.Op data object to Process Bus Module TxGOOSE dataset

Workaround: None

Description: A PhsTocPTOC.Op data object has more than three data attributes that should not be allowed to be added to a Process Bus Module TxGOOSE dataset.

In the new release, a validation error message displays if a PhsTocPTOC.Op data object is added to a Process Bus Module TxGOOSE dataset.

Corrected online device tree node after firmware upgrade

Workaround: None

Description: In some rare cases, many online device tree nodes disappear from the EnerVista UR Setup software after firmware upgrade.

In the new release, when “Read Order Code” is performed in the Device Setup window, the online device tree nodes always display correctly.

Corrected Phase Origin and Neutral Origin settings in SV Stream Config screen in imported offline device

Workaround: None

Description: After importing a CID file into the Offline Window that includes Phase Origin and Neutral Origin settings configured in the sampled value (SV) configuration screen, then opening the SV Stream config window, configured settings load properly except Phase Origin and Neutral Origin settings, which show "None."

In the new release, the Phase Origin and Neutral Origin settings load properly after importing a CID file to the Offline Window.

Corrected Contact Output Operate settings that turned to "OFF" in imported Ed.1 CID

Workaround: None

Description: While importing a certain IEC 61850 Edition 1 CID file into the Offline Window, configured Contact Output Operate settings are defaulted.

In the new release, the settings import correctly.

Corrected conversion of End Fault Protection operands when converting settings file from version 7.70 to 8.00

Workaround: None

Description: End Fault Protection FlexLogic operands are defaulted to “OFF” when converting a setting file from version 7.70 to 8.00.

In the new release, the operands convert properly.

Fixed conversion of Breaker operands when converting settings file from version5.70 to 8.00

Workaround: None

Description: All Breaker FlexLogic operands do not convert properly when converting a settings file from version 5.70 to 8.00.

In the new release, all Breaker operands convert properly.

Corrected object references in LGOS to use correct naming convention

Workaround: None

Description: Object reference GoCBRef in LGOS are not using ldName if ldName is configured in a publisher’s logical device where GSEControl resides.

In the new release, ldName is used in LGOS GoCBRef when ldName is configured in a publisher’s logical device.

Corrected saving of Maximum Starting Rate Block setting in CID file for M60

Workaround: None

Description: When the Maximum Starting Rate Block setting is configured for an M60 device, the CID file shows OFF.

In the new release, the CID file shows the correct setting for Maximum Starting Rate Block setting.

Fixed Int64 type RxGOOSE member that maps to Int32 DA type in G2 type CID file

Workaround: None

Description: In a G2 type file Int64 type, an RxGOOSE member is mapped, incorrectly, to an Int32 type in a CID file.

In the new release, an Int64 RxGOOSE member is mapped to an Int64 type in a CID file.

Completed Switch Alternate Bank checking in SV Stream Config screen

Workaround: None

Description: EnerVista UR Setup software allows the Switch Alternate Bank to be saved when the Alt Phase CT and Alt Phase VT are None.

In the new release, a warning message "Switch Alternate setting can only be configured with Alternate Sources matching the Primary Sources" displays when the user configures the Switch Alt CT/VT setting without configuring alternate sources with matching primary sources.

Stopped memory leak when creating device tree

Workaround: None

Description: Some memory is not released in the EnerVista UR Setup software when creating a device tree, which can cause the software to run out of memory over time.

In the new release, there is no memory leak.

Prevented GOOSE disabled settings from appearing in CID file after conversion

Workaround: None

Description: After converting a setting file from versions before 7.90 to 7.90 or 8.00, disabled GSE/GSE Controls appear in the CID file. They were not in original setting file's CID file.

The new release corrects the issue. During settings file conversion from a lower version to 7.90 or 8.00, if TxGOOSE is disabled, for the two settings named, their value is changed to the 7.90 default value. They are not changed if TxGOOSE is enabled.

Applied same validity checks for svID in both firmware and software

Workaround: None

Description: The EnerVista UR Setup software accepts the svID of

Mu320-MU011234567890!@#$%^*()_+~=[]}{\|;:/.,?abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ`12345678901234567890123

The firmware rejects it. The validation should fail in the software before sending it to the relay.

In the new release, the svID is not used as a merging unit's IED name anymore.

Fixed SCD import without Preserve custom attributes selection giving errors

Workaround: None

Description: Errors generate when creating an SCD file using a third-party tool and device and then adding a single UR to the SCD file. For example, one schema error is “ErrorItem[0]: Attribute 'version' is not allowed on element '{http://www.iec.ch/61850/2003/SCL}SCL', according to Schema.”

When doing an SCD file import, with Preserve custom attributes selected, there are no such errors and the import succeeds.

In the new release, when the "Preserve" option is selected, the SCD file is assumed to be Edition 2 by default. That is why there is no schema validation error. The IED in this SCD file is a 7.61 device, which should be treated as Edition 2.

Fixed Ground Distance operands to convert properly from version 5.70 or later to 8.00

Workaround: None

Description: All Ground distance operands do not convert properly when converted from version 5.70 and later to 8.00. This issue is observed for versions 5.70, 6.00, 7.10, 7.40, 7.70, and 7.80.

The new release corrects the issue.

Changed enumeration names in GE_Digitial_Energy_UR_MotStatusKind

Workaround: None

Description: The GE_Digitial_Energy_UR_MotStatusKind enumerations are
Offline
Starting
Running
Overload
In the new release, the word “motor” is added as follows:
Motor Offline
Motor Starting
Motor Running
Motor Overload

Implemented TrgOp for conformance test

Workaround: None

Description: TrgOp needs to be implemented for a conformance test, such that all TrgOp attributes (dchg, dupd, qchg) are correctly populated in SCL files.

The new release implements the change.

Added XML nodes in the Private element of GE_Digital_Energy_UR_GE_Publisher_IEDs

Workaround: None

Description: In an IID file, publisher IED elements need to be added under the Private element and the content is XML. The XML nodes under the Private element need to use the Private name space to comply with standards.

The new release implements the change.

Regenerated working folder when adding CID or URS file inside a device folder

Workaround: None

Description: When using the Add Device from File option and the selected file is in a device folder, the working folder needs to be regenerated so that the LD-LN structure is preserved.

The new release implements the change.

Added biased and unbiased operands to operands list

Workaround: None

Description: Biased and unbiased PKP/OP/DPO elements are missing under Product Setup > Oscillography > Digital Channels in EnerVista UR Setup Software versions 7.90, 7.91, and 8.00. The issue affects certain order codes.

The new release corrects the issue by removing legacy code that incorrectly prevented the operands mentioned to be present in the FlexLogic operand list, for the given order codes.

Fixed issue during CID file generation after importing a 7.30 CID file

Workaround: None

Description: The EnerVista UR Setup software stops during CID file generation after importing a version 7.30 CID file.

The new release corrects the issue.

Corrected a data type to be INT32, not INT64

Workaround: None

Description: Data type i in URPC74x_TYPE_AnalogueValue_2 needs to be INT32, not INT64.

The new release implements the change.

Changed breaker and switch names to be moveable in Single Line Diagram

Workaround: None

Description: The original implementation of Single Line Diagram (SLD) breakers and switches has names and tags in fixed positions.

In the new release, the names and tags can be repositioned.

Corrected import of SCD file from third-party tool

Workaround: None

Description: After creating an SCD file using a third-party tool and then adding a UR in the SCD file, the FlexLogic equations are lost after import.

The new release corrects the issue. The software can process a FlexLogic equation section that is placed in an SCD file before the Modbus authentication code.

Corrected logic monitoring calculation to determine status of timer or self-reset latch output

Workaround: None

Description: The logic monitor cannot calculate/determine the status of a timer or a S-R Latch output if outputs from TIMER or S-R Latch are not assigned to a virtual output. It leads to display of a red line in logic monitoring.

The new release corrects the miscalculation of operand statuses for Timer, Latch, and One Shot gates.

Corrected display of Direct I/O Tokens in L30 Logic Designer

Workaround: None

Description: The Direct I/O Tokens of the Token ToolBox are not available in the logic design (grayed out) for L30 in the Engineer Logic Designer. They need to be available.

The new release corrects the issue. The tokens are available for the L30.

Fixed conversion of Direct IO Data rate from version 5.70 to 7.40 or later

Workaround: None

Description: When a version 5.7x offline settings file is converted to version 7.40, 7.60, 7.70, 7.80, or 7.90, the Direct IO Data rate is converted from 128 Kbps to 64 Kbps.

The new release corrects the conversion process.

Software 8.03

Corrected file merging issue that defaulted BlkRefs/InRefs

Workaround: Use the default prefix and instance number in the input SCL file when merging

Description: When one of the input files to an SCL File Merge has an ORG data object configured with an attribute from a logical node with modified prefix or instance number, the BlkRef/InRef attribute in the subsequent merged file is defaulted.

In the new release, the SCL File Merge logic is corrected to handle the modified prefix and instance number of a logical node.

Changed "Error creating offline device" message on status bar when using URS file to "Add Device to Offline Window" option

Workaround: None

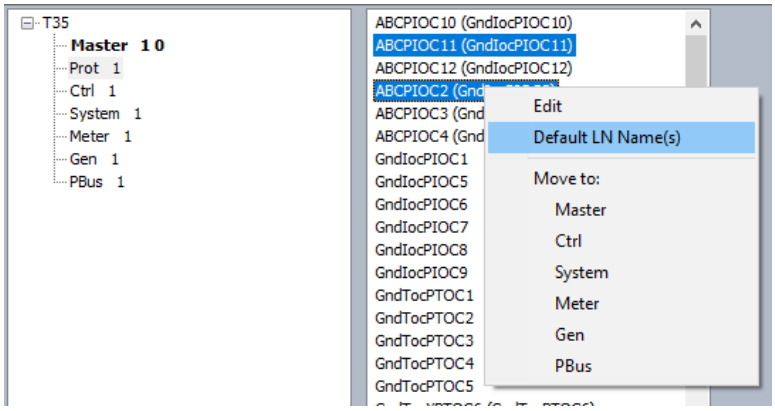
Description: When adding an offline device using a .urs file, the status bar shows "Error creating offline device." An untimely device integrity check during automatic SCL file generation fails, causing the error to be logged on the status bar. However, the device is added successfully to the Offline Window area.

The new release eliminates the automatic SCL file generation after a "Add Device to Offline Window" operation that uses a .urs file. A warning prompts the user to initiate SCL file generation manually using "Update SCL Files."

Added ability to change the prefix and instance number of a logical node to default values

Workaround: None

Description: The IEC 61860 > Edit Data Model window in the software includes right-click "Default LN Name(s) in this LD" and "Default LN Name(s)" options. Users can now change the prefix and instance number of a configured logical node to default values using the "Default LN Name(s)" command. In addition, when the default prefix or instance number of a logical node is changed, the window shows the default LN name beside it.



Corrected Restore and Default button operation when editing logical nodes that are not at default values

Workaround: None

Description: The Default button in the IEC 61850 > Edit Data Model window does not default the modified prefix or instance number of a logical node. The Restore button in the same window does not restore the last entered values of the modified prefix and instance number of a logical node.

In the new release, the Default and Restore buttons function correctly.

Fixed error when opening Logic Designer after copy operation

Workaround: Open the FlexLogic Equation Editor on the new device before opening the Logic Designer

window

Description: In Engineer > Logic Designer, when the logic design of an existing offline device is copied to a new device using drag-and-drop then opening the logic design in the new device, a message prompts "At least one input symbol was improperly configured..."

The new release fixes the issue.

Fixed non-applicable settings being shown in B90 device comparison report

Workaround: None

Description: A new ID setting is added to the Bus Replica Isolator element in firmware version 7.90 for a B30. A comparison report between two B90 versions after 7.90 showed the Bus Replica Isolator element ID as a difference for a B90 device. The setting does not apply to a B90 product.

The new release corrects the issue and the non-applicable settings do not display in the B90 comparison report.

Corrected display of a horizontal virtual front panel instead of a vertical front panel

Workaround: None

Description: Using Actual Values > Front Panel > Front Panel, the software incorrectly displays a horizontal Front Panel for a vertical front panel software option.

The new release corrects the issue.

RxGOOSE mode cannot switch to Process Bus Module GOOSE when subscribed from non-default logical node name

Workaround: None

Description: When subscribing to a GOOSE on the main CPU with GGIO2.SPCSO001 in the publisher dataset, it cannot be switched to Process Bus Module GOOSE if the publisher GGIO2's prefix has been changed from the default.

The new release corrects the logic to account for a modified logical node prefix and instance number.

Fixed "Settings file has been fixed" message when opening a version 7.70 offline device

Workaround: None

Description: Allowing settings under "Testing" menu to be editable in an offline device of version 7.90 and higher introduced a bug where these settings are added to newly created devices of versions 7.80 or earlier. When opening devices of version 7.80 and earlier with EnerVista UR Setup 8.0x, the settings check fails to remove the added "Testing" related settings. The issue does not apply to devices of version 7.80 or earlier created using EnerVista UR Setup 7.80 or earlier versions.

The new release does not include "Testing" settings in a .urs file of devices with versions lower than 7.90.

Corrected GOOSE subscription window for removed IED when IEC 61850 is reopened

Workaround: None

Description: In the GOOSE subscription window when adding a device using the Add IED option, then removing the device using the Remove IED option, the device still displays when the IEC 61850 window is re-opened.

The new release enables the Save button after Remove IED is invoked. The Save operation invoked by the user forces the cleanup of the removed IEDs.

Corrected software to prevent a version 7.1x settings file to be sent to a 7.2x device

Workaround: None

Description: The EnerVista UR Setup software allows a version 7.1 settings file to be sent to a version 7.2 relay.

In the new release, the version of the setting file is checked against the firmware version of an online UR device before sending the setting file to the device.

Corrected discovery of version 8.xx relays

Workaround: None

Description: The Discover button feature is unable to detect a UR device with version 8.xx when its IP address is within the subnet scan range.

The new release corrects the issue.

Corrected sending of firmware less than 7.00 to 7.x devices

Workaround: None

Description: A firmware binary lower than version 7.00 can be sent to version 7.x relays. A subsequent reboot causes the relay to load the backup image.

The new release blocks the operation and displays a message that "The current UR hardware only supports firmware starting from 7.XX."

Changed message to "A device folder will be created where all the imported files will be copied"

Workaround: None

Description: When adding a device from a CID or URS file, a prompt incorrectly states that "A device folder will be created where all the imported files will be moved," It is not a move operation, but rather a copy operation.

The new release changes the message to read "A device folder will be created where all the imported files will be copied."

Corrected Initiate Test Mode On Sim Setting to be editable in Offline Window area

Workaround: None

Description: The Settings > Simulation > Subscribe to Simulated Values > Initiate Test Mode On Sim Setting is not editable in the Offline Window area.

The new release corrects the issue to allow editing of this setting in the Offline Window area.

Corrected Logic Designer compilation errors in device versions 7.0x to 7.3x, following conversions from versions lower than 7.0

Workaround: None

Description: Compilation of a Logic Designer diagram after the device is converted from version 6.0x or lower to a target version between 7.0x and 7.3x results in a sequence of error message and corrupt FlexLogic equations.

The new release corrects the issues.

Corrected the FlexLogic operand list in version 7.70 devices

Workaround: None

Description: The SYNC %d SYNC OP FlexLogic operand is missing from version 7.70 device FlexLogic operand dropdown lists.

The new release corrects the issue.

Corrected the IED IN SIM MODE FlexLogic operand name in versions 7.90 and 8.x

Workaround: None

Description: The RxGOOSE SIM ON FlexLogic operand name was changed in version 7.90 to IED IN SIM MODE, however EnerVista UR Setup software still shows RxGOOSE SIM ON in its FlexLogic operand drop-down lists for version 7.90 and 8.x products.

The new release corrects this naming inconsistency.

Corrected RxGOOSE mode change after adding additional subscription

Workaround: Manually modify RxGOOSE Mode after adding more subscriptions

Description: When adding additional subscriptions to an already subscribed RxGOOSE Message, RxGOOSE Mode changes to default if it has been changed manually from default.

This has been corrected, and RxGOOSE Mode does not change when adding additional subscriptions.

Defaulted RxGOOSE Mode after "Refresh IED"

Workaround: Manually modify RxGOOSE Mode after performing "Refresh IED"

Description: In the Add IED window, when performing "Refresh IED" by right-clicking an IED entry, RxGOOSE Mode is not defaulted.

This release corrects the issue.

Corrected the IED IN SIM MODE FlexLogic operand name in versions 7.90 and 8.x

Workaround: None

Description: The RxGOOSE SIM ON FlexLogic operand name was changed in version 7.90 to IED IN SIM MODE, however EnerVista UR Setup software still showed RxGOOSE SIM ON in its FlexLogic operand dropdown lists for version 7.90 and 8.x products.

The current release fixes this naming inconsistency.

Fixed printing process for Logic Designer diagrams

Workaround: Wait for more than 10 minutes for the diagram to print

Description: Some Logic Diagram sheets that are twice as wide as regular sheets were taking more than 10 minutes to print.

The printing process has been fixed in this release so that sheets are printed in the approximate same amount of time even when they are extra-wide.

Upgrade

Compatibility

The 8.04 firmware runs on the T, U, V, and W CPU modules. View the order code to determine the CPU module in the relay. For example, in C60-V03-HPH-H6H, the relay has a V CPU module.

The graphical front panel requires a T, U, V, or W CPU module that has two connector slots on the front of the module. One connector allows a basic or enhanced front panel to be connected, and the other connector allows a graphical front panel.

The 8.04 firmware release is not compatible with previous UR CPU hardware (CPU types A, B, D, E, G, H, J, K, N, and S).

The 8.04 firmware release requires EnerVista UR Setup software version 8.0x or higher. GE suggests use of the latest available version of the software.

Upgrade

When upgrading both EnerVista software and UR firmware, upgrade the software first. Upgrade of the software takes about five minutes, and upgrade of firmware takes about 25 minutes. They can be done over an Ethernet connection. The USB port cannot be used for the upgrade.

To upgrade the software:

1. If a beta version of the EnerVista UR Setup software is installed, uninstall it, for example using the Windows Control Panel.
2. Download the new software from http://www.gegridsolutions.com/app/ViewFiles.aspx?prod=urfamily&type=7
   The software is a .exe file.
3. Install the new software by (double-)clicking the file.
4. Refresh the order code in EnerVista under the **Device Setup** button.

To upgrade the firmware:

1. Download the firmware from http://www.gegridsolutions.com/app/ViewFiles.aspx?prod=urfamily&type=7
   The firmware is a .SFD file.
2. In the EnerVista software, navigate to **Maintenance > Update Firmware** and select the .SFD file.
   For any issues, see a UR instruction manual.
   When the upgrade finishes, the relay restarts.
3. Reconnect the EnerVista software to the relay, and refresh the order code in EnerVista under the **Device Setup** button.
4. Convert any existing settings file, then load the converted settings to the relay. See the instruction manual for information.
5. Set the device to "Programmed" under **Settings > Product Setup > Installation** to put it into service.

Categories

This document uses the following categories to classify changes.

Revision categories

Code	Category	Description
N	New feature	A separate feature added to the relay. Changes to existing features even if they significantly expand the functionality are not in this category.
G	Change	A neutral change that does not add new value and is not correcting any known problem
E	Enhancement	Modification of an existing feature bringing extra value to the application
D	Changed, incomplete, or false faceplate indications	Changes to, or problems with text messages, LEDs, and user pushbuttons
R	Changed, incomplete, or false relay records	Changes to, or problems with relay records (oscillography, demand, fault reports, and so on)
C	Protocols and communications	Changes to, or problems with protocols or communication features
M	Metering	Metering out of specification or other metering problems
P	Protection out of specification	Protection operates correctly but does not meet published specifications (example: delayed trip)
U	Unavailability of protection	Protection not available in a self-demonstrating way so that corrective actions can be taken immediately
H	Hidden failure to trip	Protection does not operate when appropriate
F	False trip	Protection operates when it is not appropriate
B	Unexpected restart	Relay restarts unexpectedly

For further assistance

For product support, contact the information and call center as follows:

GE Grid Solutions
650 Markland Street
Markham, Ontario
Canada L6C 0M1
Worldwide telephone: +1 905 927 7070
Europe/Middle East/Africa telephone: +34 94 485 88 54
North America toll-free: 1 800 547 8629
Fax: +1 905 927 5098
Worldwide e-mail: multilin.tech@ge.com
Europe e-mail: multilin.tech.euro@ge.com
Website: http://www.gegridsolutions.com/multilin/