RELEASE NOTES FOR *groov* EPIC FIRMWARE

September 13, 2022

Applies to firmware for part numbers GRV-EPIC-PR1 and GRV-EPIC-PR2.

For Ignition/Ignition Edge Users: Selecting the Correct Firmware File for a GRV-EPIC-PR1

Beginning with firmware version 3.0.0, Opto 22 provides different firmware files for GRV-EPIC-PR1, differentiated by the version (7 or 8) of Ignition and Ignition Edge included in the firmware. Make sure you select the correct firmware files from your My.Opto account on manage.groov.com. For guidance on selecting the correct firmware file, see "Updating Firmware on a *groov* EPIC" in the *groov* EPIC User's Guide, form 2267.

groov EPIC PROCESSOR FIRMWARE 3.4.4

September 12, 2022. Section updated: September 13, 2022.

General New Features, Enhancements, and Bug Fixes

This section lists new features, enhancements, and bug fixes that either affect multiple components (for example, support for a new module or protocol) or are not related to a listed component (for example, a fix for a *groov* analog module issue or enhancement to an API).

Bug Fix

- KB90447 *groov* EPIC unresponsive
- KB90444 REST API requests with an API key created/changed since *groov* EPIC restart produce errors

PAC Control Engine 10.5d

No new features, enhancements, or bug fixes.

groov Manage 3.4.3

No new features, enhancements, or bug fixes.

groov View 4.4c

Bug Fixes

KB90438 - Deleting a gadget in one layout breaks gadget arrangements and ability to select in other layout

Ignition and Ignition Edge 7.9.20/8.1.17

No new features, enhancements, or bug fixes.

Cirrus Link Modules 3.4.12/4.0.11

No new features, enhancements, or bug fixes.

Data Service 2.0.5

Bug Fixes

KB90434 Data from *groov* EPIC/RIO reported as stale; *groov* Manage reports Data Service is running

Node-RED 2.2.2

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional Updates

No additional updates.

groov EPIC PROCESSOR FIRMWARE 3.4.3

August 11, 2022.

General New Features, Enhancements, and Bug Fixes

Enhancement

Support for new internal hardware has been added.

Note: New internal hardware shipped in some groov EPIC processors may change the minimum firmware version required by those processors. Before installing firmware that is a lower version than the one currently installed, verify that the version number of that firmware is higher than or equal to the version number in the Minimum Firmware Version field on the About page (from the groov Manage Home page, click Info and Help > About). If there is no Minimum Firmware Version field, you may install the lower version of firmware.

PAC Control Engine 10.5d

No new features, enhancements, or bug fixes.

groov Manage 3.4.3

No new features, enhancements, or bug fixes.

groov View 4.4b

No new features, enhancements, or bug fixes.

Ignition and Ignition Edge 7.9.20/8.1.17

No new features, enhancements, or bug fixes.

Cirrus Link Modules 3.4.12/4.0.11

No new features, enhancements, or bug fixes.

Data Service 2.0.4

No new features, enhancements, or bug fixes.

Node-RED 2.2.2

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional Updates

No additional updates.

groov EPIC PROCESSOR FIRMWARE 3.4.2

August 9, 2022.

General New Features, Enhancements, and Bug Fixes

New Feature

A new field has been added to the Status Area Read section of the OptoMMP memory map. The new field starts at address 0xFFFF F030 0250 and it keeps track of the number of writes to permanent storage since the last power up. You can find more information about the field in the OptoMMP Protocol Guide, form 1465.

Bug Fixes

- KB90239 - Frequently writing unchanged values to some OptoMMP areas may cause excessive writes to permanent storage
- KB90395 - Internal values unnecessarily saved to permanent storage

PAC Control Engine 10.5d

No new features, enhancements, or bug fixes.

groov Manage 3.4.3

No new features, enhancements, or bug fixes.

groov View 4.4b

Bug Fixes

- KB90028 - Video gadgets erroneously indicate that trial period ended before it started
- KB90289 - Some users can't see video from video gadgets with proxy option

- KB90330 - Page access permissions reset to All Users
- KB90394 - Cannot select an array index on some OPC UA array tags
- KB90399 - OPC UA tags with Number type are selectable in Build mode, but report type error in View mode

Ignition and Ignition Edge 7.9.20/8.1.17

No new features, enhancements, or bug fixes.

Cirrus Link Modules 3.4.12/4.0.11

No new features, enhancements, or bug fixes.

Data Service 2.0.4

Bug Fixes

- KB90382 - Can't view or write to energy tags
- KB90384 - Some *groov* EPIC/*groov* RIO device tags are missing from Sparkplug B payloads
- KB90386 - Some tag properties for *groov* EPIC/*groov* RIO with Sparkplug B payloads are missing/incorrect
- KB90388 - Tag browsers display channel features that are not public
- KB90390 - MQTT/Data Service may not issue Death Certificate when MQTT service restarted
- KB90400 - 32-bit integers that represent boolean values aren't presented as booleans

Node-RED 2.2.2

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional Updates

No additional updates.

groov EPIC PROCESSOR FIRMWARE 3.4.1

July 14, 2022. Updated: August 19, 2022.

General New Features, Enhancements, and Bug Fixes

Bug Fixes

- KB90345 ETH0 doesn't connect to 10 Mbps network
- KB90376 Unresponsive *groov* EPIC

PAC Control Engine 10.5d

No new features, enhancements, or bug fixes.

groov Manage 3.4.2

Bug Fixes

- KB90272 - Can't stop PAC Control strategy that has 0 running charts
- KB90358 - Ignition Edge may restart twice or not start after uploading a new server certificate

groov View 4.4a

No new features, enhancements, or bug fixes.

Ignition and Ignition Edge 7.9.20/8.1.17

No new features, enhancements, or bug fixes.

Cirrus Link Modules 3.4.12/4.0.11

No new features, enhancements, or bug fixes.

Data Service 2.0.2

Bug Fixes

- KB90346 - *groov* native OPC UA server does not accept connections to localhost
- KB90343 - OPC UA clients cannot read/write tags when using system administrator account
- KB90350 - MQTT/Data Service MQTT may fail to connect (out of memory error)

Node-RED 2.2.2

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional Updates

No additional updates.

groov EPIC PROCESSOR FIRMWARE 3.4.0

July 5, 2022. Section updated July 8, 2022.

General New Features, Enhancements, and Bug Fixes

This section lists new features, enhancements, and bug fixes that either affect multiple components (for example, support for a new module or protocol) or are not related to a listed component (for example, a fix for a *groov* analog module issue).

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New Features

- A native OPC UA server for PAC Control, *groov* I/O, and Scratch Pad has been added to *groov* EPIC. This expands your *groov* EPIC's ability to integrate into your SCADA software or any other OPC UA-compliant client software.

  - A new user permission has been added, Data Service OPC UA Server. This user permission helps authenticate a user that can read or read-write data through the native OPC UA server.

  - Configuration of the OPC UA server and corresponding certificate management are available through the Data Service page (formerly the MQTT page) of *groov* Manage.

  - If you downgrade firmware, you cannot transfer Data Service configuration settings to firmware lower than 3.4.0.

- Support for SNMP connections has been added. This enables management of *groov* EPIC and it's connected field devices from SNMP-enabled systems.

Enhancements

- The Java JDK has been upgraded to version 8.0.332.

Bug Fixes

- KB90055 - PAC Control REST API returns strings that are not part of the strategy
- KB90206 - MQTT may not scan all public tags after watchdog changes for digital output channels
- KB90223 - Analog *groov* RIO channels and undetected discrete *groov* modules report quality code 0 instead of 30
- KB90290 - *groov* analog and some *groov* digital modules are unresponsive and module LED is red
- KB90315 - Some security certificates are not uploaded

PAC Control Engine 10.5d

Enhancements

The PAC Control engine now supports more options in the Server Information table of PAC Control email commands. For a list of these options, see the PAC Control Command Reference (form 1701).

Bug Fixes

- KB90054 - Some numeric-to-string commands may cause PAC Control engine to lock up or reset
- KB90169 - Local file contains double the content obtained from file on remote FTP server
- KB90181 - FTP "dir" command may not return all of the directory entries from an FTP server
- KB90187 - FTP "get" command doesn't retrieve an empty file
- KB90188 - FTP "delete" command may not delete remote file
- KB90198 - FTP "appe" command overwrites remote file
- KB90226 - PAC Control engine may not start the 64th user task

groov Manage 3.4.0

New Features

- To streamline communication with product support, status and configuration information for your *groov* EPIC can now be downloaded as a single file.
- To assist with performance and activity troubleshooting, an IO Diagnostics page has been added. This page provides information about performance and activity of the local I/O, such as scan rates and the number of times a module may have been hot-swapped.

- A *groov* View management page has been added to *groov* Manage. From this page, you can view the status of *groov* View, any projects running, and restart *groov* View, eliminating the need to cycle power to your *groov* EPIC just to restart a *groov* View project.

Enhancements

- The MQTT page has been renamed to Data Service and its function has been expanded:
  - Enable or disable the Data Service runtime. Enabling allows access to PAC Control tags, I/O data, and some OptoMMP areas through OPC UA and MQTT.
  - For MQTT: configure the string or Sparkplug payloads, add one or more MQTT brokers, and add security certificates for authentication to brokers.
  - For the native OPC UA server: view server information, configure the server, and add security certificates for authentication to brokers.
  - Configure some performance features for accessing PAC Control tags and through which protocols to make them available.
  - Links to other *groov* Manage pages where you can make I/O channels, PID loops, and scratch pad areas public.

- *groov* Manage now warns you when:
  - You assign multiple network interfaces to the same subnet. Ethernet network interfaces cannot be on the same subnet.
  - You assign multiple static IP addresses to the same subnet. Static IP addresses cannot be on the same subnet.
  - You have left the Password field blank in the Shell page.

- Several improvements have been made to ease certificate management:
  - The buttons on the Security page have been renamed to more accurately describe the functions you can access.
  - The page that displays information about a specific certificate now displays more information—eliminating a few clicks/taps to get to that information—and the title was rewritten to more accurately describe the contents of the page. Also, the Delete button is now red, which provides a visual cue regarding its function.

- The Status field of the Node-RED page now reports "Busy", which more accurately reflects when it is not available during times other than during initialization.

- The PAC Controller page has been improved:
  - A new Store to Flash button has been added. This button saves the downloaded strategy to permanent storage, which is similar to using the "Save strategy to permanent storage" function in the Inspection window of PAC Control.
  - Now the Auto Run slider will enable only if your strategy is saved to permanent storage. You can store your strategy by either clicking the new Store to Flash button or using PAC Control.

- The About page now lists the version information for more components.

- If your *groov* EPIC processor hardware requires a specific minimum version of firmware, the Update page displays this minimum version number. Due to occasional changes to internal hardware components, some *groov* EPIC processors require different minimum versions of the firmware. If you ever need to downgrade firmware on your *groov* EPIC, this information can help ensure that you don't try to downgrade to a version not supported by the hardware.

- You can now make the Scratch Pad area of the *groov* EPIC OptoMMP memory map public, which means you can now publish the data in this area through MQTT and OPC UA.

- The default level of debugging information provided in some logs has been adjusted.

Bug Fixes

- KB89983 - Downloading kernel dump sometimes fails with "Failed - Network error" message

- KB90068 - *groov* Manage CODESYS page doesn't show application status or Run/Stop button
- KB90217 - Static Routes page incorrectly uses the term "Next Hop"
- KB90221 - Static Route remains in effect after deletion

groov View 4.4a

New Feature

- Tools have been added to help you more accurately lay out your gadgets on a page so that they fit on your target screen:
  - **Rulers.** In Build mode, you can display rulers, which appear above and to the left of your page. Rulers display tick marks at every grid unit, with every 10th unit labeled numerically. A thick line on each ruler visually identifies the current location of the mouse. Rulers do not appear in View mode.
  - **Layout Guides.** In Build mode, a horizontal or vertical line that you can place on a page to help you align gadgets or identify the top or bottom of the target screen. The layout guides do not appear in View mode. When you duplicate a page with layout guides, the guides are duplicated, which can help you create consistent layouts between pages.
  - **Page Size Overlay.** A small box that displays in View mode and shows the pixel width and height of the target screen. You can then use this information to set your layout guides. You can turn on the overlay during development and testing of your project, then turn it off before releasing your project for production.
- For security, Text Box Input gadgets now offer an option to mask the text the user types. When a user types a character, *groov* View replaces it with an asterisk.

Enhancements

- Added support for Microsoft Windows 11 Professional and Microsoft Windows Server 2019
- When you duplicate gadgets, the copy is placed at the bottom of the page for both the Desktop and Handheld layouts. If more than one gadget is duplicated—for example, a label and an LED—the copy maintains the same relative positions as the original.
- You can now browse through custom OPC UA data structures to select fields in the structure and use them as tags.
- The following options have been added to improve navigation of *groov* View projects in both Build mode and View mode:
  - If you organized your pages into categories, you can opt to display those categories as folders, where you can expand or collapse the folder to view the pages in that category. The setting to enable the folder view is in the View Mode section of the Project settings (in Build mode, click Configure > Project). The default is to display the list of pages as a flat list.
  - In the Events page, a Back icon has been added. When you click on it, you return to the last page you were viewing.
  - You can now hide the Events icon so that it doesn't display in View mode. The setting to hide the Events icon is in the View Mode section of the Project settings. The default is to display it.
  - The Groov View Styling section of the Project Settings page has been renamed and some of the settings have been renamed/rearranged. The section is now called View Mode. To see the new names of settings and their arrangement, see *groov* View User's Guide (form 2027).

Bug Fixes

- KB84693 - In Build mode of *groov* View, changing gadget z-order only works with one gadget at a time
- KB84815 - Z-order with gadgets is inconsistent
- KB90193 - When copying and pasting groups of gadgets, z-order is not preserved
- KB89845 - *groov* View may hang while using video gadgets with the proxy option enabled

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- KB90109 - In Build mode, unable to open an Event for editing
- KB90192 - Gadget pasted to another page has incorrect position/size

Ignition and Ignition Edge 7.9.20/8.1.17

Enhancement

The maximum for the Java heap has been increased:
- On a GRV-EPIC-PR1 to 320 MB.
- On a GRV-EPIC-PR2 to 1024 MB.

Cirrus Link Modules 3.4.12/4.0.11

Performance enhancements.

Data Service 2.0.0[1]

This section lists the new features, enhancements, or bug fixes to the data service, a service that provides access to PAC Control strategy and I/O tags, I/O data, and some publicly available OptoMMP areas to protocols like OPC UA and MQTT. For a list of specific supported combinations, see *groov* EPIC User's Guide (form 2267).

Enhancements

The MQTT Broker Client ID field has been enhanced to support longer names and more characters.

Node-RED 2.2.2

Enhancement

Node-RED has been upgraded to version 2.2.2.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional updates

Improvements and upgrades have been made to internal services to improve performance, improve security, update security certificates, and close vulnerabilities.

groov EPIC PROCESSOR FIRMWARE 3.3.4

August 30, 2022.

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1. This section was previously called MQTT.

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General New Features, Enhancements, and Bug Fixes

Enhancements

Support for new internal hardware has been added.

Note: New internal hardware shipped in some groov EPIC processors may change the minimum firmware version required by those processors. Before installing firmware that is a lower version than the one currently installed, verify that the version number of that firmware is higher than or equal to the version number in the Minimum Firmware Version field on the About page (from the groov Manage Home page, click Info and Help > About). If there is no Minimum Firmware Version field, you may install the lower version of firmware.

PAC Control Engine 10.5c

No new features, enhancements, or bug fixes.

groov Manage 3.3.3

No new features, enhancements, or bug fixes.

groov View 4.3g

No new features, enhancements, or bug fixes.

Ignition and Ignition Edge 7.9.18/8.1.17

No new features, enhancements, or bug fixes.

Cirrus Link Modules 3.4.12/4.0.11

No new features, enhancements, or bug fixes.

MQTT 1.6.2

No new features, enhancements, or bug fixes.

Node-RED 2.0.6

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional updates

None.

groov EPIC PROCESSOR FIRMWARE 3.3.3

April 14, 2022.

General New Features, Enhancements, and Bug Fixes

Enhancements

Security certificates in the *groov* EPIC's trust store have been updated.

Bug Fixes

- KB89909 - Get & Restart pulse measurement commands may not restart active pulses
- KB90097 - groov EPIC processor becomes unresponsive
- KB90173 - Channel configured as FastADC, Thermistor: Custom Curve returns invalid data
- KB90183 - Scaling values for analog channels may not be correct
- KB90196 - Digital output channel turns off or toggles after downloading and running PAC Control strategy

PAC Control Engine 10.5c

Bug Fixes

- KB90090 - Control engine sometimes overwrites filter, offset, and gain values on analog inputs
- KB90189 - groov RIO I/O unit reconfigured after power cycle or strategy download; output channels change values

groov Manage 3.3.3

Bug Fixes

- KB90112 - WiFi configuration changes don't take effect until after power cycle
- KB90170 - groov Manage doesn't display fields to enter Steinhart-Hart coefficients

groov View 4.3g

No new features, enhancements, or bug fixes.

Ignition and Ignition Edge 7.9.18/8.1.10

No new features, enhancements, or bug fixes.

Cirrus Link Modules 3.4.12/4.0.8

No new features, enhancements, or bug fixes.

MQTT 1.6.2

No new features, enhancements, or bug fixes.

Node-RED 2.0.6

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional updates

None.

groov EPIC PROCESSOR FIRMWARE 3.3.2

December 14, 2021

General New Features, Enhancements, and Bug Fixes

This release was for bug fixes; see below.

PAC Control Engine 10.5b

Bug Fixes

- KB90070 - Re-enabling communication to remote groov I/O Unit or groov RIO module may reconfigure channels
- KB90073 - The Open Outgoing Communication command cannot create new directories and files at the same time
- KB90078 - Older SNAP Brains may fail to enable

groov Manage 3.3.0

No new features, enhancements, or bug fixes.

groov View 4.3g

Bug Fixes

KB90085 - Log4j vulnerability in groov View may allow remote code execution

Ignition and Ignition Edge 7.9.18/8.1.10

No new features, enhancements, or bug fixes.

Cirrus Link Modules 3.4.12/4.0.8

No new features, enhancements, or bug fixes.

MQTT 1.6.2

No new features, enhancements, or bug fixes.

Node-RED 2.0.6

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional updates

None.

groov EPIC PROCESSOR FIRMWARE 3.3.1

November 1, 2021.

General New Features, Enhancements, and Bug Fixes

This release was for bug fixes; see below.

PAC Control Engine 10.5a

Bug Fixes

KB90031 - Get & Clear Analog Minimum / Maximum / Totalizer commands return a "Not Implemented" error

groov Manage 3.3.0

No new features, enhancements, or bug fixes.

groov View 4.3f

Bug Fixes
- KB90022 - After editing a computed tag's script, output doesn't change
- KB90023 - After editing a computed tag, the computed tag stops working

Ignition and Ignition Edge 7.9.18/8.1.10

No new features, enhancements, or bug fixes.

Cirrus Link Modules 3.4.12/4.0.8

No new features, enhancements, or bug fixes.

MQTT 1.6.2

No new features, enhancements, or bug fixes.

Node-RED 2.0.6

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.17.10

No new features, enhancements, or bug fixes.

Additional updates

None.

groov EPIC PROCESSOR FIRMWARE 3.3.0

October 26, 2021. Updated: November 1, 2021.

General New Features, Enhancements, and Bug Fixes

New Features

- Static IP routes can be configured using the new Static Routes feature.
- Support has been added for two new modules:
  – GRV-IVAPM-3: An analog input module that can monitor AC voltage, current, power, and energy usage on Wye or Delta circuits up to UL 61010-3 measurement category III. It can monitor three-phase AC current using 0.333 V, 1 V, 1 A, or 5 A current transformers (CT). For more information about the module, see groov Power Monitoring Module Data Sheet (form 2351).
  – GRV-MM1001-10: A 10-channel, mixed signal, multifunction module where some channels can be configured to support either an input or output signal, analog or discrete, and any feature supported by the selected signal (such as counting, latching, clamping, and more). For more information about the module, see groov Multifunction Mixed Signal Module Data Sheet (form 2353).

Enhancements

Performance enhancement was made to ensure a smoother start up for CODESYS when using a *groov* EPIC I/O unit with simple or serial modules.

Bug Fixes

- KB89924 - Some analog output channels do not return a value of QNAN when a quality code is present
- KB89245 - Changes to some OptoMMP public tags do not increment public tags version number
- KB89950 - For temperature input channel types, calibration offset parameter may be applied incorrectly
- KB89973 - For temperature input channel types, offset calibration parameter may cause incorrect adjustment
- KB89974 - For a temperature input channel, the Calculate and Set Offset/Gain area of memory map does not calculate the correct offset

PAC Control Engine 10.5a

Enhancements

- Support has been added for the following new modules:
  – GRV-IVAPM-3
  – GRV-MM1001-10
  – GRV-R7-I1VAPM-3
- Support for the PAC Control command Move Module to Numeric Table has been added.

- TCP keepalive support has been added to TCP communication handles. After 3 failed consecutive attempts at 5 second intervals, the control engine assumes that the connection has been dropped.

Bug Fixes

- KB89582 - Concurrent use of the same COM handle by more than one task may cause control engine to reset
- KB90003 - Get I/O Unit Quality command does not report modules with a quality code

groov Manage 3.3.0

New Features

- You can now include *groov* View projects in a backup. (Trend data is not included in the backup.) If a backup file contains a *groov* View project, you can restore the project if the target firmware is at the same version or higher.
- You can now set a timeout on browser sessions.
  - Timeouts can be set globally or per user, from 30 minutes to two weeks.
  - A "Remember me" check box on the sign in page helps you preserve your user session across browser restarts.
  - User sessions can be preserved during firmware updates to eliminate the need for re-authentication.
- Several new features and enhancements have been added to modules through module firmware updates. With this release, you can now configure the following new module features through *groov* Manage:
  - GRV-IDCI-12: You can now configure the new channel type for 10-25 V AC inputs.
  - GRV-ITR-12: You can now configure two new features:
    - Disabled (to disable channels)
    - FastADC (for faster measurements)

Enhancements

- When updating firmware:
  - If you selected to save and restore settings, *groov* View projects (including trend data) are preserved when you upgrade firmware. Note that trend data is not preserved if you downgrade firmware.
  - The last message has been enhanced to more clearly explain what will happen and what you must do to continue with the firmware update.
  - If you enabled "Back Up Settings" and a setting or component fails to backup, the update is canceled and the failure and the setting/component that failed are reported in a message window.
- The Modules page was renamed to I/O. On this newly renamed page, the links for PID Loops, I/O Configuration, and I/O Tools have been consolidated into one link called I/O Services. The link for I/O Reference has been moved to the Info and Help page.
- The Network page has been moved out of the System page and up to the *groov* Manage Home page. Several other changes have been made to the Network page:
  - Previously, the network configuration page was nested under the network status page (System > Network > Configure). Now, the status and configuration pages are at the same level and accessible from the Network page (Network > Status; Network > Configure).
  - The Port Forward button and page has been renamed to Port Redirect, as well as moved out of the System page and into the Networking page (Network > Port Redirect).
  - The new Static Routes feature is in the Network page (Network > Static Routes).
  - The "Diagnostics" link in the Network status page has been changed to a button and is now on the Network page.

Bug Fixes

- KB89580 - EPIC or RIO OpenVPN connection may not reconnect after session expiration
- KB89609 - On external monitor, "Zoom in level" field does not show values
- KB89612 - MMP Calculator shows some invalid Modbus Addresses
- KB89613 - Available disk space may decrease significantly after a failed system restore
- KB89714 - Can't restore Node-RED backups between GRV-EPIC-PR1 and GRV-EPIC-PR2
- KB89736 - Browser may fill in *groov* Manage fields (autocomplete)
- KB89758 - Viewing invalid float values on Generic MMP or Scratch Pad page causes incorrect behavior
- KB89762 - Backup file missing a component; no error message
- KB89829 - Fields blank on Node-RED status page when viewed on touchscreen on external monitor

groov View 4.3e

New Feature

- Support has been added for the following new *groov* EPIC I/O modules:
    - GRV-MM1001-10
    - GRV-IVAPM-3

Bug Fixes

- KB89878 - Auto Navigator gadget allows write-only tags to be assigned to it
- KB89919 - groov View may not start when OPC UA tags are inputs to Computed Tags
- KB89626 - Array element field shows -1; can't erase with Backspace key
- KB89985 - Adds, deletes, or edits to computed tags disappear from Configure Tags dialog

Ignition and Ignition Edge 7.9.18/8.1.10

The version 7 and version 8 modules have been upgraded with a recent patch release:

- Ignition and Ignition Edge version 8 have been upgraded to 8.1.10.
- Ignition and Ignition Edge version 7 have been upgraded to 7.9.18.

Cirrus Link Modules 3.4.12/4.0.8

Enhancements

- For Ignition and Ignition Edge version 7, the version 3 Cirrus Link Modules have been upgraded to patch release version 3.4.12.

MQTT 1.6.2

Enhancements

Support has been added for two new modules:

- GRV-IVAPM-3
- GRV-MM1001-10

Bug Fixes

- KB89904 - MQTT string payloads missing part number; hardware date code only

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Node-RED 2.0.6

Enhancements

- Node-RED has been upgraded to version 2.0.6.
- You can now set up a Node-RED Dashboard as an HMI on your *groov* EPIC:
    - You can quickly launch your Node-RED dashboard from the Node-RED page in *groov* Manage.
    - You can select your Node-RED dashboard as the first application to load when your *groov* EPIC starts up.
    - A new user access level has been added: Node-RED Dashboard.

        Note that you need to install the Node-RED Dashboard nodes separately.
- You can now copy Node-RED flows between *groov* EPICs and *groov* RIOs by using the Node-RED project upload features (from the *groov* Manage Home page, click Node-RED > Project Management > Upload). This does not copy the nodes.
- Node.js has been upgraded to 12.22.1.

CODESYS Runtime Engine 3.5.17.10

The CODESYS Runtime Engine has been upgraded to version 3.5.17.10. This upgrade:

- Requires that you install version 2.0.3.0 of the Opto 22 Library Package for CODESYS Development System, available on the Opto 22 website (www.opto22.com).
- Includes the addition of the CODESYS OPC UA client. This new functionality is included in the CODESYS runtime license.
- Requires CODESYS Development System V3.5 SP17 (also known as version 3.5.17.0) or higher.

    Note that CODESYS Development System version 3.5.17.**10** has a known library package install issue that will be fixed in a future version of CODESYS Development System. The current workaround for the issue is to *Run as Administrator* (an option in Windows) when you install library packages.

Additional updates

Trusted SSL/TLS certificates have been updated.

groov EPIC PROCESSOR FIRMWARE 3.2.2

August 16, 2021.

General New Features, Enhancements, and Bug Fixes

Enhancement

Improved diagnostic logging.

Bug Fixes

- KB89818 - *groov* EPIC processor may become unresponsive
- KB89868 - *groov* EPIC processor may become unresponsive when writing to the memory map
- KB89876 - *groov* EPIC processor may become unresponsive
- KB89890 - User repeatedly prompted to change password

PAC Control Engine 10.4f

Bug Fixes

- KB89819 - Viewing the message queue may cause a PAC controller reset

groov Manage 3.2.2

No new features, enhancements, or bug fixes.

groov View 4.3d

Bug Fixes

- KB89781 - Gadgets using computed tags may show an error when *groov* View starts
- KB89826 - *groov* View hangs due to lag in computed tags

Ignition and Ignition Edge 7.9.17/8.1.7

Ignition and Ignition Edge version 8 has been upgraded to version 8.1.7.

Cirrus Link Modules 3.4.11/4.0.8

The modules that work with Ignition and Ignition Edge version 8 have been upgraded to version 4.0.8.

MQTT 1.6.0

Bug Fixes

- KB89847 - Unstable connection to MQTT broker using CA-signed or self-signed root certificate
- KB89849 - Cannot connect to MQTT broker using CA-signed or self-signed root certificate
- KB89859 - MQTT OptoMMP device status is erratic

CODESYS Runtime Engine 3.5.15.50

No new features, enhancements, or bug fixes.

Additional updates

No new features, enhancements, or bug fixes.

groov EPIC PROCESSOR FIRMWARE 3.2.1

June 14, 2021. Document updated: June 15, 2021.

General New Features, Enhancements, and Bug Fixes

Bug Fixes

- KB88427 - Reset I/O to defaults op code (02) does not perform all documented operations
- KB89636 - Modbus/TCP transactions may fail

- KB89662 - Custom Configuration Area of groov EPIC and groov RIO memory map is cleared during power cycle
- KB89670 - TCP connection attempts may fail
- KB89676 - Modbus/TCP transactions may return incorrect exception code
- KB89707 - Expression tags created in Ignition Edge 7.9 do not execute correctly in version 8.1.1

PAC Control Engine 10.4d

Bug Fixes

- KB89735 - Control engine resets on first attempt to communicate with an alternate host task

groov Manage 3.2.0

Bug Fixes

- KB89667 - Can't restore a backup file made by GRV-EPIC-PR1 to a GRV-EPIC-PR2 (or vice versa)
- KB89680 - Encrypted backup may fail if password contains special characters
- KB89710 - Bluetooth incorrectly disabled after a system update
- KB89711 - System update fails: "Failed to import gpg certificate. The system clock may be too far in the past. Update the system clock."

groov View 4.3c

Bug Fixes

- KB89573 - Trend data not restored when groov View project restored
- KB89633 - Saving groov Build pages takes a long time, or on GRV-EPIC-PR1 reports 504 Gateway Time-out
- KB89645 - Events won't load in Build mode if an event is using an invalid tag
- KB89673 - When bit 0 is selected in a gadget using bit picking, the automatic label fails to show "(bit 0)"
- KB89674 - Can't select the last bit in an integer in the gadget properties panel bit selector
- KB89675 - groov View bit writing doesn't work correctly for the upper 33 bits of a 64 bit integer
- KB89744 - All gadgets with Computed Tags stop working
- KB89755 - Page Navigators configured as links or buttons don't work when Visibility option enabled

MQTT 1.6.0

No new features, enhancements, or bug fixes.

CODESYS Runtime Engine 3.5.15.50

No new features, enhancements, or bug fixes.

Additional updates

No new features, enhancements, or bug fixes.

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groov EPIC PROCESSOR FIRMWARE 3.2.0

April 15, 2021. Document updated: June 14, 2021.

General New Features, Enhancements, and Bug Fixes

New Features

- Support has been added for our newest *groov* EPIC processor: GRV-EPIC-PR2. This processor provides the same capabilities as GRV-EPIC-PR1, with the following differences:
  - More memory and disk space: 3.75 GB RAM and 22 GB user space
  - Ships with Ignition Edge version 8
- Limited support for Bluetooth adapter to connect to Bluetooth-capable field devices has been introduced. For description and instructions, see the *groov* EPIC User's Guide, form 2267.
- PID public attributes have been added to OptoMMP, making it possible to include information into string or Sparkplug payloads for transmission through MQTT.
- GRV-EPIC-PR1 now ships with Ignition Edge version 7.9.17. You can upgrade to version 8.1 by installing the "ignition8" firmware file. (GRV-EPIC-PR2 ships with Ignition Edge version 8.1.)
- For secure shell access users the following tools/packages have been added to the repository:
  - softether-vpnserver
  - kernel-module-wireguard
  - wireguard-tools

Enhancements

- Node-RED has been upgraded to version 1.2.9.
- Ignition Edge has been updated to versions 7.9.17 (for GRV-EPIC-PR1) and 8.1.1 (for GRV-EPIC-PR2).

Bug Fixes

- KB88268 - Analog Input Readings May Be Incorrect
- KB88812 - Local Touchscreen Responds to Touches When Processor Connected to External Monitor by HDMI
- KB89201 - Loss of Communication on ETH0
- KB89336 - Touchscreen stuck on power up progress screen
- KB89483 - CODESYS Can Only Access GRV-CCANI-2 Module In Slot 0
- KB89490 - LDAP: Internal server error when valid user is entered
- KB89493 - LDAP Authentication fails when LDAP server returns a referral
- KB89500 - No Indication When Component in Backup File Fails to Restore
- KB89546 - Cannot Browse Below "Resources" Folder on CODESYS OPC UA Server
- KB89625 - Multiple Symptoms When Transmitting CAN Messages using GRV-CCANI-2

PAC Control Engine 10.4d

Important Change

Prior to this release, it may have been possible to use the Opto 22 reserved port 22002 for your application communication needs. Beginning with firmware version 3.2.0, the *groov* EPIC firmware will prevent any use of port 22002. You may need to update your strategies. For more information, see KB89551.

Enhancements

- Support for the following PAC Control commands has been added:

- Get All Module States
- IVAL Get All Module States
- Get Module States
- Set Module States from MOMO Masks
- Get Module Counters
- Get & Clear Module Counters
- Get Module Off-Latches
- Get Module On-Latches
- Get & Clear Module Off-Latches
- Get & Clear Module On-Latches
- You can now do the following actions through COM handles:
  - Create a new directory (without having to open a file)
  - Get current working directory
  - Change to a different directory
  - Delete a directory

Bug Fixes

- KB89370 - Control Engine Host Communication Possibly Unresponsive After Strategy Download
- KB89402 - Errors fill controller's message queue when inspecting channel on unreachable SNAP I/O
- KB89421 - PAC Control Strategy Can't Access Remote groov EPIC I/O Unit After I/O Unit Reboots
- KB89526 - Strategy with SNAP PID may cause PAC Control engine reset
- KB89551 - "Definition Unknown" or Other Errors When Host/Listener Port is 22002
- KB89624 - Control Engine May Freeze When Strategy Calls a Command That Starts an SSL Client Session

groov Manage 3.2.0

New Features

- The port forwarding feature has been added. This optional feature uses network address translation (NAT) to make a specified service on one network available to hosts on a separate network. For important information about port forwarding, see:
  - Guide to Networking *groov* Products (form 2161) for an overview of networking topics in industrial automation.
  - *groov* EPIC Security Design and Best Practices Technical Note (form 2310) for important information on trusted vs untrusted networks and other security best practices.
  - *groov* EPIC User's Guide (form 2267) for instructions on how to enable this feature.
- You can now download all log files through one button. Previously, you had to download log files individually.
- The Generic MMP page has been enhanced to support 64-bit integers.
- The Backup page has been enhanced with the option to encrypt/decrypt backup files.

Enhancements

- The Files page has been enhanced to provide a template of what a *groov* Manage REST API call should look like to access a specific file.
- The USB page has been enhanced to prompt users to restart their controller after changing the USB permissions.
- When you upload a client certificate for Node-RED, *groov* Manage will prompt you to return to the Node-RED status page to restart the Node-RED service so that the new certificate can be used.

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- The Logs page has been enhanced:
    - A message appears to indicate when a log file doesn't exist.
    - Logs related to Ignition software have been added.
- The MMP Calculator now has a link to the Generic MMP page so that you can open the MMP area displayed on the calculator.
- The Time section of the System Status has the following improvements:
    - A Boot Time field has been added, indicating the last time the *groov* EPIC processor was restarted.
    - The text along the bottom more clearly states that the time listed is specific to the time zone assigned to the *groov* EPIC processor.
- For GRV-CSERI-4 and GRV-CCANI-2 modules, the channel configuration page has been enhanced to indicate when these modules have been inserted in unsupported slots.

Bug Fixes

- KB88153 - System Update Window Stops Showing Progress
- KB88471 - System Update May Fail Immediately
- KB89034 - System Update File Upload Fails Near End of Upload
- KB89435 - Firmware Update Fails for Firmware Files Larger Than ~2 GB
- KB89528 - Invalid Values in Firewall Rule Dialog Appear to be Stuck

groov View 4.3b

New Feature

groov View is now included in the new *groov* EPIC processor, GRV-EPIC-PR2.

Bug Fixes

- KB83816 - Windows Tray Icon for *groov* Monitor Disappears
- KB87773 - *groov* View Virtual Keyboard Off-Center and Behaves Irregularly
- KB89503 - Can't Clear Bit (0-31) Field on Gadget's Properties Panel
- KB89523 - *groov* View Classic Trend Performance Gradually Slows Down
- KB89530 - Can't Set Color or Text for On/Off Text Fields When Data Source is Bit
- KB89539 - Events Not Sending Email on GROOV-AR1 or GROOV-AT1
- KB89545 - Timeout or "The secure channel has been closed" Error While Browsing Static Tags on a CODESYS OPC UA Server
- KB89564 - Delay in Showing Data for Interactive Trends with Long Period
- KB89631 - Computed Tag Reports Error When Input is String Array Tag

MQTT 1.6.0

Enhancements

- When you are configuring a string payload, you can leave the group and subgroup topic fields empty.
- The MQTT client has been enhanced to support authentication with SSL client certificates.
- The MQTT client has been enhanced to use the system certificate trust store to authenticate SSL server certificates. Due to these changes, you will see some wording changes in the MQTT pages of *groov* Manage.

Bug Fixes

- KB89472 - Numeric tags published too frequently through MQTT

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CODESYS Runtime Engine 3.5.15.50

No enhancements or bug fixes.

Additional updates

Security updates were made to bring security up to the latest levels.

GRV-EPIC-PR1 FIRMWARE 3.1.0

January 20, 2021.

General New Features, Enhancements, and Bug Fixes

Bug Fixes

- KB89460 - GRV-EPIC-PR1 May Stop Functioning
- KB89482 - CODESYS Cannot Access GRV-CCANI-2 Modules

PAC Control Engine 10.4b

Bug Fixes

- KB89381 – Control Engine May Reset When Inspecting Variables and Stepping Through Subroutines
- KB89408 – Serial Communication Handle Parameter String With Spaces Prevents Communication

groov Manage 3.0.0

No enhancements or bug fixes.

groov View 4.3a

New Features

Computed Tags. You can now create tags that are the result of calculations performed on other tags. Writing calculations in JavaScript, you can convert the value of a tag (for example, convert a Celsius value to Fahrenheit) or combine multiple tags into one value (for example, sum the current levels of all tanks into one value).

Select a Bit from an Integer as the Tag Value. Also known as bit picking, you can now select a bit from an integer to be the value of a tag.

Disable Communication to a Device. You can now disable communication to a device in your *groov* View project. This can be helpful with devices that incur costs: you can disable communication during times you don't need to communicate with those devices. It can also be helpful when a device has not been installed yet or is not available.

Trends Display Average/Min/Max. Interactive trends now display average, minimum, and maximum values for each data point when the zoom level is set to a period larger than the sampling rate. When you set the zoom level to a period equal to the sampling rate, the trend displays the actual value for each data point.

Enhancements

Use Integers to Control Visibility of Gadgets. You can now use integer variables to control the visibility of gadgets.

For more information about these new features and enhancements and how to use them, see the *groov* View User's Guide (form 2027).

Bug Fixes

- KB83954 - If OPC-UA Server Unavailable, Updating Static Tags and Switching to *groov* View May Cause Freeze
- KB88370 - *groov* View fails to load or does not allow user to log in
- KB88691 - Restored *groov* View project is Not Logging Events
- KB89200 - Only 32 Colors Available on LED Gadgets With Non-Boolean Tag Types
- KB89267 - Can't Switch to Build Mode When Using More Than One Percent (%) Symbol in Formatting String
- KB89328 - Video Gadget May Not Load Images in Google Chrome Version 86 or Higher
- KB89350 - At Symbol (@) in Video Gadget URL May Prevent Images From Loading

MQTT 1.5.3

No enhancements or bug fixes.

CODESYS Runtime Engine 3.5.15.10

No enhancements or bug fixes.

Additional updates

None.

GRV-EPIC-PR1 FIRMWARE 3.0.1

December 3, 2020.

General New Features, Enhancements, and Bug Fixes

Bug Fixes

- KB89201 – Loss of Communication on ETH0
- KB89377 - Last Remaining Sys Admin Can't Change Password
- KB89394 - LDAP Doesn't Authenticate; Control Engine Performance Slows
- KB89407 - PID Output Remains Invalid (QNAN)
- KB89427 - Scaling Values for Analog Channels Revert to Default Values

PAC Control Engine 10.4a

No enhancements or bug fixes.

groov Manage 3.0.0

No enhancements or bug fixes.

groov View 4.2d

No enhancements or bug fixes.

MQTT 1.5.3

No enhancements or bug fixes.

CODESYS Runtime Engine 3.5.15.10

No enhancements or bug fixes.

Additional updates

None.

GRV-EPIC-PR1 FIRMWARE 3.0.0

November 2, 2020. Updated: February 19, 2021.

General New Features, Enhancements, and Bug Fixes

New Features

- LDAP support has been added, which means your IT department can now manage user accounts and permissions from one central location. In *groov* Manage, you configure its LDAP client with information about how to connect to the LDAP server, how to request authentication of a user, and how to map group membership to permissions on a GRV-EPIC-PR1.
- You can now create PID loops directly through *groov* Manage. You can:
  - Select from a variety of algorithms.
  - Specify from what source (channel on a module, MMP address, control program) the loop obtains input, setpoint, and output values.
  - Change PID parameters and view the results of those changes.
  - View trends/charts for each loop.
- You can now access the Scratch Pad area of GRV-EPIC-PR1 OptoMMP memory map through *groov* Manage. The Scratch Pad area can hold data that you can transfer from one GRV-EPIC-PR1 or PAC controller to another on the same network.
- For web developers, support for Cross Origin Resource Sharing (CORS) has been added to the PAC Controller REST API on GRV-EPIC-PR1. Now, browser applications running on a domain outside of the GRV-EPIC-PR1's domain can read and write tags through PAC Control REST API calls. Simply add the allowed origin (the "outside" domain) in *groov* Manage.

Enhancements

- Several enhancements have been made to Node-RED:
  - Node-RED has been upgraded to 1.1.3, which provides many enhancements. You can find a list of enhancements at nodered.org.

- The Node-RED page has been improved with functions to disable or restart the Node-RED Editor, as well as display its status.
  - User-installed Node-RED nodes are now included when you back up or restore either from the Node-RED page in *groov* Manage or your entire GRV-EPIC-PR1.
- MQTT has been enhanced to support features available on MQTT brokers. For example:
  - Support for more printable characters and spaces.
  - Removing URL length limits.
- The Log page has been updated to include access to MQTT logs.
- An unmount USB API call has been added to the *groov* Manage REST API.
- Ignition/Ignition Edge version 7 has been upgraded to version 7.9.16.
- You can now install Ignition/Ignition Edge 8. For instructions, see Installing a GRV-EPIC-PR1 Firmware Update.
- You can now locate a GRV-EPIC-PR1 on a network with *groov* Find, a utility to locate *groov* RIO modules, *groov* EPIC processors, and *groov* Boxes on your network. The Windows version is available on the Opto 22 website (search for "groov Find" or get it directly from here). You can find the Mac version through the Mac App Store.
- Ignition And Ignition Edge have been upgraded as follows:
  - 7.9.16 - The firmware with "ignition7" in the file name includes this version of Ignition and Ignition Edge.
  - 8.0.16 - The firmware with "ignition8" in the file name includes this version of Ignition and Ignition Edge.
- Cirrus Link Modules (MQTT Transmission Module & the Opto 22 *groov* EPIC and SNAP PAC Driver Module) have been upgraded as follows:
  - 3.4.10 - The firmware with "ignition7" in the file name includes this version of Cirrus Link Modules.
  - 4.0.5 - The firmware with "ignition8" in the file name includes this version of Cirrus Link Modules.

Bug Fixes

- KB88826 - Output of TPO with Percentage (Duty Cycle) Above 100% is Not Constantly On
- KB89037 - Firmware Upgrade: Upload Appears to Fail; User Logged Out
- KB89111 - Default Scaling for Analog Channels Not Set Correctly
- KB89181 - Node-RED Behaves Oddly After User Logs Out
- KB89183 - PAC REST API May Time Out When Reading a Range of String Table Entries
- KB89246 - *groov* Analog Totalization Works Incorrectly When Input Goes From Invalid to Valid

PAC Control Engine 10.4a

- KB89147 - Subroutine Variable with Same Name and Type as Global Variable May Cause Control Engine Reset
- KB89198 - PAC Controller May Become Unresponsive During Downloads
- KB89217 - PAC Control Set I/O Unit Configured Flag Command Ignored for Certain I/O Unit Types
- KB89149 - Persistent Float Variables are Reset When Using Background Downloading

groov Manage 3.0.0

- KB89168 - Signing out of *groov* Manage in One Tab Does Not Sign Out of All Tabs
- KB88896 – Incorrect Behavior on Touchscreen When Touch-Sensitive Pad on Module is Touched
- KB89126 - Generic MMP Page Does not Flag Invalid Hexadecimal Value and Displays Empty Error Messages

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- KB89155 - Files Downloaded from USB are Prepended with Path
- KB89167 - Invalid MMP Addresses on Generic MMP Page May Cause I/O Server Disconnect

groov View 4.2d

Bug Fixes

KB89287 - Can't Display Swagger UI in *groov* View's Build Mode

MQTT 1.5.3

- KB88935 - MQTT Topic Identifiers with Spaces are Truncated at First Space Character
- KB89007 - MQTT Broker Client ID with Non-Alphanumeric Characters or Spaces Not Allowed
- KB89068 - MQTT Client Publishes Topics Erratically
- KB89070 - Whitespace Surrounding Strings is Trimmed During Writes
- KB89227 - No Historic Queuing When Primary Application ID is Not Set

CODESYS Runtime Engine 3.5.15.10

No enhancements or bug fixes.

Additional updates

Updates were made to enhance security.

GRV-EPIC-PR1 FIRMWARE 2.0.2

July 13, 2020.

General New Features, Enhancements, and Bug Fixes

Enhancements

This release includes updates to the following components:
- Ignition and Ignition Edge were updated to 7.9.14.
- Cirrus Link Modules were updated to 3.4.10.

groov EPIC 2.0.2

Bug Fixes

- KB88417 - EPIC Returns Error 500 Instead of 401 for Bad API Keys
- KB88608 - Get and Restart Measurement Commands Don't Restart Measurement Correctly
- KB88804 - Large Arrays Written to Numeric Tables Incorrectly
- KB88912 - Milliseconds Since Powerup Value Incorrect
- KB89030 - Incorrect Lower Limit on Type "B" Thermocouples on GRV-ITMI-8 & GRV-ITM-12
- KB89048 - Node-RED Stops Responding or Behaves Irregularly
- KB89053 - *groov* Manage Doesn't Correctly Display PAC Control REST API Swagger Configuration File
- KB89064 - Require Password Change Option Doesn't Work

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- KB89066 - Quick Start Not Shown After Creating First User
- KB89079 - Unpredictable Behavior With CODESYS Controller
- KB89099 - Writes to Digital Packed Data Area of Memory Map Fail; Discrete Output Not Modified

PAC Control Engine 10.3b

Bug Fixes

- KB88789 - Move I/O Unit to Numeric Table [Ex] Commands May Not Retrieve All Analog Inputs/Outputs
- KB88880 - Incorrect Headers in Response to Authentication Request
- KB88831 - Open Outgoing Communication Command Does Not Create Directory; Returns -417 Error
- KB88995 - 9-bit Addressing Mode Does Not Work
- KB89035 - Configuration Changes Not Sent to RIO I/O
- KB89056 - Enable Communication to I/O Unit Command Does Not Enable EPIC I/O Unit
- KB89073 - If RIO Channels Changed from One Supported Combination to Another Supported Combination, Errors may be Reported
- KB89074 - Can't Communicate with PAC Controller Even Though *groov* Manage Shows Running
- KB89087 - Quadrature Counter Feature Not Set on GRV-IDCIFQ-12 Module
- KB89102 - I/O Point Mismatch Errors Generated by Some Discrete Channels on RIO

groov Manage 2.0.2

No enhancements or bug fixes.

groov View 4.2b

No enhancements or bug fixes.

Node-RED 1.0.3

No enhancements or bug fixes.

Ignition and Ignition Edge 7.9.14

No enhancements or bug fixes.

Cirrus Link Modules 3.4.10

This section lists enhancements and bug fixes for the MQTT Transmission Module & the Opto 22 *groov* EPIC and SNAP PAC Driver Module.

No enhancements or bug fixes.

MQTT 1.5.1

No enhancements or bug fixes.

CODESYS Runtime Engine 3.5.15.10

No enhancements or bug fixes.

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Additional updates

Updates were made to enhance security.

GRV-EPIC-PR1 FIRMWARE 2.0.1

May 18, 2020.

General New Features, Enhancements, and Bug Fixes

Bug Fixes

- KB88824 - Modified user signed out of GRV-EPIC-PR1
- KB88978 - SSH: Some Vimrc settings changed or missing
- KB89013 - Can save account with no password then login
- KB89014 - Can't run PAC Control Node-RED nodes or REST API; -401 error

PAC Control Engine R10.3b

Bug Fixes

- KB88970 - Move Numeric Table To I/O Unit Ex may move wrong number of points
- KB89009 - Can't enable I/O unit that has missing or incorrect *groov* module
- KB89010 - Can't receive characters from GRV-CSERI-4 module; -39 error

groov Manage 2.0.1

No enhancements or bug fixes.

groov View R4.2b

No enhancements or bug fixes.

Node-RED 1.0.3

No enhancements or bug fixes.

Ignition and Ignition Edge 7.9.13

No enhancements or bug fixes.

Cirrus Link Modules 3.4.9

This section lists enhancements and bug fixes for the MQTT Transmission Module & the Opto 22 *groov* EPIC and SNAP PAC Driver Module.

No enhancements or bug fixes.

MQTT 1.5.1

No enhancements or bug fixes.

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USA

CODESYS Runtime Engine 3.5.15.10

No enhancements or bug fixes.

Additional updates

Updates were made to enhance security.

GRV-EPIC-PR1 FIRMWARE 2.0.0

May 4, 2020. Updated: July 13, 2020.

General New Features, Enhancements, and Bug Fixes

New Features

You can now use the new *groov* RIO (part number GRV-R7-MM1001-10) as remote I/O with your GRV-EPIC-PR1. Learn more about *groov* RIO.

Important Change for Sparkplug Payloads

Some tags have been renamed or deprecated (with information now provided by properties of other tags). Carefully review KB88898 to determine if these changes affect your payload.

Bug Fixes

- KB88763 - Can't open *groov* View, *groov* Manage, or *groov* Admin from Chrome browser on macOS or iOS
- KB88780 - Writing NaN (Not A Number float value) to analog output is not ignored
- KB88818 - LED on *groov* I/O module stays red; other modules may also show red LED
- KB88856 - No network access through OpenVPN Tunnel 0 interface
- KB88857 - OpenVPN client may crash when disconnected from server
- KB88859 - OpenVPN Tunnel 0 may show connected even if all network cables and WiFi adapters are unplugged
- KB88865 - *groov* EPIC module LED may be red and module may not show up in *groov* Manage
- KB88874 - On an external monitor, top half of screen appears on bottom half of monitor
- KB88879 - PAC Control Seed Random Number creates the same seed value
- KB88880 - Incorrect Headers in Response to Authentication Request
- KB88892 - GRV-EPIC-PR1 may lock up while running certain Node-RED nodes

PAC Control Engine R10.3a

Bug Fixes

- KB88242 - Open Outgoing Communication returns -10 error
- KB88597 – Move Numeric Table to I/O Unit (and Ex) commands do not work with pointer tables
- KB88602 - Move I/O Unit to Numeric Table (and [Ex]) commands do not work with pointer tables
- KB88835 - Flag Lock/Unlock may cause controller to reset
- KB88872 - "Send Email with Attachments" command may not send attachment
- KB88929 - Control engine resets when Node-RED/PAC REST API read recipe
- KB88937 – Move from Pointer Table Element with GRV-EPIC-PR1 I/O unit results in -69
- KB88945 - ReadNumFromIoUnitMemMap command with GRV-EPIC-PR1 I/O units results in -56 error

groov Manage 2.0.0

Bug Fixes

- KB88771 - For built-in firewall rules, tun0 can't be set to "deny"
- KB88781 - Incorrect file operations are displayed on internal and external monitors
- KB88799 - Add/Edit User Page incorrectly shows "PAC Control REST API" permission as NONE
- KB88864 - *groov* Manage Ignition page info on PR1 touch screen or HDMI monitor is missing or incorrect
- KB88907 – Restore fails if Node-RED is disabled before power cycle
- KB88916 – System Time Set Incorrectly
- KB88947 - GRV-EPIC-PR1 locks up after several reboots

groov View 4.2b

Enhancements

This release adds support for GRV-R7-MM1001-10, the first in the *groov* RIO family of remote I/O units.

Bug Fixes

KB88803 - Update Auto Tags removes valid tag on I/O unit

Node-RED 1.0.3

No enhancements or bug fixes.

Ignition and Ignition Edge 7.9.13

No enhancements or bug fixes.

Cirrus Link Modules 3.4.9

This section lists enhancements and bug fixes for the MQTT Transmission Module & the Opto 22 *groov* EPIC and SNAP PAC Driver Module.

No enhancements or bug fixes.

MQTT 1.5.1

Important Change

For Sparkplug payloads, some tags have been renamed or deprecated (with information now provided by properties for other tags). Carefully review KB88898 to determine if these changes affect your payload.

Bug Fixes

- KB88756 - GRV-EPIC-PR1 may use additional network bandwidth
- KB88852 - MQTT service not reconnecting

CODESYS Runtime Engine 3.5.15.10

No enhancements or bug fixes.

Additional updates

Updates were made to maintain security at the most recent levels.

GRV-EPIC-PR1 FIRMWARE 1.5.0

December 16, 2019. Updated: March 26, 2019.

General New Features, Enhancements, and Bug Fixes

New Features

- For supported external monitors, *groov* Manage now supports changing the video mode (resolution) and, for supported touchscreen monitors, calibration of the touchscreen.
- When you set up a device in MQTT, you can specify OptoMMP as a device.
- *groov* Manage now supports plugging in a USB storage device to the USB ports on the GRV-EPIC-PR1 so that you can:
  - Access files from your control programs.
  - Upload files into the secured or unsecured areas of the internal drive.
  - Manage whether secure apps like *groov* Manage, Node-RED, and the REST APIs can access files on the USB storage device.
- This release adds support for the GRV-CCANI-2 module, a serial communication module with two isolated channels that allow *groov* EPIC to communicate through a Controller Area Network (CAN).

Enhancements

This release includes updates to the following components:
- Node-RED was updated to 1.0.2.
- *groov* View was updated to R4.2a.

For a more detailed overview of the new features and enhancements, see OptoBlog post *groov* EPIC 1.5.0 is ready, and here's why you'll want to update.

Bug Fixes

- KB87577 – GRV-EPIC-PR1 can't use TCP port 502 for the Modbus toolkit slave subroutine
- KB88377 – Certain PID loop options on *groov* EPIC I/O Units may not work
- KB88407 – When input is out of range, PID output may not go to configured value
- KB88655 – Some MQTT String Payload Values Don't Publish
- KB88662 – Sparkplug: Some tags not showing fresh/valid values
- KB88673 – Can't open *groov* View, *groov* Manage, or *groov* Admin from Chrome browser on macOS or iOS

PAC Control Engine R10.1a

Bug Fixes

- KB88588 – Inaccurate readings from frequency measurements in *groov* I/O input modules
- KB88700 – PAC Control Engine becomes disabled when VPN is enabled

groov Manage 1.5.0

Bug Fixes

- KB87641 – *groov* Manage shows quality error when Quality Indicator is turned off
- KB88411 – Resetting GRV-EPIC-PR1 at start or end of RSS session may create unexpected behavior
- KB88703 – Wiring diagrams for GRV-IACI(S)-12 and GRV-IACIHV(S)-12 modules are incorrect

groov View R4.2a

New Features

- A new Events device is available in the device/tag browser. When you configure an Event, it is added to this device. Then you can use events as input to gadgets.
- You can now make gadgets invisible, based on the value of a boolean tag. The gadget will appear on the page only if the boolean tag value is true.
- Shape gadgets are now available.
- From the browser, you can now print a *groov* View page and all the gadgets on the page will appear at a consistent scale on the paper; the browser's window size will not make them larger or smaller.
- A new gadget, called Auto Navigator, can jump to a specific page in the *groov* View project when its tag value satisfies a specific condition.
- Both Value and Text Area gadgets now support conditional formatting for their data fields. You can configure these gadgets to change the font when the value of the tag meets certain conditions.

You can learn more about all of the new features in the *groov* View User's Guide (form 2027).

Enhancements

- You can now specify the Table Index for array tags directly from Properties window.
- The log viewer has been improved to load faster and be easier to read.
- The *groov* View REST API has been updated to include a way to download the *groov* View logs in either text or JSON formats.
- Enhancements have been made to improve security.

Bug Fixes

- KB86468 - Changes to name or data type of tag not reflected in gadget
- KB87361 - Text doesn't appear for integer or string Value gadget with format field configured with extra text
- KB87382 - Can't add a recently created user to a group
- KB87557 - Changed properties of configured Modbus tag do not take effect
- KB88166 - Changing the name of a data store tag does not get reflected in View mode
- KB88208 - All strings written to manually configured tags on I/O unit devices are encoded in ASCII
- KB88380 - Manually configured MMP tags treated as boolean tags during gadget selection
- KB88479 - Build mode in *groov* View incorrectly reports "No Page" error
- KB88580 - Momentary button doesn't write Release Value to tag
- KB88581 - *groov* View: Mouse clicks might be ignored after page refresh
- KB88635 - Incorrect tag data from multiple Modbus devices
- KB88663 - Gadgets show "can't connect to controller" message
- KB88664 - Strings in *groov* View may contain extra text at the end
- KB88665 - Length field in I/O Unit Tag editor always displays 0x10
- KB88679 - Connection or communication errors with Data Simulator and Local I/O

Node-RED 1.0.2

No enhancements or bug fixes.

Ignition Edge 7.9.12

No enhancements or bug fixes.

CODESYS Runtime Engine 3.5.13.20

Bug Fixes

KB88649 – CODESYS: "Opening Ethernet Adapter Failed" Error with CODESYS PROFINET Controller SL

Additional updates

Updates were made to maintain security at the most recent levels.

GRV-EPIC-PR1 FIRMWARE 1.4.4

November 19, 2019.

General New Features, Enhancements, and Bug Fixes

This release was for bug fixes; see below.

PAC Control Engine R10.0L

Bug Fixes

KB88647 – PID loops configured for Auto mode may start in Manual mode (or vice versa)

groov Manage 1.4.4

Bug Fixes

KB88630 – Wiring diagram for GRV-IDCSW-12 is incorrect

groov View R4.1e

No enhancements or bug fixes.

Node-RED 0.20.5

No enhancements or bug fixes.

Ignition Edge 7.9.12

No enhancements or bug fixes.

CODESYS Runtime Engine 3.5.13.20

Bug Fixes

KB88611 – CODESYS: Project won't compile

GRV-EPIC-PR1 FIRMWARE 1.4.3

October 14, 2019. Updated: November 19, 2019.

Known Issue

KB88647 - If a PAC Control strategy has PID loops configured with Mode set to Auto, when you run the strategy, the PID may start in Manual mode (or vice versa). Modify the PAC Control strategy and add the Set PID Mode command in the Powerup chart to set the desired PID mode. This issue affects all versions of GRV-EPIC-PR1 firmware prior to 1.4.3.

General New Features, Enhancements, and Bug Fixes

Bug Fixes

- KB88473 – On-Pulse, Off-Pulse, and Period Measurement Complete Status don't return correct value
- KB88545 - Tags are not refreshed correctly after a restart
- KB88572 - PID, Analog Ramping, Streaming or CODESYS I/O data stalls when system time is changed

PAC Control Engine R10.0k

Bug Fixes

- KB88528 – *groov* I/O: TPO may not update percent on-time (duty) correctly
  This affects the modules GRV-OAC-12, GRV-OACI-12, GRV-ODCI-12, and GRV-ODCSRC-24. To completely fix this bug, you need to apply *groov* I/O module firmware updates to those modules; see the *groov* I/O Modules Firmware readme and look for KB88434.
- KB88530 – SNAP I/O Watchdog not working

groov Manage 1.4.3

No enhancements or bug fixes.

groov View R4.1e

Bug Fixes

- KB88505 - Command Button gadget sends '1'; incorrectly interpreted as false
- KB88576 - LED gadgets don't display fill color in iOS/iPadOS 13

Node-RED 0.20.5

No enhancements or bug fixes.

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Ignition Edge 7.9.12

No enhancements or bug fixes.

CODESYS Runtime Engine 3.5.13.20

No enhancements or bug fixes.

GRV-EPIC-PR1 FIRMWARE 1.4.2

September 24, 2019. Updated: December 9, 2019.

General New Features, Enhancements, and Bug Fixes

Enhancements

- This release adds support for the following modules:
  - GRV-IVI-12
  - GRV-IRTD-8
  - GRV-IDCSW-12
  - GRV-ITM-12
- The Sparkplug section of the *groov* Manage user interface has been changed to more accurately reflect the relationship between the two types of payloads that GRV-EPIC-PR1 can publish: string and Sparkplug.
- The Ignition Edge software has been upgraded to version 7.9.12.
- The MariaDB Package in *groov* EPIC processor's repository has been upgraded from 5.5 to 10.3.13, bringing it up to a currently supported level.

Bug Fixes

- KB88391 - I/O unit's Inspect window incorrectly reports channel quality as good for missing module
- KB88392 - *groov* EPIC PID output doesn't go to low limit when input is out of range
- KB88449 - Modbus/TCP does not report a cleared latch as cleared

PAC Control Engine R10.0j

Bug Fixes

- KB88261 – Get Date & Time command doesn't get milliseconds of GRV-EPIC-PR1
- KB88440 - Move Numeric Table to I/O Unit [Ex] on *groov* I/O causes stack error
- KB88441 - Communication to *groov* I/O unit disabled with -56 error
- KB88453 - Move Numeric Table To I/O Unit [Ex] returns invalid address error
- KB88461 - Set I/O Unit from MOMO Masks returns invalid address error for *groov* I/O
- KB88464 - Move Numeric Table To I/O Unit [Ex] has no effect if 32 channels per module are specified
- KB88498 - Including "~" in communication handle results in -417 error

groov Manage 1.4.2

- KB88506 - Unable to save *groov* Manage > Sparkplug changes
- KB88518 - MQTT topics not being published

groov View R4.1d

No enhancements or bug fixes.

Node-RED 0.20.5

No enhancements or bug fixes.

Ignition Edge 7.9.12

Bug Fixes
- KB88503 - "publishall" topic doesn't publish all tags
- KB88514 - "status" and "publishall" requests may function erratically

CODESYS Runtime Engine 3.5.13.20

No enhancements or bug fixes.

GRV-EPIC-PR1 FIRMWARE 1.4.1

August 28, 2019.

General New Features, Enhancements, and Bug Fixes

Bug Fixes
- KB88495 - Loss of controller host port communication
- KB88499 - Table read returns wrong number of elements or error

PAC Control Engine R10.0i

No enhancements or bug fixes.

groov Manage 1.4.1

Enhancement

You can now configure the GRV-EPIC-PR1 for MQTT with Sparkplug specification or MQTT without Sparkplug specification (plain MQTT).

groov View R4.1d

No enhancements or bug fixes.

Node-RED 0.20.5

No enhancements or bug fixes.

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Ignition Edge 7.9.11

No enhancements or bug fixes.

CODESYS Runtime Engine 3.5.13.20

No enhancements or bug fixes.

GRV-EPIC-PR1 FIRMWARE 1.4.0

August 16, 2019. Updated: August 20, 2019.

General New Features, Enhancements, and Bug Fixes

New Features

- You can now configure the character encoding used by the PAC Control REST API to read or write PAC Control variables in strategies running on the GRV-EPIC-PR1.
- Networking features have been added:
  - Diagnostic tools to test Internet connectivity have been added to *groov* Manage: ping, test tcp port, traceroute, and nslookup.
  - Additional configuration options have been added for more complex networking requirements, such as:
    - Setting an order of priority for backup gateways and an order of priority for DNS provisioning according to each network interface.
    - Policy routing is enabled automatically for improved connectivity.
    - Gateway address, name servers, and search domains provisioned by a DHCP server can be manually overridden.
  - You can now connect the GRV-EPIC-PR1 to a virtual private network (VPN) with OpenVPN technology. You configure the GRV-EPIC-PR1 as a client to connect to an OpenVPN server.
- For your convenience, you can now access the console log files for the PAC Controller and CODESYS Controller from their respective controller pages.
- Added CODESYS support for the GRV-CSERI-4 module.
- For Ignition users, you can now select between Ignition and Ignition Edge platforms. The Opto 22 Ignition Edge license (GROOV-LIC-EDGE) works only with the Ignition Edge platform. Contact sales@opto22.com for details.

Enhancements

- After you apply this update, the system update feature will include the following:
  - Offer the ability to preserve all *groov* Manage settings, not just the Network settings.
  - During a system firwmare update, if the auto-restore of settings does not complete successfully, the processor displays better error messages and an option to restart the processor.
- Improvements have been made to provide greater flexibility in configuring the *groov* EPIC processor for more complex networking environments.
- Node-RED has been upgraded to version 0.20.5.

Bug fixes

- KB87876 - Background download setting returns to disabled after power cycle

- KB88068 - *groov* analog input modules may go offline (red LED) when updating firmware on another analog input module on the same chassis
- KB88273 - *groov* analog input values may read low after restarting GRV-EPIC-PR1
- KB88274 - Can't clear or read DO totalization on/off counter through HDD Read and Clear Area (0xF180B000)

PAC Control Engine R10.0i

Bug fixes

- KB88229 - PID mode in IVAL tab may be incorrect for *groov* I/O units
- KB88259 - Condition blocks with the "greater than or equal" condition always evaluate as true
- KB88265 - Controller returns Status Code of -443 or -20 for HTTP Status Code of 204
- KB88280 - Not Equal? condition always evaluates to true
- KB88375 - Control Engine not responding when Ethernet cable disconnected, then reconnected
- KB88377 - Can't set output or switch to manual mode when PID input out of range
- KB88409 - Changes to comm handle values not set correctly on *groov* EPIC Serial Module
- KB88418 - Cannot enable communication to *groov* I/O unit
- KB88432 – *groov* EPIC Host Port performance

groov Manage 1.4.0

Bug fixes

- KB87569 - Gateway IP address from one interface overrides gateway IP address of another interface
- KB87979 - *groov* Manage incorrectly reports Node-RED fails to restart
- KB87991 - GRV-EPIC-PR1 cannot communicate to remote I/O or remote hosts
- KB87999 - Can't set firewall rule on ports 22006 and 22007 for TCP or port 8502 for UDP
- KB88014 - Downgrading firmware may cause firewall rules to revert to defaults
- KB88016 - Downgrading firmware may cause auto-restores to fail
- KB88030 - Automatic restore of network and firewall settings may fail after system update
- KB88034 - Restore from backup fails if NTP configured with no time servers
- KB88069 – System Update: Upload progress bar stops; banner turns red
- KB88155 - Network and Firewall settings may not be restored after update
- KB88185 - UTF-8 string may get truncated when written with *groov* Manage REST API
- KB88186 - Characters missing or incorrect when writing UTF-8 string on the Generic MMP page in *groov* Manage
- KB88247 - Reset I/O to Defaults does not clear TPO or set digital output channels to OFF
- KB88346 - *groov* Manage may crash while watching log files
- KB88445 - *groov* Manage PAC Controller page may not show strategy information

groov View R4.1d

Bug Fixes

- KB87607 - Help > groov Public API may result in "Can't read swagger" message
- KB88026 - Open *groov* View in New Tab menu item opens *groov* Manage
- KB88135 - Changing controller's string encoding doesn't take effect immediately
- KB88157 - In Build mode, modules don't appear in correct slot if GRV-CSERI-4 module is on the chassis

- KB88177 - Reading LBCD tag on Modbus device causes "Unknown error" and disconnection from device
- KB88253 - Values for BCD tags display as raw decimal
- KB88276 - Gadget data takes a long time to show on screen
- KB88308 - Momentary buttons may continue writing after release
- KB88312 - Tag browser reports an error on some large folders

Node-RED 0.20.5

Node-RED has been upgraded to 0.20.5.

Ignition Edge 7.9.11

Bug Fixes

KB88363 - All OPC UA and Allen-Bradley devices disconnect and become unresponsive

CODESYS Runtime Engine 3.5.13.20

No enhancements or bug fixes.

GRV-EPIC-PR1 FIRMWARE 1.3.2

May 15, 2019. Updated: May 21, 2019

General New Features, Enhancements, and Bug Fixes

Enhancements

Support for the GRV-ITR-12 module has been added.

Bug fixes

- KB88231 - Firewall rules disappear/page is empty
- KB88232 - Inverted scaling of *groov* analog input not working correctly
- KB88241 - *groov* Manage Module page does not show quality error for *groov* analog outputs

PAC Control Engine R10.0h

Bug fixes

- KB88174 - Float values that are NaN incorrectly evaluated as true
- KB88211 - Open Outgoing Communication returns -87 error
- KB88227 – Get I/O Channel Quality instruction always returns Good
- KB88237 - PAC Control Engine on GRV-EPIC-PR1 occasionally fails to start
- KB88254 - Can't change PID loop parameters

groov Manage 1.3.2

Bug fixes

KB88224 - Access Denied error when logging in with *groov* EPIC Shell password that starts with @ symbol

groov View R4.1c

Bug Fixes

- KB88193 - *groov* View gadgets may not update when time set back
- KB88221 - Stack Full error and *groov* View flashes yellow triangle on gadgets

Node-RED 0.19.5

No enhancements or bug fixes.

Ignition Edge 7.9.10

No enhancements or bug fixes.

CODESYS Runtime Engine

Bug fixes

- KB88122 - CODESYS error during download: 1 unresolved reference
- KB88123 - BACNET Server doesn't appear in Add Device dialog in CODESYS. This fix also requires the following:
    - Opto 22 Library Package for CODESYS Development System 1.0.0.1, which is available on the Opto 22 website (www.opto22.com).
    - Version 1.2.1.0 of CODESYS BACnet SL, which is available at the CODESYS Store (under the "Previous Versions" tab). You cannot run with any version higher than 1.2.1.0.

GRV-EPIC-PR1 FIRMWARE 1.3.1

April 16, 2019. Updated: May 15, 2019.

General New Features, Enhancements, and Bug Fixes

Bug fixes

- KB87885 - Get Analog Totalizer Value Returns -1.#QNAN in PAC Control
- KB87930 - GRV-EPIC-PR1 Touchscreen Keyboard Is Missing Parenthesis Characters '(' & ')'
- KB87941 - Can't type a capital 'z' through GRV-EPIC-PR1 touchscreen
- KB87971 - Strategy Information Not Displayed on Control Engine Page
- KB88018 - *groov* Digital Output On-pulse or Off-pulse Performs Inconsistently
- KB88073 - Port Forwarding to TCP Port 443 on GRV-EPIC-PR1 Doesn't Work
- KB88083 - "Is I/O Unit Ready?" command always shows *groov* I/O as ready
- KB88087 - Message Queue Fills With Same 5 Messages Repeatedly
- KB88091 - Incorrect Values Returned When Reading Digital Input Feature Data from Packed Data Area of Memory Map
- KB88128 – Digital feature value readings may be inaccurate
- KB88144 - GRV-EPIC-PR1 may not be able to access itself by hostname

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PAC Control Engine R10.0g

This release of *groov* EPIC firmware includes firmware updates from the following, previously-released PAC firmware: 10.0f. A description of the fixes and enhancements delivered in that release of PAC firmware can be found in the SNAP PAC Controllers and Brains Firmware Readme.

The following PAC Control Engine fixes and enhancements are also part of this *groov* EPIC firmware release:

Bug fixes

- KB87872 - In PAC Control, configuring *groov* EPIC as an I/O unit with both IP addresses configured may cause strategy download to fail
- KB87882 - Downloading a strategy with 50 or more PIDs fails with a -62 (stack full) error
- KB87987 - IVAL may not update if PAC Control strategy was not run
- KB88036 - Changing the clock may result in interruption of established sessions
- KB88054 - For some EPIC channel features, configuration fails with "Point Mismatch" errors
- KB88071 - PAC Control Message Queue is filled with -8612 (Old Response to New Command) errors
- KB88088 - Error Reading Persistent Float Tables via REST API on GRV-EPIC-PR1
- KB88104 - Setting *groov* Digital TPO to Zero Percent Doesn't Stop Pulsing
- KB88176 - Control engine resets when downloading online changes
- KB88226 - Control engine keeps trying to access a *groov* I/O unit that is offline
- KB87970 – Can't connect to control engine on GRV-EPIC-PR1 after disabling and re-enabling control engine in *groov* Manage

groov Manage 1.3.1

Bug fixes

- KB88001 - *groov* Manage does not list CODESYS applications without symbol configuration
- KB88031 - Module Hardware Revision Date Code Off by One Month

groov View R4.1b

Bug Fixes

- KB88093 - Devices show degraded status, frequent yellow triangles
- KB88107 - Gadgets become unusable; can't navigate through pages
- KB88078 - Gadgets that worked in previous versions may not work in 4.1a and might block access to Build mode
- KB88079 - When Configuring User Configured Tag, Address May Become Corrupted
- KB88103 - Large Projects Time Out Before Loading in Build Mode
- KB88158 - Can't assign certain system tags to some gadget types

Node-RED

No enhancements or bug fixes.

Ignition Edge 7.9.10

No enhancements or bug fixes.

CODESYS Runtime Engine

No enhancements or bug fixes.

GRV-EPIC-PR1 FIRMWARE 1.3.0

February 13, 2019. Updated: May 15, 2019.

General New Features, Enhancements, and Bug Fixes

Enhancements

- The CODESYS Runtime Engine has been added. For information on how to use it, see the *groov* EPIC User's Guide, form 2267. In addition, a new section for the CODESYS Runtime Engine has been added to the readme.
- Licensing options have changed. You no longer need to purchase Plus or Enterprise licenses. The available licenses are:
    - GROOV-LIC-EDGE, for full access to Ignition Edge software.
    - GROOV-LIC-CRE, for full access to the CODESYS Runtime Engine.
    - GROOV-LIC-SHELL, for access through secure shell to the Linux operating system.
- Support for the following modules has been added:
    - GRV-IICTD-12
    - GRV-ITR-12
    - GRV-IMAI-8
    - GRV-IDCIFQ-12
    - GRV-OVMAILP-8

Known Issues

KB88068 - When you are updating module firmware for an individual analog input modules, all of the analog input modules on the chassis will go offline. We recommend you schedule your module firmware update to minimize the impact on your processes.

Bug Fixes

- KB87781 - External HDMI touchscreen monitor may not work properly after rebooting the GRV-EPIC-PR1
- KB87719 – Time difference between GRV-EPIC-PR1 and Control Engine

PAC Control Engine R10.0e

NOTE: This release was delivered only on GRV-EPIC-PR1 firmware.

Bug Fixes

- KB87957 - GRV-EPIC-PR1 I/O unit may go offline
- KB87887 - Cannot Enable Communication to EPIC I/O Unit in PAC Control Strategy
- KB87905 – Cannot Read Directory Listing via FTP Using PAC Control Strategy Logic on EPIC Processor

groov Manage 1.3.0

Enhancements

You can now start and stop a strategy that has been downloaded to your *groov* EPIC processor. From the *groov* Manage Home page, click or tap Controller > PAC Controller. In the Strategy box, you can start or stop a strategy and see how many charts are running.

Bug Fixes

- KB87793 – Attempting to upload 20 MB or larger files to GRV-EPIC-PR1 will fail without error
- KB87815 - Uploading an SSL certificate without the private key file fails without error
- KB87883 – Using *groov* Manage to Reset I/O to Defaults on GRV-EPIC-PR1 I/O Unit does not clear PID Loops
- KB87974 – *groov* module LED stay violet when module firmware update fails

groov View R4.1a

New Features

- Licensing changes. You no longer need to purchase Plus or Enterprise licenses. Everyone has access to all features. Be sure you have an active maintenance agreement, so you can update to R4.1a and get everything you may be missing.
- Device health data. Now you can see key information about the devices your *groov* View project connects to, such as:
  – What's the average response time for tag data? Over the last minute, 5 minutes, 15 minutes?
  – How often do we see errors on the device?
  – Is the device in use? Having connection issues?

    Check out the new column in the Configure Devices and Tags dialog box and the new Device Health dialog box, which shows the metrics being tracked. More details are in the *groov* View User's Guide, form 2027.
- Configurable scan rates and communication timeouts. Now you can configure scan rates and timeouts for Opto 22 I/O Units, Opto 22 Controllers, Modbus Devices, and OPC UA Server devices. You can also configure string encodings for most of these.
- Backups for trend data and event notifications. You can also choose to exclude user data from the backup, which may be helpful when sending projects to Opto 22 Product Support.

Enhancements

- Support for new *groov* EPIC I/O modules: GRV-IDCIFQ-12 (isolated quadrature input module), GRV-IICTD-12 (ICTD input module), and GRV-IMAI-8 (milliamp input module with channel-to-channel isolation)
- Per your requests, the "Refresh groov View" option is back in the *groov* View gear menu.

Bug Fixes

- KB86945 - *groov* View pages show a scroll bar when there's nothing to scroll to
- KB87416 - In *groov* View, moving an Edit Value dialog box from a text input gadget jumps the box to the middle of the page
- KB87531 - *groov* View yellow triangle error prevents access to trend features
- KB87623 - After restoring a project on a GRV-EPIC-PR1, *groov* View fails to load with HTTP error 503
- KB87631 - System device "System Uptime" tag is empty
- KB87668 - In *groov* View, clearing ON or OFF latches doesn't work for *groov* digital modules

- KB87670 - *groov* View doesn't respond to some Modbus device configuration options
- KB87728 - In *groov* View's Build mode, Accounts dialog box won't open; gives "network" error
- KB87729 - If multiple Control Engine devices are used on a single IP address, but on different ports, one device going offline causes errors in others
- KB87998 - *groov* View enters trial mode even though a valid license is installed

Node-RED 0.19.5

Enhancement

Node-RED has been upgraded to version 0.19.5.

Bug Fixes

KB87993 - Wires get duplicated when installing missing node types

Ignition Edge 7.9.10

Enhancement

Ignition Edge has been upgraded to version 7.9.10.

CODESYS Runtime Engine

Initial release.

GRV-EPIC-PR1 FIRMWARE 1.2.2

December 11, 2018. Updated February 4, 2019.

General New Features, Enhancements, and Bug Fixes

This releawse as primarily for bug fixes; see below.

PAC Control Engine

Bug Fixes

- KB87915 – Control engine stops working
- KB87920 - Store Strategy to Flash sometimes fails
- KB87935 – Uploading a file or system update may fail
- KB87640 - Store strategy to flash may store strategy to wrong location

GRV-EPIC-PR1 FIRMWARE 1.2.1

October 10, 2018

groov View R4.0d

No enhancements or bug fixes.

GRV-EPIC-PR1 FIRMWARE 1.2.0

October 8, 2018

General New Features, Enhancements, and Bug Fixes

Enhancements

- OptoSupport Remote Support Service
  You can now provide secure access for Opto 22 Support to remotely access your GRV-EPIC-PR1 to help diagnose and troubleshoot problems.
- Support for new *groov* serial module (GRV-CSERI-4)
  Opto 22 has just released the first serial module for the *groov* system and this firmware update adds support for this module.
- First App Loaded
  You can now indicate whether *groov* View or *groov* Manage should be the first app to run when you start GRV-EPIC-PR1.
- Save network configuration through a firmware update
  You can now choose to have your network configurations remain intact when you install a firmware update to your *groov* EPIC processor. This is an optional feature.
- Only items with data are saved in a backup file
  When you select an item to save in a backup file, but that item does not contain any customizations or only the defaults, it's not saved in your backup file.
- You can can now disable or enable navigation to a module page when you touch a module.
- *groov* Manage displays a module as flashing gray if the quality of the module is not known.
- If wireless connectivity is enabled, the *groov* EPIC processor now displays the strength of the wireless connection.

Bug Fixes

- KB87489 – GRV-EPIC-PR1 Display asks for new admin account when one already exists
- KB87590 - Files not accessible between *groov* Manage, Node-RED, and a PAC Control strategy
- KB87565 - Modules disappear or appear incorrectly after hotswapping another module
- KB87633 - Error when backing up: size limit reached
- KB87643 - Sending a file via FTP may cause PR1's controller to stop responding
- KB87647 - Errors in queue and I/O unit won't start
- KB87674 - The module LED remains blue even though module is offline
- KB87680 - NaN values from a PR1 are incorrectly displayed as 0.0
- KB87682 - All *groov* I/O module LEDs turn red and OptoMMP server is unresponsive
- KB87684 - Data in Stream-Read Only area of the memory map is in reverse order
- KB87693 - Channel in analog input module reports incorrect reading
- KB87718 - Simple modules disappear from Modules page after swapping a simple output module

PAC Control Engine

Bug Fixes

- KB87669 - Clamping a persistent variable or table element may disable the PR1 control engine
- KB87678 - Control engine slows down or I/O goes offline

groov Manage 1.2.0

Bug Fixes

- KB87613 - Can't perform a system update after interrupting the previous system update
- KB87566 - Error message appears after system reboot following restore from backup
- KB87580 - Firewall rules are incorrect if multiple browser tabs are open

groov View R4.0d

Bug Fixes

KB87542 - On-screen keyboard doesn't appear on touch screen monitor

Sparkplug

Bug Fixes

KB87676 - Control programs that use Sparkplug with MQTT stop working

Ignition Edge 7.9.9

Enhancements

Ignition Edge has been upgraded to version 7.9.9. This version removes the 500 tag limit; now supports an unlimited number of Ignition tags.

Bug Fixes

KB87659 - Attempts to enable Ignition Edge may fail

Additional updates

Updates were made to maintain security at the most recent levels.

GRV-EPIC-PR1 FIRMWARE 1.1.0-B47

August 2, 2018.

General New Features, Enhancements, and Bug Fixes

Enhancements

- WiFi support has been added.
- Access to *groov* I/O through *groov* Manage REST API has been added.
- The following pages in *groov* Manage have been changed to organize the information in a more helpful layout and to include controls for new or updated functions (for example, the addition of WiFi support):
  - Firewall (Home > System > Firewall)
  - Network (Home > System > Network)
  - Backup (Home > Maintenance > Backup)
  - Restore (Home > Maintenance > Restore)
  - Sparkplug Configuration (Home > Sparkplug > Configuration)

– Info and Help (only if viewed through computer or mobile device)

Bug Fixes

- KB87406 - Touching a *groov* module does not turn on the touchscreen
- KB87435 - *groov* I/O module loses custom configuration
- KB87499 - *groov* digital output modules with TPO settings do not accept changes
  This fix requires that you also install a module firmware update. See the *groov* I/O Module Firmware readme.
- KB87514 - *groov* EPIC PR1 host port may stop responding, causing PAC Control to freeze
- KB87518 - *groov* digital input module may return a zero
- KB87544 - GRV-EPIC-PR1 locks up at high temperature
- KB87606 – Opto 22 application logs use up excessive disk space

PAC Control Engine

Bug Fixes

KB87620 - PAC Control: PID "Set" instructions write corrupted data

groov Manage 1.1.0

Bug Fixes

- KB87390 - *groov* Manage does not show current strategy running on Control Engine
- KB87433 - *groov* Manage: text on Download Backup button disappears
- KB87453 - Slow firewall port validation with large port range
- KB87495 - In Generic MMP page, a String value causes an invalid value message
- KB87502 - Status shows no progress when you drop something other than a file into the upload area
- KB87503 - System Status Page shows error message when multiple browser tabs or windows try to access it
- KB87541 - *groov* Manage may not display MAC address on Network page
- KB87570 – Manual DNS entries are lost after a reboot

groov View R4.0c

Bug Fixes

KB87516 - Mobile devices will not re-subscribe to tags after sleeping for several minutes

Sparkplug

Bug Fixes

- KB87536 – Erratic responsiveness
- KB87546 - Sparkplug doesn't reconnect to MQTT broker
- KB87548 – Tags are valid but values don't change

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Node-RED 0.18.7

Enhancements

Node-RED has been upgraded to version 0.18.7.

Bug Fixes

KB87507 - Can't access USB-to-serial converter from Node-RED

Additional updates

Updates were made to maintain security at the most recent levels.

GRV-EPIC-PR1 FIRMWARE 1.0.1-B110

June 14, 2018

General New Features, Enhancements, and Bug Fixes

Bug Fixes

- KB85353 – Cannot communicate to GRV-EPIC-PR1 through Modbus/TCP
- KB87424 – No warning generated in error queue if strategy I/O configuration does not match physical I/O

86674, 87326, 87421, 87423, 87432

PAC Control engine R10.0a

Bug Fixes

- KB87494 – GRV-EPIC-PR1 host task locks up when examining errors on certain channel types
- KB87630 - PAC Control: PID "Set" instructions write corrupted data

groov Manage 1.0.1

Bug Fixes

- KB87450 – Changing PR1 Ethernet from DHCP to Manual does not take effect until user restarts the unit
- KB87442 – Accounts page shows "null" for first user's email

87434

groov View R4.0b

Bug Fixes

- KB87475 - Gadgets report error messages when scanning OPC-UA devices while running *groov* View with an expired license
- KB83992 - *groov* View cannot connect to a OPC-UA server after the network connection is lost and then recovered
- KB87477 - Value scaling not working on Round Gauge, Range Indicator gadgets
- KB87478 - *groov* View fails to run and returns a "503 Service Unavailable" message

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- KB87496 - *groov* View erroneously shows that it's entering trial mode when running with an expired maintenance

GRV-EPIC-PR1 FIRMWARE 1.0.0-B71

May 18, 2018

Initial Release. These are the version numbers for the firmware and software components in this initial release:

- PAC Control Engine R10.0a
- *groov* EPIC 1.0.0-b71
- *groov* Manage 1.0.0
- *groov* View R4.0a
- Node-RED 0.18.4
- Ignition Edge 7.9.5

RELEASE HISTORY OF *groov* EPIC FIRMWARE

This section provides a compact list of the versions of the components of delivered in each release of *groov* EPIC firmware.

Component Versions in *groov* EPIC Firmware 3.4

groov EPIC processor Firmware 3.4.4

- PAC Control Engine R10.5d
- *groov* Manage 3.4.3
- *groov* View R4.4c
- Node-RED 2.2.2 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.20/8.1.17
- Cirrus Link Modules 3.4.12/4.0.11
    - MQTT Transmission Module
    - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- Data Service 2.0.5
- CODESYS Runtime Engine 3.5.17.10

groov EPIC Processor Firmware 3.4.3

- PAC Control Engine R10.5d
- *groov* Manage 3.4.3
- *groov* View R4.4b
- Node-RED 2.2.2 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.20/8.1.17
- Cirrus Link Modules 3.4.12/4.0.11
    - MQTT Transmission Module
    - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- Data Service 2.0.4
- CODESYS Runtime Engine 3.5.17.10

groov EPIC Processor Firmware 3.4.2

- PAC Control Engine R10.5d
- *groov* Manage 3.4.3
- *groov* View R4.4b
- Node-RED 2.2.2 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.20/8.1.17
- Cirrus Link Modules 3.4.12/4.0.11
    – MQTT Transmission Module
    – Opto 22 *groov* EPIC and SNAP PAC Driver Module
- Data Service 2.0.4
- CODESYS Runtime Engine 3.5.17.10

groov EPIC Processor Firmware 3.4.1
- PAC Control Engine R10.5d
- *groov* Manage 3.4.2
- *groov* View R4.4a
- Node-RED 2.2.2 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.20/8.1.17
- Cirrus Link Modules 3.4.12/4.0.11
    – MQTT Transmission Module
    – Opto 22 *groov* EPIC and SNAP PAC Driver Module
- Data Service 2.0.2
- CODESYS Runtime Engine 3.5.17.10

groov EPIC Processor Firmware 3.4.0
- PAC Control Engine R10.5d
- *groov* Manage 3.4.0
- *groov* View R4.4A
- Node-RED 2.2.2 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.20/8.1.17
- Cirrus Link Modules 3.4.12/4.0.11
    – MQTT Transmission Module
    – Opto 22 *groov* EPIC and SNAP PAC Driver Module
- Data Service 2.0.0
- CODESYS Runtime Engine 3.5.17.10

Component Versions in *groov* EPIC Firmware 3.3

groov EPIC Processor Firmware 3.3.4
- PAC Control Engine R10.5c
- *groov* Manage 3.3.3
- *groov* View R4.3g
- Node-RED 2.0.6 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.18/8.1.17
- Cirrus Link Modules 3.4.12/4.0.11
    – MQTT Transmission Module
    – Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.6.2

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- CODESYS Runtime Engine 3.5.17.10

groov EPIC Processor Firmware 3.3.3

- *groov* EPIC 3.3.1
- PAC Control Engine R10.5c
- *groov* Manage 3.3.3
- *groov* View R4.3g
- Node-RED 2.0.6 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.18/8.1.10
- Cirrus Link Modules 3.4.12/4.0.8
  - MQTT Transmission Module
  - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.6.2
- CODESYS Runtime Engine 3.5.17.10

groov EPIC Processor Firmware 3.3.2

- *groov* EPIC 3.3.1
- PAC Control Engine R10.5b
- *groov* Manage 3.3.0
- *groov* View R4.3g
- Node-RED 2.0.6 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.18/8.1.10
- Cirrus Link Modules 3.4.12/4.0.8
  - MQTT Transmission Module
  - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.6.2
- CODESYS Runtime Engine 3.5.17.10

groov EPIC Processor Firmware 3.3.1

- *groov* EPIC 3.3.1
- PAC Control Engine R10.5a
- *groov* Manage 3.3.0
- *groov* View R4.3f
- Node-RED 2.0.6 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.18/8.1.10
- Cirrus Link Modules 3.4.12/4.0.8
  - MQTT Transmission Module
  - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.6.2
- CODESYS Runtime Engine 3.5.17.10

groov EPIC Processor Firmware 3.3.0

- *groov* EPIC 3.3.0
- PAC Control Engine R10.5a
- *groov* Manage 3.3.0
- *groov* View R4.3e
- Node-RED 2.0.6 running on Node.js 12.22.1
- Ignition and Ignition Edge 7.9.18/8.1.10

- Cirrus Link Modules 3.4.12/4.0.8
  - MQTT Transmission Module
  - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.6.2
- CODESYS Runtime Engine 3.5.17.10

Component Versions in *groov* EPIC Firmware 3.2

groov EPIC Processor Firmware 3.2.2

- *groov* EPIC 3.2.2
- PAC Control Engine R10.4f
- *groov* Manage 3.2.0
- *groov* View R4.3d
- Node-RED 1.2.9
- Ignition and Ignition Edge 7.9.17/8.1.7
- Cirrus Link Modules 3.4.11/4.0.8
  - MQTT Transmission Module
  - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.6.0
- CODESYS Runtime Engine 3.5.15.50

groov EPIC Processor Firmware 3.2.1

- *groov* EPIC 3.2.1
- PAC Control Engine R10.4e
- *groov* Manage 3.2.0
- *groov* View R4.3c
- Node-RED 1.2.9
- Ignition and Ignition Edge 7.9.17/8.1.5
- Cirrus Link Modules 3.4.11/4.0.7
  - MQTT Transmission Module
  - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.6.0
- CODESYS Runtime Engine 3.5.15.50

groov EPIC Processor Firmware 3.2.0

- *groov* EPIC 3.2.0
- PAC Control Engine R10.4d
- *groov* Manage 3.2.0
- *groov* View R4.3b
- Node-RED 1.2.9
- Ignition and Ignition Edge 7.9.17/8.1.1
- Cirrus Link Modules 3.4.11/4.0.6
  - MQTT Transmission Module
  - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.6.0
- CODESYS Runtime Engine 3.5.15.50

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Component Versions in GRV-EPIC-PR1 Firmware 3.1

GRV-EPIC-PR1 Firmware 3.1.0

- *groov* EPIC 3.1.0
- PAC Control Engine R10.4b
- *groov* Manage 3.0.0
- *groov* View R4.3a
- Node-RED 1.1.3
- Ignition and Ignition Edge 7.9.16/8.0.16
- Cirrus Link Modules 3.4.10/4.0.5
    - MQTT Transmission Module
    - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.5.3
- CODESYS Runtime Engine 3.5.15.10

GRV-EPIC-PR1 Firmware 3.0.1

- *groov* EPIC 3.0.1
- PAC Control Engine R10.4a
- *groov* Manage 3.0.0
- *groov* View R4.2d
- Node-RED 1.1.3
- Ignition and Ignition Edge 7.9.16/8.0.16
- Cirrus Link Modules 3.4.10/4.0.5
    - MQTT Transmission Module
    - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.5.3
- CODESYS Runtime Engine 3.5.15.10

GRV-EPIC-PR1 Firmware 3.0.0

- *groov* EPIC 3.0.0
- PAC Control Engine R10.4a
- *groov* Manage 3.0.0
- *groov* View R4.2d
- Node-RED 1.1.3
- Ignition and Ignition Edge 7.9.16/8.0.16
- Cirrus Link Modules 3.4.10/4.0.5
    - MQTT Transmission Module
    - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.5.3
- CODESYS Runtime Engine 3.5.15.10

Component Versions in GRV-EPIC-PR1 Firmware 2.0

GRV-EPIC-PR1 Firmware 2.0.2

- *groov* EPIC 2.0.2
- PAC Control Engine B10.3b
- *groov* Manage 2.0.2

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- *groov* View R4.2b
- Node-RED 1.0.3
- Ignition and Ignition Edge 7.9.14
- Cirrus Link Modules 3.4.10
    - MQTT Transmission Module
    - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.5.1
- CODESYS Runtime Engine 3.5.15.10

GRV-EPIC-PR1 Firmware 2.0.1

- *groov* EPIC 2.0.1
- PAC Control Engine R10.3b
- *groov* Manage 2.0.1
- *groov* View R4.2b
- Node-RED 1.0.3
- Ignition and Ignition Edge 7.9.13
- Cirrus Link Modules 3.4.9
    - MQTT Transmission Module
    - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.5.1
- CODESYS Runtime Engine 3.5.15.10

GRV-EPIC-PR1 Firmware 2.0.0

- *groov* EPIC 2.0.0
- PAC Control Engine R10.3a
- *groov* Manage 2.0.0
- *groov* View R4.2b
- Node-RED 1.0.3
- Ignition and Ignition Edge 7.9.13
- Cirrus Link Modules 3.4.9
    - MQTT Transmission Module
    - Opto 22 *groov* EPIC and SNAP PAC Driver Module
- MQTT 1.5.1
- CODESYS Runtime Engine 3.5.15.10

Component Versions in GRV-EPIC-PR1 Firmware 1.5

GRV-EPIC-PR1 Firmware 1.5.0

- *groov* EPIC 1.5.0
- PAC Control Engine R10.1a
- *groov* Manage 1.5.0
- *groov* View R4.2a
- Node-RED 1.0.2
- Ignition Edge 7.9.12
- CODESYS Runtime Engine 3.5.13.20

Component Versions in GRV-EPIC-PR1 Firmware 1.4

GRV-EPIC-PR1 Firmware 1.4.4

- *groov* EPIC 1.4.4
- PAC Control Engine R10.0L
- *groov* Manage 1.4.4
- *groov* View R4.1e
- Node-RED 0.20.5
- Ignition Edge 7.9.12
- CODESYS Runtime Engine 3.5.13.20

GRV-EPIC-PR1 Firmware 1.4.3

- *groov* EPIC 1.4.3
- PAC Control Engine R10.0k
- *groov* Manage 1.4.3
- *groov* View R4.1e
- Node-RED 0.20.5
- Ignition Edge 7.9.12
- CODESYS Runtime Engine 3.5.13.20

GRV-EPIC-PR1 Firmware 1.4.2

- *groov* EPIC 1.4.2
- PAC Control Engine R10.0j
- *groov* Manage 1.4.2
- *groov* View R4.1d
- Node-RED 0.20.5
- Ignition Edge 7.9.12
- CODESYS Runtime Engine 3.5.13.20

GRV-EPIC-PR1 Firmware 1.4.1

- *groov* EPIC 1.4.1
- PAC Control Engine R10.0i
- *groov* Manage 1.4.1
- *groov* View R4.1d
- Node-RED 0.20.5
- Ignition Edge 7.9.11
- CODESYS Runtime Engine 3.15.13.20

GRV-EPIC-PR1 Firmware 1.4.0

- *groov* EPIC 1.4.0
- PAC Control Engine R10.0i
- *groov* Manage 1.4.0
- *groov* View R4.1d
- Node-RED 0.20.5
- Ignition Edge 7.9.11
- CODESYS Runtime Engine 3.15.13.20

Component Versions in GRV-EPIC-PR1 Firmware 1.3

GRV-EPIC-PR1 Firmware 1.3.2

- *groov* EPIC 1.3.2
- PAC Control Engine R10.0h
- *groov* Manage 1.3.2
- *groov* View R4.1c
- Node-RED 0.19.5
- Ignition Edge
- CODESYS Runtime Engine

GRV-EPIC-PR1 Firmware 1.3.1

- *groov* EPIC 1.3.1
- PAC Control Engine R10.0g
- *groov* Manage 1.3.1
- *groov* View R4.1b
- Node-RED 0.19.5
- Ignition Edge
- CODESYS Runtime Engine

GRV-EPIC-PR1 Firmware 1.3.0

- *groov* EPIC 1.3.0
- PAC Control Engine R10.0e
- *groov* Manage 1.3.0
- *groov* View R4.1a
- Node-RED 0.19.5
- Ignition Edge 7.9.10
- CODESYS Runtime Engine

Component Versions in GRV-EPIC-PR1 Firmware 1.2

GRV-EPIC-PR1 Firmware 1.2.2

- *groov* EPIC 1.2.2
- PAC Control Engine
- *groov* Manage 1.2.2
- *groov* View R4.0d
- Node-RED 0.18.7
- Ignition Edge 7.9.9

GRV-EPIC-PR1 Firmware 1.2.1

- *groov* EPIC 1.2.1
- PAC Control Engine
- *groov* Manage 1.2.1
- *groov* View R4.0d
- Node-RED 0.18.7
- Ignition Edge 7.9.9

GRV-EPIC-PR1 Firmware 1.2.0

- *groov* EPIC 1.2.0

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- PAC Control Engine
- *groov* Manage 1.2.0
- *groov* View R4.0d
- Node-RED 0.18.7
- Ignition Edge 7.9.9

Component Versions in GRV-EPIC-PR1 Firmware 1.1

GRV-EPIC-PR1 Firmware 1.1.0-b47

- *groov* EPIC 1.1.0-b47
- PAC Control Engine
- *groov* Manage 1.1.0
- *groov* View R4.0c
- Node-RED 0.18.7
- Ignition Edge 7.9.5

Component Versions in GRV-EPIC-PR1 Firmware 1.0

GRV-EPIC-PR1 Firmware 1.0.1-b110

- *groov* EPIC 1.0.1-b110
- PAC Control Engine R10.0a
- *groov* Manage 1.0.1
- *groov* View R4.0b
- Node-RED 0.18.4
- Ignition Edge 7.9.5

GRV-EPIC-PR1 Firmware 1.0.0-b71

- *groov* EPIC 1.0.0-b71
- PAC Control Engine R10.0a
- *groov* Manage 1.0.0
- *groov* View R4.0a
- Node-RED 0.18.4
- Ignition Edge 7.9.5

HOW TO GET HELP

If you have any questions about your *groov* EPIC processor, you can call or e-mail Opto 22 Product Support:

Phone: 800-TEK-OPTO (800-835-6786 toll-free in the U.S. and Canada)
951-695-3080
Monday through Friday, 7 a.m. to 5 p.m. Pacific Time

E-mail: support@opto22.com

Website: www.opto22.com

When calling or e-mailing for technical support, be prepared to provide the following information about your system to the Product Support engineer:

- Specific error messages or other diagnostic indications

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- Version information for *groov* EPIC, PAC Control Engine, *groov* View, *groov* Manage, and, if applicable, Node-RED and Ignition Edge (see "Finding Version Numbers" on page 59)
- A description of your system
- Type of internet browser and version
- Controller model and firmware version
- Module types and their firmware versions
- A description of your Setup and Configuration: how it is connected, the purpose of each device, external connections, and networks
- Computer CPU type, speed, memory, and operating system

Finding Version Numbers

To find the version numbers for *groov* EPIC firmware components:

1. Log into your *groov* EPIC with a user account that has system administrator permissions.
2. From the Home screen, click or tap on Info and Help > About.
   - The version number listed in the System Version section (at the very top) is the version number of the *groov* EPIC firmware.
   - Each component has its own section. The version number for each component is listed in the Version field of each section.