

PACEdge

IMPORTANT PRODUCT INFORMATION



Warnings and Caution Notes as Used in this Publication

WARNING

Warning notices are used in this publication to emphasize that hazardous voltages, currents, temperatures, or other conditions that could cause personal injury exist in this equipment or may be associated with its use.

In situations where inattention could cause either personal injury or damage to equipment, a Warning notice is used.

CAUTION

Caution notices are used where equipment might be damaged if care is not taken.

Note: Notes merely call attention to information that is especially significant to understanding and operating the equipment.

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Introduction

PACEdge processing maximizes the value of your data by improving operational reliability, safety, and energy. PACEdge provides all aspects of edge processing and simplifies your IIoT application development, deployment, and administration. All components necessary in the IIoT application lifecycle are brought together in one package to provide a unified interface to decrease your development time and increase your deployable footprint.

This document serves as a resource for users that wish to quickly locate notes about improvements, bugs, or resolved issues as well as any auxiliary information about the PACEdge software.

Current Release Information

Component	Version Number
PACEdge	2.2.0
Movicon.NExT Editor Support	4.2
Containers	Version Number
MQTT	2.0.14
MySQL (Mariadb)	10.5.16
Node-RED	2.2.2
InfluxDB	1.8.10
Chronograf	1.9.4
Grafana	9.0.2
Portainer	2.11.1
NGINX	2.2.0
Traefik	2.8.1
Telegraf	1.23.2
Connex/WebHMI	4.2

Related Information

Document Title	Document Number
PACEdge User's Manual	GFK-3178
RXi2-LP Quick Start Guide	GFK-3074
RXi2-BP Quick Start Guide	GFK-3196
PACEdge Secure Deployment Guide	GFK-3197
RXi2-BP User's Manual	GFK-3187
RXi2-BP Secure Deployment Guide	GFK-3200

Field Upgrades

Upgrades are available for download on the Software Orders and Downloads page.

Upgradeable Component	New Version	Part Number	Notes
PACEdge 2.1 (all HW) PACEdge 2.1.1 (all HW)	PACEdge 2.2.0	PEv220UBUpdate PEv220AppUpdate	Two packages for upgrading from PACEdge version 2.1 or version 2.1.1 to version 2.2.0. PEv220UBUpdate is for the host Ubuntu operating system. PEv220AppUpdate is for PACEdge Applications (Free update)
PACEdge 2.2.0 (CPE400)	No change	IC695ACCTP0-AA	RX3i CPE400 Telemetry Protocol Option For purchase.
PACEdge 2.2.0 (CPL410)	No change	IC695ACCTP1-AA	RX3i CPL410 Telemetry Protocol Option For purchase.
PACEdge 2.2.0 (CPE400)	No change	IC695ACCFP0-AA	RX3i CPE400 Facilities Protocol Option For purchase.

Upgradeable Component	New Version	Part Number	Notes
PACEdge 2.2.0 (CPL410)	No change	IC695ACCFP1-AA	RX3i CPL410 Facilities Protocol Option For purchase.
PACEdge 2.2.0 (CPE400)	No change	IC695ACCMD0-AA	RX3i CPE400 Multi Drivers Option For purchase.
PACEdge 2.2.0 (CPL410)	No change	IC695ACCMD1-AA	RX3i CPL410 Multi Drivers Option For purchase.
PACEdge 2.2.0 (Rxi2-BP, -LP)	PACEdge 2.2.0 + Connex	UPGRADE_CONNEXT_LPBP	For purchase.
PACEdge 2.2.0 (Rxi2-BP)	PACEdge 2.2.0 + WebHMI	UPGRADE_WEBHMI_BP	For purchase.
UEFI	V1.10	N/A	Contact technical support

Important Product Information for this Release

Release History

PACEdge SW Version	Date	Description
2.2.0	Mar 2023	<p>Added instructions on the following under Restrictions and Open Issues:</p> <ul style="list-style-type: none"> Replacing passwords that have the dollar sign "\$" in them to prevent issues accessing databases and PACEdge applications. ModbusRTU in Node-RED over RS485 2-wire using built-in serial port is not working. ModbusRTU in Node-RED over RS232 using built-in serial port is not working PACEdge applications unresponsive after Password Change Password Management utility fails
	Oct 2022	<p>PACEdge v2.2.0 release.</p> <p>Main Updates:</p> <p>Support for Movicon v4.2</p> <p>Updated Node-RED to version v2.2.2</p> <p>Updated Grafana to version v9.0.2</p> <p>Updated Telegraf to version v1.23.2</p> <p>Updated other applications to newer versions</p> <p>Improved PACEdge usability: (simplified password management tool, that now covers all PACEdge applications, OPC UA Port forwarding feature, PACEdge update split into OS and Application updates, PACEdge update utility that now backs up and then restores user data during an update, pre-configured databases in Grafana, Emerson Node-RED nodes and built-in examples to simplify MQTT, InfluxDB and MySQL access)</p> <p>Progea name was changed to Movicon, including use in browser paths and docker container name.</p>

PACEdge SW Version	Date	Description
2.1.1	Feb 2022	<p>Updates, applied via Patch file:</p> <p>Updated Movicon container (Connex, WebHMI)</p> <p>Update to the license. Connex and WebHMI SKUs now enable 3 drivers and support the MQTT protocol.</p> <p>The update allows users to purchase protocol upgrades for CPL410 and CPE400 products</p> <p>Bug fix in password management utility allows the use of special characters in the password</p>
2.1.0	Dec 2021	Release of PACEdge version 2.1
2.0.1	Oct 2021	Updates to Restrictions and Open Issues Section: PACEdge container logging mechanism, especially for InfluxDB, will continue to write logs into the disc, eventually filling it up.
2.0.1	Sep 2020	Initial Release

Functional Compatibility

Compatibility Issue	Description
v2.2.0 update is valid only for v2.1 and v2.1.1	<p>Only v2.1 and v2.1.1 can be upgraded to v2.2.0. Older versions will need to be first updated to v2.1</p> <p>NOTE: Please refer to the older version of the PACEdge User Manual for the upgrade procedures to PACEdge v2.1</p>
Will require a valid PACEdge 2.1 license	When upgrading from PACEdge 2.0 to PACEdge 2.1 user will have to obtain a valid license from Emerson Customer Care.
Minimum PACs runtime version (CPL410/CPE400)	PACSystems CPL410 & CPE400 version 10.15.

Restrictions and Open Issues

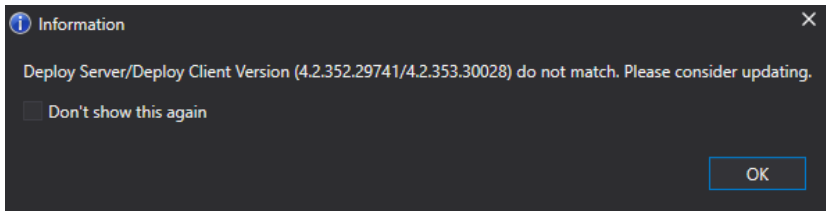
Subject	Description
Password with the dollar sign "\$" character is not supported	<p>The special character "\$" is not supported in passwords. When used, it might result in Grafana or Telegraf not being able to access InfluxDB or MySQL databases, or it may cause PACEdge applications to be inaccessible (no access to PACEdge landing page).</p> <p>Depending on the symptom following steps are required to fix the problem:</p> <p>IF PACEdge landing page is accessible and Password Management utility can be accessed:</p> <ol style="list-style-type: none"> 1. Run Password Management utility and change all passwords that have the special character "\$" to some other supported character. 2. Using Cockpit, restart the PACEdge. <p>IF PACEdge landing page is not accessible:</p> <ol style="list-style-type: none"> 1. From the Emerson Customer Center (https://emerson-mas.force.com/communities/CC_Home), navigate to the download section, PACEdge 2.2 and download file: PACEdge_fix_psw_dollar_sign_script.zip 2. Log into Cockpit as admin user by entering https://ip_address:9090/cockpites/ into the browser. 3. Using Navigator go to /home/admin folder and drag and drop PACEdge_fix_psw_dollar_sign_script.zip file there. 4. Open Terminal and enter following commands: <ol style="list-style-type: none"> a. <code>cd /home/admin</code> b. <code>unzip PACEdge_fix_psw_dollar_sign_script.zip</code> c. <code>python3 PACEdge_fix_psw_dollar_sign_script.py</code> <p>Note: Expected result is: Success</p> 5. Go to Overview and restart PACEdge. 6. Once restarted, access PACEdge landing page and run Password Management utility, change all passwords that have special character "\$" to some other supported character. 7. Using Cockpit restart the PACEdge.

Subject	Description
<p>ModbusRTU in Node-RED over RS232 using built-in serial port is not working</p>	<ol style="list-style-type: none"> 1. Log into Cockpit as admin user 2. Go to Terminal window and execute following commands: <ol style="list-style-type: none"> a. <code>cd /home/admin/pacedge</code> b. <code>docker compose down</code> 3. Go to Navigator, navigate to /home/admin/pacedge, and open file: docker-compose.yml. 4. Edit and save the file by adding <code>group_add: - dialout</code> statement to the nodered: section, so that it looks as follows: <pre>nodered: image: \${REGISTRY2}emerson-node-red:\${VNODERED} container_name: emerson-nodered restart: \${PACEDGE_RESTARTPOLICY} security_opt: - "no-new-privileges:true" group_add: - dialout</pre> <p>Go back to Terminal window and execute following command:</p> <pre>docker compose up -d</pre>
<p>ModbusRTU in Node-RED over RS485 2-wire using built-in serial port is not working</p>	<p>Perform steps outlined in item: ModbusRTU in Node-RED over RS232 using built-in serial port is not working.</p> <p>In addition, perform following steps:</p> <ol style="list-style-type: none"> 1. Log into Cockpit as admin user. 2. Go to Navigator and navigate to folder: /home/admin/pacedge/emerson-software/R2BSerialDriver

Subject	Description
	<p>3. Open file: ax99100_sp.c and make/save changes as shown below (relevant file section is located in the first ¼ of the file):</p> <pre>static struct uart_99100_ctxt uart_99100_ctxts[] = { //Port 0 { .rx_dma_en = 0, .tx_dma_en = 0, .uart_mode = AX99100_RS232_MODE, .en_flow_control = 0, .flow_ctrl_type = AX99100_RTS_CTS_HW_FLOWCONTROL, .rxfifoctrigger = 256, .txfifoctrigger = 256, .x_on = SERIAL_DEF_XON, .x_off = SERIAL_DEF_XOFF, .ltc2872_te485 = 0, .ltc2872_dz = 0, .ltc2872_lb = 0, .ltc2872_fen = 0, .pci_config_10s = 1, .pci_config_l1 = 1, .mode_9bit = MODE_9BIT_DISABLE, .nodeID_9bit = 0, }, //Port 1 { .rx_dma_en = 0, .tx_dma_en = 0, .uart_mode = AX99100_RS485_HALF_DUPLEX, .en_flow_control = 0, .flow_ctrl_type = AX99100_XON_XOFF_HW_FLOWCONTROL, .rxfifoctrigger = 254, .txfifoctrigger = 254, .x_on = SERIAL_DEF_XON, .x_off = SERIAL_DEF_XOFF, .ltc2872_te485 = 0, .ltc2872_dz = 0, .ltc2872_lb = 0, .ltc2872_fen = 0, .pci_config_10s = 1, .pci_config_l1 = 1, .mode_9bit = MODE_9BIT_DISABLE, .nodeID_9bit = 0, }, },</pre> <p>4. Go to Terminal and enter following commands:</p> <ol style="list-style-type: none"> cd /home/admin/pacedge/emerson-software/R2BSerialDriver/ sudo su (enter admin password when asked) make uninstall make clean rm *.mod rm .parport_pc.o.d make install exit

Subject	Description
PACEdge applications unresponsive after Password Change	<p>When upgrading to v2.2.0, stop flows that are storing data in InfluxDB and MySQL. Failure to do so might result in InfluxDB being overwhelmed by requests with the wrong password, as password change will be part of the update process. In such cases, to recover, disable Node-RED flows, give a few minutes for the InfluxDB to catch up (monitor InfluxDB container CPU utilization), update passwords in InfluxDB Node-RED nodes (if changed), and re-enable Node-RED flows.</p>
Password Management utility fails	<p>The Password Management utility expects that user role passwords in each of the PACEdge applications are the same. Most importantly admin password shall be the same in all applications. If during the upgrade to v2.2.0, one of the applications has a different password, for instance, the Portainer password was never changed from default edgestack to match the Node-RED and Grafana passwords, the utility will report an error. In such a case, please manually log into the application (by entering ip address followed by <code>/portainer</code>, ex: <code>192.168.3.100/portainer</code>), change the password there to match the rest of the applications, and try the Password Management utility again.</p> <p>NOTE: The Password Management Utility uses PACEdge Application password for user admin. Linux/Cockpit users and passwords are separate and can not be used to log into Password Management Utility.</p>
Heavy CPU and memory utilization when upgrading via Navigator	<p>When upgrading PACEdge via Navigator, large files (multiple Gigabytes) need to be copied onto the PACEdge device. CPL410, CPE400, and RXi2-LP have relatively weak processors and a lower amount of memory, resulting in heavy memory paging and high CPU load. When performing these operations expect that it will take some time to copy the files and for the CPU to settle down. Wait until copied files show up in the Navigator window, optionally observe CPU and memory utilization and give some time to settle down. It could take 15-20 min.</p>

Subject	Description
Low disc space on RXi2-LP	RXi2-LP 32GB SSD variant might have insufficient disc space to make a PACEdge upgrade to v2.2.0 via Navigator. The minimum space required on /home partition is 7 GByte. Given that update is performed in two steps (OS and Applications), after the OS upgrade deletes files used for the upgrade. If disc space is still insufficient, then use an alternative upgrade method via a USB stick as documented in PACEdge User Manual.
The cockpit shows failing services	PACEdge is based on Ubuntu Server operating system, which comes with some services that do expect Internet connectivity. Since PACEdge is frequently installed in networks that do not have internet access Cockpit might report that some services, such as Network Manager Wait Online, have failed. This is normal and will not degrade PACEdge operation.
Time and Time Zone setting	PACEdge by default is configured to get local time and time zone via NTP protocol. If installed in a network that does not have an NTP server, please verify the time and time zone settings and adjust as necessary. Failure to do so might result that Grafana is not showing the data as expected.
Restoring PACEdge from the USB image requires reloading the Movicon project	When restoring PACEdge from backup on a USB stick the MQTT Client driver in Connexx may fail to connect to the MQTT broker. In such a case, reload the Movicon project using Movicon.NExT Editor.
Changes in Connexx MQTT Client	If converting a Movicon project created using Movicon.NExT version v4.1 or older you might have to adjust MQTT Client settings. Make sure that in Channel Settings, the Client Identifier field is populated, and the maximum number of pending requests is set to more than 0, 5 is a good starting point.
Multiple instances of I/O Data Servers and WebHMI Servers are running	When deploying a new Movicon project or updating an existing one, users should stop and restart all running servers before continuing. Deploying or updating a project without restarting servers may lead to multiple instances of servers running. Users should expand the Advanced Servers Start menu to stop all running servers, then start the required servers one by one.

Subject	Description
Movicon.NExT DeployServer version discrepancy	<p>When deploying a Movicon project a message stating Deploy Server version discrepancy will appear. Please ignore this message and click on Don't show this again check box.</p> 

Problems Resolved in Current Release

Subject	Description
Portainer, Telegraf, and Movicon project Deploy passwords need to be changed manually	PACEdge v2.2.0 Password Management utility now automatically changes user role passwords in each of PACEdge Applications. Note that passwords in Cockpit/Linux still need to be changed via Cockpit.

Operational Notes

PACEdge Upgrade to v2.2.0 Notes:

- Note that starting from PACEdge v2.2.0 upgrades will be split into two packages: Ubuntu Linux Operating System update and PACEdge Application update. This is done so that the user could choose to only update the OS portion but continue to use PACEdge Applications as is.
- Only PACEdge version v2.1 or v2.1.1 can be upgraded to PACEdge version 2.2.0. When upgrading from older PACEdge 2.0 or PACEdge 1.0 please first upgrade to PACEdge v2.1 and then proceed to upgrade to v2.2.0
- For detailed instructions and step-by-step procedures please consult PACEdge User Manual.

General Contact Information

Home link: <http://www.emerson.com/industrial-automation-controls>

Knowledge Base: <https://www.emerson.com/industrial-automation-controls/support>

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Any escalation request should be sent to mas.sfdcescalation@emerson.com

Note: If the product is purchased through an Authorized Channel Partner, please contact the seller directly for any support.

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