

# **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.

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### **CAUTION**

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

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**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	2.5.0
Movicon.NEXt Editor Support	4.3 build 373 or newer
Containers	Version Number
MQTT	2.0.17
MySQL (Mariadb)	10.5.16
Node-RED	3.0.2.9
InfluxDB	1.8.10
Chronograf	1.10.1
Grafana	9.5.2
Portainer	2.11.1
NGINX	2.3.0.5
Traefik	2.10.0
Telegraf	1.26.3
TimescaleDB	2.11.1
phpMyAdmin	5.2.1
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
Micro IPC Quick Start Guide	GFK-3268
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 2.3.0 (all HW) PACEdge 2.4.0 (all HW) (Free update)	PACEdge 2.5.0	PEv250UpdateUSBUtil.zip PEv250UpdateGMUtil.tgz	Available to download from the Customer Center
PACEdge 2.2.0 (all HW) (Free update)	PACEdge 2.3.0	PEv230UpdateGMUtil PEv230UpdateUSBUtil	Two packages for upgrading from PACEdge version 2.2.0 to version 2.3.0.  Upgrade your device using the Group Manager (GM Util) function or a USB (USB Util) stick/Cockpit Navigator.
PACEdge 2.3.0 (CPE400) (For purchase)	No change	IC695ACCTP0-AA	RX3i CPE400 Telemetry Protocol Option

Upgradeable Component	New Version	Part Number	Notes
PACEdge 2.3.0 (CPL410) (For purchase)	No change	IC695ACCTP1-AA	RX3i CPL410 Telemetry Protocol Option
PACEdge 2.3.0 (CPE400) (For purchase)	No change	IC695ACCFP0-AA	RX3i CPE400 Facilities Protocol Option
PACEdge 2.3.0 (CPL410) (For purchase)	No change	IC695ACCFP1-AA	RX3i CPL410 Facilities Protocol Option
PACEdge 2.3.0 (CPE400) (For purchase)	No change	IC695ACCMD0-AA	RX3i CPE400 Multi Drivers Option
PACEdge 2.3.0 (CPL410) (For purchase)	No change	IC695ACCMD1-AA	RX3i CPL410 Multi Drivers Option
PACEdge 2.3.0 (Rxi2-BP, -LP, IPC2010) (For purchase)	PACEdge 2.3.0 + Connex	UPGRADE_CONNEXT_L PBP	Applicable to Rxi2-BP, -LP and IPC2010
PACEdge 2.2.0 (Rxi2-BP, IPC2010) (For purchase)	PACEdge 2.3.0 + WebHMI	UPGRADE_WEBHMI_BP	Applicable to Rxi2-BP, and IPC2010
UEFI	V1.10	N/A	Contact technical support

## Important Product Information for this Release

### Release History

PACEdge SW Version	Date	Description
2.5.0	June 2024	<ul style="list-style-type: none"> <li>PACEdge Security update for Ubuntu Linux</li> <li>Updated Ansible version in IPC2010</li> <li>Fixed root path issue when adding an optional Python container</li> <li>Special character \$ is no longer supported in passwords</li> </ul>

PACEdge SW Version	Date	Description
		<ul style="list-style-type: none"> <li>• Console access to inside the container via Portainer on IPC2010 is not supported</li> </ul>
2.4.0	Apr 2024	PACEdge Security update for Ubuntu Linux
2.3.0	Oct 2023	<ul style="list-style-type: none"> <li>• Added support for new IPC2010 Industrial PC</li> <li>• Added Basic Group Manager functionality</li> <li>• Added Security Certificate management functionality</li> <li>• Added TimescaleDB database</li> <li>• Added phpMyAdmin MySQL manager</li> <li>• Added optional Python container</li> <li>• Added P4NR OPCUA Node-RED nodes</li> <li>• Added Cloud Node-RED nodes</li> <li>• Updated various utilities to the new versions</li> </ul>
	Mar 2023	<p>Added instructions on the following under Restrictions and Open Issues:</p> <ul style="list-style-type: none"> <li>• Replacing passwords that have the dollar sign “\$” in them to prevent issues accessing databases and PACEdge applications.</li> <li>• ModbusRTU in Node-RED over RS485 2-wire using built-in serial port is not working.</li> <li>• ModbusRTU in Node-RED over RS232 using built-in serial port is not working</li> <li>• PACEdge applications unresponsive after Password Change</li> <li>• Password Management utility fails</li> </ul>
2.2.0	Oct 2022	<p>PACEdge v2.2.0 release.</p> <p><b>Main Updates:</b>            Support for Movicon v4.2            Updated Node-RED to version v2.2.2            Updated Grafana to version v9.0.2            Updated Telegraf to version v1.23.2            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

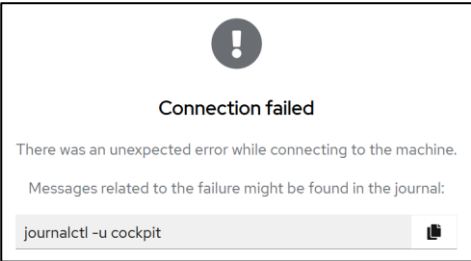
## Functional Compatibility

Compatibility Issue	Description
Minimum PACs runtime version (CPL410/CPE400)	Minimum PACSystems CPL410 & CPE400 version 10.15.
Minimum Movicon.NExT Editor version	For IPC 2010 minimum Movicon.NExT Editor version is 4.2 build 363.

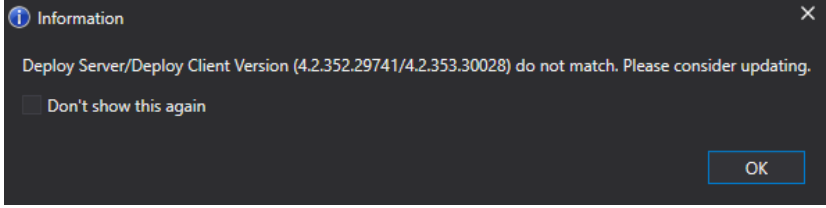
## Restrictions and Open Issues

Subject	Description
<p>Console access to inside of the container</p>	<p>When attempting to gain command line access inside the container on IPC2010, please avoid using Portainer’s “Exec Console” feature. Instead, use the Cockpit Terminal and issue the following command: <b>docker exec -it emerson-nodered /bin/bash</b></p> <p>Replace <b>emerson-nodered</b> with the container name that you are attempting to access.</p>
<p>Restricting disc usage for Linux user <b>operators</b></p>	<p>PACEdge provides an optional Linux user operator feature that is initially turned off. If the password for the <b>operators</b>’ account is set via Cockpit, this feature will be enabled. (Note: Linux users are separate from PACEdge users). For security reasons, it is recommended to keep Linux user operator accounts disabled by either:</p> <ol style="list-style-type: none"> <li>1) Not setting a password</li> <li>2) Configuring <b>operators</b> account to expire (via Cockpit-&gt;Accounts-&gt;operators-&gt;Options)</li> </ol> <p>If PACEdge usage requires user <b>operators</b> in Linux, then restrict how much disc space the user can consume by performing the steps below:</p> <ol style="list-style-type: none"> <li>1. Open the Cockpit and login as admin</li> <li>2. Set the password for the linux user: <b>operators</b></li> <li>3. Open the Terminal and enter the following commands:             <ol style="list-style-type: none"> <li>a. <code>sudo mkdir /media/users/</code></li> <li>b. <code>sudo dd if=/dev/zero of=/media/users/operators.img bs=512K count=200</code></li> <li>c. <code>sudo mkfs.ext4 /media/users/operators.img</code></li> <li>d. <code>sudo chown operators:operators /media/users/operators.img</code></li> </ol> </li> <li>4. using Navigator, edit file: <b>/etc/fstab</b> and append the line:             <ol style="list-style-type: none"> <li>a. <code>/media/users/operators.img /home/operators ext4 loop 0 2</code></li> </ol> </li> <li>5. Open the Terminal and enter following commands:             <ol style="list-style-type: none"> <li>a. <code>mount -a</code></li> <li>b. <code>sudo chown -R operators:operators /home/operators</code></li> </ol> </li> </ol>
<p>Adding Optional Tensorflow container</p>	<p>At this time, the Tensorflow example is only supported on x86 architecture (not supported on IPC 2010).</p>
<p>No access to the PACEdge after upgrading from v2.2 to v2.3</p>	<p>When upgrading older PACEdge units from v2.2 to v2.3, the upgrade succeeds, but the PACEdge Landing page becomes inaccessible.</p> <p>This problem has been addressed and the updated PACEdge upgrade files are now available via Customer Center. Users who experience this problem should log in via Cockpit by using the following address:</p> <p><b>ip_address:9090/cockpites/</b></p>



Subject	Description
	<p>then go to the Terminal and execute the following commands:</p> <pre><b>sudo rm /usr/local/bin/docker-compose</b></pre> <pre><b>cd /home/admin/pacedge</b></pre> <pre><b>./createcomposefile.sh</b></pre> <pre><b>docker compose up -d</b></pre>
<p>IPC 2010 access using <b>Hostname</b> is not working</p>	<p>Accessing IPC 2010 via hostname (as opposed to IP address) is not working. The possible cause is that the firewall in Linux is enabled. Connect using IP address, open Cockpit, go to Networking tab and turn off the Firewall.</p>
<p>Cockpit access using <b>Hostname</b> returns an error</p>	<p>When accessing Cockpit via the hostname (as opposed to IP address) a “Connection failed” error might be displayed. In such cases, please refresh the browser.</p> 
<p>Only the following special characters are supported in passwords: ! - \$</p>	<p>Only a small set of special characters (!, -, \$) is supported in passwords. Special characters are enforced by password management utility.</p>
<p>PACEdge applications unresponsive after Password Change</p>	<p>When changing passwords, 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 since the password has been changed. 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>
<p>Heavy CPU and memory utilization when upgrading via Navigator</p>	<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 GB. Delete unnecessary large files. 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 ConnexT may fail to connect to the MQTT broker. In such a case, reload the Movicon project using Movicon.NExT Editor.
Changes in ConnexT 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 <b>Advanced Servers Start</b> menu to stop all running servers, then start the required servers one by one.
Movicon.NExT DeployServer version discrepancy	When deploying a Movicon project a message stating Deploy Server version discrepancy will appear. Please ignore this message and check the <b>Don't show this again</b> check box.

Subject	Description
	

## Problems Resolved in Current Release

Subject	Description
Adding Optional Tensorflow or Python container	The incorrect path specified in tensorflow.yml and python.yml docker composes files.
Out of date Ansible version in IPC2010	IPC2010 uses outdated ansible version, which causes errors during the PKI generation

## Operational Notes

### PACEdge v2.5.0 Notes

Only PACEdge versions v2.3.0 and v2.4.0 can be upgraded to the v2.5.0. User data, including licenses, is preserved during the update.

# General Contact Information

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

Knowledge Base: <https://www.emerson.com/iac-support>

## Technical Support

### Americas

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Technical Support: [support.mas.apac@emerson.com](mailto:support.mas.apac@emerson.com)

Any escalation request should be sent to [mas.sfdcescalation@emerson.com](mailto: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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