

# Vertiv™ Liebert® IntelliSlot™ Unity Card

## Firmware Release Notes

VERSION 8.4.3.0\_00155, DECEMBER 16, 2024

### Release Notes Section Outline

1. Version and Compatibility
2. New in this Release
3. Update Instructions
4. Known Issues
5. Previous Release Updates and Enhancements

### 1. Version and Compatibility

This release contains firmware version IS-UNITY\_8.4.3.0\_00155 and is compatible with the following products:

- Compatible with the following Vertiv™ Liebert® Communication Cards:
  - IS-UNITY-DP
  - IS-UNITY-SNMP
  - IS-UNITY-LIFE
- Compatible with the following Vertiv™ power and thermal management equipment.

#### VERTIV PRODUCTS COMPATIBLE WITH THIS FIRMWARE VERSION

Alber™ BDSU-50	Liebert® AHU with Liebert® iCOM™ Edge	Liebert® APM	Liebert® APM160	Liebert® APM600
Liebert® APM2	Liebert® APM Plus	Liebert® APS	Liebert® CRC 300-600 with Liebert® iCOM™ Edge	Liebert® CRD 25-35 with Liebert® iCOM™ Edge
Liebert® CRV	Liebert® CRV with Liebert® iCOM™ Edge	Liebert® CRV4 with Liebert® iCOM™ Edge	Liebert® CRV4-12kW with Liebert® iCOM™ Edge	Liebert® CW*
Liebert® CWA	Liebert® Challenger*	Liebert® DataMate	Liebert® DME2 with Liebert® iCOM™ Edge	Liebert® Deluxe System/3*
Liebert® DCL	Liebert® DCP	Liebert® DP400	Liebert® DS*	Liebert® DSE
Liebert® EPM	Liebert® EXC	Liebert® EXL	Liebert® EXL S1	Liebert® EXM
Liebert® EXM2	Liebert® EXS	Liebert® FDC	Liebert® FPC	Liebert® GXE2
Liebert® GXE3	Liebert® GXT3	Liebert® GXT4	Liebert® HPC-S	Liebert® HPC-M
Liebert® HPC-R	Liebert® HPC-W	Liebert® HPC Generic	Liebert® HPM	Liebert® ITA2
Liebert® Mini-Mate	Liebert® MTP	Liebert® NX 225-600kVA	Liebert® NXC	Liebert® NXL
Liebert® NXR	Liebert® PCW	Liebert® PDX	Liebert® PEX*	Liebert® PEX4

**VERTIV PRODUCTS COMPATIBLE WITH THIS FIRMWARE VERSION**

Liebert® PPC	Liebert® PSI5	Liebert® RDC	Liebert® RX	Liebert® STS2
Liebert® XDC with Liebert® iCOM™ Control	Liebert® XDP with Liebert® iCOM™ Control	Liebert® XDP-Cray	Liebert® XDU	Liebert® XDM
Vertiv™ Edge	Vertiv™ Trinergy™ Cube	Liebert® WallMate with Liebert™ iCOM™ Edge	Liebert® CRD30 & CRD40 DX with Liebert™ iCOM™ Edge	Vertiv™ CoolCenter Immersion Self Contained with Liebert® iCOM™ Edge
Vertiv™ CoolCenter Immersion Modular with Liebert® iCOM™ Edge	Vertiv™ CoolLoop RDHx with Liebert® iCOM™ Edge			

\* Vertiv™ Liebert® iCOM™ Firmware PA1.04.033.STD versions or later

• Compatible with the following sensors:

- Vertiv™ Liebert® SN-2D
- Vertiv™ Liebert® SN-3C
- Vertiv™ Liebert® SN-L
- Vertiv™ Liebert® SN-T
- Vertiv™ Liebert® SN-TH
- Vertiv™ Liebert® SN-Z01
- Vertiv™ Liebert® SN-Z02
- Vertiv™ Liebert® SN-Z03

**Unity Cards and Sensors Feature Information**

SUPPORTED FEATURES	IS-UNITY-DP CARD	IS-UNITY-LIFE CARD	IS-UNITY-SNMP CARD	SENSORS
LIFE™ Services Support	Supported	Supported	Supported	Not Supported
Sensor Support	Supported	Supported	Not Supported	Not Supported
HTTP/HTTPS	Supported	Supported	Supported	Supported
Velocity Protocol	Supported	Supported	Supported	Supported
Email	Supported	Supported	Supported	Supported
SMS	Supported	Supported	Supported	Supported
SNMP v1, v2c, v3	Supported	Not Supported	Supported	Supported
BACnet IP/*MSTP	Supported	Not Supported	Not Supported	Not Supported
Modbus TCP/*RTU	Supported	Not Supported	Not Supported	Not Supported

SUPPORTED FEATURES	IS-UNITY-DP CARD	IS-UNITY-LIFE CARD	IS-UNITY-SNMP CARD	SENSORS
YDN23	Supported by Vertiv™ Liebert® NXL, Vertiv™ Liebert® EXL S1 UPS, and Vertiv™ Liebert® PeX	Not Supported	Not Supported	Not Supported

This release supports the following browsers:

- Microsoft Edge (version 131.0.6778.86)
- Mozilla Firefox (version 133.0)
- Google Chrome (version 131.0.2903.70)

## 2. New in this Release

This release adds support for the following enhancements, updates, and corrections:

- Added Vertiv™ CoolCenter Immersion Self Contained with Vertiv™ Liebert® iCOM™ Edge.
- Added Vertiv™ CoolCenter Immersion Modular with Vertiv™ Liebert® iCOM™ Edge.
- Added Vertiv™ CoolLoop RDHx with Vertiv™ Liebert® iCOM™ Edge.

## 3. Update Instructions

The Vertiv™ Liebert® IntelliSlot™ Unity cards may be updated to this firmware version using the web-based Firmware Upload feature. Please refer to the Firmware Updates and Card Configuration sections of the [Liebert® IntelliSlot™ Unity Card User Guide \(SL-52645\)](#) and the [Mass Firmware and Configuration Update Tool](#). The firmware update and rediscovery of the system (UPSes, for example) may take up to 15 minutes depending on network conditions. During this time, you may experience a loss of communications. However, the system operation is not affected.

### To update your card:

1. Connect to the card:
  - a. After installing the card, allow time for the card to boot.
  - b. Connect an Ethernet cable from the card to a PC or laptop. A link local connect can be established; this is a direct PC-to-card Ethernet connection. The PC acquires a local address, and the card is accessed at 169.254.24.7. Please consult the Quick Start Guide and User Guide for further details if needed.
2. Open a web browser (such as Chrome) and enter **169.254.24.7** in the address bar.
3. Navigate to and select the *Communications* tab.
  - a. Select *Support- Firmware Update*.
  - b. Select *Enable*, then select *Web* next to Firmware Update in the Commands section.

Each item you are selecting is shown in the screenshot on the following page.

VERTIV GXT5-2000LVRT2UXL **Communications** Liebert®

Firmware Update: Updated: October 7, 2020 08:45:47PM

Status	Value	Units
Current Firmware Version	1.1.0.0	
Current Firmware Label	RDU101_1.1.0.0_0000036	
Current Firmware Date	Thu Jun 13 18:55:02 EDT 2019	
Alternate Firmware Version	1.3.0.0	
Alternate Firmware Label	RDU101_1.3.0.0_0000005	
Alternate Firmware Date	Thu Jan 30 18:54:34 EST 2020	

Commands: **Enable** Cancel

Run Alternate Firmware: Run Alternate

Firmware Update: **Web**

4. When the Web (HTTP) Firmware Update page opens, select *Choose File* to select the firmware file via Windows File Explorer.

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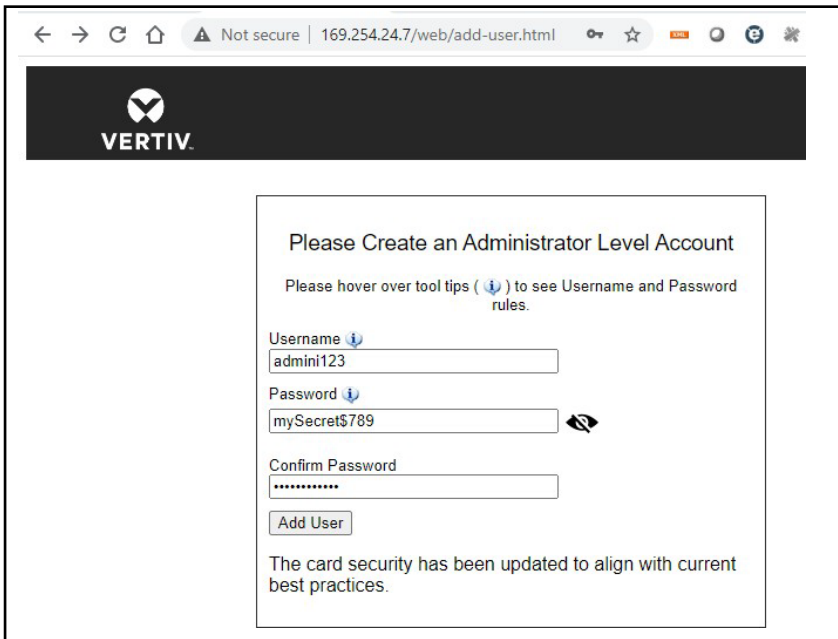
### Web (HTTP) Firmware Update

Parameter	Description
File	Directory and name of the firmware update file. Click the <b>Browse</b> button to navigate and select a valid firmware update file.  Note: The maximum length of a file specification is 250 characters including spaces and punctuation.
Update Firmware	Click this button to initiate the firmware update.

File:  No file chosen

5. Click *Update Firmware*.

- After the firmware update, a dialog box appears in the browser to prompt you to create an Administrator Level Account.



- For the Administrator-level account, the customer can provide the credentials, or the installer can choose/create them. If the installer chooses the credentials, the credential information must be communicated to the end customer. To demonstrate how to create an Administrator-level account, example credentials (username and password) are provided in step 7.
- When creating the username, a minimum of two to a maximum of 30 case-sensitive, printable characters are allowed, except for \<>~?#, double quote and space.

**Min 2 to Max 30 case-sensitive, printable ASCII characters (excluding: \<>~?#, double quote, and space).**

- When creating the password, a minimum of eight to a maximum of 30 case-sensitive, printable characters are allowed, except for \<>~?#, double quote and space. The password must contain a combination of upper- and lower-case letters, numbers (digits) and special characters. You cannot, however, include the username as the password.

**Min 8 to Max 30 case-sensitive, printable ASCII characters (excluding: \<>~?#, double quote, and space). Must contain a combination of upper and lower case, digit and special characters, but not User Name.**

- Enter **admini123** as the username and **mySecret\$789** as the example password to create an Administrator account.

**NOTE: The account creation process complies with the California IoT Law (SB-327).**

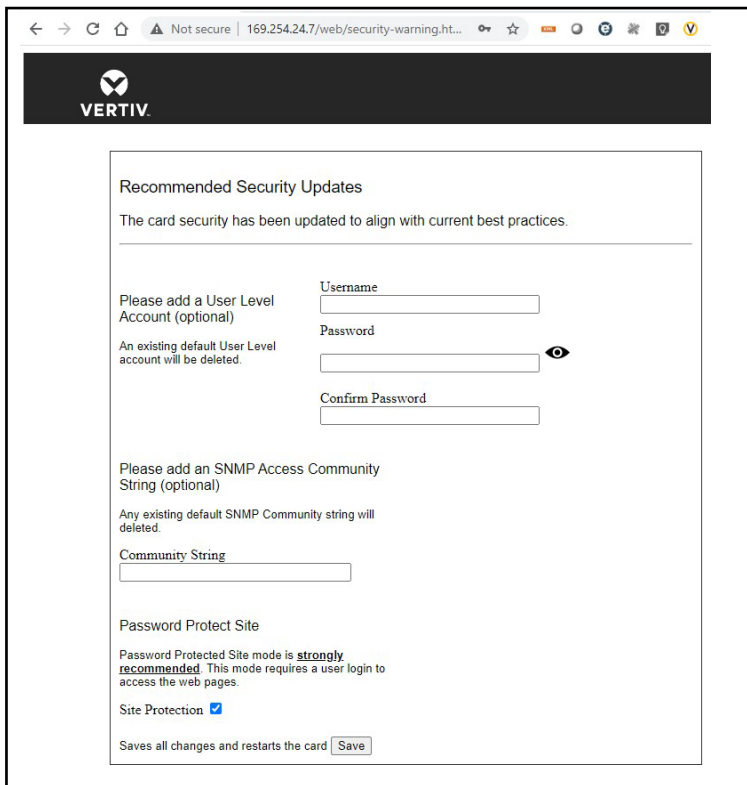
**WARNING: Write down/log these credentials in a location where the information will not be lost. If the Administrator credentials are lost or forgotten, the card must be reset to a factory default state to regain access. For instructions on resetting the card, please see the user guide.**

- Confirm the password, then click *Add User*. A dialog box appears to indicate that a response is needed from the server (*Waiting on response from server...*), and then indicates that updates are being applied (*Applying Updates...*).

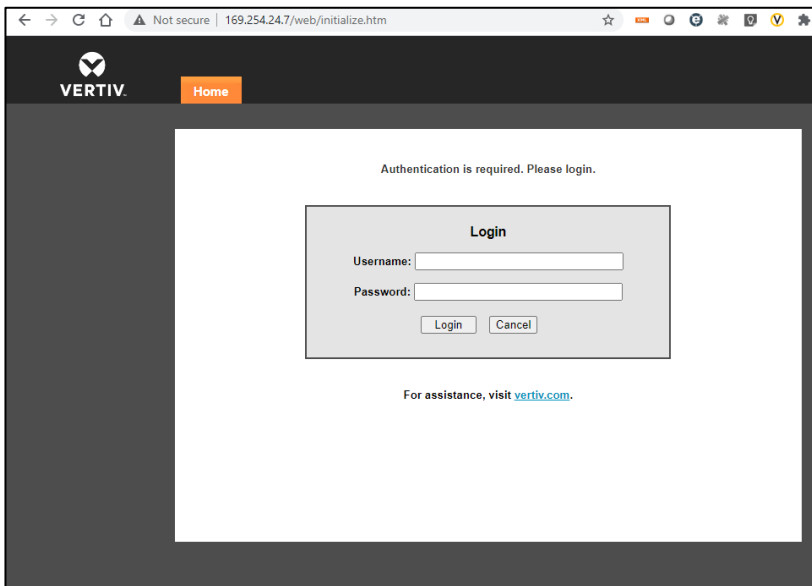
**NOTE: During this process, do not click the *Back* button in the browser.**

If the card is unresponsive in the web browser at any point, re-enter **169.254.24.7** in the address bar.

9. A Recommended Security Updates dialog box may appear. If so, click Save at the bottom of the box to continue.

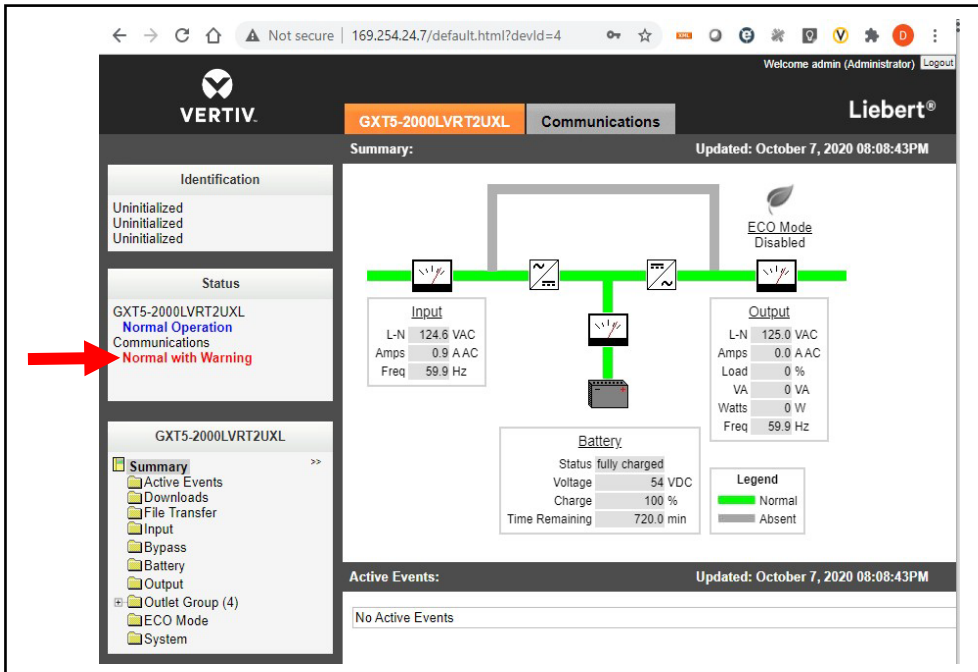


10. Another dialog box appears to indicate that a response is needed from the server (*Waiting on response from server...*), then the Password Protected Site log in screen appears. Re-enter **admini123** as the username and **mySecret\$789** as the password.



11. Click Login.

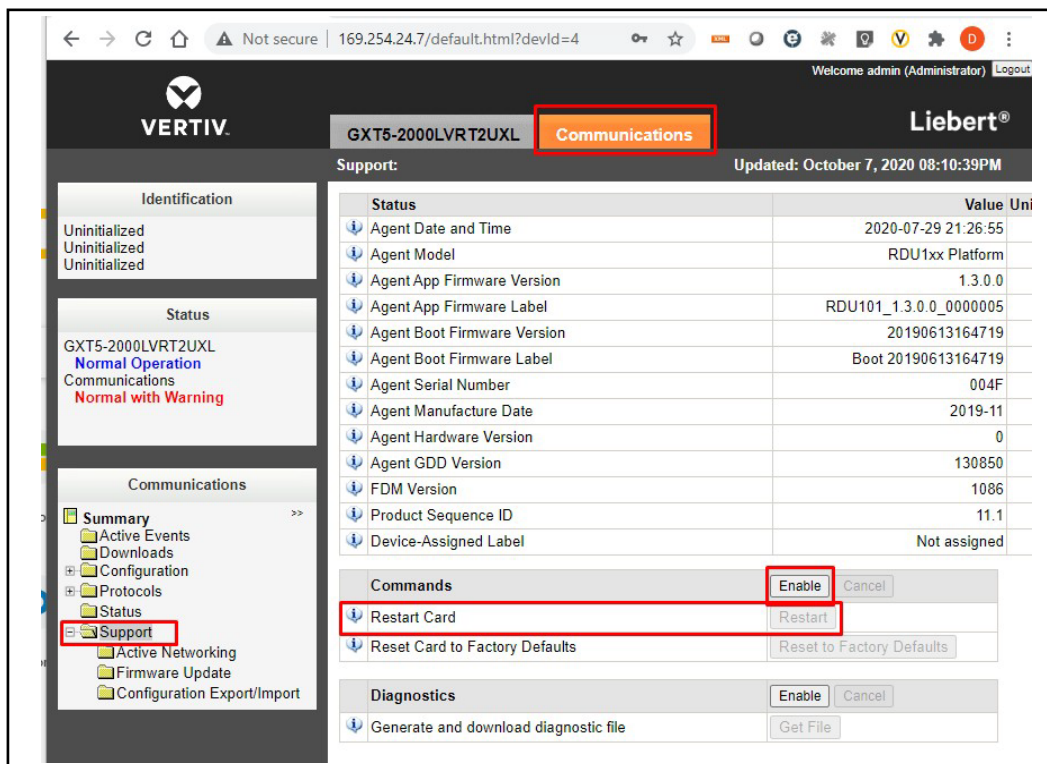
12. After logging in, the Status area on the left-hand side of the appliance screen may indicate a *Normal with Warning Communications* status.



This message can be cleared by restarting the card.

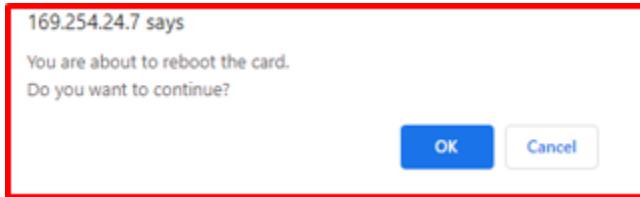
13. To restart the card, select the *Communications* tab.

- a. In the Communications area on the left-hand side of the screen, select *Support*.
- b. In the Commands section, select *Enable- Restart*.

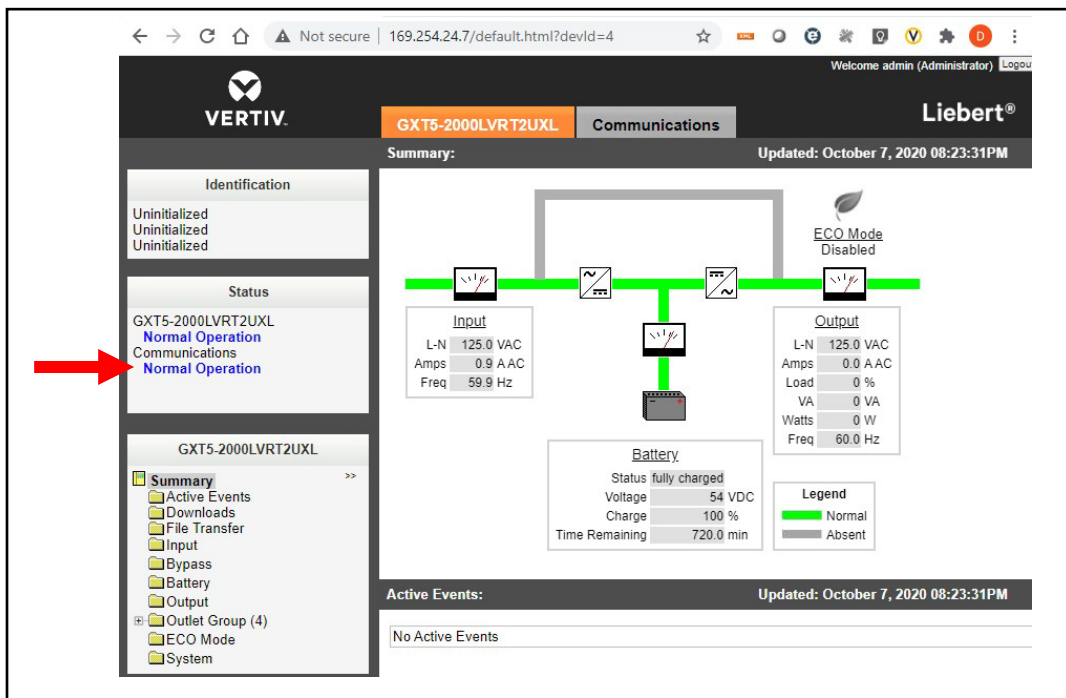




- A dialog box appears to confirm that you wish to reboot the card. Click OK.



- When the card restarts, log in to the card again as you did in step 10.
- After logging in, the Status area on the left-hand side of the appliance screen should indicate a *Normal Operation* Communications status. This indicates that the Administrator account set up is complete.





## 4. Known Issues

COMPONENT	DESCRIPTION
Device Settings	When temperature settings are set on some thermal devices, there may be a 'round-off' error of one tenth of a degree between what was requested and what the device shows after the change. This is a known limitation of some thermal device firmware versions and will be corrected in future versions of the device controller firmware.
Vertiv™ Liebert® GXT3/4 UPS Support	<p>The IP address of the Unity card may be displayed on the local display of the Vertiv™ Liebert® GXT4 UPS unit. The IP address is pushed to the Vertiv™ Liebert® GXT4 when the card starts up. If the address changes (for example, if it is changed by the DHCP server when the DHCP lease runs out), the local Vertiv™ Liebert® GXT4 display will continue to show the old address until the card is restarted.</p> <p>While the SNMP OIDS for the Vertiv™ Liebert® GXT4 is backward compatible with those from the IS-WEBCARD, the text values in some SNMP varbinds and email/SMS notifications have changed slightly to use the Unity card equivalent.</p>
Sensor Support	The preferred way to change the display order for multiple sensors is through the web user interface. If the order is changed using one of the supported protocols, then the entire list of sensors should be set in the correct order (including slots that should become blank) to ensure that all sensors are still included.
SNMP	SNMP getnext requests may fail on some tables if there are multiple varbinds in the request. If this occurs, use single-varbind requests.
Firmware Update	<p>When using the Microsoft Edge browser to upgrade firmware from a 7.5.0.0 or 7.5.1.0 to another release, the web page will become blank and display an authorization error. To recover, enter the IP address of the card followed by &lt;Enter&gt; after the firmware upgrade completes (this typically takes 5 – 6 minutes).</p> <p>An update from version 4.3 or older will fail when updating to the v7.7 release or newer. An intermediated (two step) process is required - update to v7.6, then update to v7.7 or newer. Please contact Monitoring Application support to obtain the 7.6 firmware version.</p> <p>A blank page can appear following a firmware update. If this occurs, please navigate back to the card using in IP address or DNS name.</p>
Account Lockout	If Remote Authentication is enabled with Local Authentication (example: RADIUS then Local) the Local User will be locked out after three unsuccessful logins. The local user must wait 15 minutes to login again.
HTTPS Port	HTTPS port is restricted to 443 when the HTTPS with redirect mode is configured.

## 5. Previous Release Updates and Enhancements

RELEASE	DESCRIPTION
v7.0.1.0	<p>This release contained the following enhancements:</p> <ul style="list-style-type: none"> <li>Configuration Import/Export: Manual import/export is supported via the web UI. Mass (programmatic) import/export is supported via an HTTP (specification is available).</li> <li>Remote Authentication: LDAP, RADIUS, TACACS+, Kerberos</li> <li>Support for new devices: Vertiv™ Liebert® iCOM™ DP400, Vertiv™ Liebert® ITA2 UPS</li> <li>Vertiv™ Liebert® EXL S1 legacy modbus mapping support input/bypass/output voltages</li> </ul> <p>This release addressed the following issues:</p> <ul style="list-style-type: none"> <li>If the administer username “admin” was used prior to upgrading to Version 7.0.0.0, the user would no longer have write access to the card. Reset to factory default was required to restore write access to the card.</li> <li>If a user upgraded to version 7.0.0.0 and never changed the default administrator credentials in cards that were originally shipped with version 5.0.0.0 or earlier, the users’ entries would become corrupted. Reset to factory default was required to restore write access to the card.</li> </ul>
v7.1.0.0	<p>This release contained the following enhancements:</p> <ul style="list-style-type: none"> <li>(40xxx) support input/bypass/output voltages.</li> <li>BACNet COV persistence</li> <li>Issues address in this Configuration Import/Export: Manual import/export and mass (programmatic) import/export is supported via the web UI and programmatically using HTTP (specification is available).</li> <li>Remote Authentication: LDAP, RADIUS, TACACS+, Kerberos</li> <li>Support for new devices: Vertiv™ Liebert® iCOM™ DP400, Vertiv™ Liebert® ITA2 UPS, Vertiv™ Liebert® STS2</li> </ul> <p>Vertiv™ Liebert® EXL S1 legacy modbus mapping:</p> <ul style="list-style-type: none"> <li>If the administer username “admin” was used prior to upgrading to Version 7.0.0.0, the user would no longer have write access to the card. Reset to factory default was required to restore write access to the card.</li> <li>If a user upgraded to version 7.0.0.0 and never changed the default administrator credentials in cards that were originally shipped with version 5.0.0.0 or earlier, the users’ entries would become corrupted. Reset to factory default was required to restore write access to the card.</li> <li>The card could fail to write admin credentials to the file system following a restart. A hard restart of the card (remove and restore power) was required to regain access.</li> </ul>
v7.2.0.0	<p>This release contained the following enhancements:</p> <ul style="list-style-type: none"> <li>Support for new NOR Flash (previous part is obsolete)</li> <li>Support for new NAND Flash (previous part is obsolete)</li> <li>IPv4 network address configuration via the diagnostics console (implemented for Apple retail)</li> </ul>
v7.3.0.0	<p>This release contained the following enhancements:</p> <ul style="list-style-type: none"> <li>Vertiv™ Liebert® PS15 UPS support</li> <li>Vertiv™ Liebert® GXE2 UPS support</li> <li>2-Factor RSA support for remote authentication</li> <li>Configurable DNS hostname</li> </ul>
v7.3.1.0	<p>In this release, the following data points were added for Vertiv™ Liebert® EXL S1:</p> <ul style="list-style-type: none"> <li>Bypass Input Current Phase A</li> <li>Bypass Input Current Phase B</li> <li>Bypass Input Current Phase C</li> </ul>
v7.5.0.0	<p>In this release, support was added for Vertiv™ Liebert® Mini-Mate 2; Vertiv™ Liebert® DataMate, Vertiv™ Liebert® EXS Frame 2, and Vertiv™ Liebert® EXS Frame 3</p>

RELEASE	DESCRIPTION
v7.5.1.0	<p>This release contained the following enhancements and corrections:</p> <ul style="list-style-type: none"> <li>• Change firmware to eliminate Modbus 65535 response data during device discovery.</li> <li>• Correct an alarm latching behavior when monitoring the Vertiv™ Liebert® STS2, Static Transfer Switch.</li> </ul>
v7.6.0.0	<p>This release contained the following enhancements and corrections:</p> <ul style="list-style-type: none"> <li>• Vertiv™ Liebert® EXL S1 - increase battery cabinet support to eight.</li> <li>• Vertiv™ Liebert® NXL – new fan and thermal data points.</li> <li>• Vertiv™ Liebert® APM600 and Vertiv™ Liebert® EXM MSR – add Lithium-Ion Battery support.</li> <li>• Vertiv™ Liebert® PSI5 – add outlet reboot capability.</li> <li>• Disable TLSv1.2 support.</li> </ul>
v7.6.1.0	<p>This release contained enhancements and corrections for Vertiv™ Liebert® EXL S1 (YDN23).</p>
v7.7.0.0	<p>This release contained enhancements, updates, and corrections for the following products:</p> <ul style="list-style-type: none"> <li>• Vertiv™ Liebert® CRV/PACC</li> <li>• Vertiv™ Liebert® APM NXr</li> <li>• Vertiv™ Liebert® EXL S1</li> <li>• Vertiv™ Liebert® iCOM™ PA XDU</li> <li>• Vertiv™ Liebert® ITA2_8K</li> </ul>
v7.8.0.0	<p>This release contained the following enhancements, updates, and corrections:</p> <ul style="list-style-type: none"> <li>• Vertiv™ Edge initial release</li> <li>• CRV10/PACC</li> <li>• Vertiv™ Liebert® EXL</li> <li>• Vertiv™ Liebert® iCOM™ PA XDU</li> <li>• Vertiv™ Liebert® EXS Frame 2, Frame 3</li> <li>• Compliance with California IoT Law</li> <li>• Account lockout for 15 minutes after 3 failed login attempts</li> </ul>
V7.9.2.0	<p>This release contained the following enhancements, updates, and corrections:</p> <ul style="list-style-type: none"> <li>• Corrected an unintended reboot condition when a BACnet/MSTP BMS was in use.</li> <li>• Vertiv™ Liebert® Trinergy™ Cube initial release</li> <li>• Vertiv™ Liebert® iCOM™ Edge CR012,</li> <li>• Vertiv™ Liebert® iCOM™ Edge CR025</li> <li>• Vertiv™ Liebert® iCOM™ Edge CR030</li> <li>• Vertiv™ Liebert® iCOM™ Edge PeX4</li> <li>• Vertiv™ Liebert® iCOM™ CWA</li> <li>• Vertiv™ Liebert® iCOM™ XDU</li> <li>• Vertiv™ Liebert® EXL S1</li> </ul>

RELEASE	DESCRIPTION
v8.0.0.0	<p>This release contained the following enhancements, updates, and corrections:</p> <ul style="list-style-type: none"> <li>• Vertiv™ Liebert® EXM2</li> <li>• Vertiv™ Liebert® APM160</li> <li>• Vertiv™ Liebert® XDM</li> <li>• LLDP protocol support</li> <li>• Password Complexity implemented</li> <li>• Authorization Management Vulnerability mitigated</li> </ul>
v8.0.0.1	Corrected the “Generate Self-Signed SSL Certificate” functionality.
v8.0.0.2	Corrected the issue on the IS-UNITY-SNMP card where several pages under the Communication tab were not displayed.
v8.0.2.0	<p>This release contained the following enhancements, updates, and corrections:</p> <ul style="list-style-type: none"> <li>• NTP updated to v4</li> <li>• Web Server HTTPS only mode added (HTTP redirect disabled)</li> <li>• Added CAHU</li> <li>• Added CRV4</li> <li>• Added CRV4-12K</li> <li>• Added DME2</li> <li>• Vertiv™ Liebert® EXL S1 - Incremental data point support for Fan Speed and Grid Services</li> </ul>
v8.0.3.0	<p>This release contained the following enhancements, updates, and corrections:</p> <ul style="list-style-type: none"> <li>• Vertiv™ Liebert® STS2 (v4 protocol)</li> <li>• Vertiv™ Liebert® ITA2 Li</li> <li>• Vertiv™ Liebert® EXM</li> <li>• Vertiv™ Liebert® EXM2</li> <li>• Vertiv™ Liebert® APM600</li> <li>• Vertiv™ Liebert® iCOM™</li> </ul>
v8.1.0.0	<p>This release contained the following enhancements, updates, and corrections:</p> <ul style="list-style-type: none"> <li>• New PWA to support alternate flash memory</li> <li>• Vertiv™ Liebert® EXM2</li> <li>• Vertiv™ Liebert® ITA2 30-40K</li> </ul>
v8.1.1.0	<p>This release contained the following enhancements, updates, and corrections:</p> <ul style="list-style-type: none"> <li>• Support added for the following devices: Vertiv™ Liebert® CRC300-600 with Vertiv™ Liebert® iCOM™ Edge and Vertiv™ Liebert® CRD 25-35 with Vertiv™ Liebert® iCOM™ Edge</li> <li>• Incremental data point support for: Vertiv™ Liebert® DME2 with Vertiv™ Liebert® iCOM™ Edge, Vertiv™ Liebert® PEX4WCFC, and Vertiv™ Liebert® CAHU</li> </ul>

RELEASE	DESCRIPTION
	<p>This release contained the following enhancements, updates, and corrections:</p> <ul style="list-style-type: none"> <li>• Partial API support</li> <li>• Remote Syslog</li> </ul>
v8.2.0.0	<ul style="list-style-type: none"> <li>• Major package updates to mitigate sec package updates to mitigate security vulnerabilities: Apache – 2.4.48, OpenSSL - 1.0.2u, OpenSSH – 8.8p1</li> <li>• Added Vertiv™ Liebert® APM Plus device support</li> </ul>
v8.2.1.0	<ul style="list-style-type: none"> <li>• Vertiv™ Liebert® EXL S1 incremental update</li> <li>• Corrected NTP behavior where a customer assigned NTP server address was being overwritten with a DHCP assigned NTP server address</li> </ul>
v8.2.2.0	<ul style="list-style-type: none"> <li>• Vertiv™ Liebert® ITA2 incremental update</li> </ul>
V8.2.3.0	<ul style="list-style-type: none"> <li>• Added Vertiv™ Liebert® GXE3 6-10kVA product support</li> </ul>
v8.3.0.0	<ul style="list-style-type: none"> <li>• Updated Remote Services connectivity</li> <li>• Added Vertiv™ Power Insight and VxRail integration</li> <li>• Corrected SNMPv3 engine reboot count that was not integrating</li> <li>• Updated to include key strength when generating self-signed certificates</li> </ul>
v8.3.1.0	<ul style="list-style-type: none"> <li>• Added Vertiv™ Liebert® GXE3 1-3 kVA support</li> </ul>
v8.4.0.0	<ul style="list-style-type: none"> <li>• Added Vertiv™ Liebert® APM2 device support</li> </ul>
v8.4.1.0	<ul style="list-style-type: none"> <li>• Added Vertiv™ Liebert® MTP device support</li> <li>• Vertiv™ Liebert® ITA2 incremental update</li> <li>• Vertiv™ Liebert® iCOM™ 2 incremental update</li> </ul>
v8.4.2.0	<ul style="list-style-type: none"> <li>• Added Vertiv™ Liebert® Wallmate with Vertiv™ Liebert® iCOM™ Edge.</li> <li>• Added Vertiv™ Liebert® CRD30 &amp; CRD40 DX with Vertiv™ Liebert® iCOM™ Edge.</li> <li>• Added incremental update for Vertiv™ Liebert® APM2.</li> <li>• Added incremental updates for Vertiv™ Liebert® PEX4.</li> <li>• Added incremental updates for Vertiv™ Liebert® iCOM2 PA.</li> <li>• Added incremental updates for Vertiv™ Liebert® CRV4.</li> <li>• Added incremental updates for Vertiv™ Liebert® CRD025 – 035 EMEA.</li> <li>• Added 802.1X Port-Based Network Access Control (PNAC).</li> <li>• Added Admin Account creation dialogue – HTTP Enable option.</li> </ul>