LINC 360

Controller Web Interface

User Manual

6002, Rev. 1.2, 2025/03/12

ADB SAFEGATE

A.0 Disclaimer / Standard Warranty

CE certification

The equipment listed as CE certified means that the product complies with the essential requirements concerning safety and hygiene. The European directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

ETL certification

The equipment listed as ETL certified means that the product complies with the essential requirements concerning safety and C22.2 No.180:13 (R2018) regulations. The CSA directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

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ADB SAFEGATE will correct by repair or replacement per the applicable guarantee below, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, and provided further that Buyer gives ADB SAFEGATE written notice of such defects after delivery of the goods to Buyer. Refer to the Safety section for more information on Material Handling Precautions and Storage precautions that must be followed.

ADB SAFEGATE reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. ADB SAFEGATE furthers reserves the right to require the return of such goods to establish any claim.

ADB SAFEGATE's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such new parts to be furnished.

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Products manufactured by ADB SAFEGATE are guaranteed against mechanical, electrical, and physical defects (excluding lamps) which may occur during proper and normal use for a period of two years from the date of ex-works delivery, and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made.

Note

See your applicable sales agreement for a complete warranty description.

Replaced or repaired equipment under warranty falls into the warranty of the original delivery. No new warranty period is started for these replaced or repaired products.

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ADB SAFEGATE LED products (with the exception of obstruction lighting) are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years from date of installation, per FAA EB67 (applicable edition). These FAA certified constant current (series) powered LED products must be installed, interfaced and powered with and through products certified under the FAA Airfield Lighting Equipment Program (ALECP) to be included in this 4 (four) year warranty. This includes, but is not limited to, interface with products such as Base Cans, Isolation Transformers, Connectors, Wiring, and Constant Current Regulators.

Note

See your sales order contract for a complete warranty description.

Replaced or repaired equipment under warranty falls into the warranty of the original delivery. No new warranty period is started for these replaced or repaired products.

Liability

WARNING

Use of the equipment in ways other than described in the catalog leaflet and the manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in the manual.

ADB SAFEGATE cannot be held responsible for injuries or damages resulting from non-standard, unintended uses of its equipment. The equipment is designed and intended only for the purpose described in the manual. Uses not described in the manual are considered unintended uses and may result in serious personal injury, death or property damage.

Unintended uses, includes the following actions:

- Making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine ADB SAFEGATE replacement parts or accessories.
- Failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards if not in contradiction with the general rules.
- Using materials or auxiliary equipment that are inappropriate or incompatible with your ADB SAFEGATE equipment.
- Allowing unskilled personnel to perform any task on or with the equipment.

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1.0 Safety

Introduction to Safety

This section contains general safety instructions for installing and using ADB SAFEGATE equipment. Some safety instructions may not apply to the equipment in this manual. Task- and equipment-specific warnings are included in other sections of this manual where appropriate.

1.1 Safety Messages

HAZARD Icons used in the manual

For all HAZARD symbols in use, see the Safety section. All symbols must comply with ISO and ANSI standards.

Carefully read and observe all safety instructions in this manual, which alert you to safety hazards and conditions that may result in personal injury, death or property and equipment damage and are accompanied by the symbol shown below.

	WARNING Failure to observe a warning may result in personal injury, death or equipment damage.
	DANGER – Risk of electrical shock or ARC FLASH Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage. ARC Flash may cause blindness, severe burns or death.
	WARNING – Wear personal protective equipment Failure to observe may result in serious injury.
	WARNING – Do not touch Failure to observe this warning may result in personal injury, death, or equipment damage.
	CAUTION Failure to observe a caution may result in equipment damage.
	ELECTROSTATIC SENSITIVE DEVICES This equipment may contain electrostatic devices.

Qualified Personnel

	**Important Information** The term **qualified personnel** is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain and repair the equipment. It is the responsibility of the company operating this equipment to ensure that its personnel meet these requirements. Always use required personal protective equipment (PPE) and follow safe electrical work practice.

1.1.1 Introduction to Safety

CAUTION

Unsafe Equipment Use
This equipment may contain electrostatic devices, hazardous voltages and sharp edges on components

- Read installation instructions in their entirety before starting installation.
- Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.
- Read and carefully follow the instructions throughout this manual for performing specific tasks and working with specific equipment.
- Make this manual available to personnel installing, operating, maintaining or repairing this equipment.
- Follow all applicable safety procedures required by your company, industry standards and government or other regulatory agencies.
- Install all electrical connections to local code.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect equipment with safety devices as specified by applicable safety regulations
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning prior to returning power to the circuit.

Failure to follow this instruction can result in serious injury or equipment damage

Additional Reference Materials

Important Information

- IEC – International Standards and Conformity Assessment for all electrical, electronic and related technologies.
- IEC 60364 – Electrical Installations in Buildings.
- CSA – C22.2 No.180:13 (R2018), series isolating transformers for airport lighting.
- FAA Advisory: AC 150/5340-26 (current edition), Maintenance of Airport Visual Aid Facilities.
- Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- National and local electrical codes and standards.

1.1.2 Intended Use

CAUTION

Use this equipment as intended by the manufacturer
This equipment is designed to perform a specific function, do not use this equipment for other purposes

- Using this equipment in ways other than described in this manual may result in personal injury, death or property and equipment damage. Use this equipment only as described in this manual.

Failure to follow this instruction can result in serious injury or equipment damage

1.1.3 Operation Safety

CAUTION

Improper Operation
Do Not Operate this equipment other than as specified by the manufacturer

- Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, should operate this equipment.
- Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you operate the system safely and efficiently.
- Before starting this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Never operate equipment with a known malfunction.
- Do not attempt to operate or service electrical equipment if standing water is present.
- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
- Never touch exposed electrical connections on equipment while the power is ON.

Failure to follow these instructions can result in equipment damage

1.1.4 Maintenance Safety

DANGER

ELECTRIC SHOCK HAZARD
THIS EQUIPMENT MAY CONTAIN ELECTROSTATIC DEVICES

- DO NOT OPERATE A SYSTEM THAT CONTAINS MALFUNCTIONING COMPONENTS. IF A COMPONENT MALFUNCTIONS, TURN THE SYSTEM OFF IMMEDIATELY.
- DISCONNECT AND LOCK OUT ELECTRICAL POWER.
- ALLOW ONLY QUALIFIED PERSONNEL TO MAKE REPAIRS. REPAIR OR REPLACE THE MALFUNCTIONING COMPONENT ACCORDING TO INSTRUCTIONS PROVIDED IN ITS MANUAL.

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN DEATH OR EQUIPMENT DAMAGE

1.1.5 Material Handling Precautions, ESD

CAUTION

Electrostatic Sensitive Devices
This equipment may contain electrostatic devices

- Protect from electrostatic discharge.
- Electronic modules and components should be touched only when this is unavoidable e.g. soldering, replacement.
- Before touching any component of the cabinet you shall bring your body to the same potential as the cabinet by touching a conductive earthed part of the cabinet.
- Electronic modules or components must not be brought in contact with highly insulating materials such as plastic sheets, synthetic fiber clothing. They must be laid down on conductive surfaces.
- The tip of the soldering iron must be grounded.
- Electronic modules and components must be stored and transported in conductive packing.

Failure to follow this instruction can result in equipment damage

1.1.6 Arc Flash and Electric Shock Hazard

DANGER

SERIES CIRCUITS HAVE HAZARDOUS VOLTAGES
THIS EQUIPMENT PRODUCES HIGH VOLTAGES TO MAINTAIN THE SPECIFIED CURRENT - DO NOT DISCONNECT WHILE ENERGIZED.

- ALLOW ONLY QUALIFIED PERSONNEL TO PERFORM MAINTENANCE, TROUBLESHOOTING, AND REPAIR TASKS.
- ONLY PERSONS WHO ARE PROPERLY TRAINED AND FAMILIAR WITH ADB SAFEGATE EQUIPMENT ARE PERMITTED TO SERVICE THIS EQUIPMENT.
- AN OPEN AIRFIELD CURRENT CIRCUIT IS CAPABLE OF GENERATING >5000 VAC AND MAY APPEAR OFF TO A METER.
- NEVER UNPLUG A DEVICE FROM A CONSTANT CURRENT CIRCUIT WHILE IT IS OPERATING; ARC FLASH MAY RESULT.
- DISCONNECT AND LOCK OUT ELECTRICAL POWER.
- ALWAYS USE SAFETY DEVICES WHEN WORKING ON THIS EQUIPMENT.
- FOLLOW THE RECOMMENDED MAINTENANCE PROCEDURES IN THE PRODUCT MANUALS.
- DO NOT SERVICE OR ADJUST ANY EQUIPMENT UNLESS ANOTHER PERSON TRAINED IN FIRST AID AND CPR IS PRESENT.
- CONNECT ALL DISCONNECTED EQUIPMENT GROUND CABLES AND WIRES AFTER SERVICING EQUIPMENT. GROUND ALL CONDUCTIVE EQUIPMENT.
- USE ONLY APPROVED ADB SAFEGATE REPLACEMENT PARTS. USING UNAPPROVED PARTS OR MAKING UNAPPROVED MODIFICATIONS TO EQUIPMENT MAY VOID AGENCY APPROVALS AND CREATE SAFETY HAZARDS.
- CHECK THE INTERLOCK SYSTEMS PERIODICALLY TO ENSURE THEIR EFFECTIVENESS.
- DO NOT ATTEMPT TO SERVICE ELECTRICAL EQUIPMENT IF STANDING WATER IS PRESENT. USE CAUTION WHEN SERVICING ELECTRICAL EQUIPMENT IN A HIGH-HUMIDITY ENVIRONMENT.
- USE TOOLS WITH INSULATED HANDLES WHEN WORKING WITH AIRFIELD ELECTRICAL EQUIPMENT.

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN DEATH OR EQUIPMENT DAMAGE

2.0 Introduction

This document is a guide for using the Graphical User Interface (GUI) for standard airfield electrical configuration and maintenance activities with the ADB Safegate LINC 360 powerline carrier system. This system provides individual control and monitoring capabilities to customer-defined airfield lighting segments and provides real time feedback data for the associated fixtures.

Typical maintenance activities performed from this interface include:

- Observing and verifying the status and health of the Controller unit
- Observing and verifying the status and health of the remote units
- Individual lamp control for testing purposes
- Replace failed remote units

Note

Some features found in the interface are reserved for developer use and will not be detailed in this document

3.0 Initiate Graphical User Interface (GUI)

To initiate the GUI for a LINC 360 controller unit, use a browser window which can be found from the Windows Start Menu. Type in the IP address of the LINC 360 Controller unit in the URL field and press **Enter** to connect. (The IP address is indicated on the **Status** tab of the Controller unit's touchscreen display.)

Log In

The ADB Safegate project manager provides airport specific login information.

Figure 1: Typical image of the GUI after successfully logging in

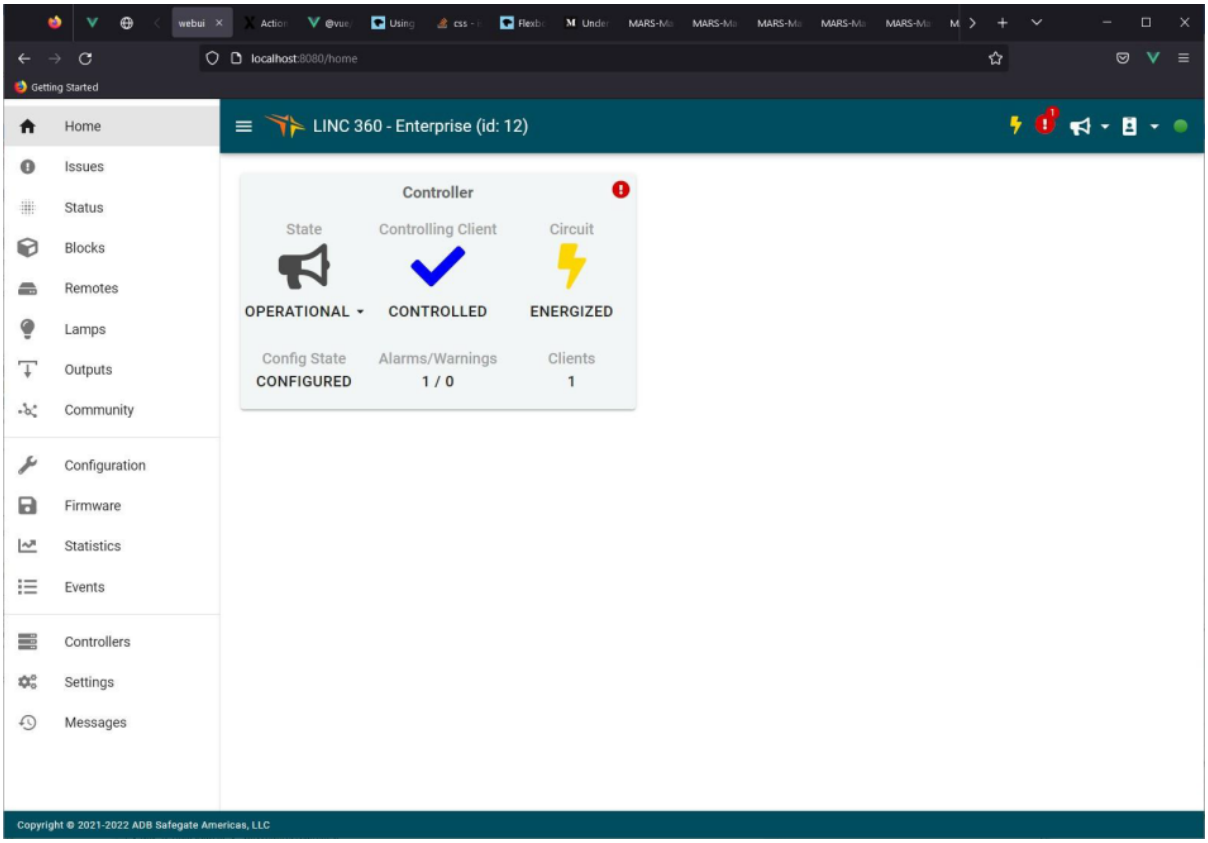
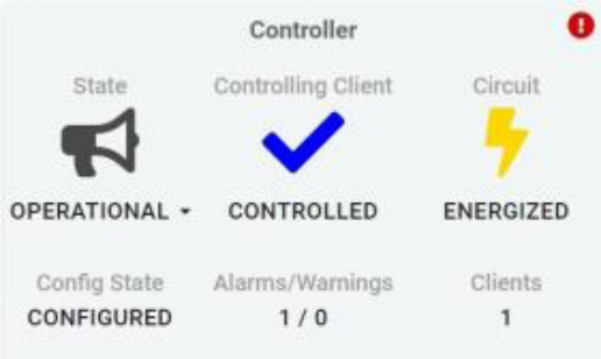


Figure 2: Controller View

Note the field that indicates real time status of the controller unit and associated field circuit:



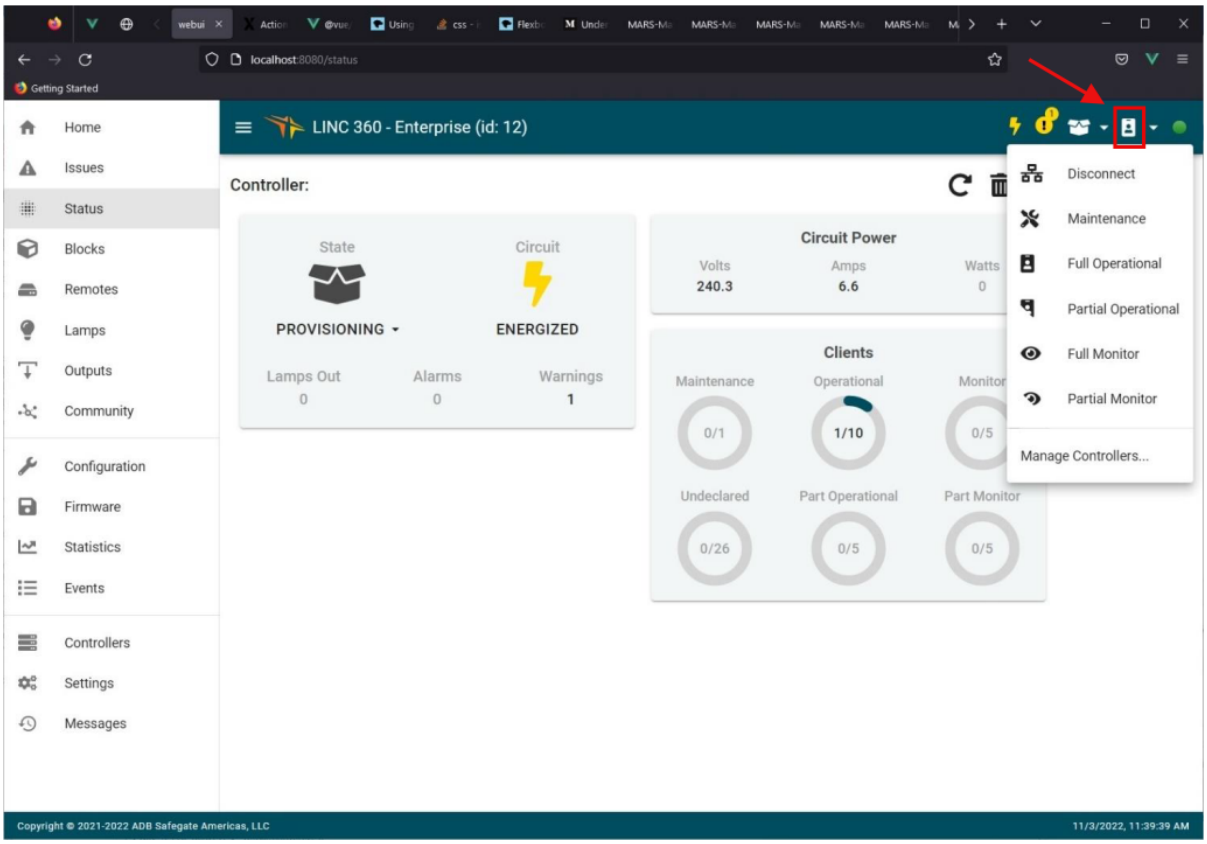
The Controller is either **Offline**, **Provisioning**, or **Operational**. It should always be **Operational** unless configuration changes are being made.

The Config State is either **No Config**, **Configured**, or **Discovery** (during a replacement it progresses through **Remote**, **Pre-Commit**, **Reset** and **Post-Commit**). It should always be **Configured** except while replacing failed remotes.

The circuit indicates **Energized** or **De-energized** depending on the status of the field circuit.

In the user dropdown menu, you can select different user profiles.

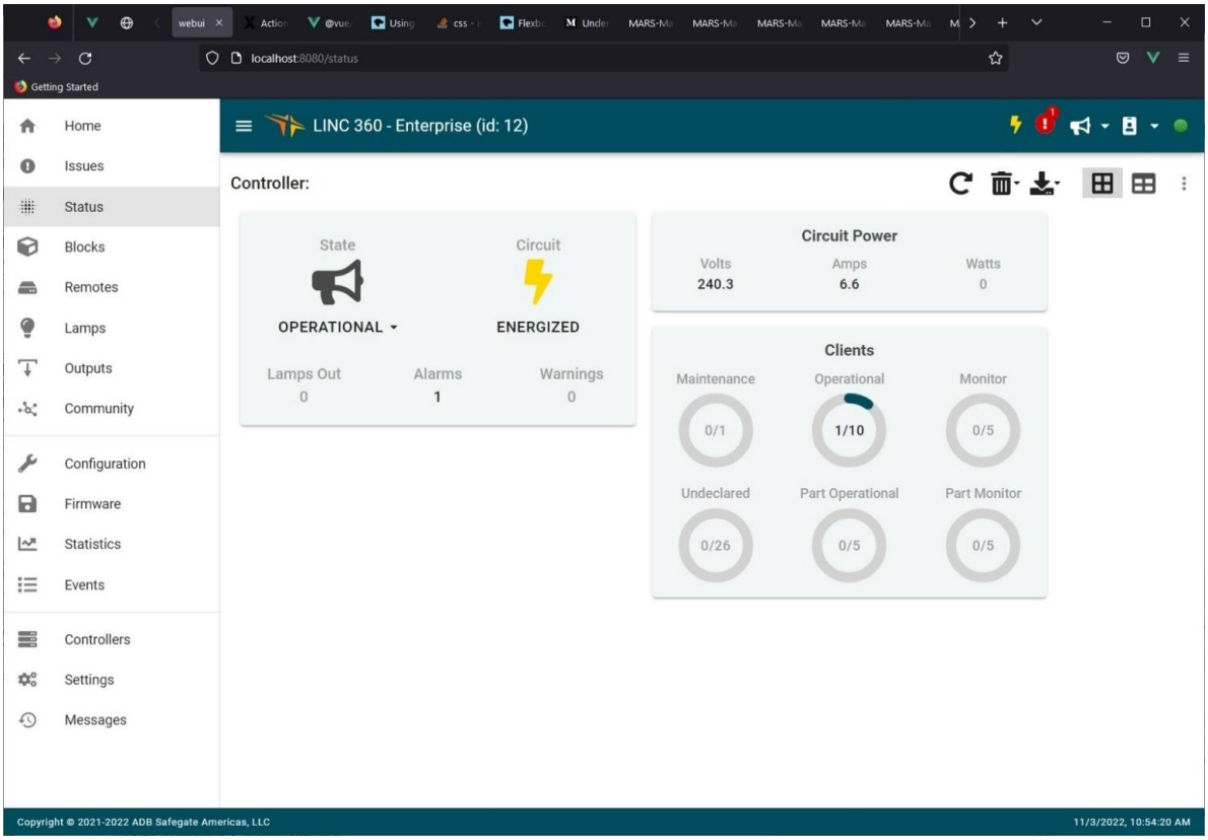
Figure 3: User Roles



Disconnect	Close the active connection to the controller
Maintenance	Can issue all commands, used for updating firmware, configuring the circuit
Full Operational	Remote replacement, command blocks & lamps, request statuses, diagnostic and logging data
Partial Operational	Command blocks, request block status
Full Monitor	Request diagnostic and logging data, and statuses
Partial Monitor	Can only request block status

4.0 Navigation

Figure 4: Example of a header



Each Header has two views which can be selected in the top right corner: **graphical** and **table**.

Figure 5: Left: Graphical selected Right: Table selected

To customize table view click on the hamburger menu (**Settings**).

Figure 6: Table View Settings

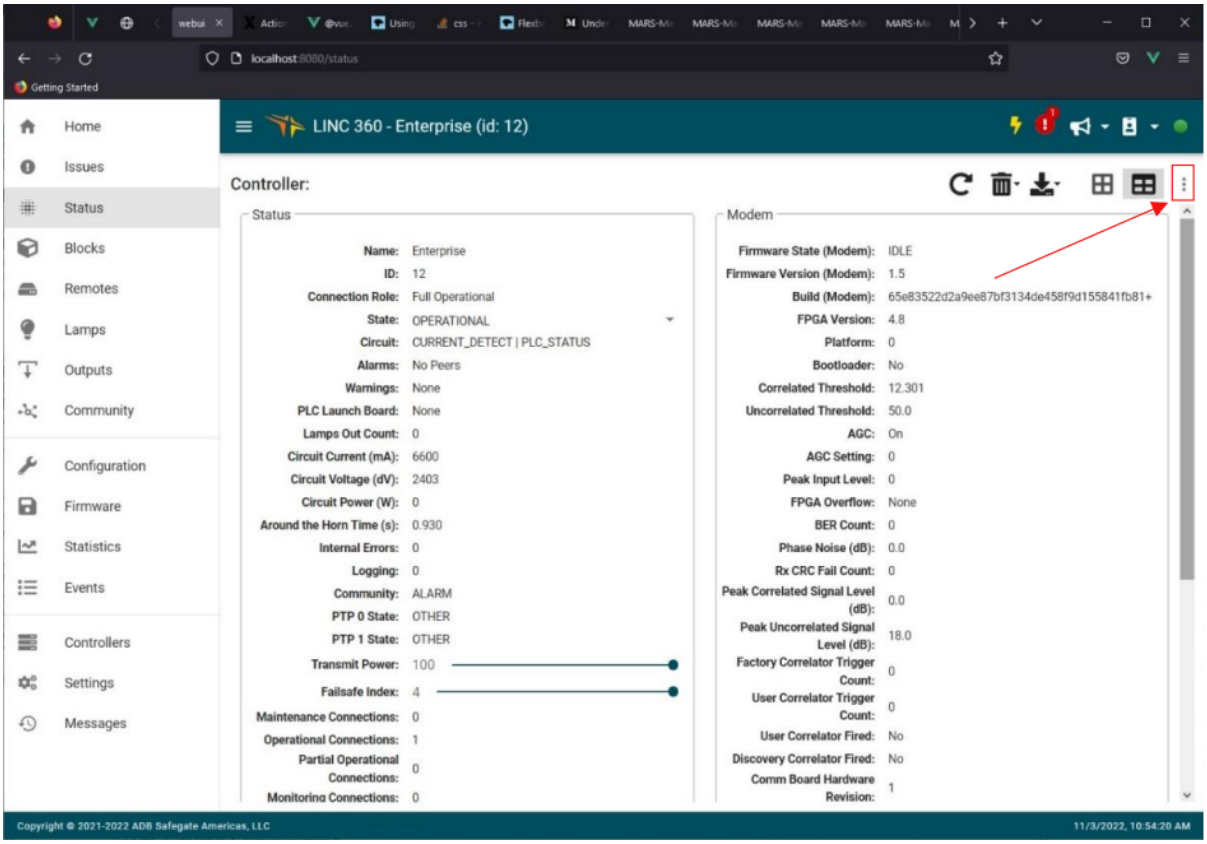
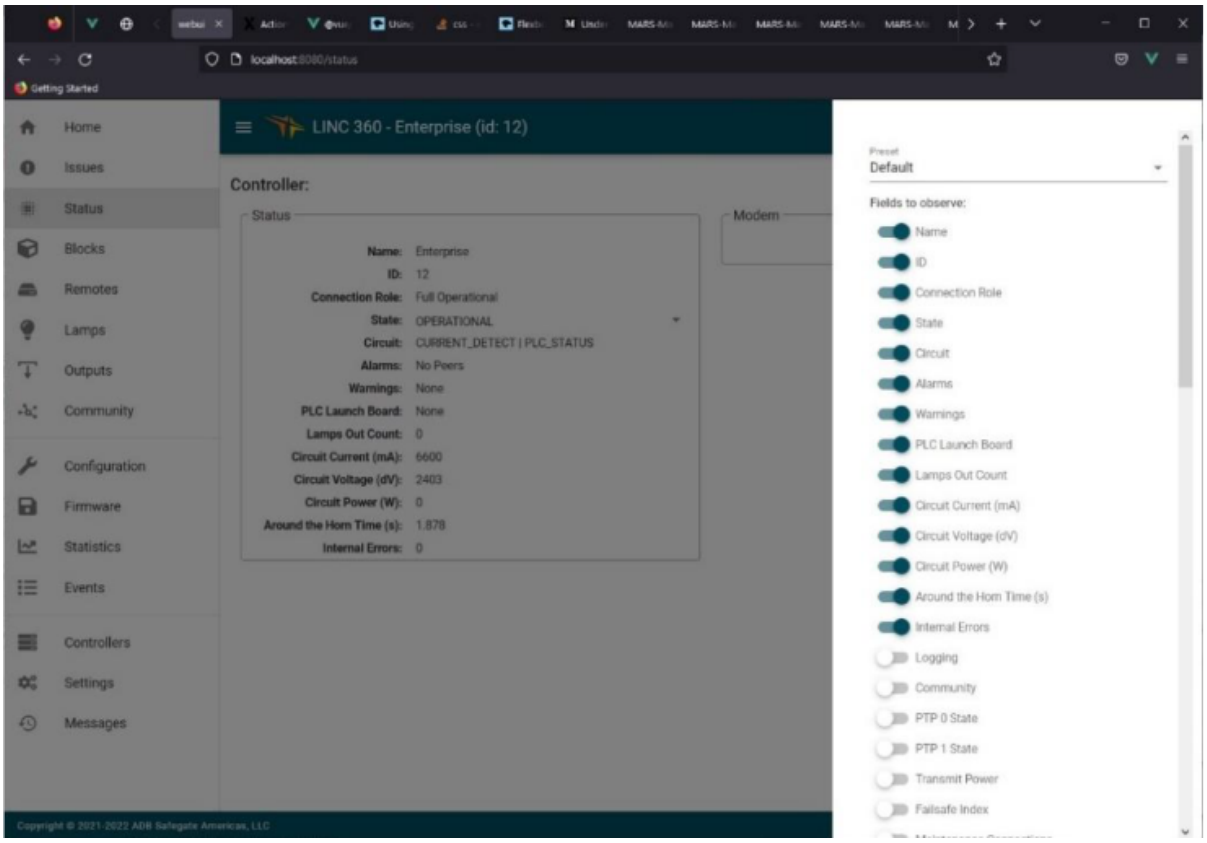


Figure 7: Table View With Settings

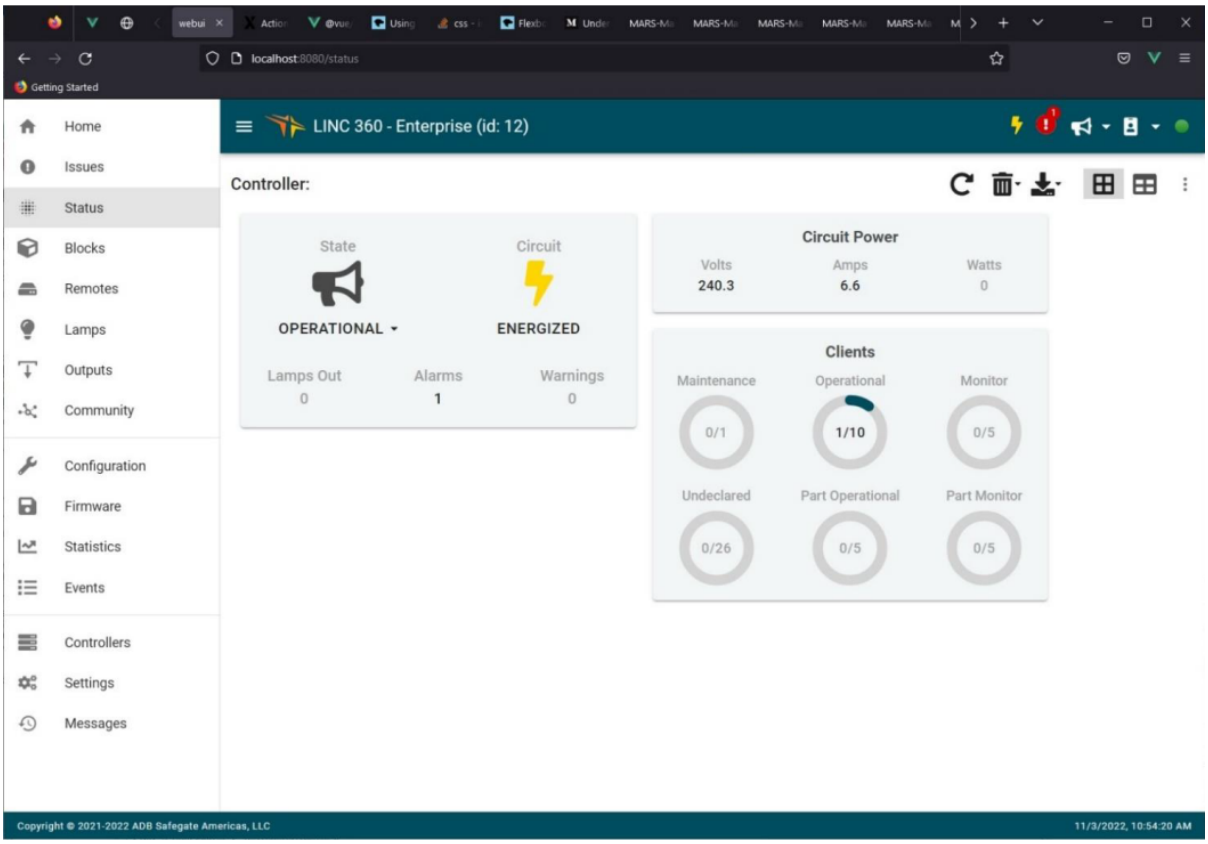


Every **Settings** tab has preset views which enable or disable data selection specific to those views.

4.1 Status Header

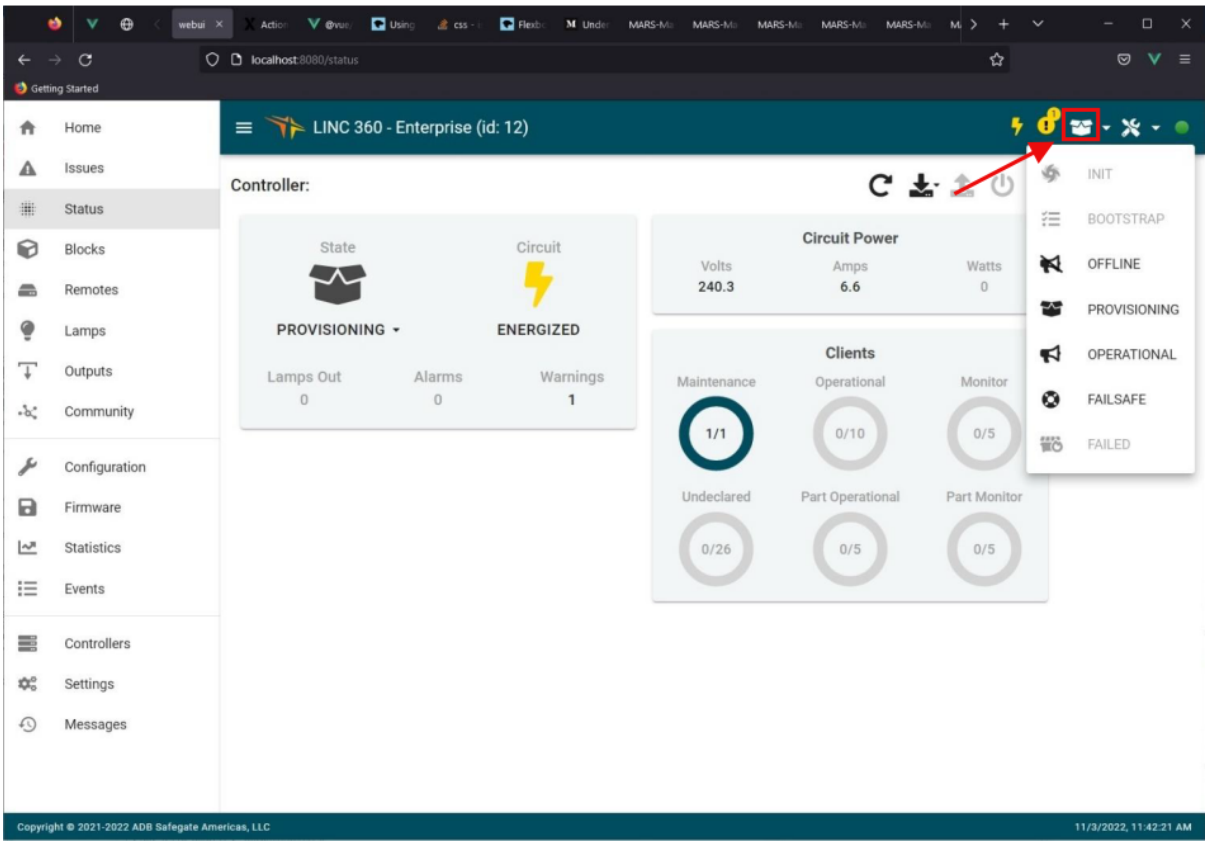
The Status Header provides real time data on the health and status of the controller unit. Besides identification and alarm indications, it also provides raw data for the output current, voltage, and wattage of the associated field circuit.

Figure 8: Status Header



To change the state of the controller click on the drop-down menu in the top right corner next to the **Issues Indicator**.

Figure 9: Change Controller State

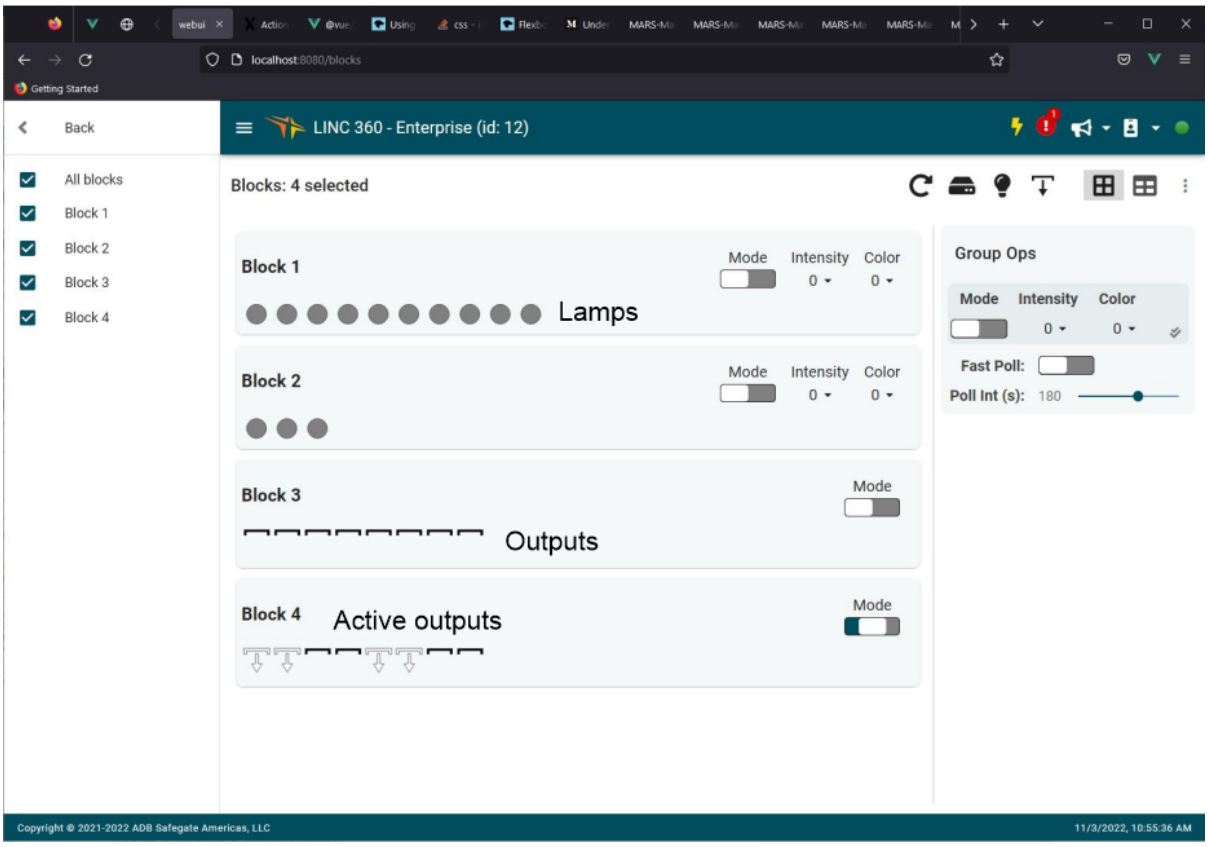


Initializing:	State after a power cycle
Bootstrap:	Blank delivery mode without IP
Offline:	No powerline communication
Provisioning:	Configuration of remotes, ATC control still possible
Operational:	ATC contro
Failsafe:	No active network connectons
Failed:	Critical failure

4.2 Blocks Header

The Blocks Header lists the different blocks (segments) defined in the configuration file and lets you individually command blocks of fixtures pre-defined by the customer.

Figure 10: Blocks Graphical Tab



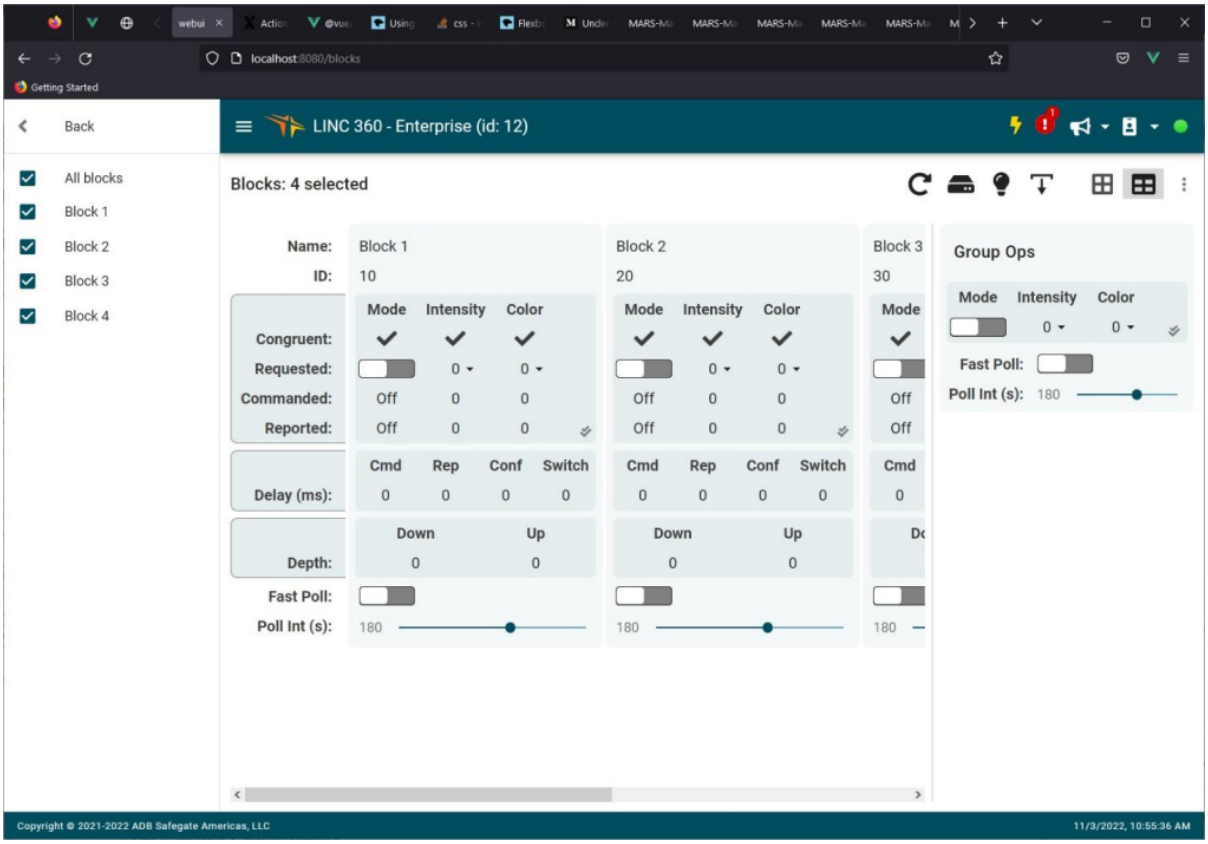
For Individual segment control click on **Mode** to move the slider and click on the **Play** symbol that appears beside it. Slider to the left with a gray color means the segment is off; to the right with a blue color means the segment is on. Slider in the middle with a blue color and gray color means undefined.

Figure 11: Left: Mode OFF Middle: Mode ON Right: Play to execute

This action temporarily overrides any existing control system commands and is present for testing and lighting checks.

The Table View displays the requested mode, commanded mode and reported mode as well as delay times for commands. Depth shows the amount of repeater waves used to reach a remote (Down) and back (Up).

Figure 12: Blocks Table View

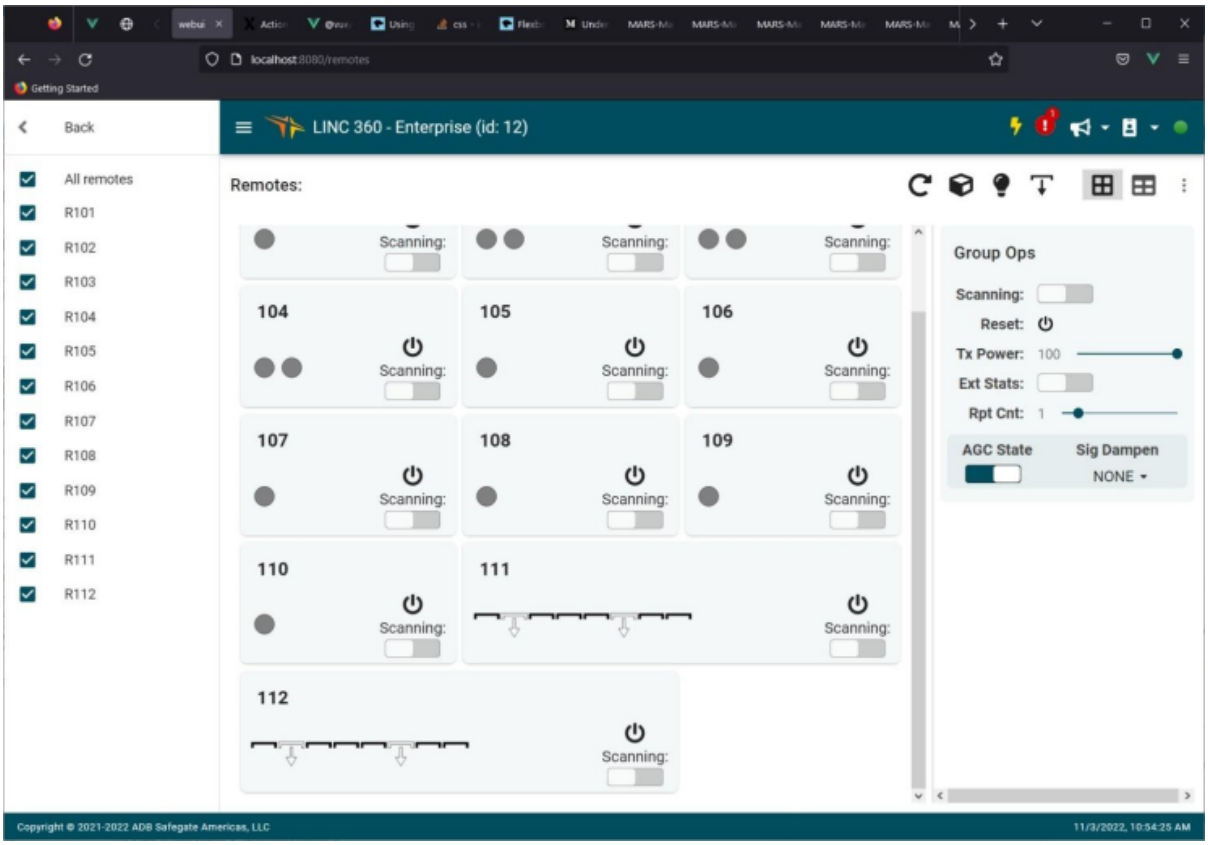


Group Ops enables the user to send a command to multiple blocks at once by making a selection in the list on the left of the screen. At the top there are quick selection buttons for easy navigation:

4.3 Remotes Header

The Remotes Header provides real time data for each of the remotes and fixtures on the field circuit.

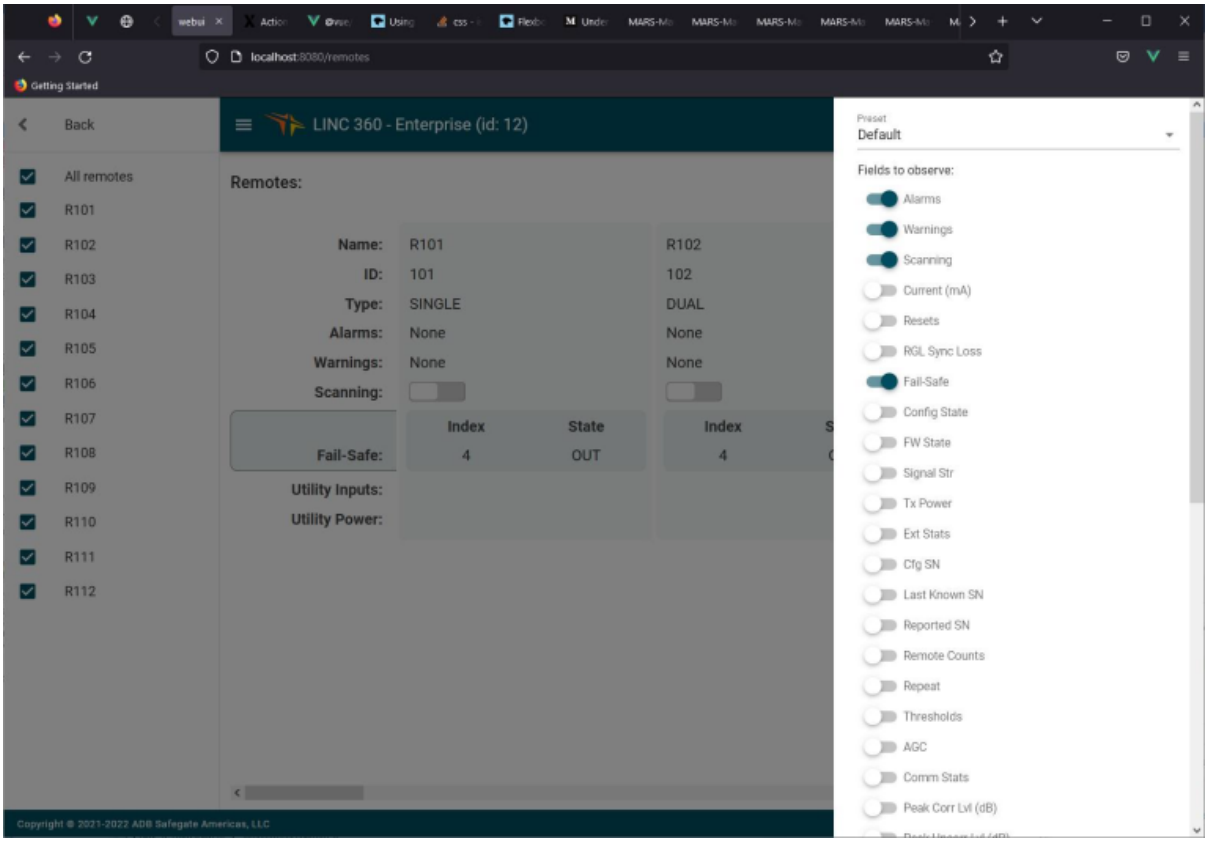
Figure 13: Remotes Header



From here the remotes can be put in scanning mode and can be reset after replacing a failed lamp in the field. In normal operation a remote is locked into one frequency from the configuration of the controller, new remotes are in scanning mode and check all frequencies for a request from a controller to configure. This is useful during a commissioning phase when trying out different frequencies for a circuit configuration.

The Table View provides more information for each individual remote and can be customized to display additional data.

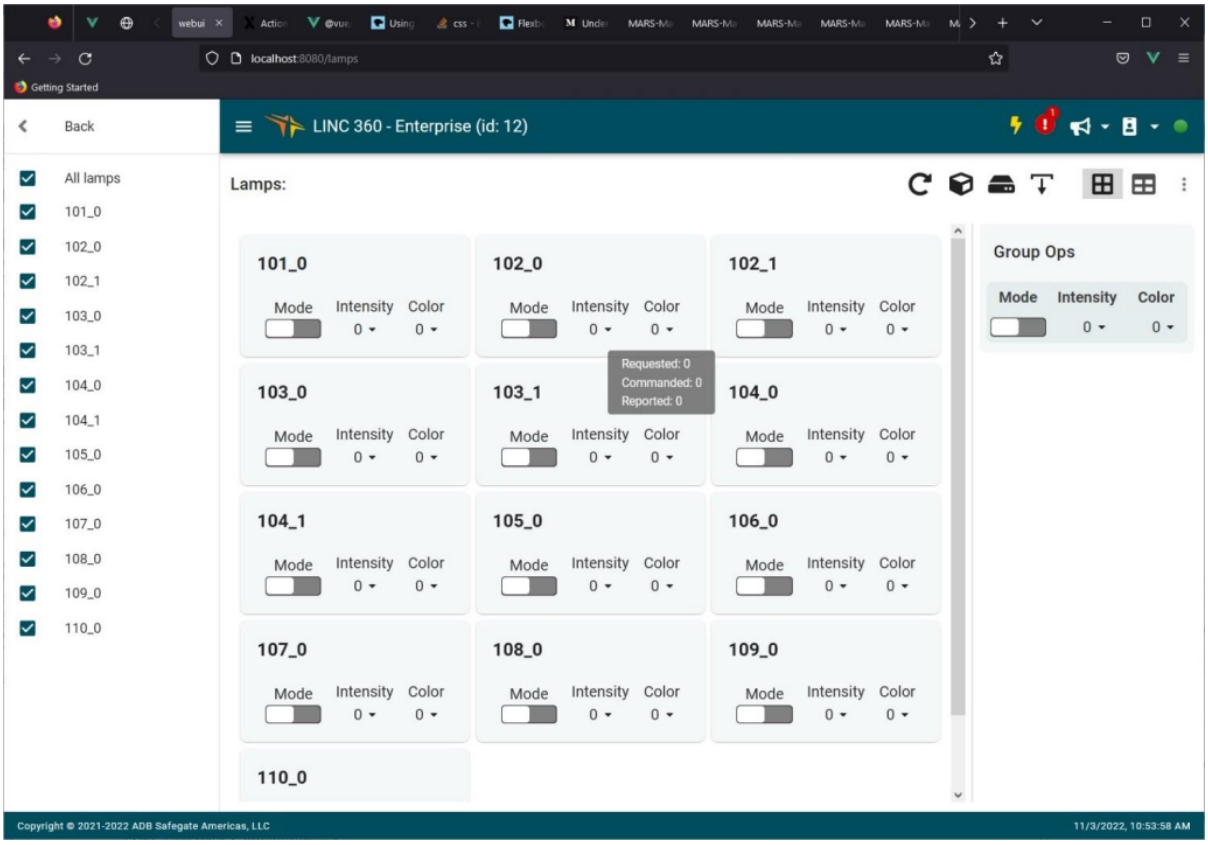
Figure 14: Remotes Table Settings



4.4 Lamps Header

The Lamps Header displays the state of each lamp. When you hover over a setting it also shows the requested, commanded, and reported state.

Figure 15: Lamps Header



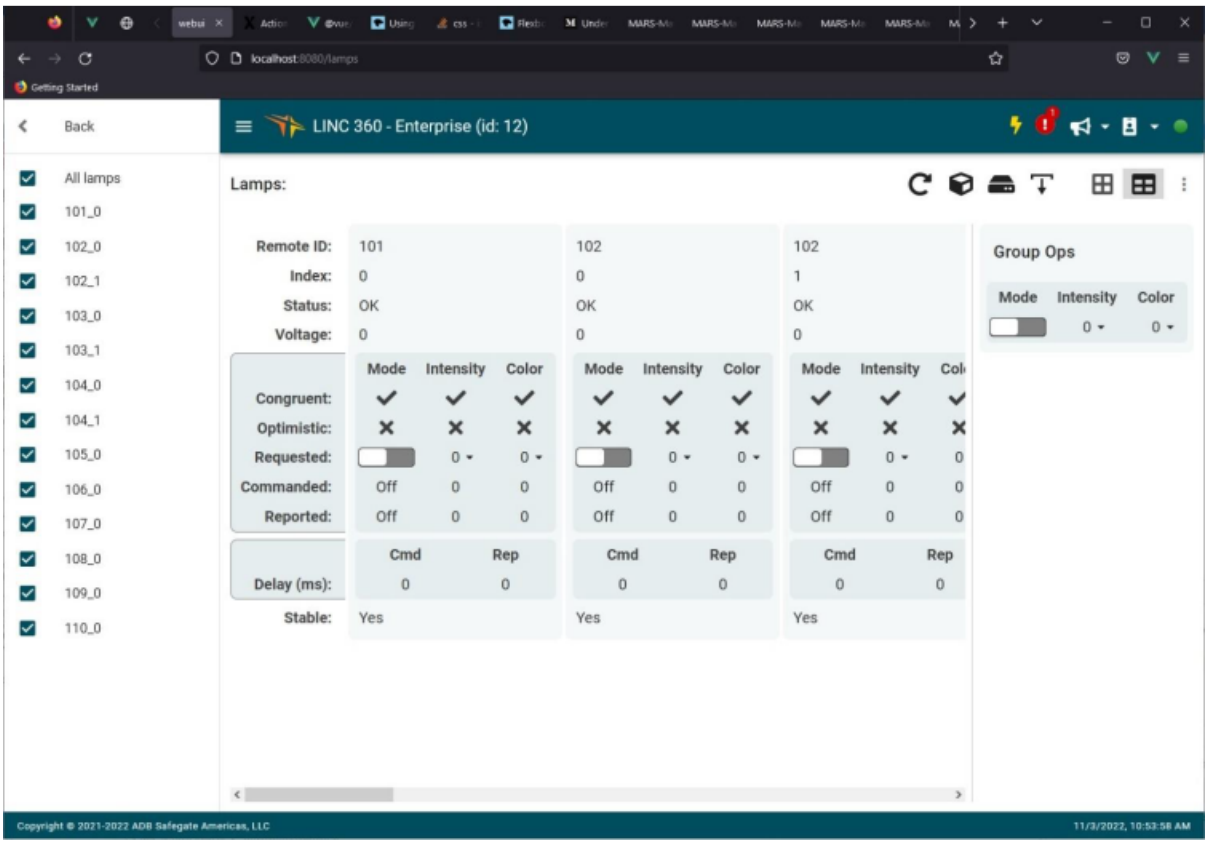
For individual lamp control click **Mode** to move the slider.
Slider to the left with gray color segment is off
Slider to the right with blue color segments is on
Slider in the middle with blue and gray colorsundefined

Intensity is not applicable for the moment.

Color only works with the Axon EQ ADAL Lights.

The Table View shows additional details such as requested status, commanded status and reported status.

Figure 16: Lamps Table View



4.5 Outputs Header

The Outputs Header displays information regarding optional I/O Utility Remotes on the field circuit for equipment such as microwave or inductive loop detectors.

Figure 17: Outputs Header

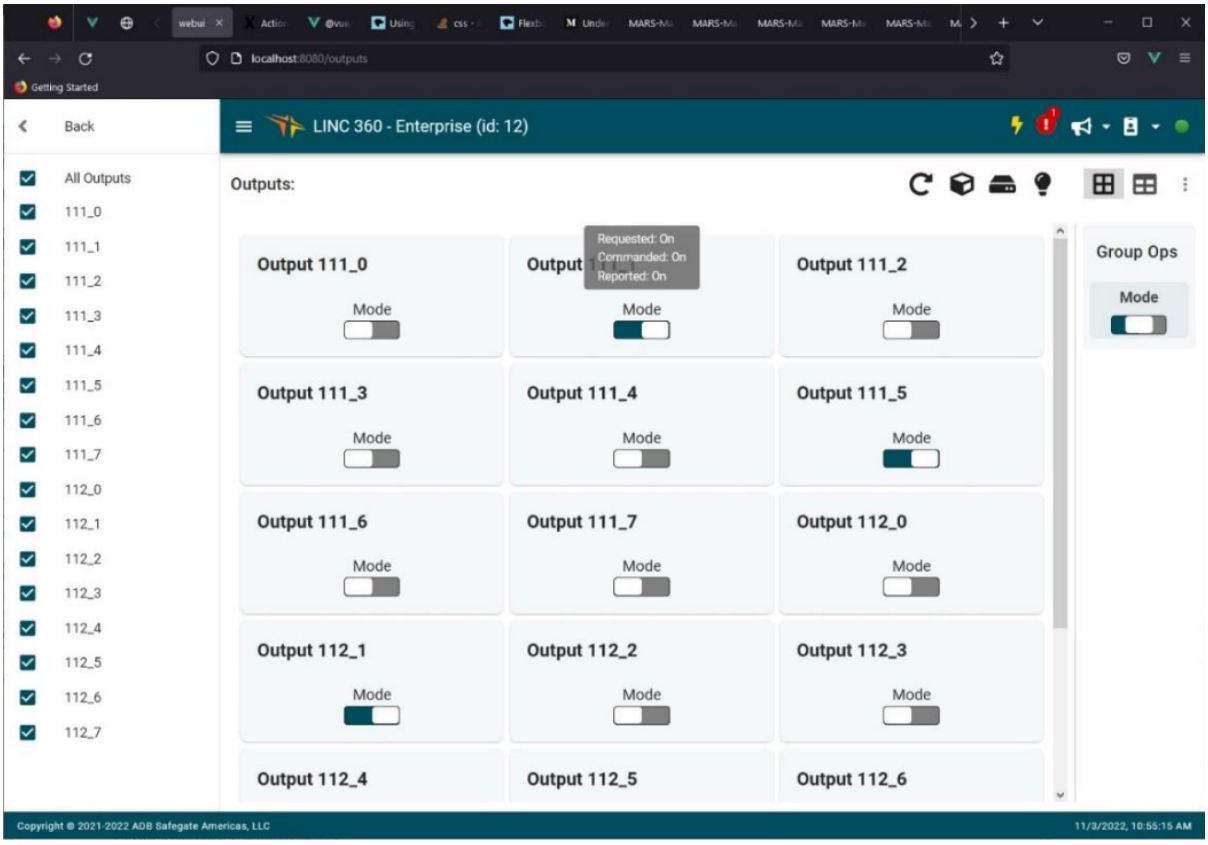
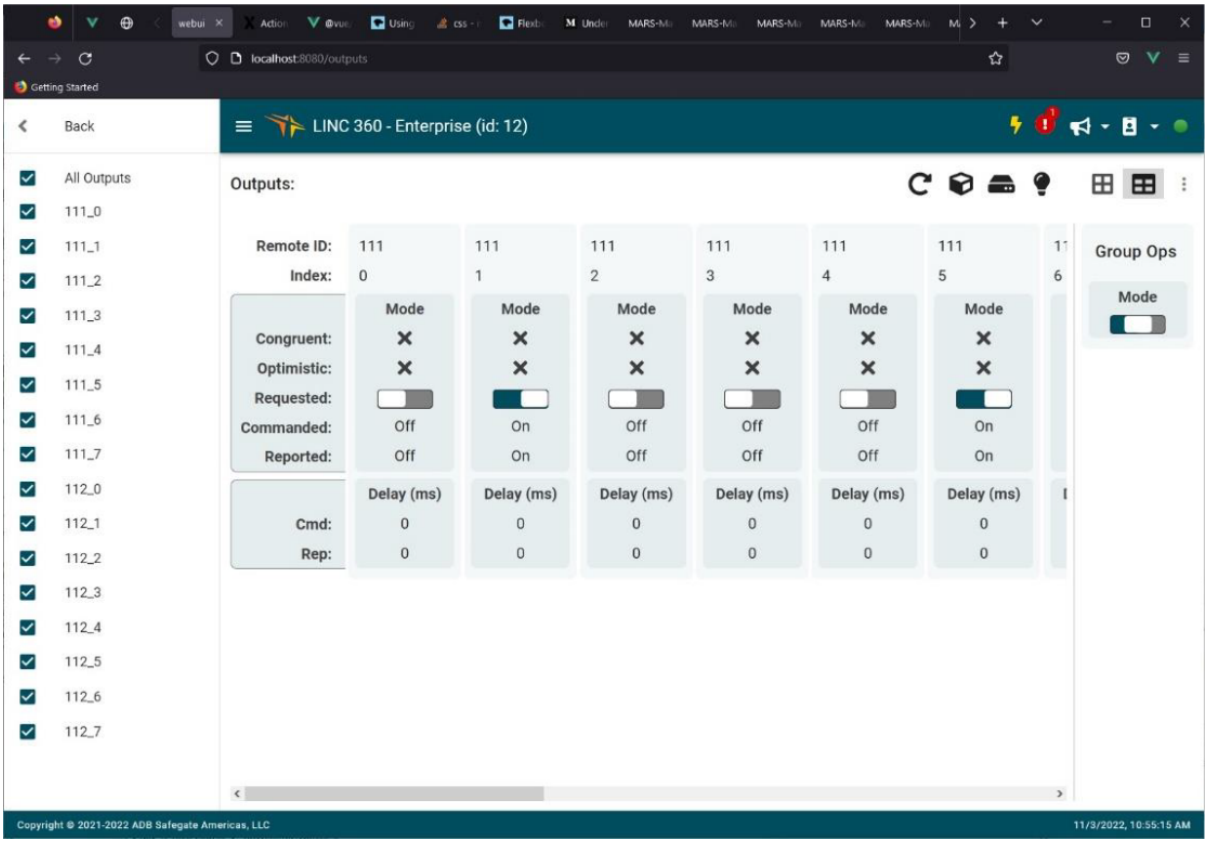


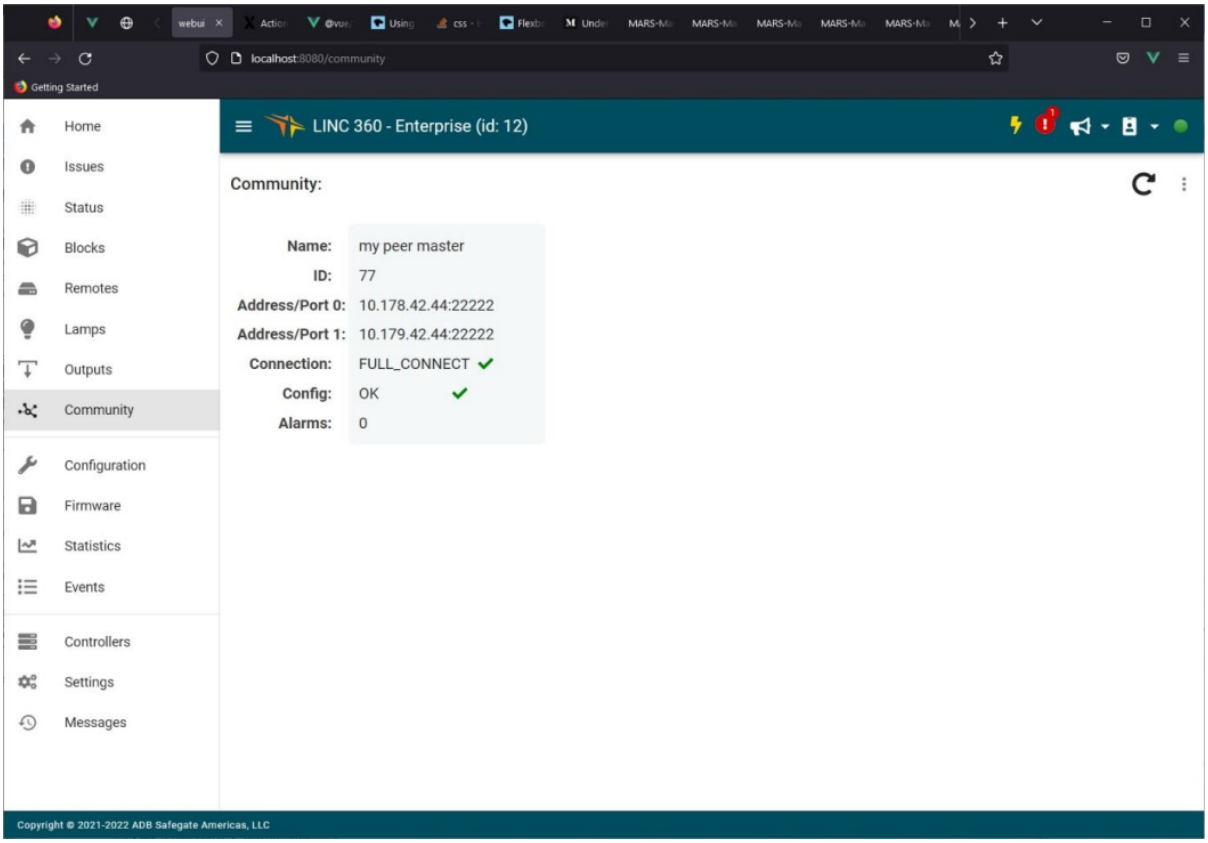
Figure 18: Outputs Table View



4.6 Community Header

The Community Header displays information regarding controllers on the same network.

Figure 19: Community Header



4.7 Configuration Header

The Configuration Header shows the configuration status of the controller and can be used to track the progress during commissioning.

Figure 20: Configuration Header

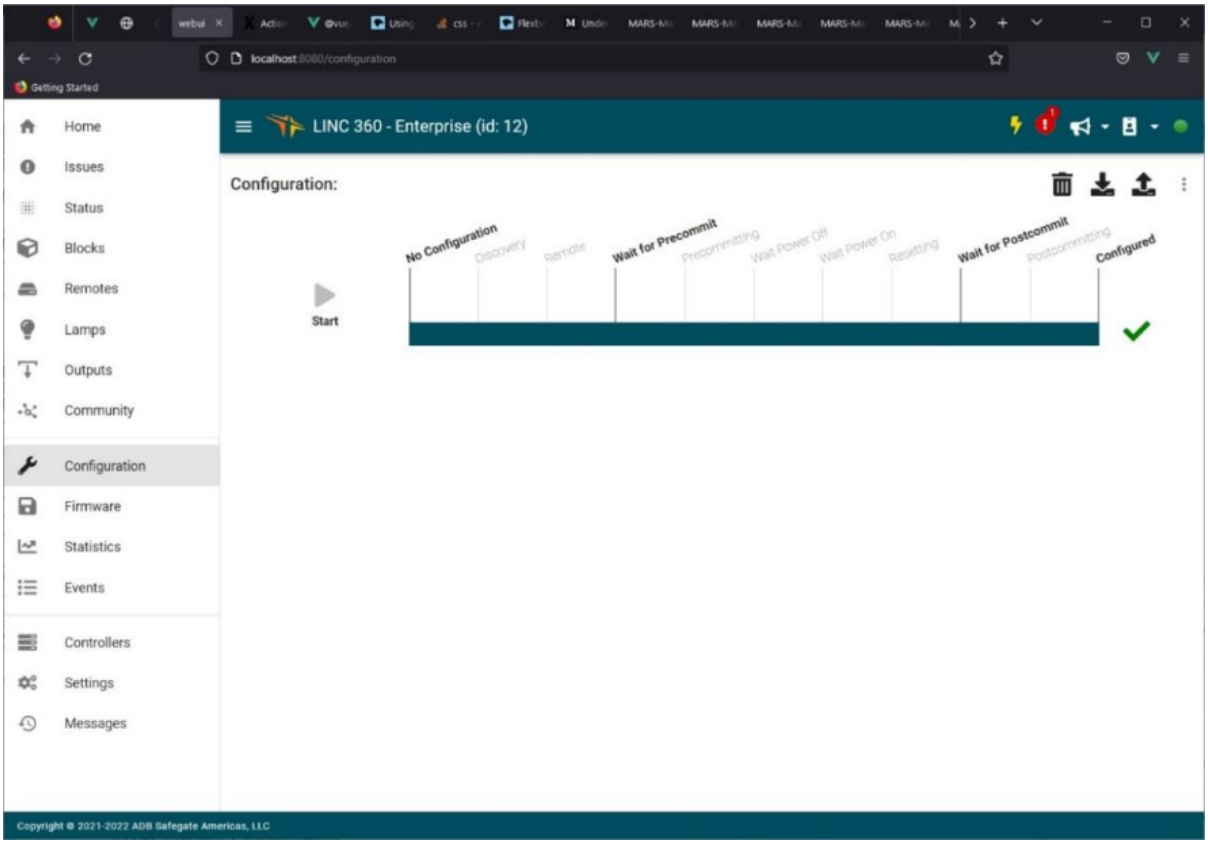


Figure 21: Configuration in Progress

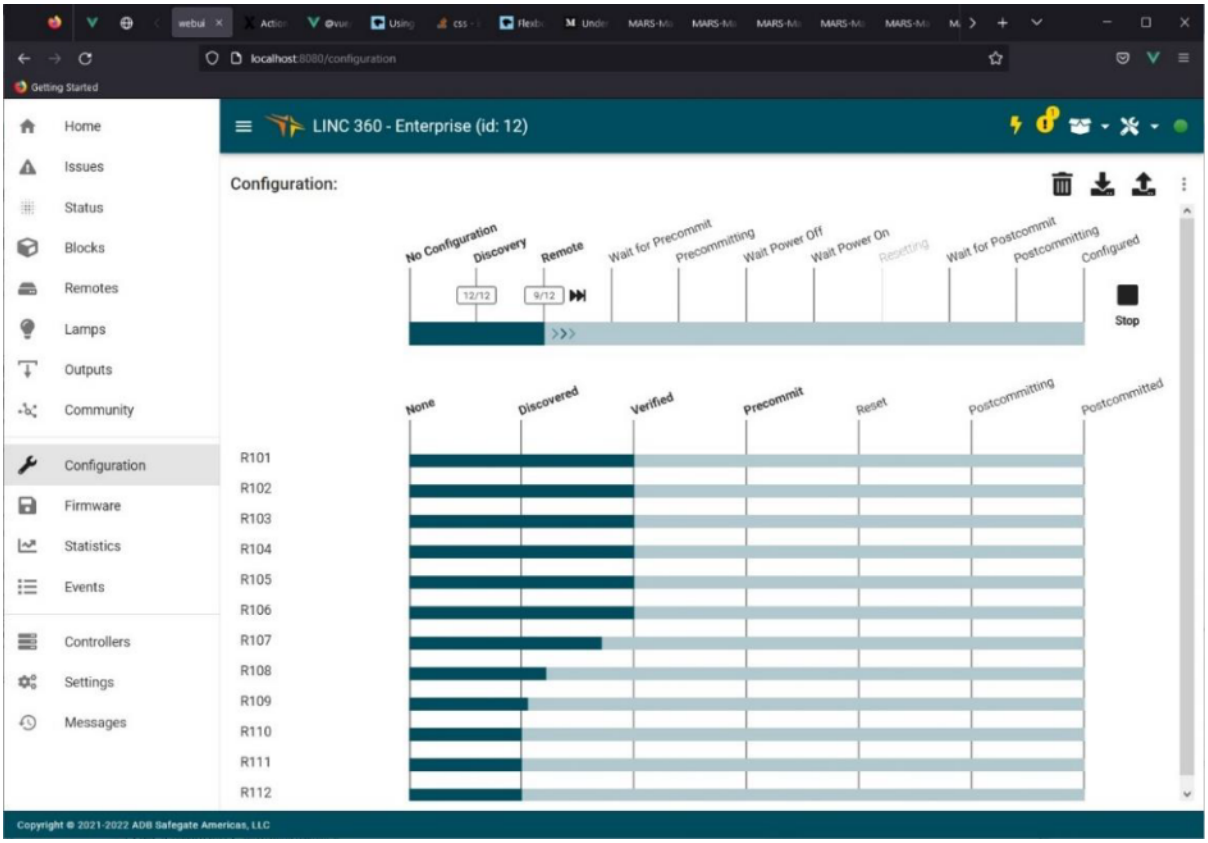


Figure 22: Configuration Waiting for User Input

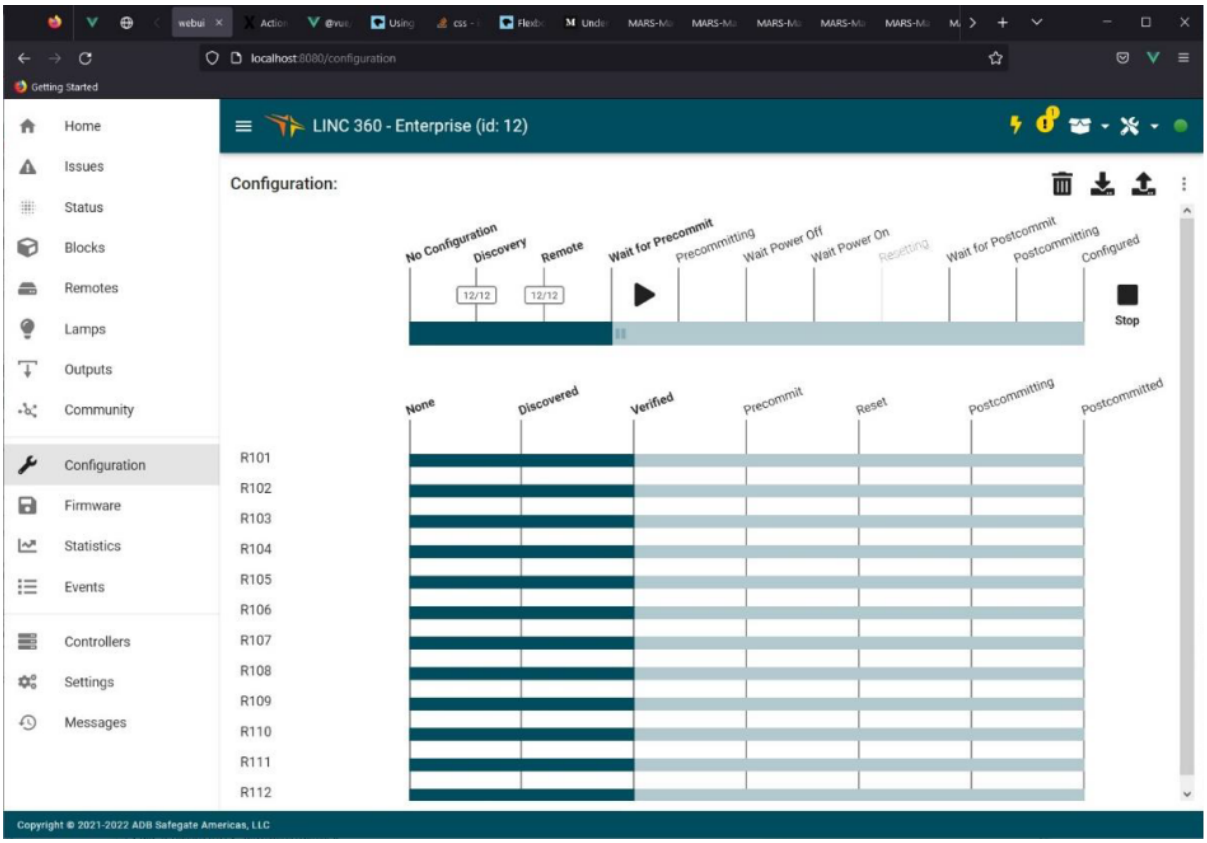
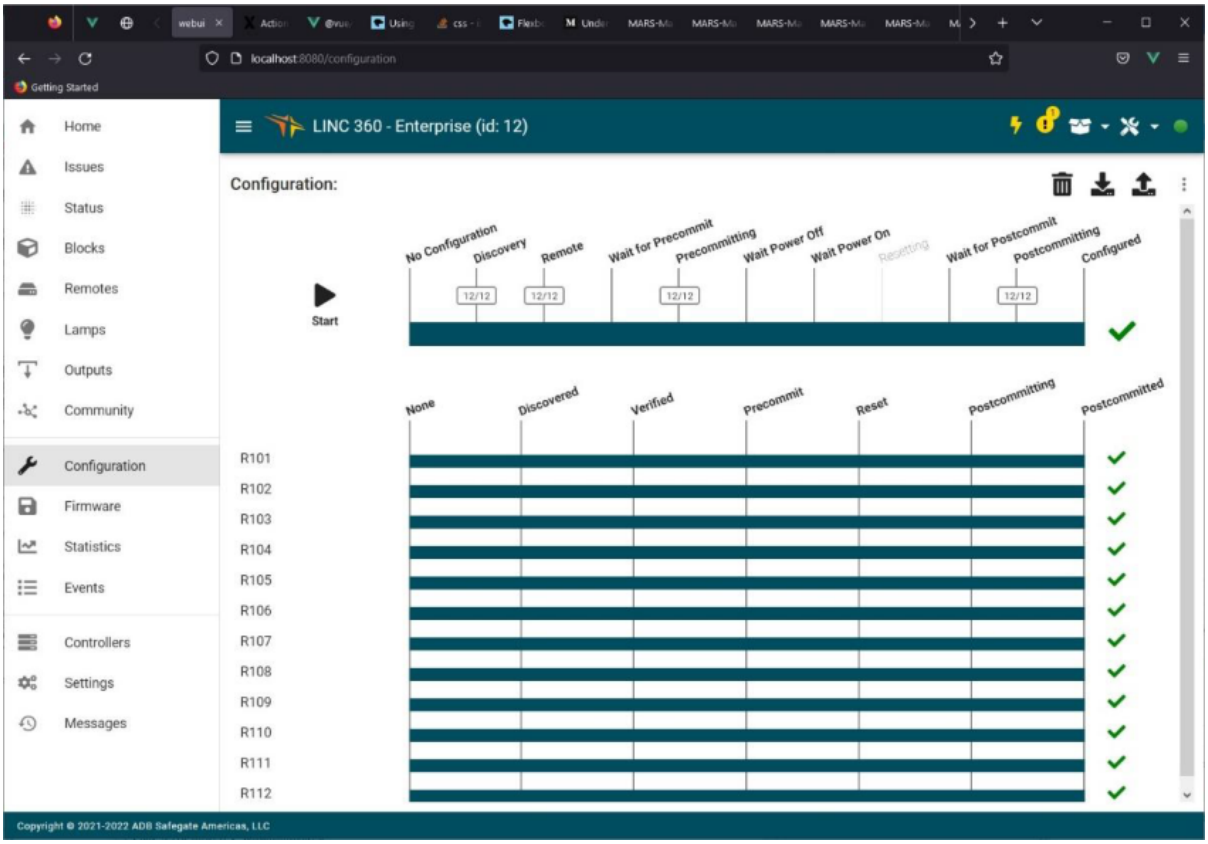


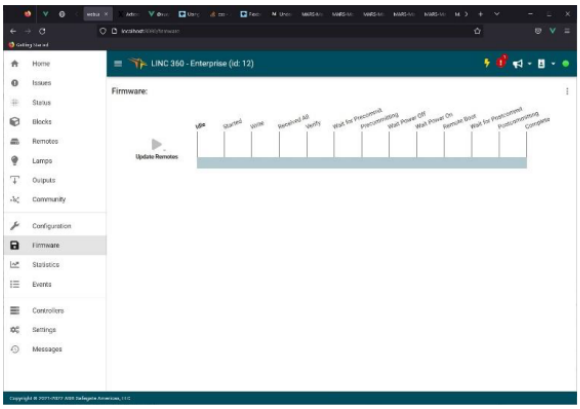
Figure 23: Configuration Success

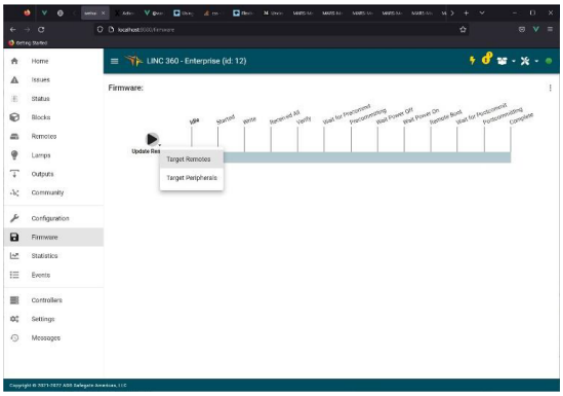


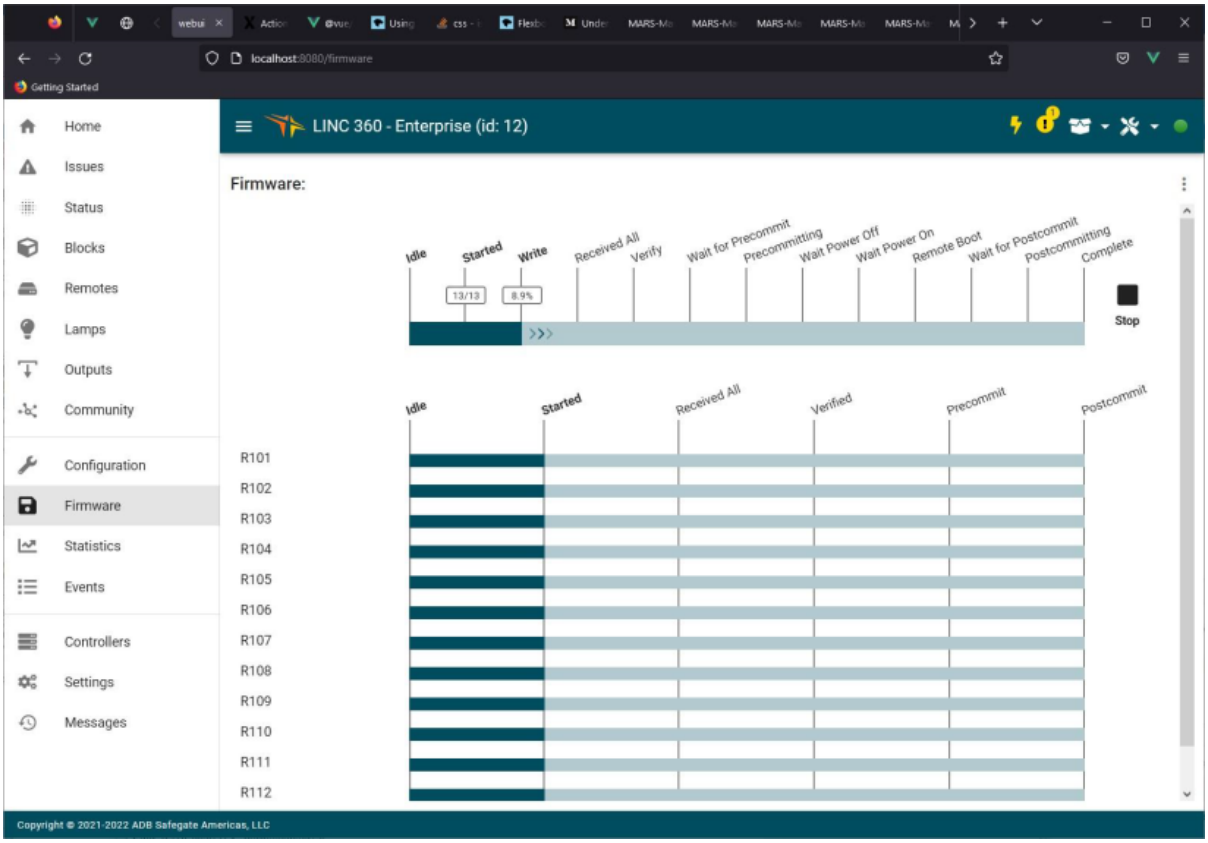
4.8 Firmware Header

The Firmware Header is used to upload firmware to remotes or peripherals (Axon EQ, Utility Remote).

Figure 24: Top left: Firmware Header Top right: Firmware Target Below: Firmware Progress







4.9 Statistics Header

The Statistics Header is used for analysis of the communication performance. It shows the performance and response rates for each individual remote, the message counts and the repeater levels needed.

Figure 25: Statistics Performance

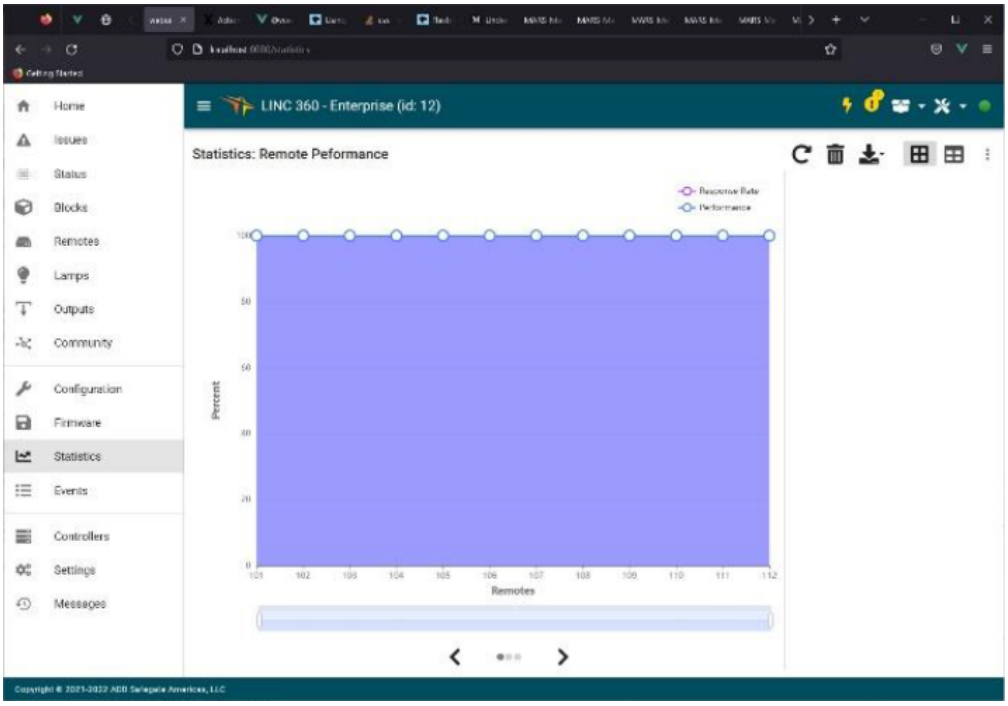


Figure 26: Statistics Message Count

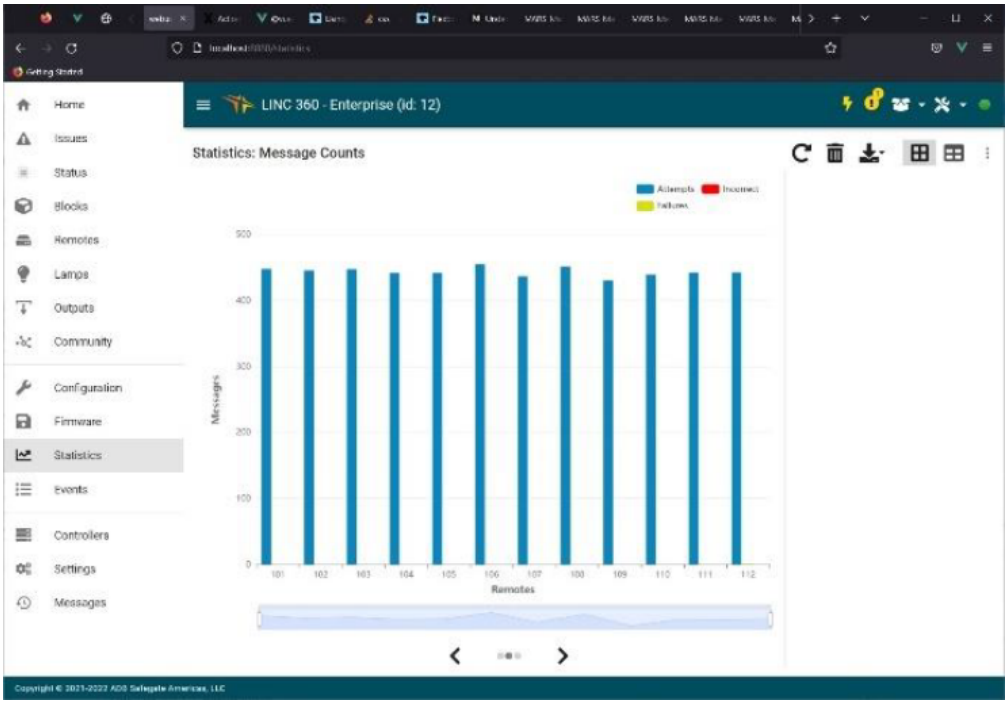
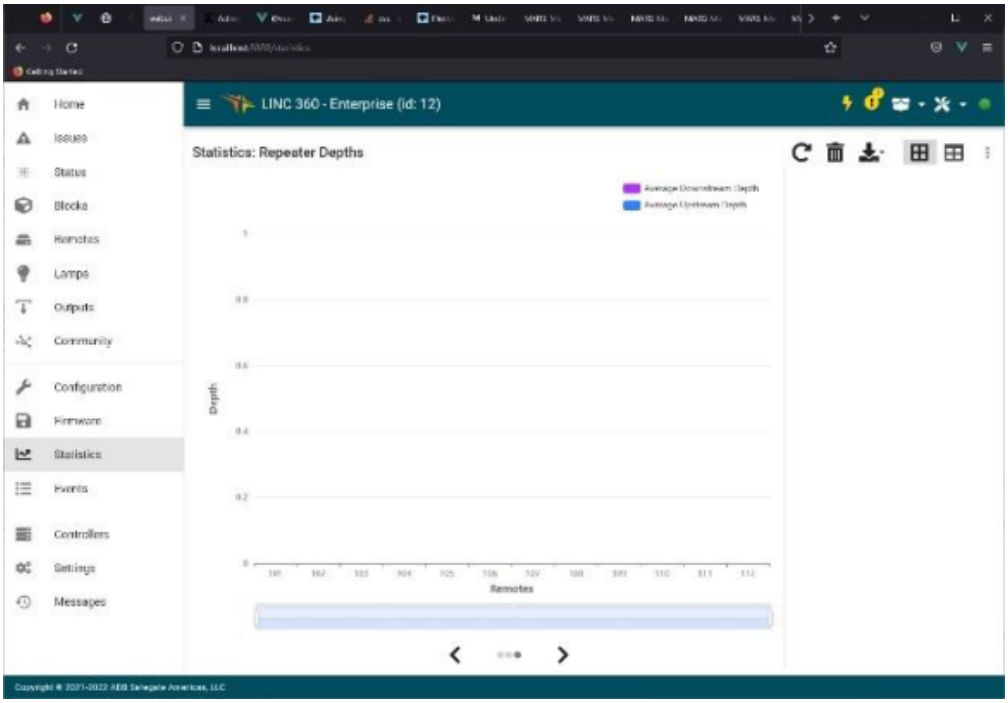


Figure 27: Statistics Repeater Depth

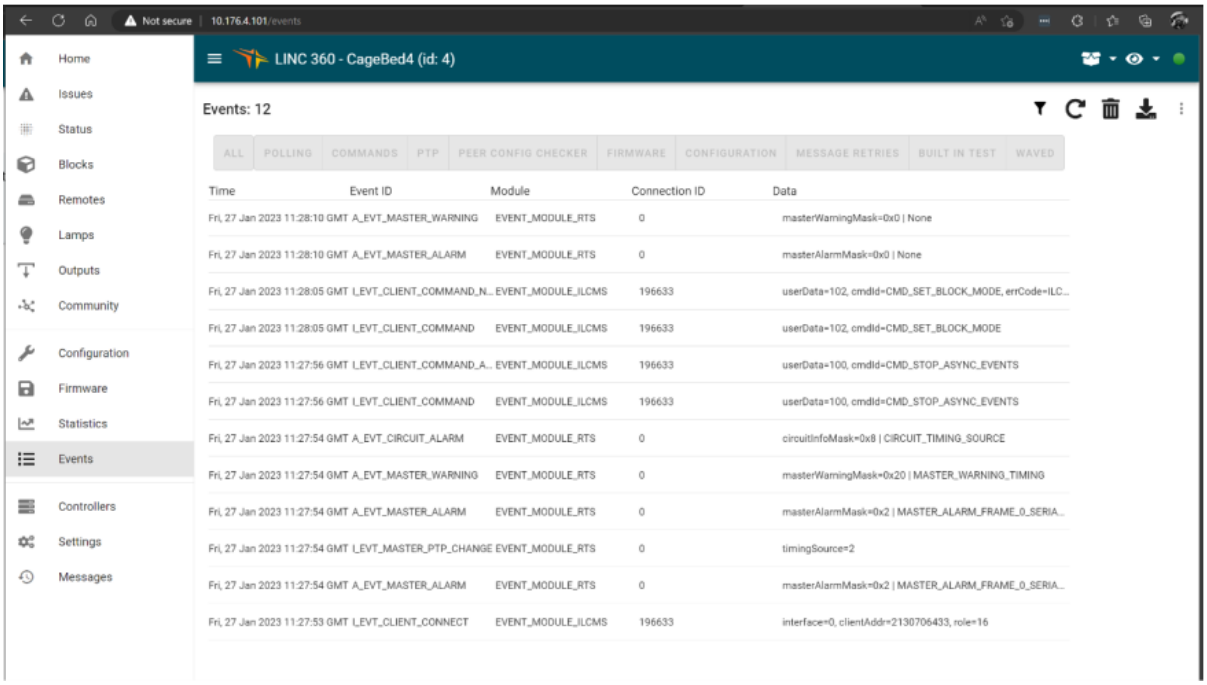


4.10 Events Header

The Events Header shows all events taking place on the controller side and the remote side. For example:

- incoming commands from the system interface
- outgoing commands to remotes
- lamp failure reports from the remotes

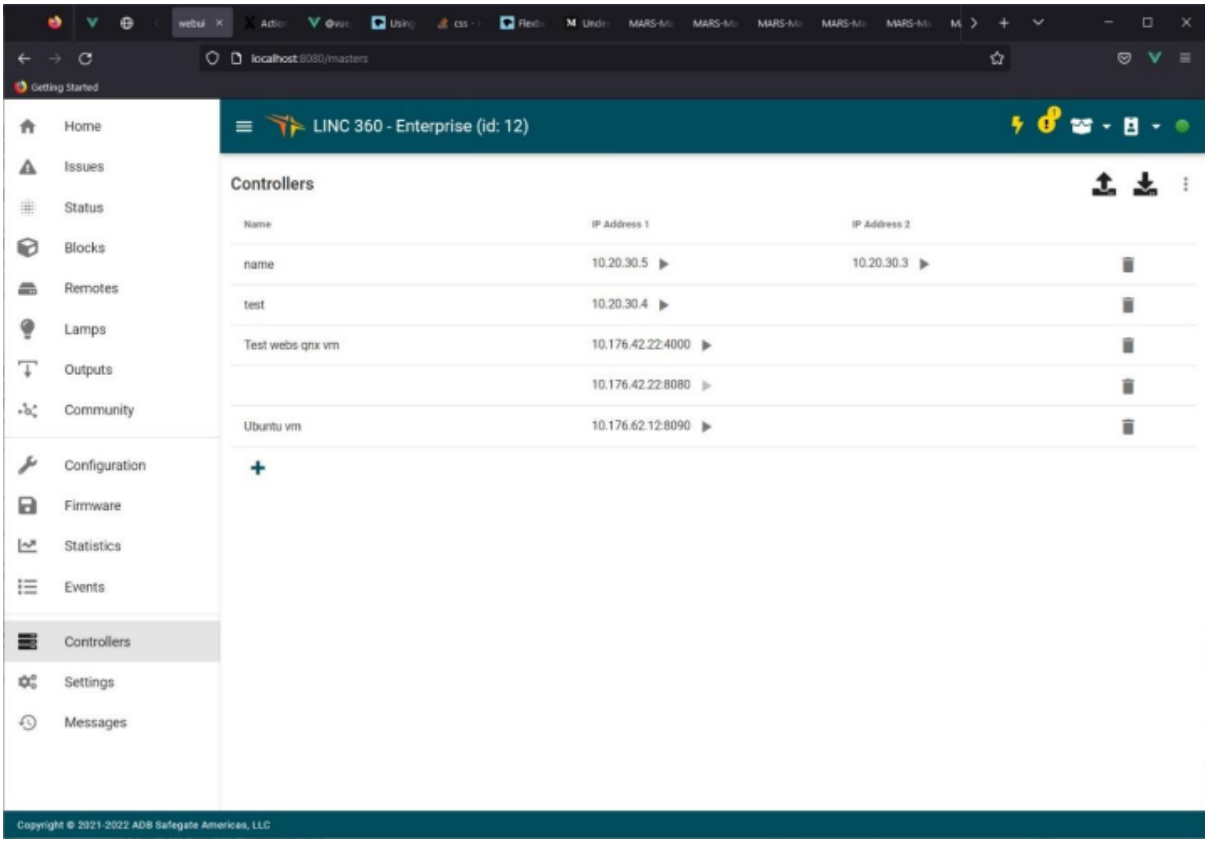
Figure 28: Events Header



4.11 Controllers Header

The Controllers Header enables quick switching between different controllers without having to open separate connections with different browser tabs. This can be useful when commissioning multiple circuits or troubleshooting interleaved circuits. Controllers can be added by clicking on the "+" button.

Figure 29: Controllers Header



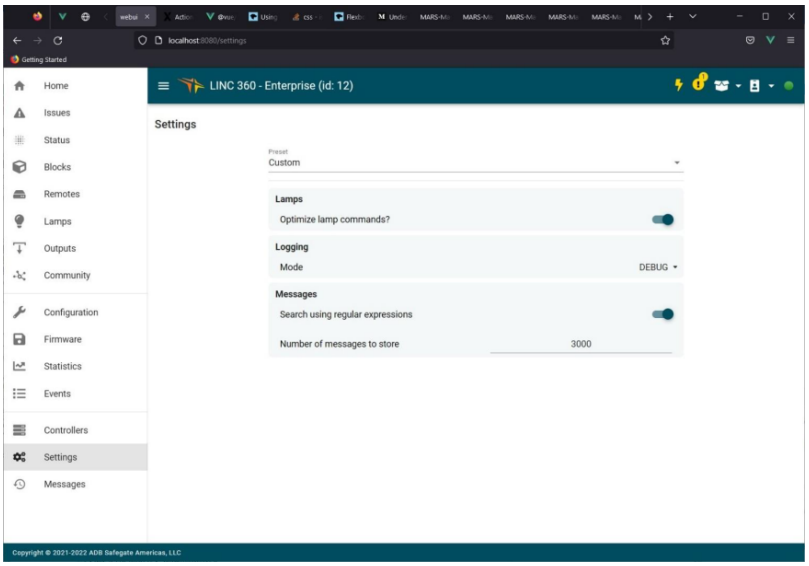
4.12 Settings Header

The Settings Header displays settings such as:

- debugging mode
- number of messages to store
- optimize lamp commands

You can also modify the preset view.

Figure 30: Settings Header



4.13 Messages Header

The Messages Header shows the actual communication traffic between the controller and the remotes. Each message can be expanded for additional information for debugging purposes.

Figure 31: Messages Header

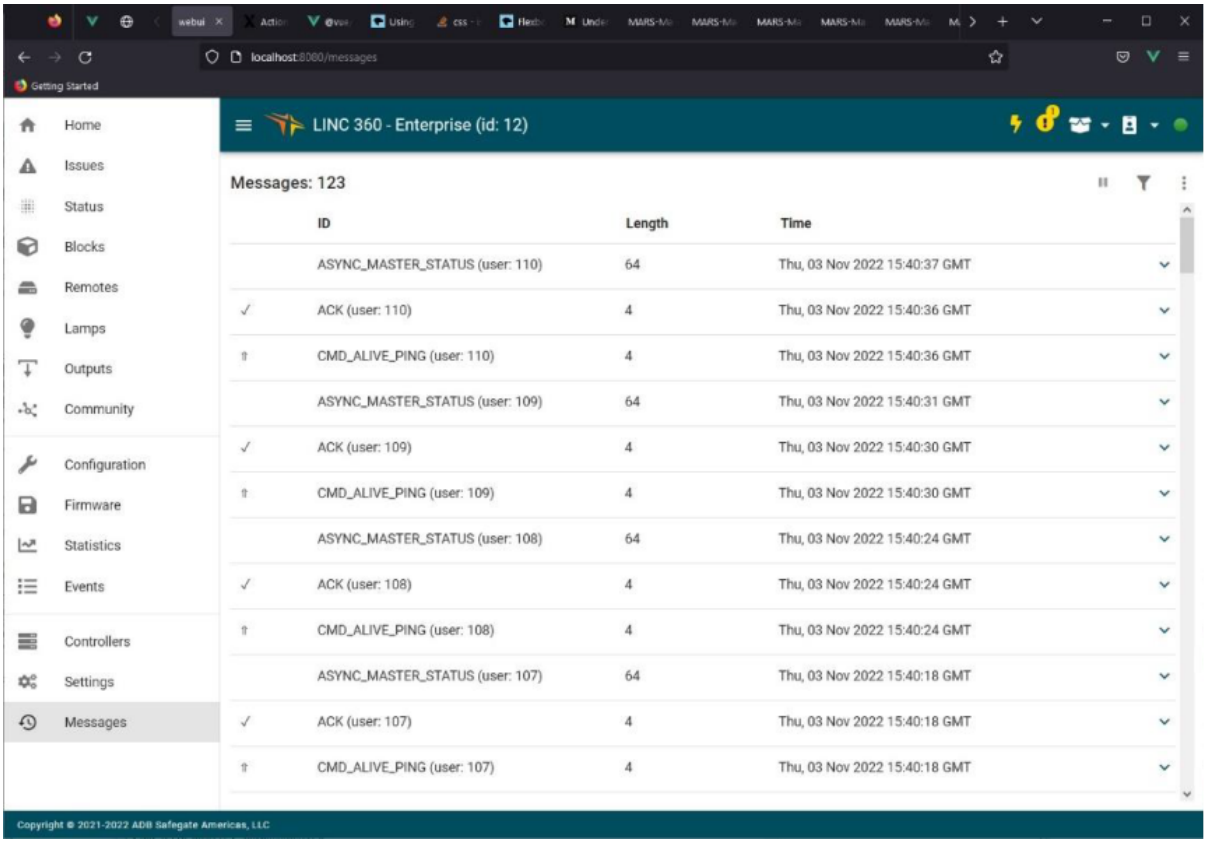
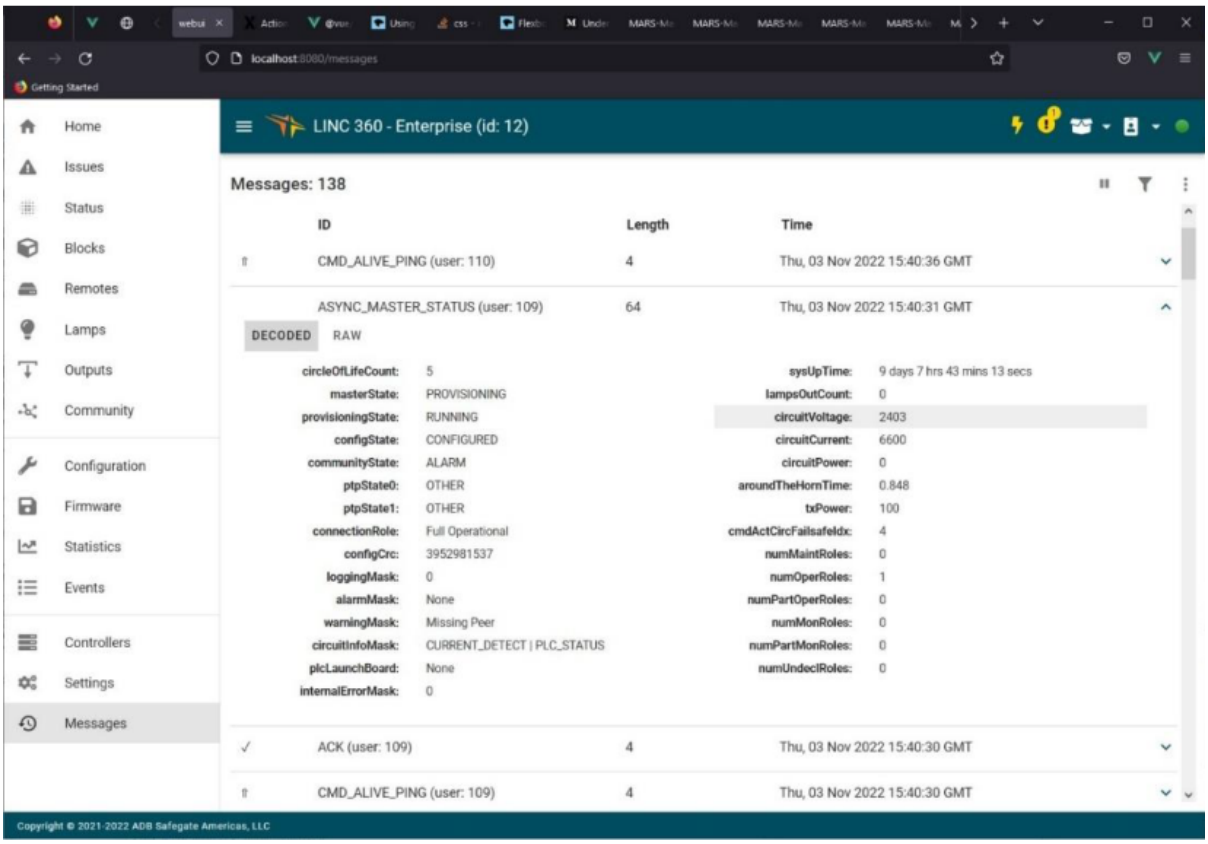


Figure 32: Message expanded



5.0 Replace a Remote

It is recommended to use the preset **Configuration** view when replacing remotes.

1. In the Remotes Header, go to the **Table** View and click on the hamburger menu for settings.
   Example:

Figure 33: Select the Configuration Preset

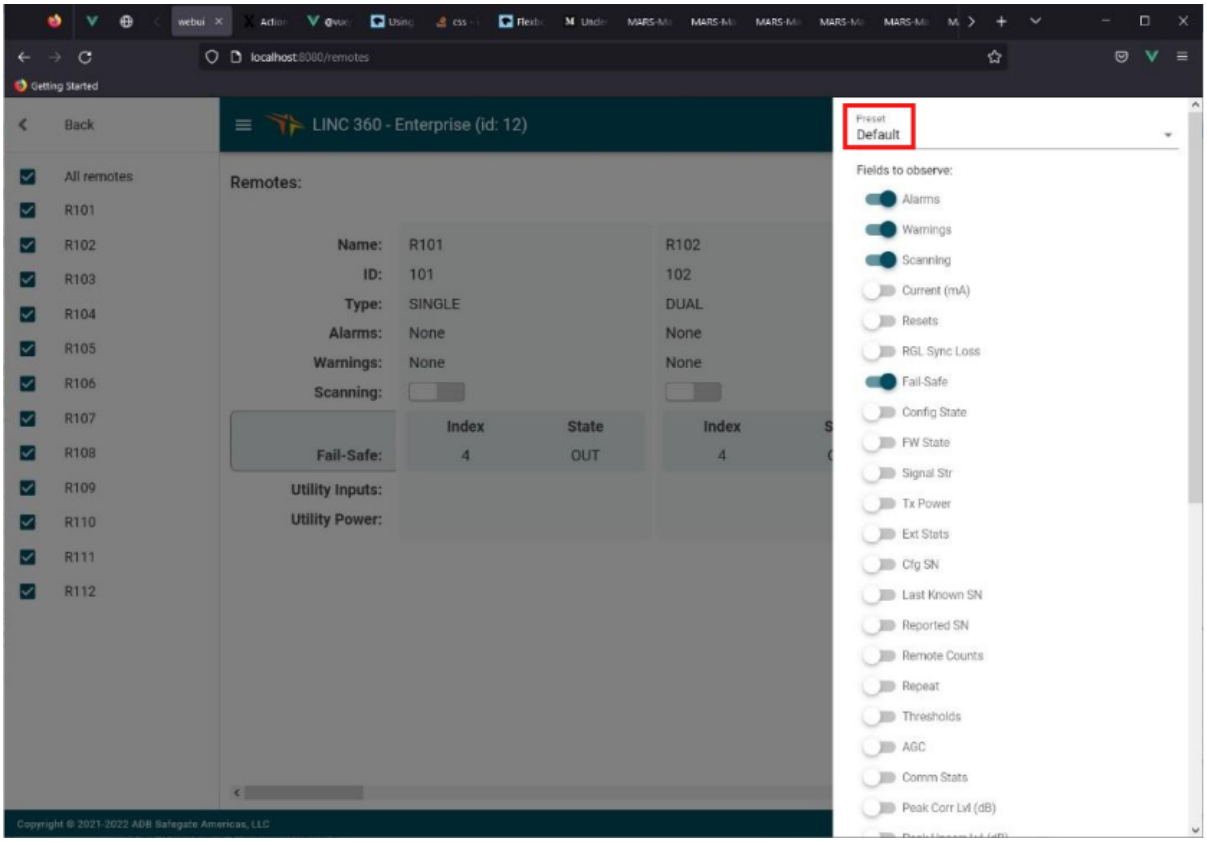
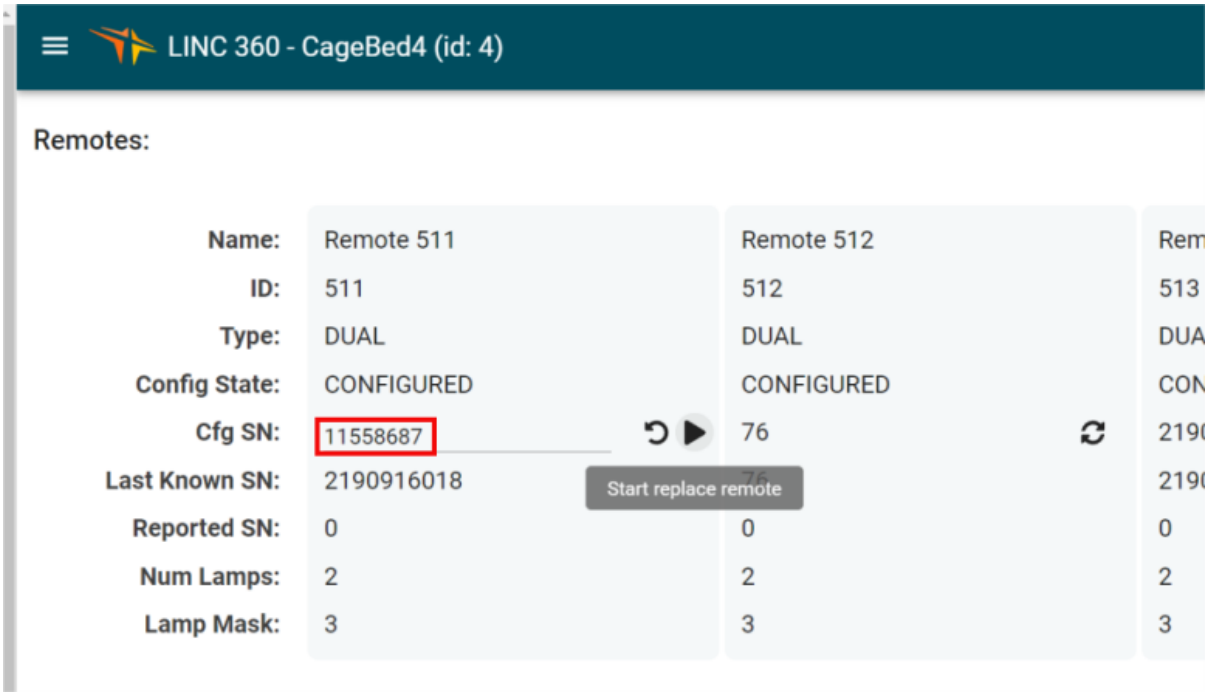


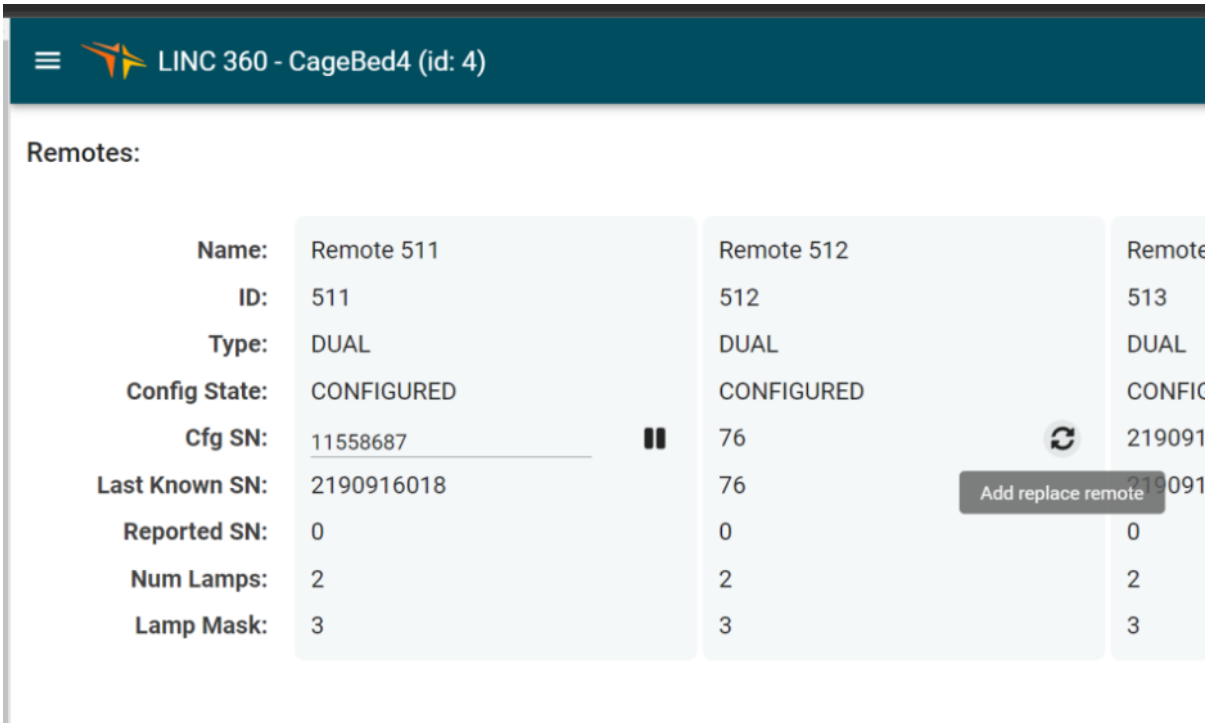
Figure 34: Replace Remote



2. Click in the **Cfg SN:** field, insert the new serial number and click the Play button to Start replace remote. The configuration state of the controller unit changes from **Configured** to **Discovery** while it seeks the new remote unit, sends program information, and resets. Once completed, the configuration state of the controller unit reverts to **Configured** from **Discovery**. In some instances, it may take several minutes for a newly replaced remote unit to be discovered. It is also possible to replace up to 10 multiple remotes at a time by not clicking **Play** after putting the new serial number for the first remote. The remotes can be added from the list on the left, select **Add replace remote**.

   Example:

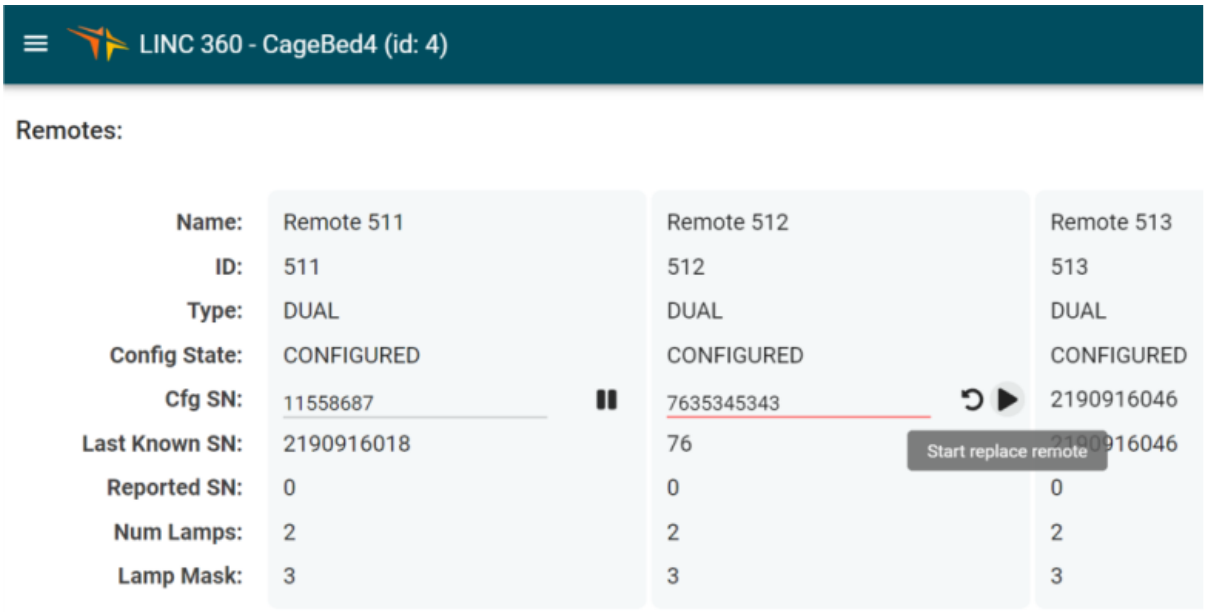
   Figure 35: Replace more remotes



3. Once the serial number has been inserted in the field, repeat the same step for up to 10 remotes in total. Once completed, click **Start replace remote**.

Example:

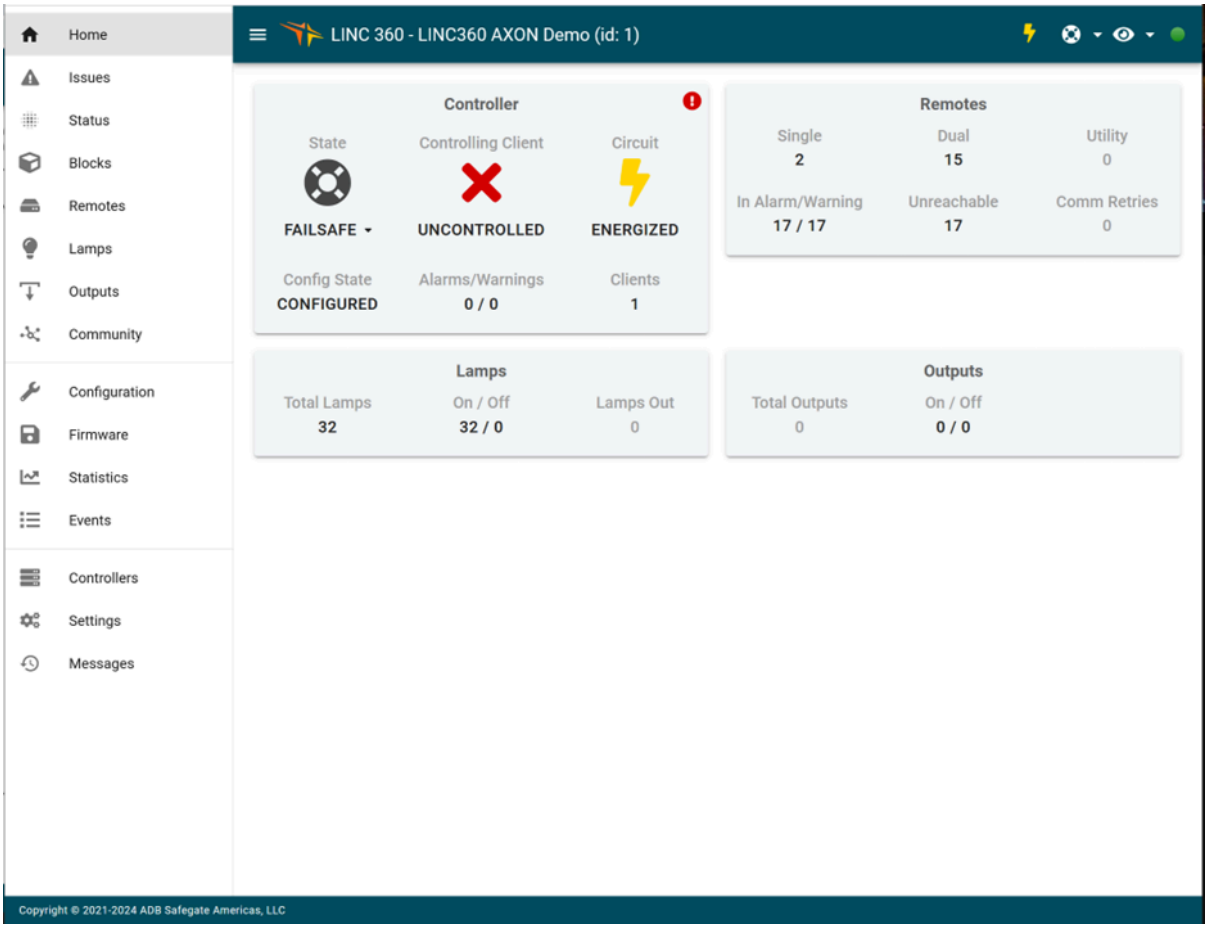
Figure 36: Start multiple replace remote



6.0 Remote Firmware Update

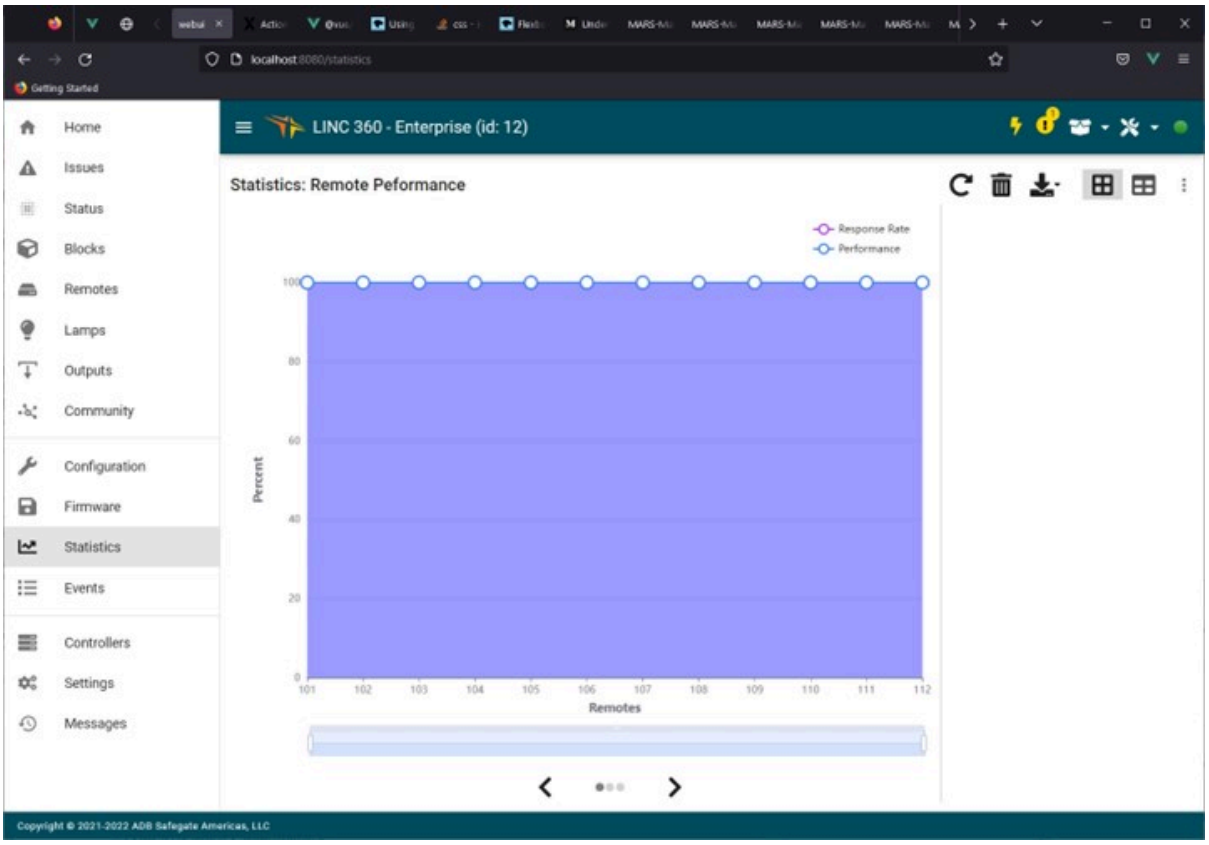
1. Connect to the controller. The eye icon (top right) shows that the controller is in **Full Monitor**, which is the default state. The green dot next to it shows an active connection.

   Example:

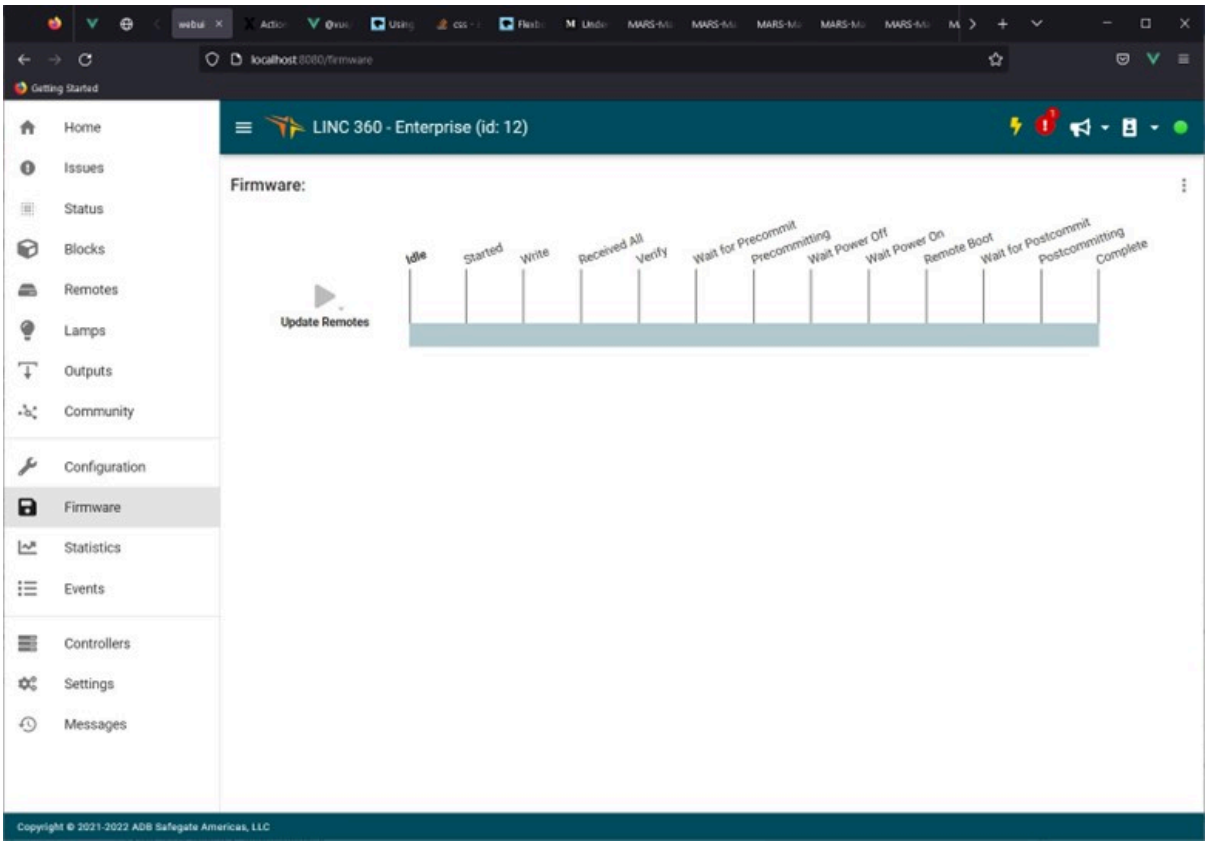


2. Make sure that all remotes on the controller are online and communicating. This can be checked in the **Statistics** tab, where individual communication performance can be verified. Communication performance should be above 50% for each remote to make sure that the firmware update is successful.

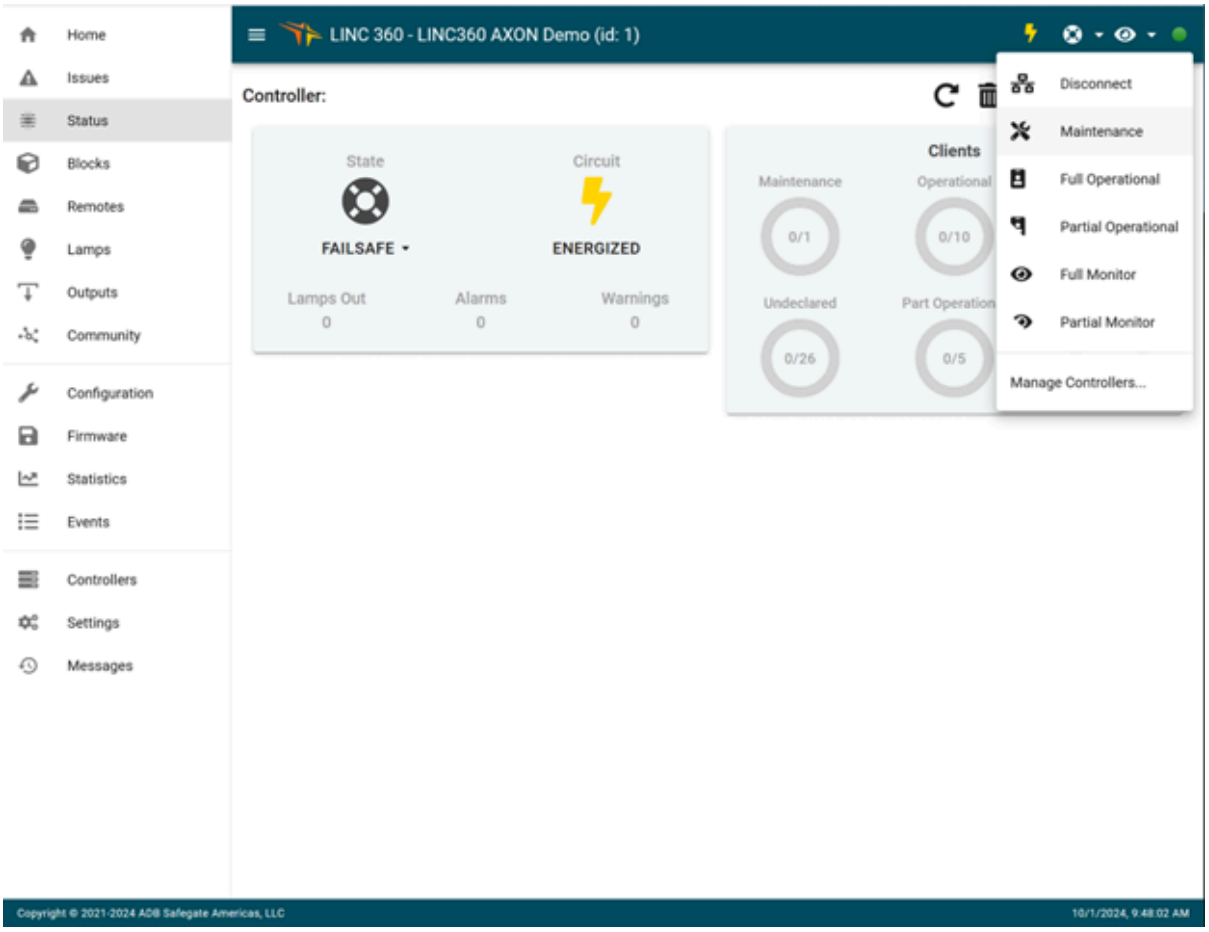
   Example:



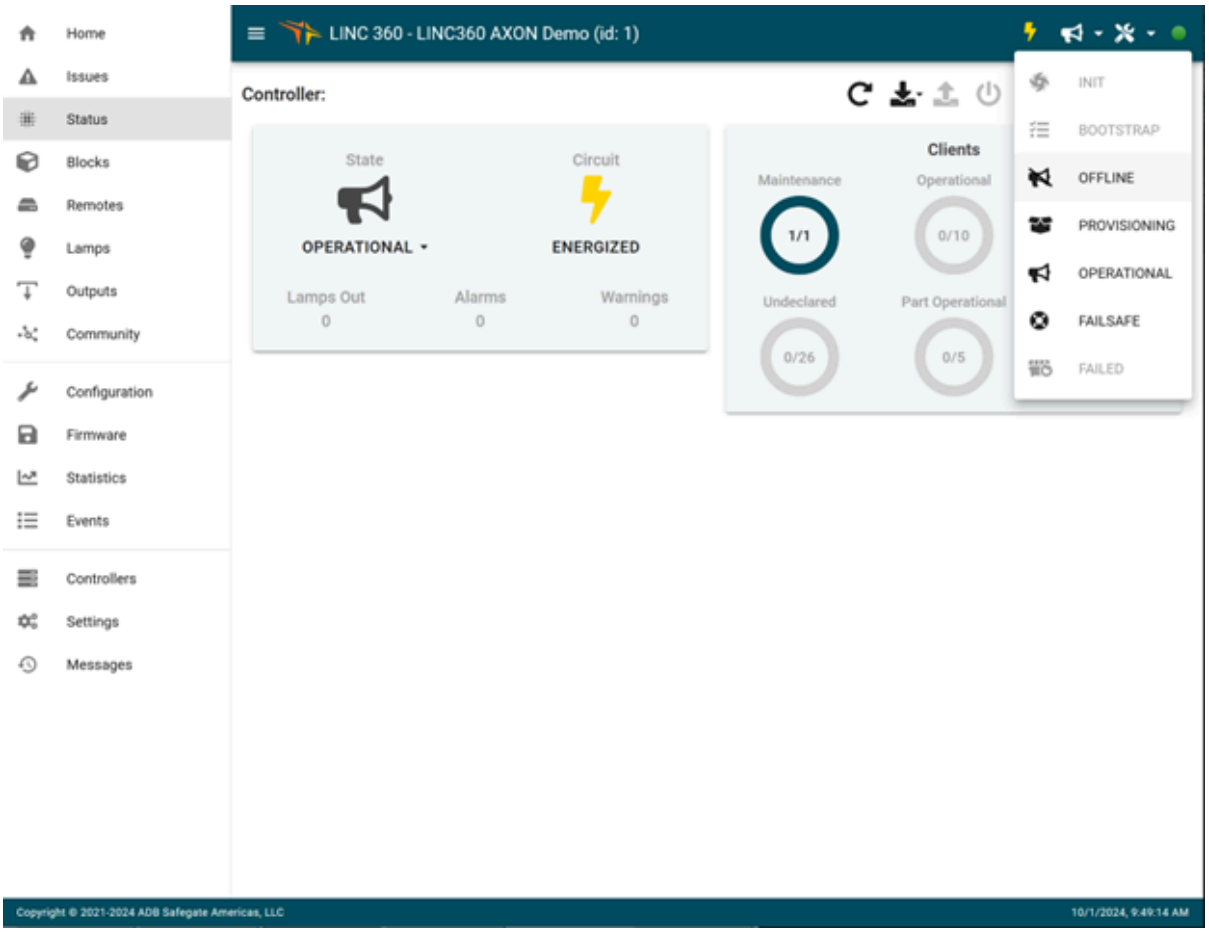
3. Switch to the **Firmware** tab by selecting it on the left-hand side.
   Example:



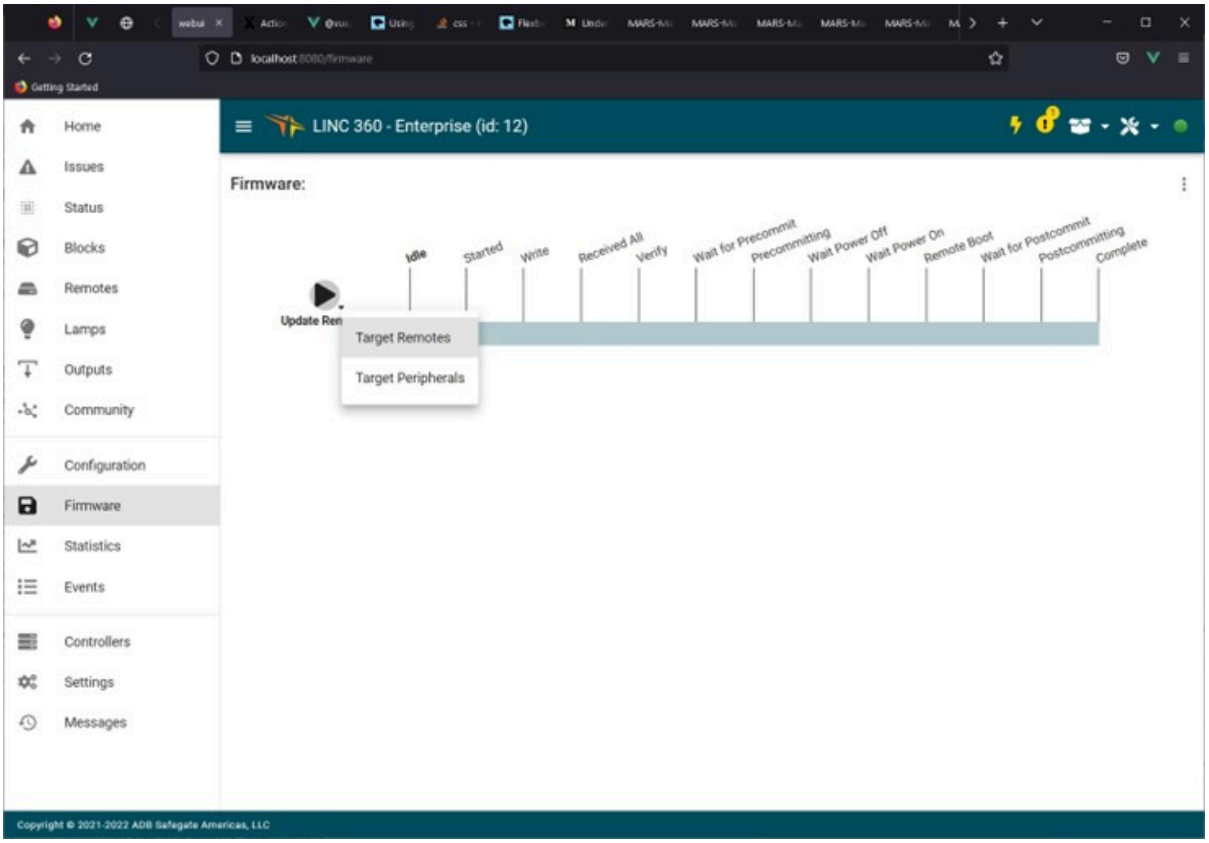
4. Change role to **Maintenance** by clicking on the eye icon in the top right corner.
   Example:



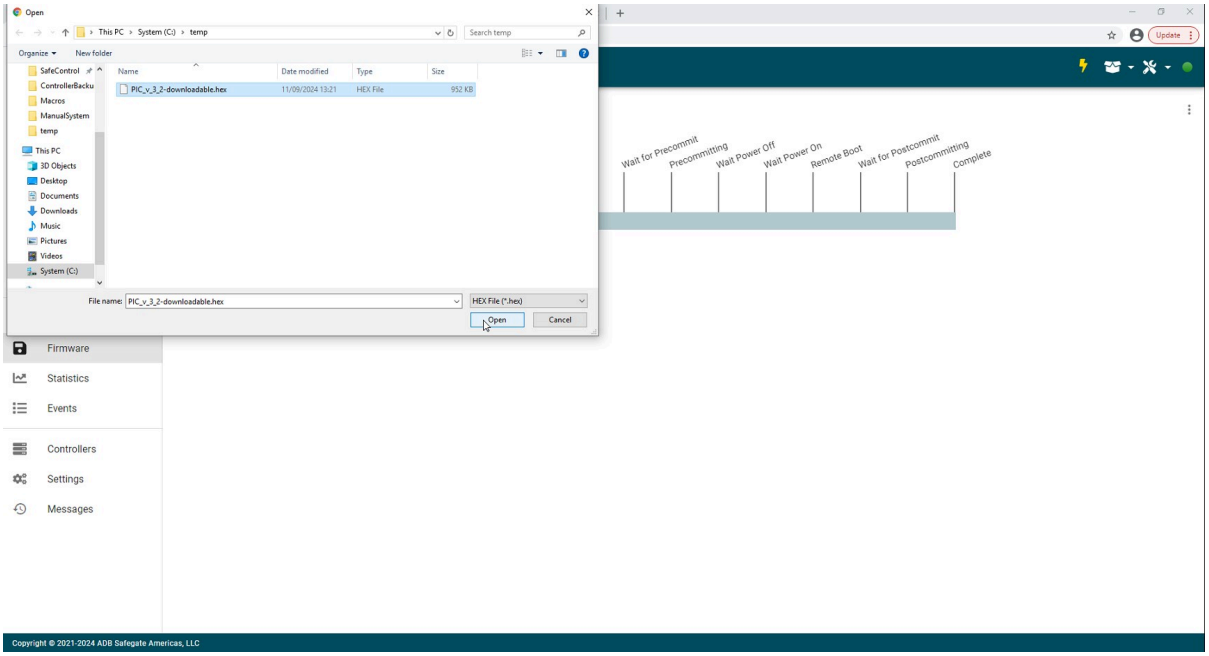
5. Change the controller to the **Provisioning** state by clicking on the icon to the left of the maintenance role
Example:



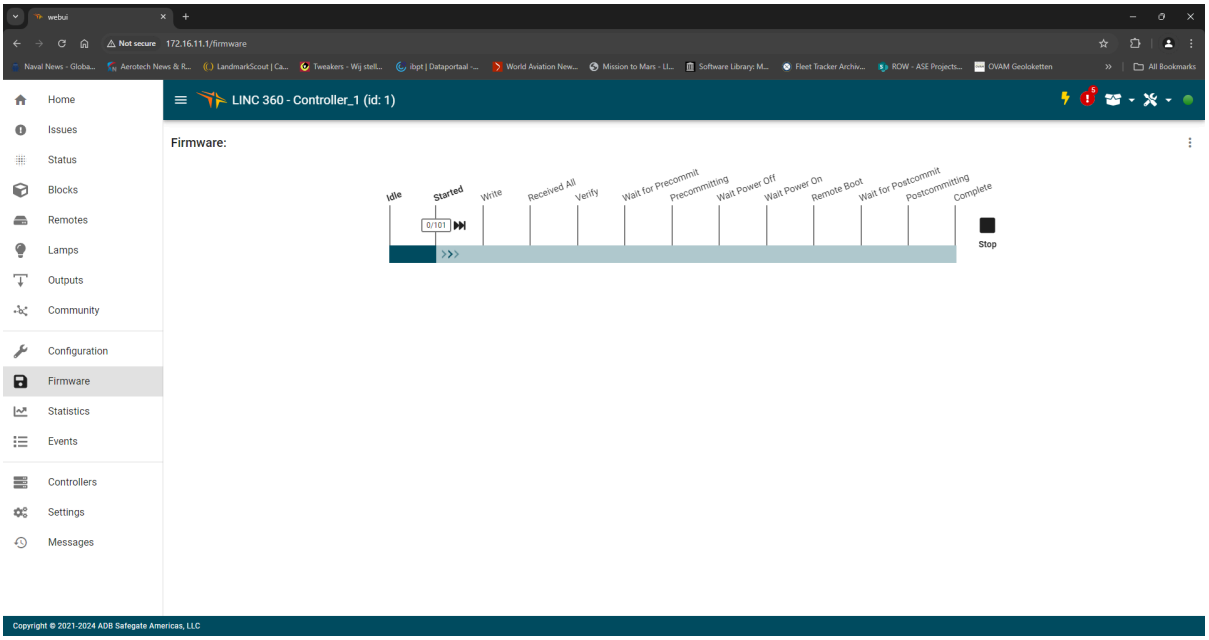
6. Click the **Update Remote** button and choose Target. Remotes will upgrade the PIC firmware version on the communication module, Peripherals will update the ST firmware version on the EQ Sensor board.
   Example:



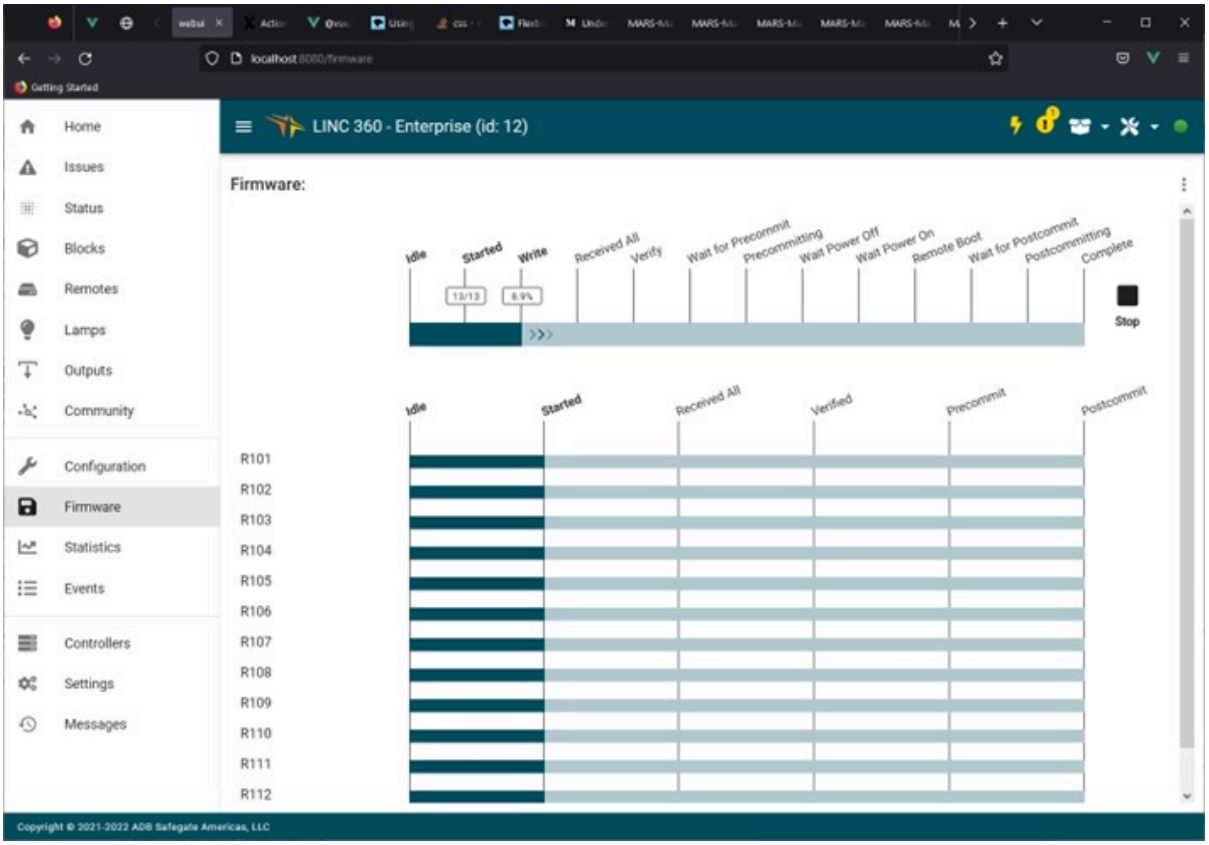
7. In the file selection menu, choose the .hex or .bin file of the firmware update you would like to download.
   Example:



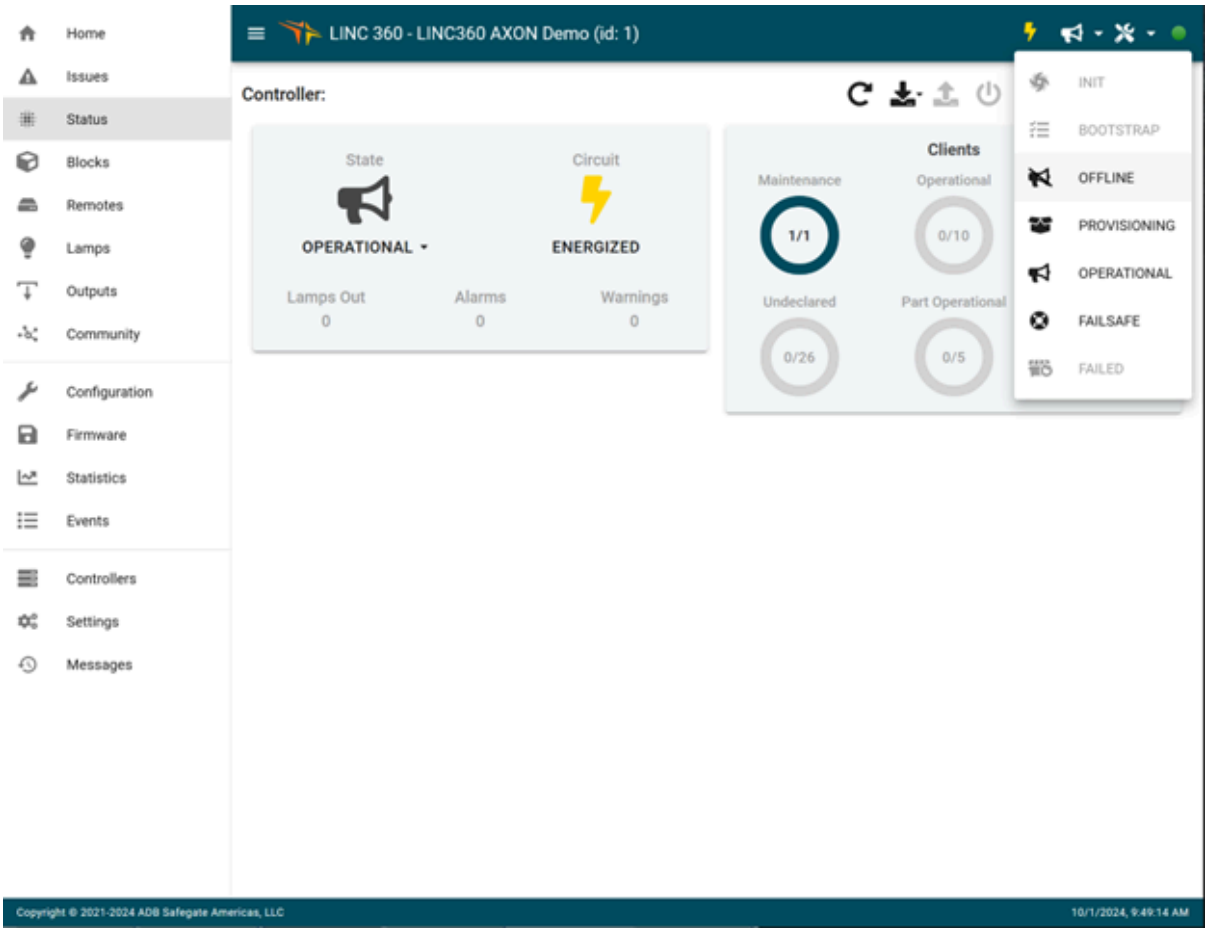
8. When the firmware download starts, it can take up to 4 minutes for the controller to prepare the files before it shows the target remotes under the progress bar.
   Example:



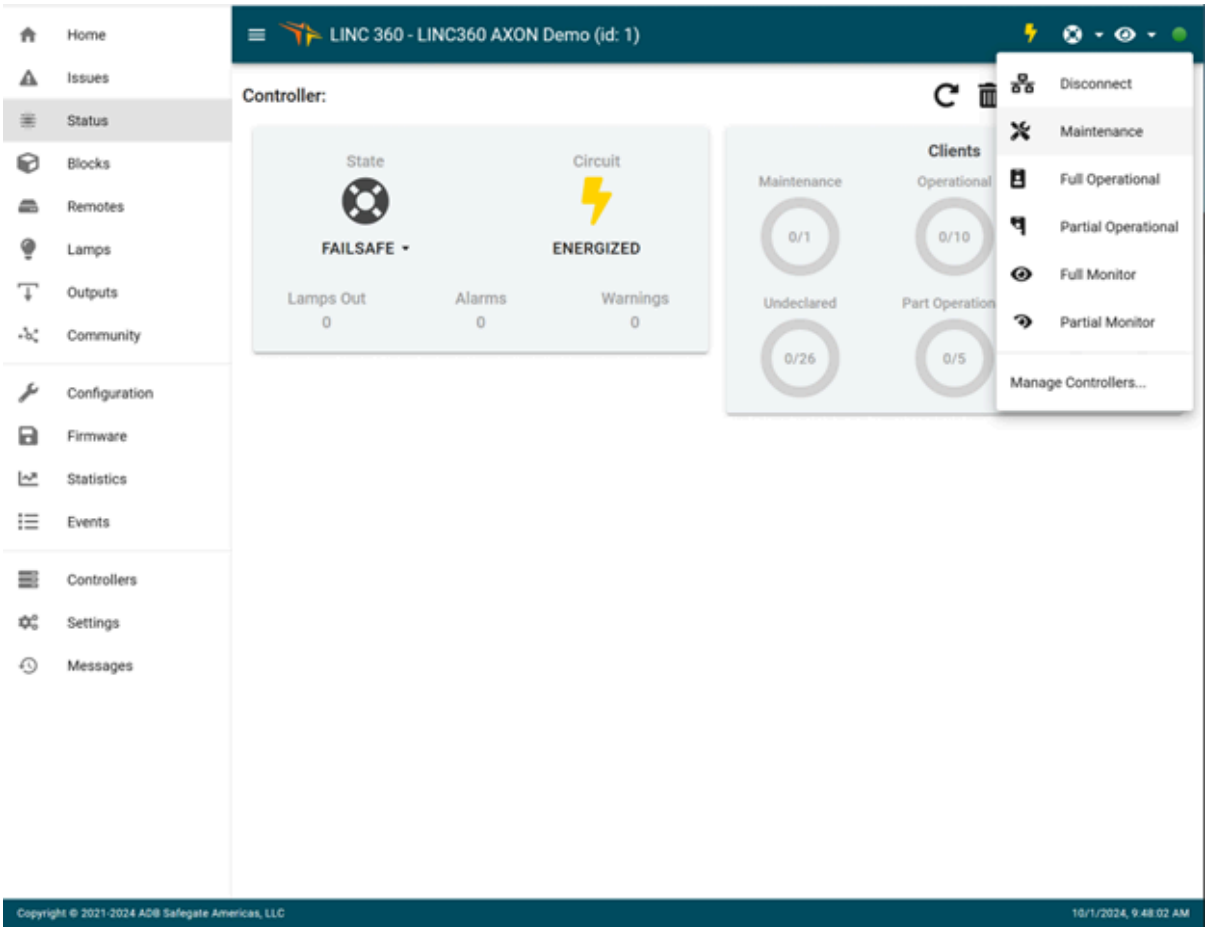
9. The firmware download will start and its progress is shown by the progress bar for each remote. Follow the instructions on screen.
   Example:



10. Put the controller back in **Operational Mode**.
    Example:

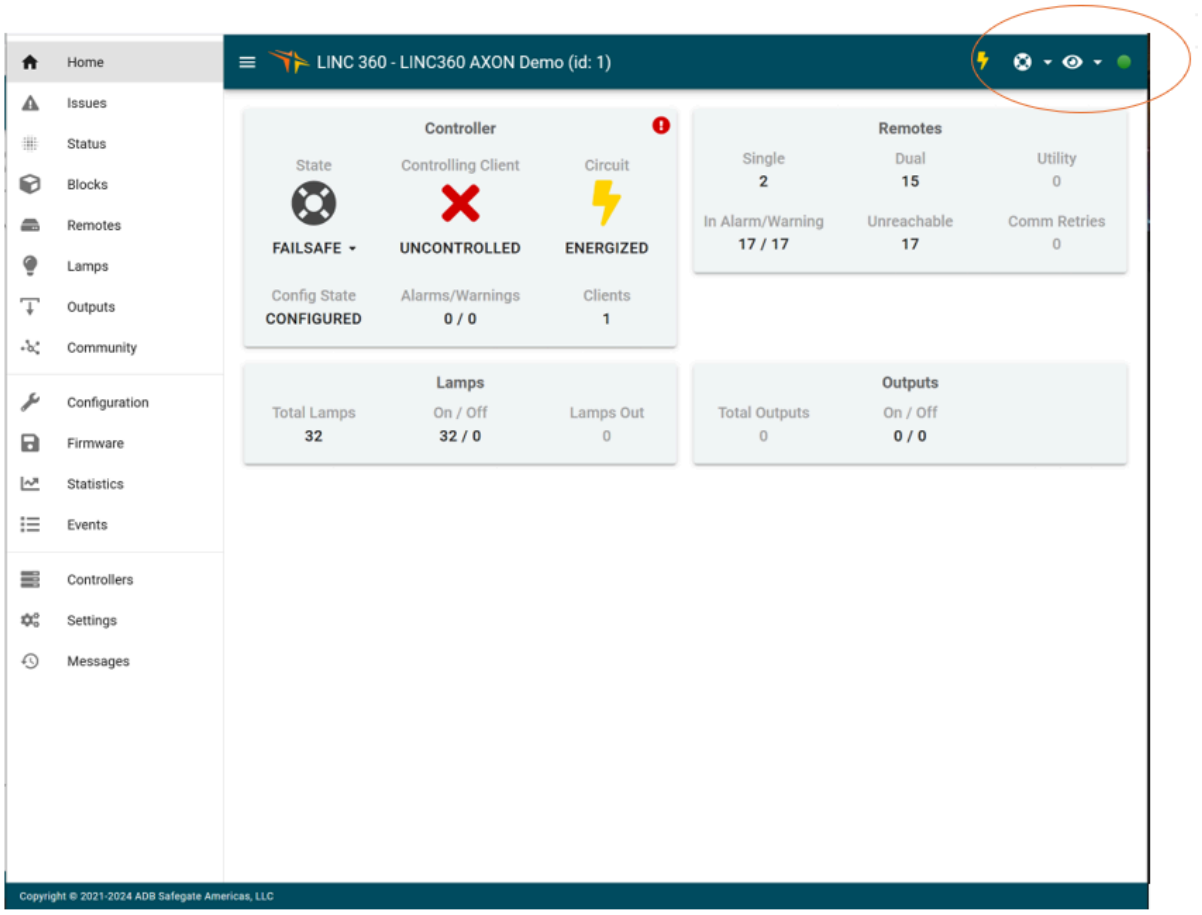


11. Put the user role back to **Full Monitor**.
Example:

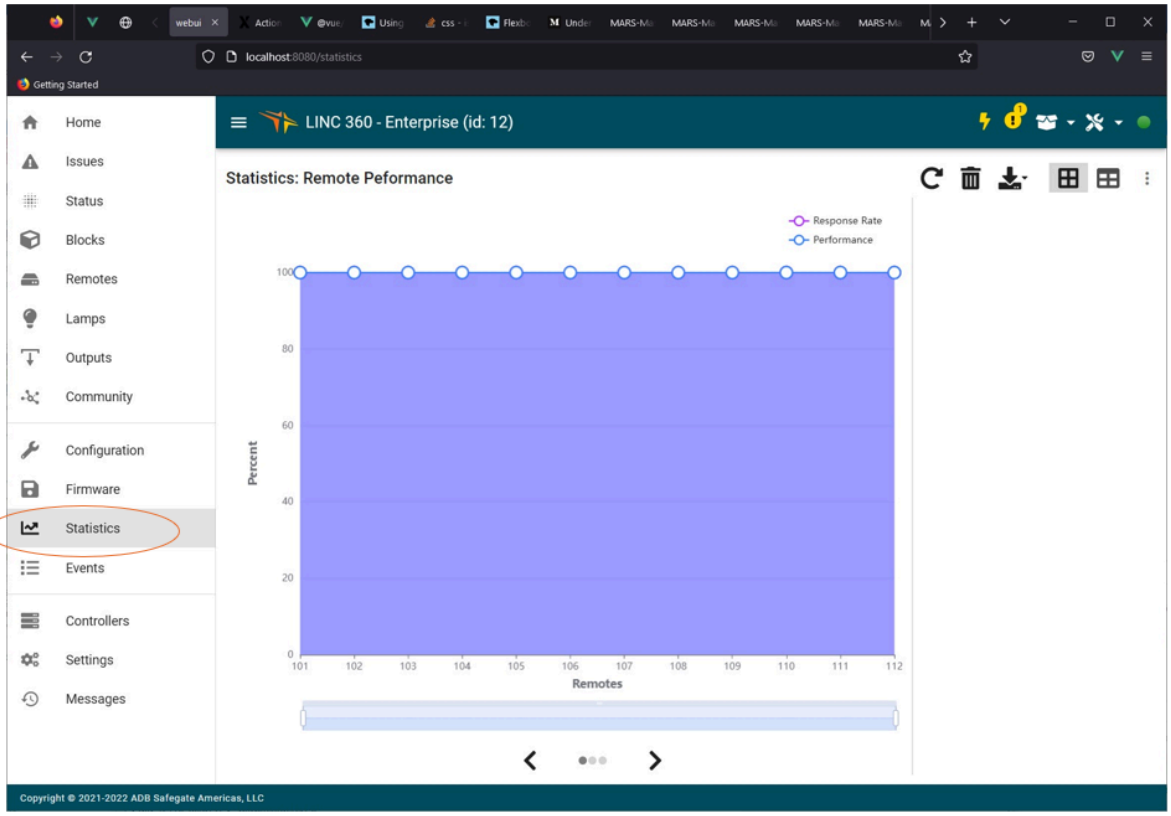


7.0 Remote Firmware Check

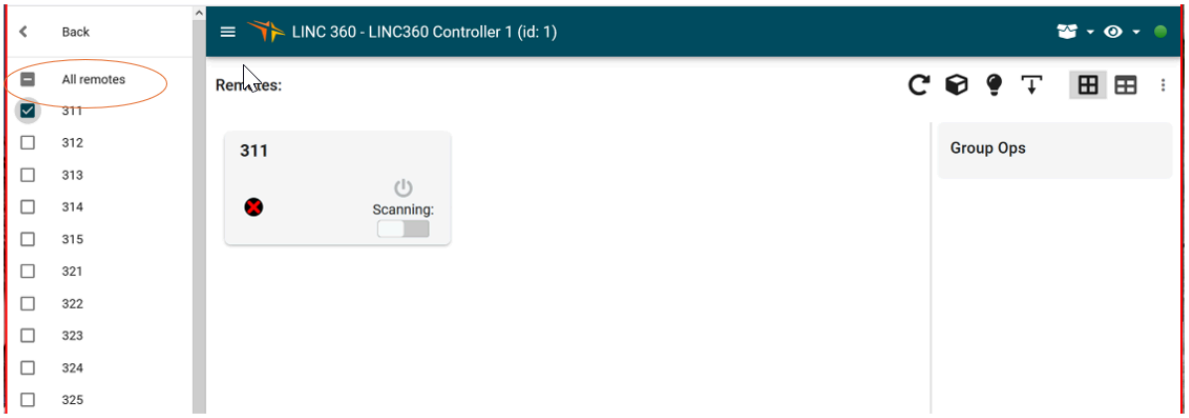
1. Connect to the controller. The eye icon (top right) shows that the controller is in **Full Monitor**, which is the default state. The green dot next to it shows an active connection.
   Example:



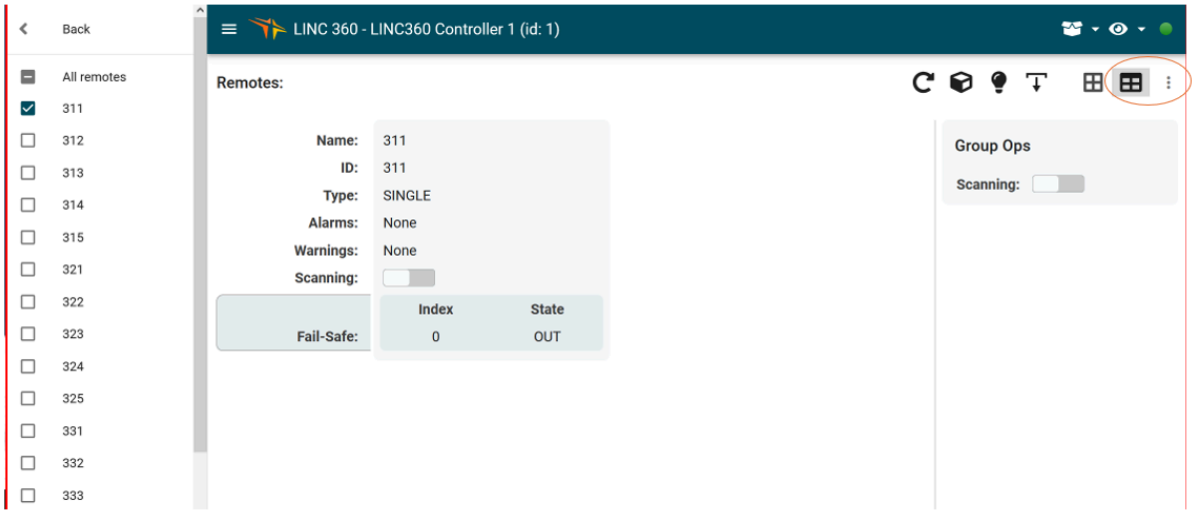
2. Make sure that all remotes on the controller are online and communicating. This can be checked in the **Statistics** Page. Remotes that are not communicating will not be able to report their firmware version.
   Example:



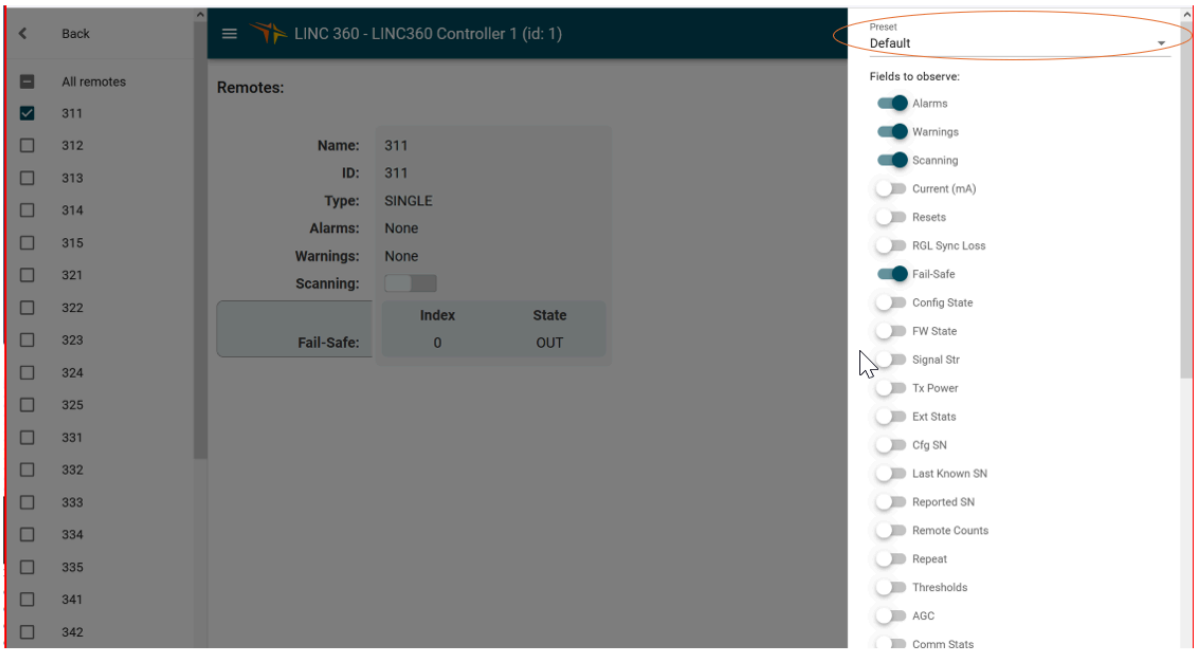
3. Switch to the **Remotes** page and select all remotes or the remotes you would like to check.
   Example:



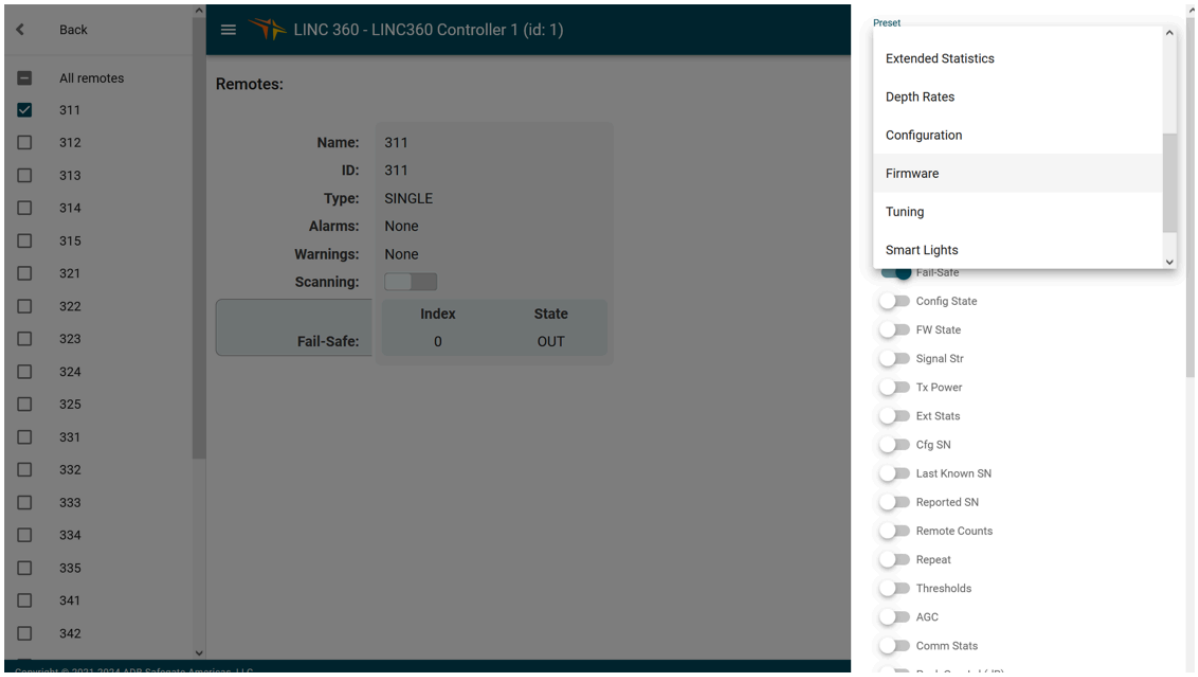
4. Switch to the detailed view from the header and click on the three dots on its right, to open the **Settings** tab.
   Example:



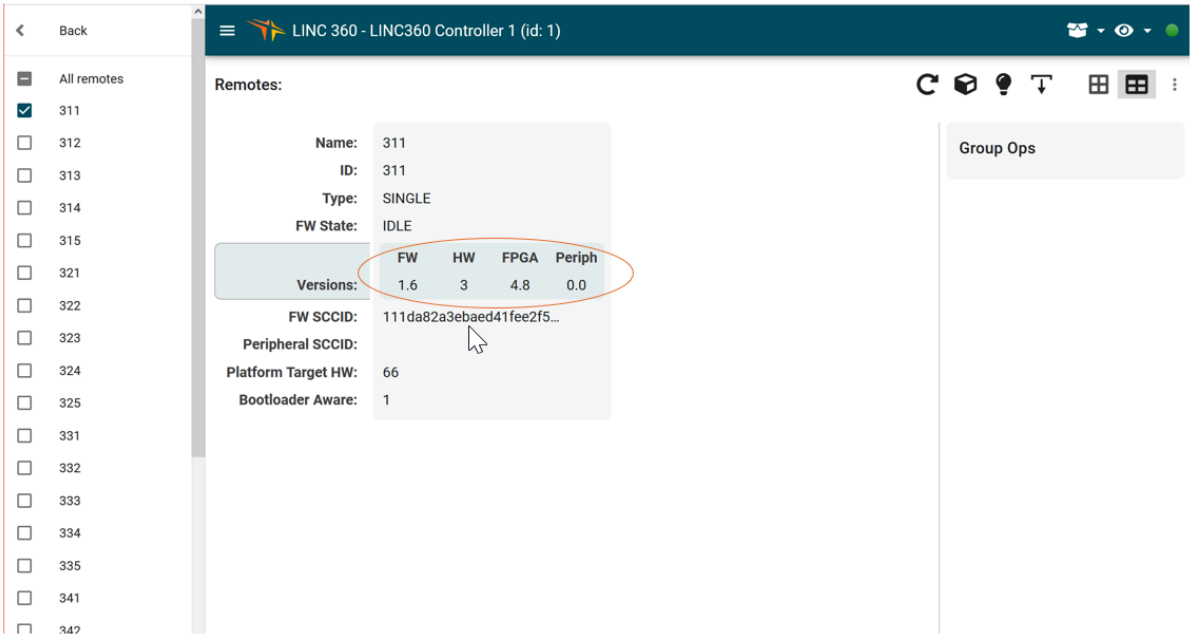
5. This will open the different fields that can be displayed. Click on **Preset** at the top.
   Example:



6. Select **Firmware**.
   Example:



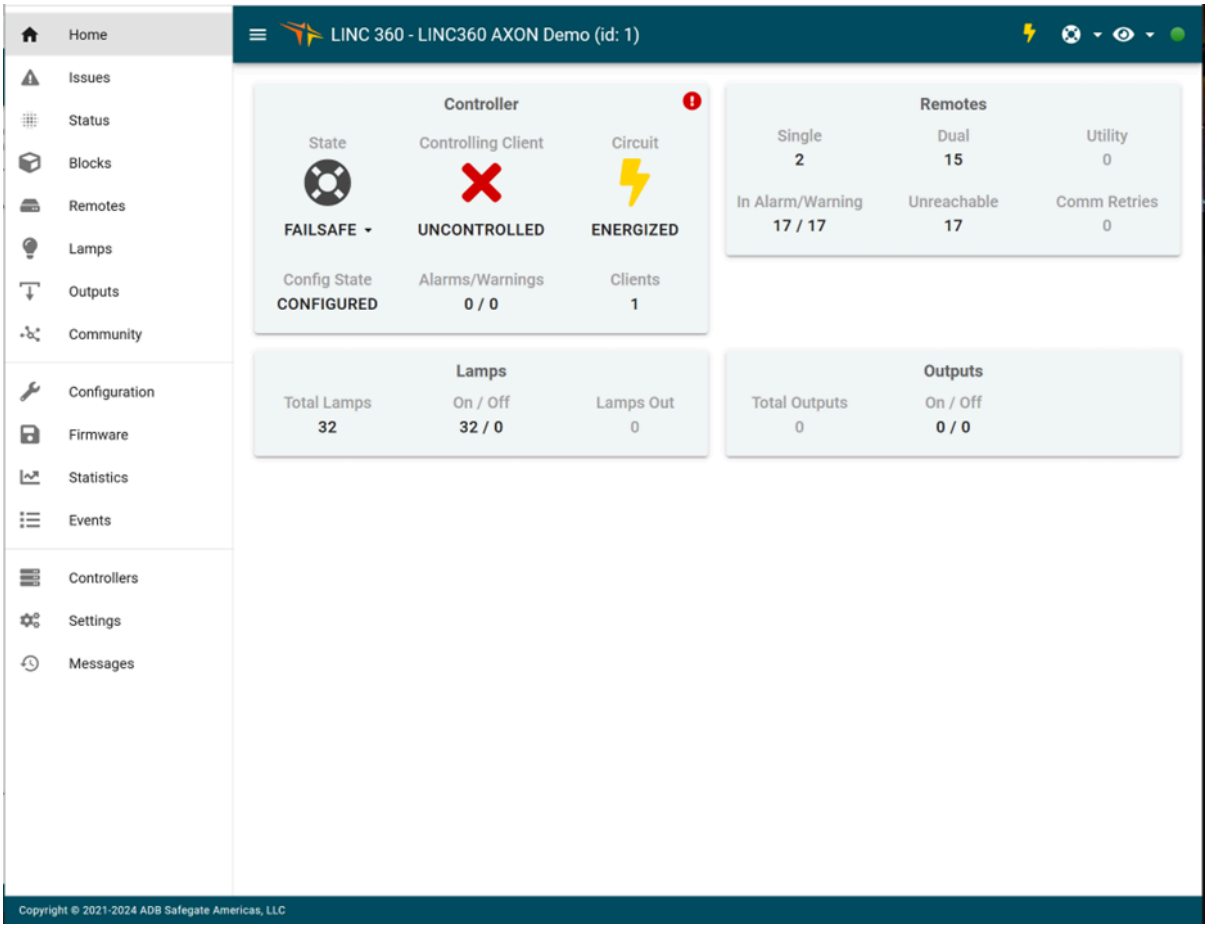
7. The Remote or EQ firmware versions will now be displayed.
   Example:



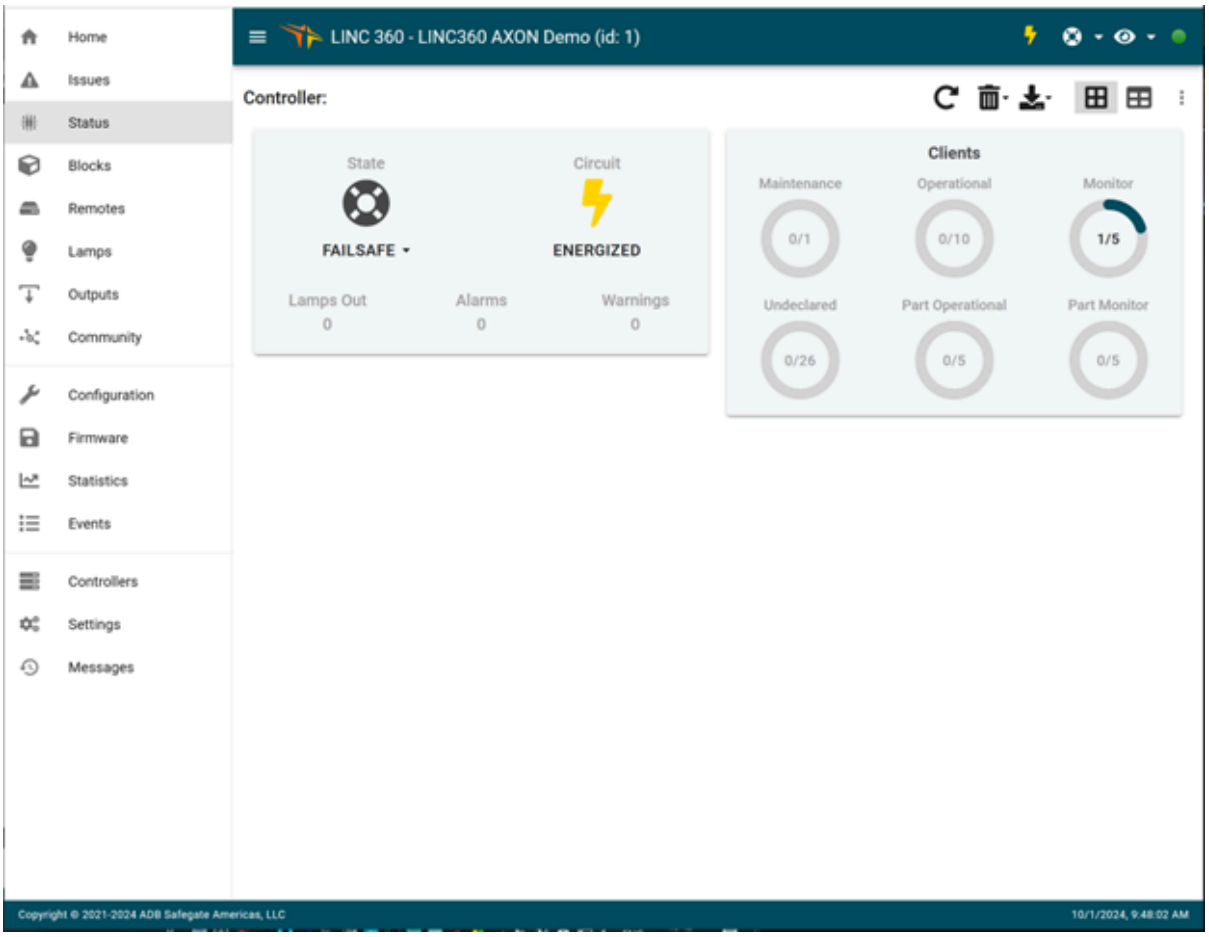
8.0 Controller Firmware Update

1. Connect to the controller. The eye icon (top right) shows that the controller is in **Full Monitor**, which is the default state. The green dot next to it shows an active connection.

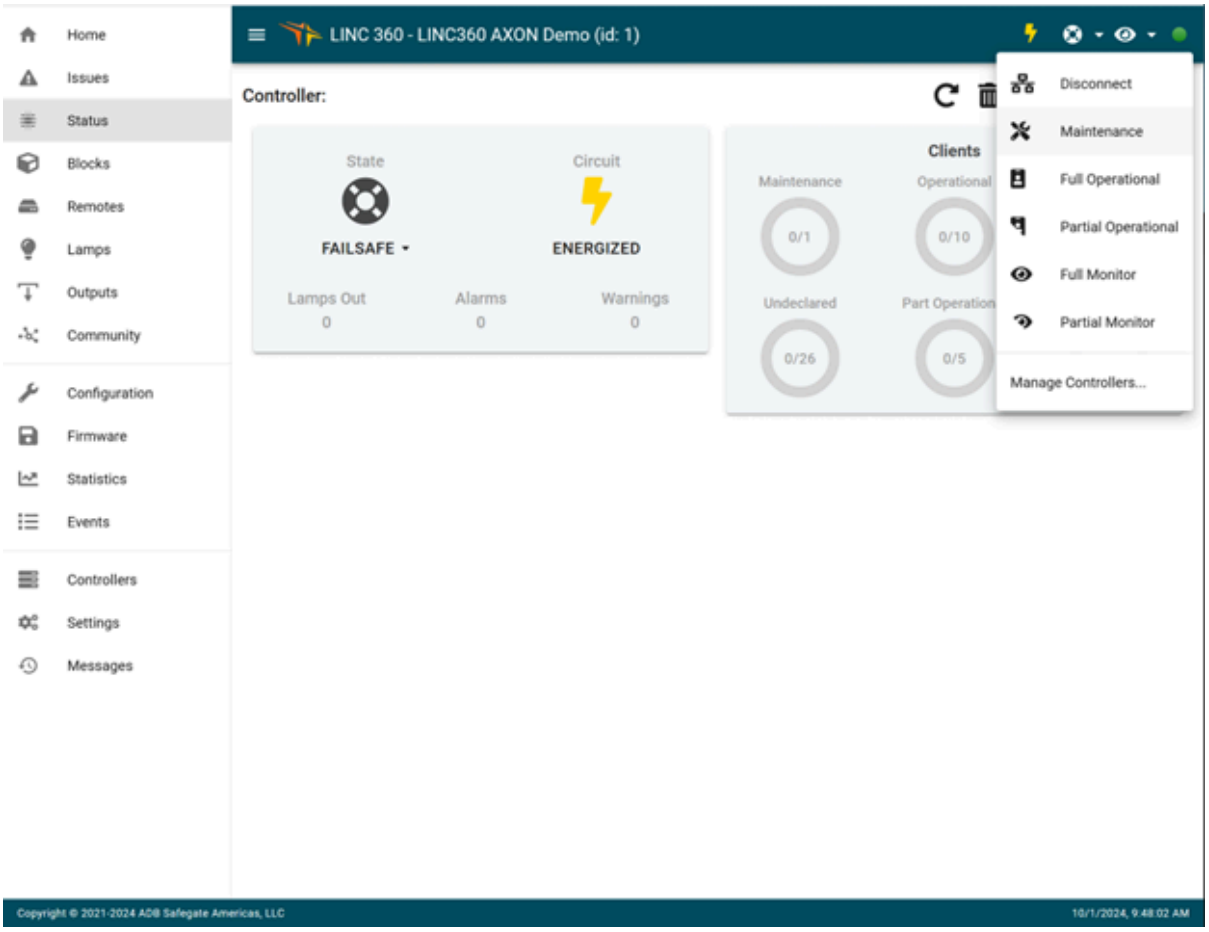
   Example:



2. Switch to the **Status** tab by selecting it on the left-hand side.
   Example:

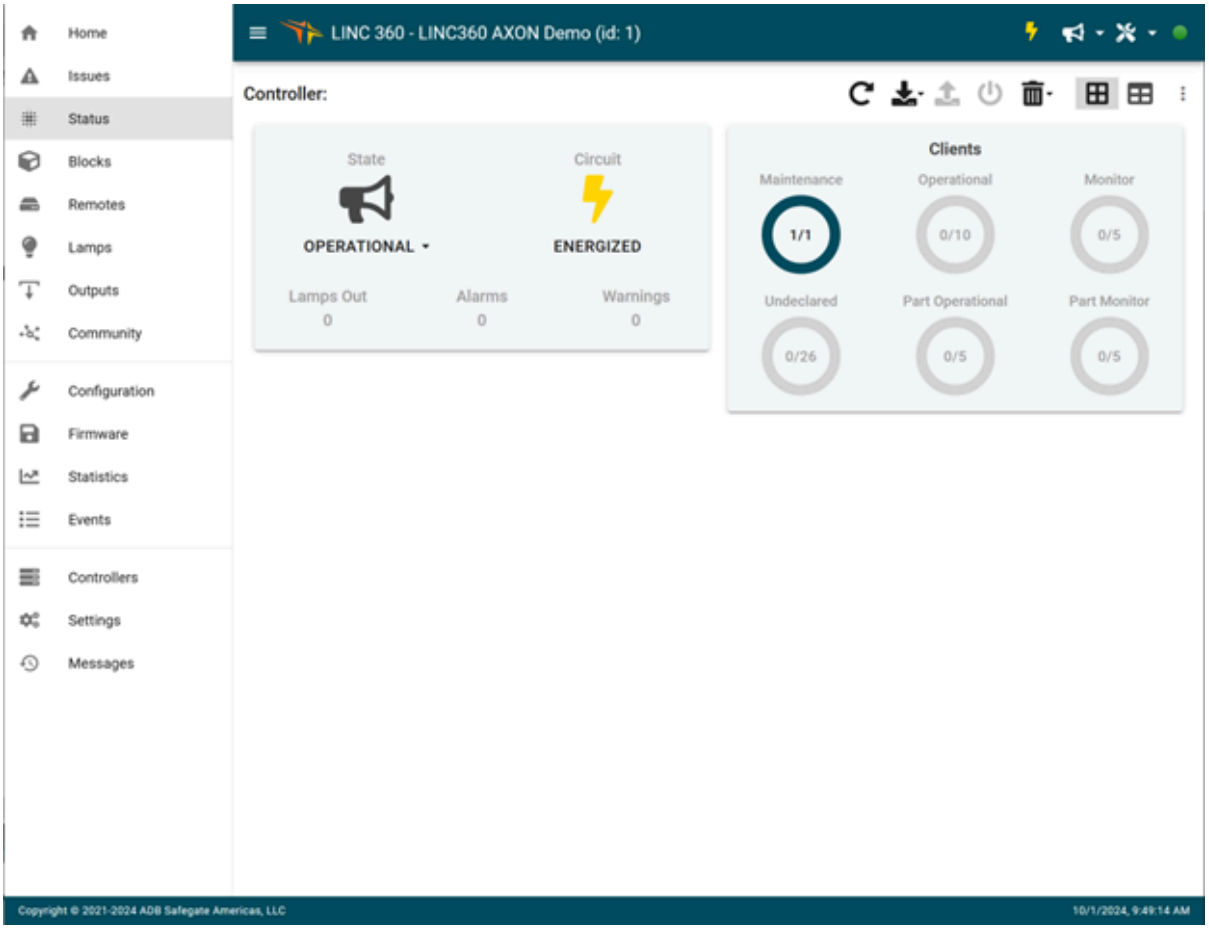


3. Change role to **Maintenance** by clicking on the eye icon in the top right corner.
   Example:

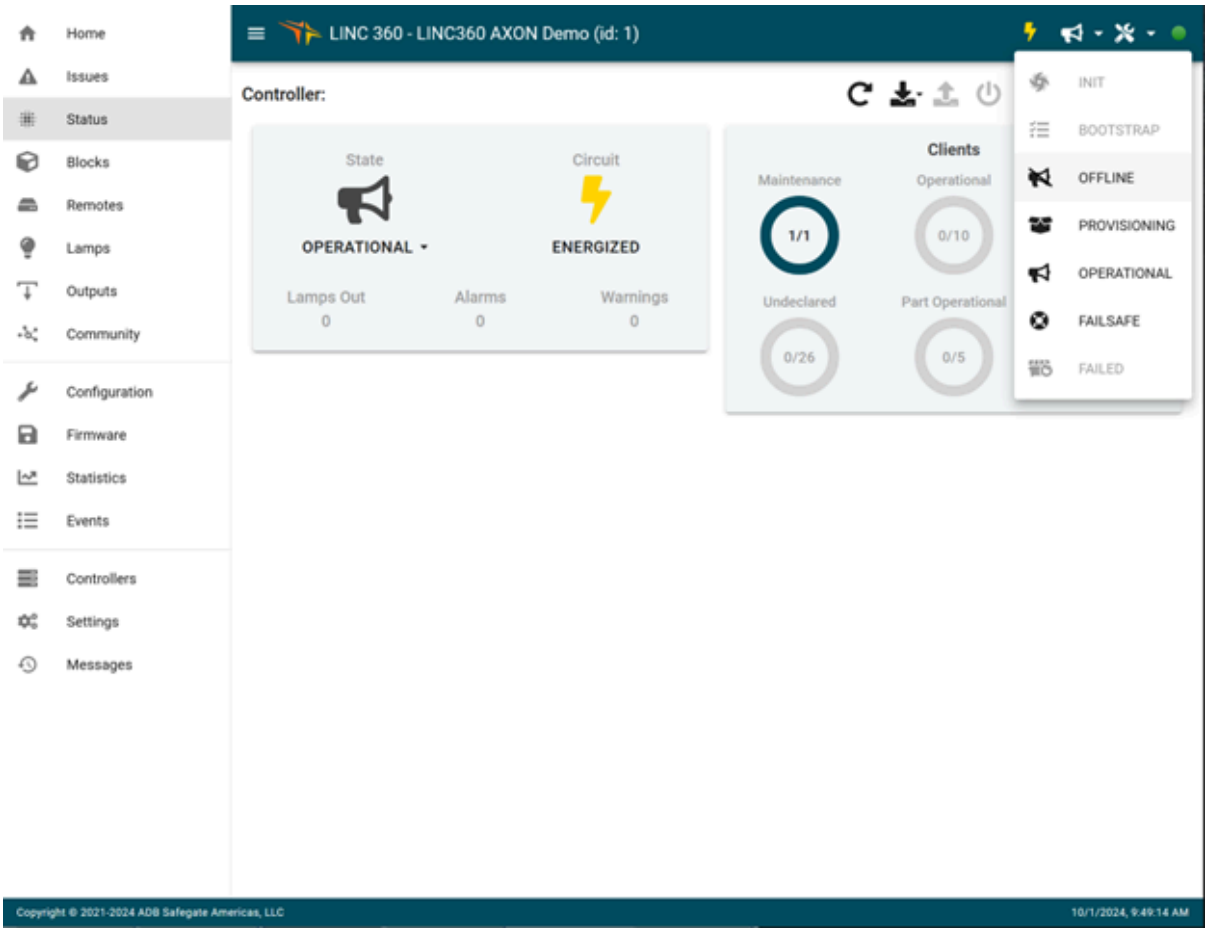


4. Notice the new options on the header bar (**Software Update**). They are grayed out because we are in an operational state.

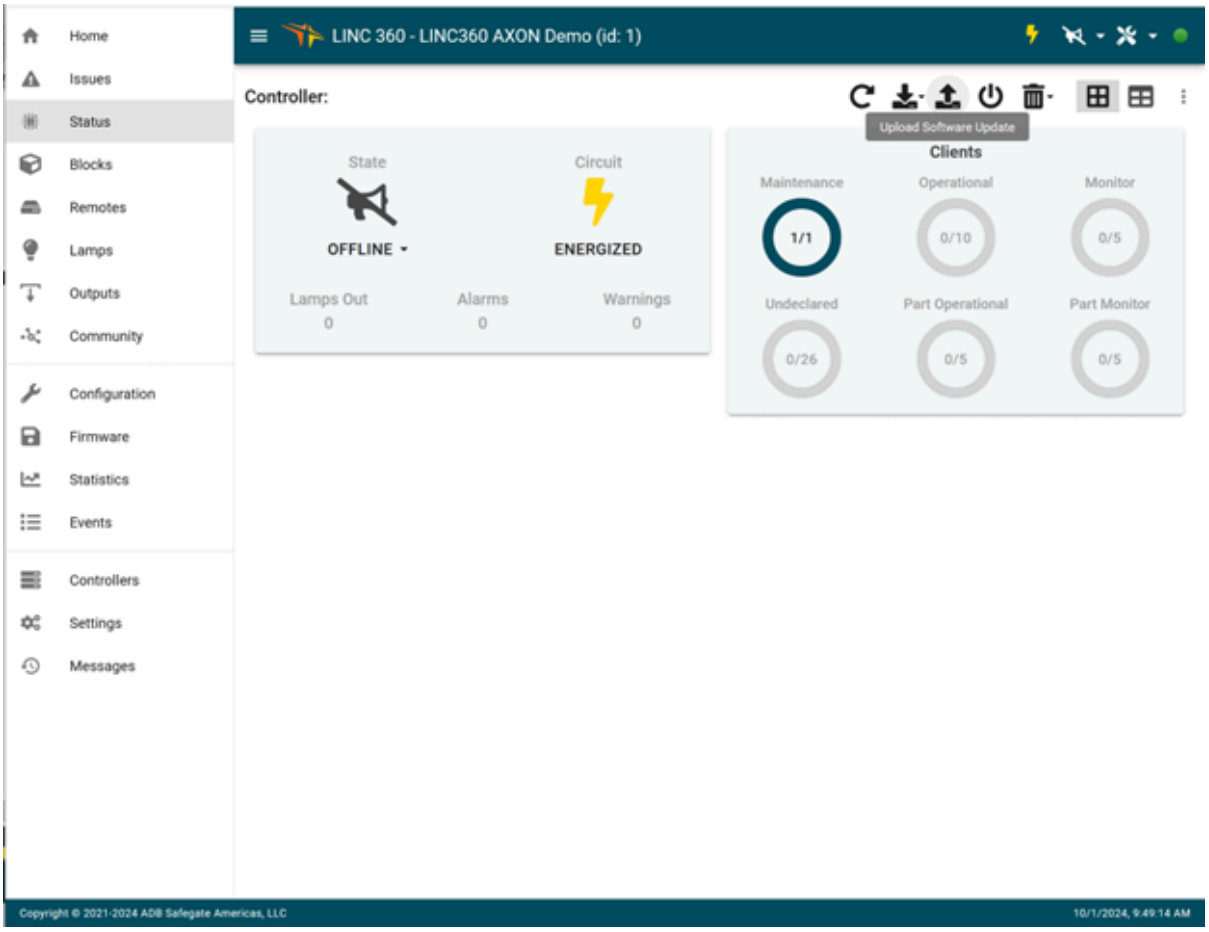
   Example:



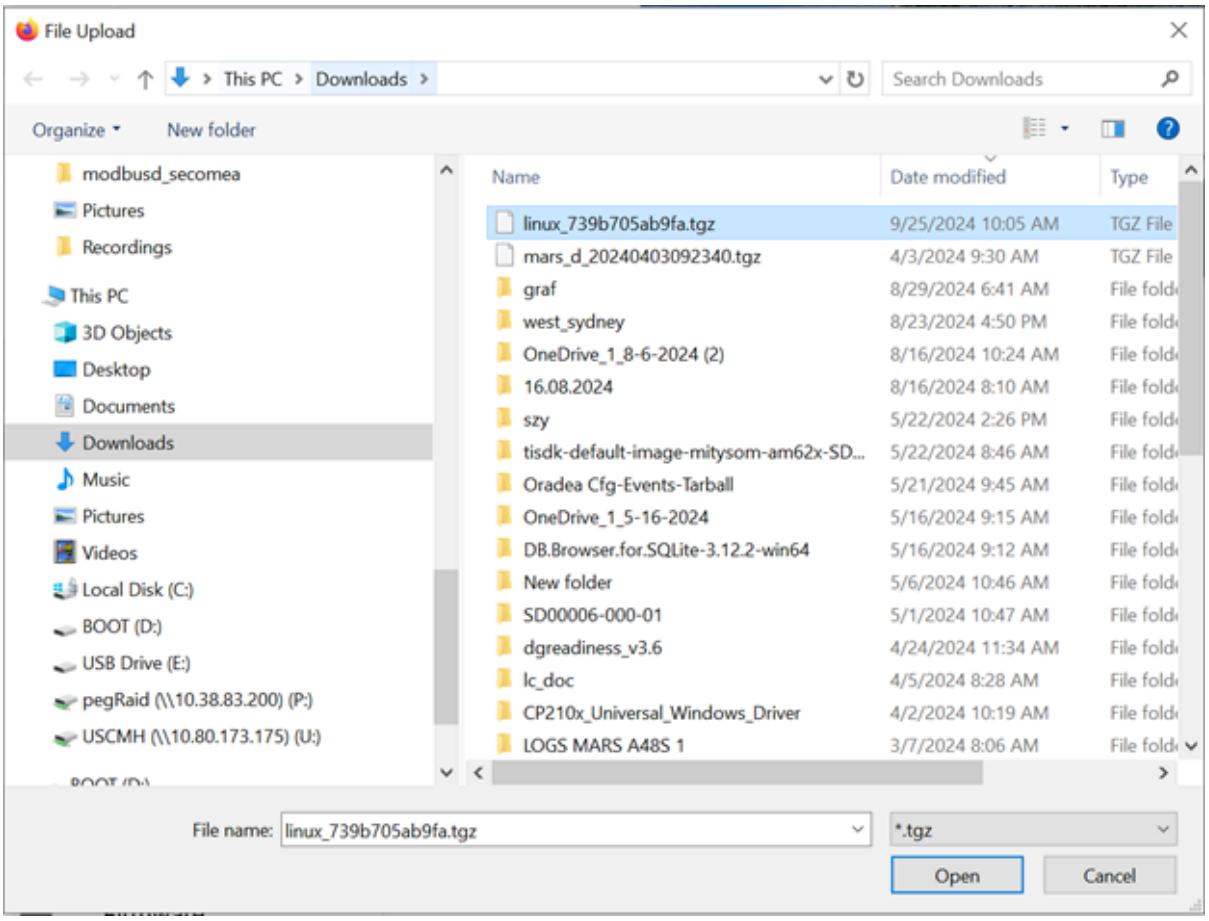
5. Change the controller to the **Offline** state by clicking on the icon on the left of the **Maintenance** role.
Example:



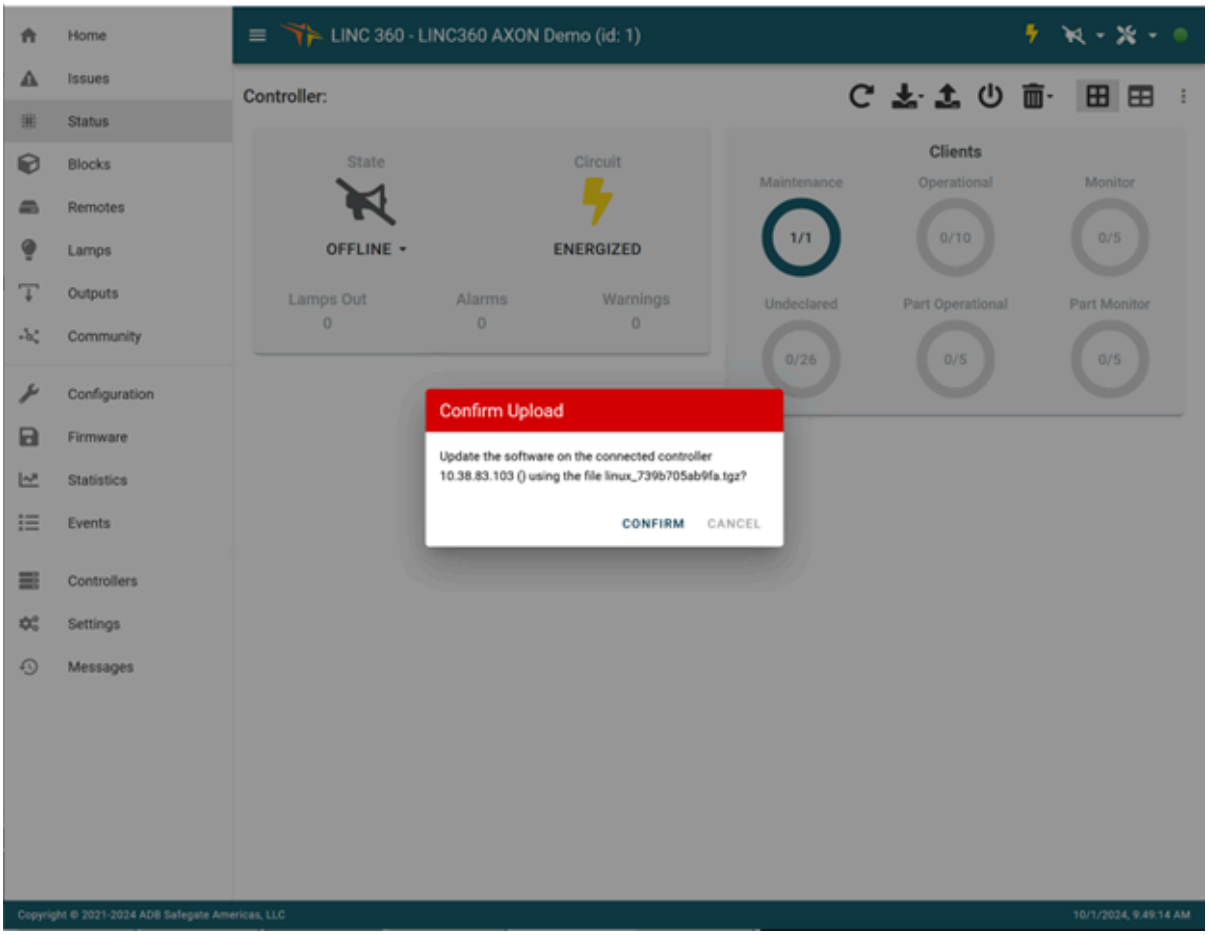
6. Click the **Upload Software Update** button.
   Example:



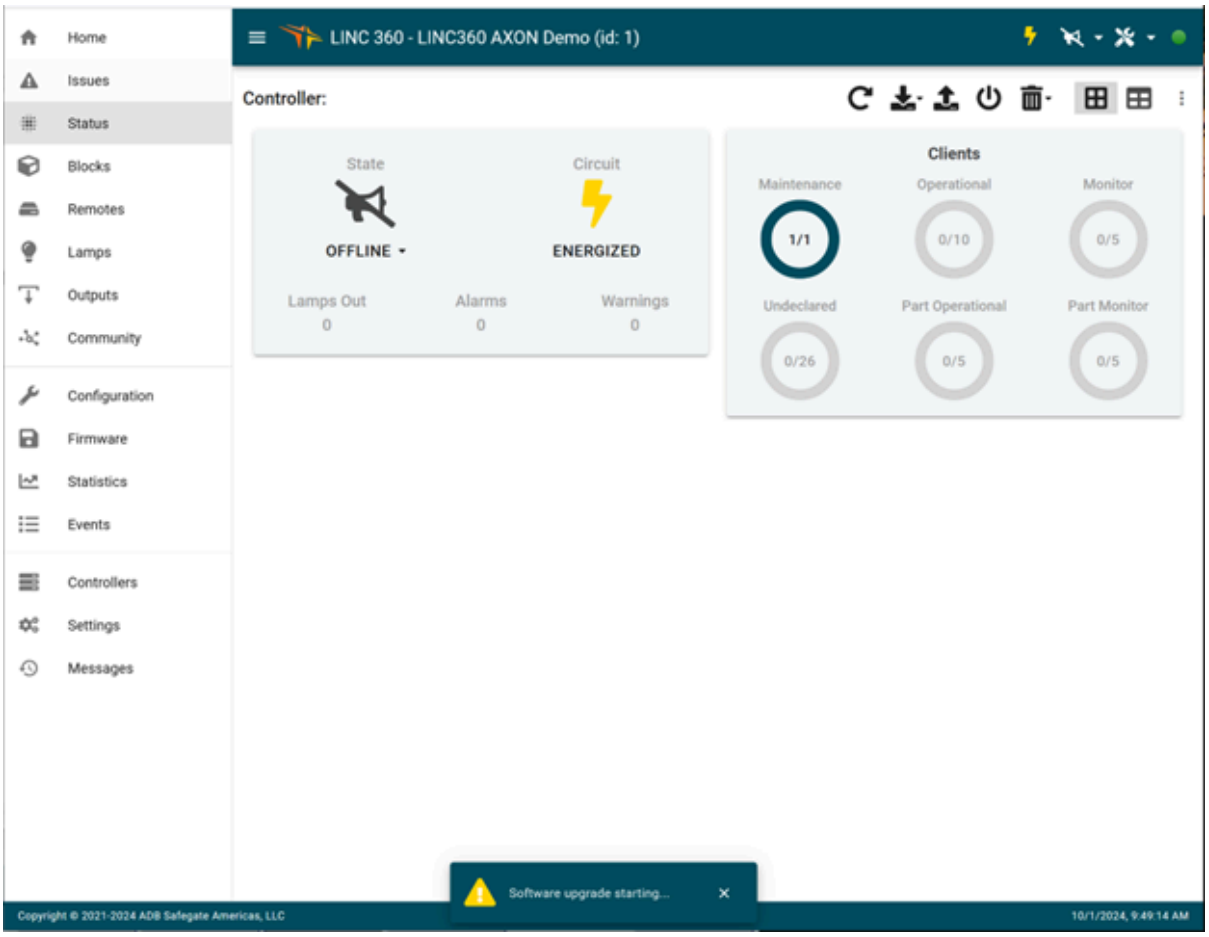
7. In the file selection menu, choose the TGZ file of the firmware update you wish to upload.
   Example:



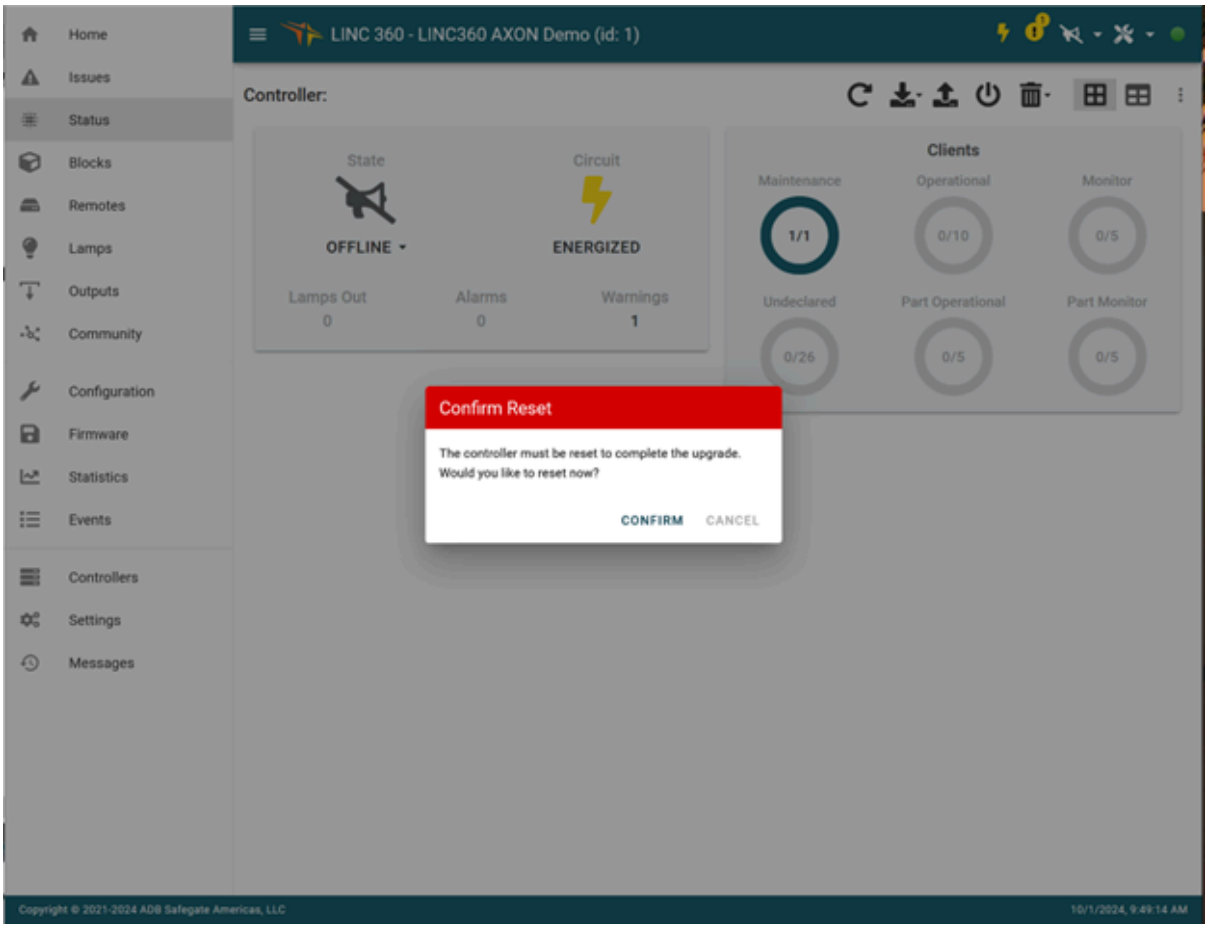
8. Confirm that you want to upgrade the firmware.
   Example:



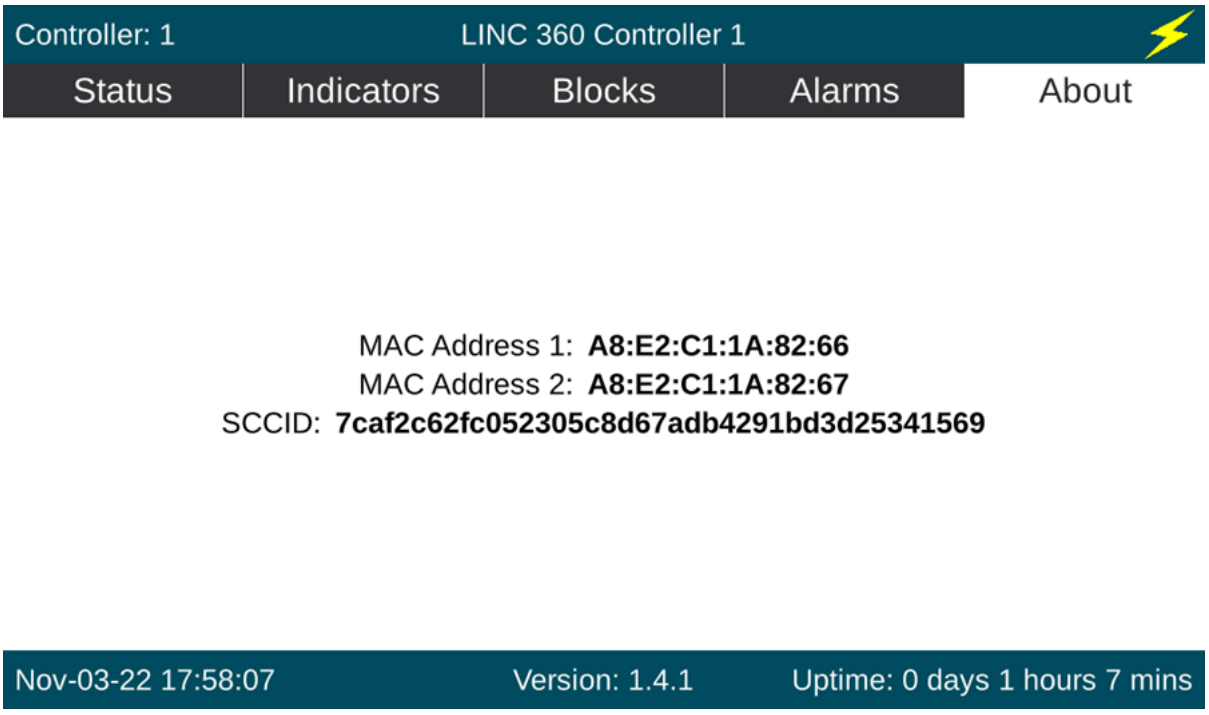
9. A notification announces that the update is in progress.
   Example:



10. Once uploaded, the user is prompted to reboot the controller.
Example:



11. After restart, go to the **About** tab on the touchscreen and verify the firmware version.
Example:



9.0 Additional User Data

Log-off Settings

During the course of typical maintenance activities, it may be necessary to "log-off" one or more remote units to restore them to a factory default setting. A remote unit at factory default scans all possible communication frequencies at power-up. This is different from a programmed unit that will only respond to its designated communication frequency. The user has the ability to command one or more remote units to log-off at the next power cycle from the GUI, however manual log-off is the preferred method. To perform this procedure, it is recommended to place the desired remote unit(s) with an isolation transformer on a temporary or spare circuit and use the following timing sequence for energizing and de-energizing the regulator:

1. Off for more than 8 seconds
2. On for 30 seconds (+- 5)
3. Off for 8 seconds (+- 5)
4. On for 120 seconds (+- 5)
5. Off for 8 seconds (+- 5)
6. On for 45 seconds (+- 5)
7. Off for more than 8 seconds

After completing this timing sequence, any remote connected is restored to a factory default setting, known as "logged-off."

Note
Newly manufactured ADB Safegate ACE 3 regulators have this timing sequence available as an automated option that can be selected from the front touchscreen display menu.

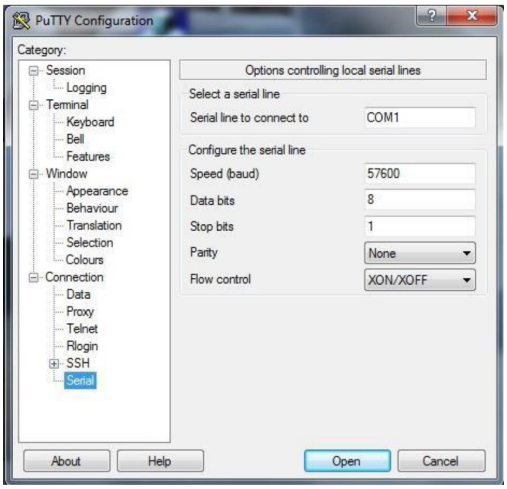
9.1 Controller IP Configuration

Configuration of the IP address for the controller unit should only be performed by an ADB Safegate representative. The following items are required to complete this activity:

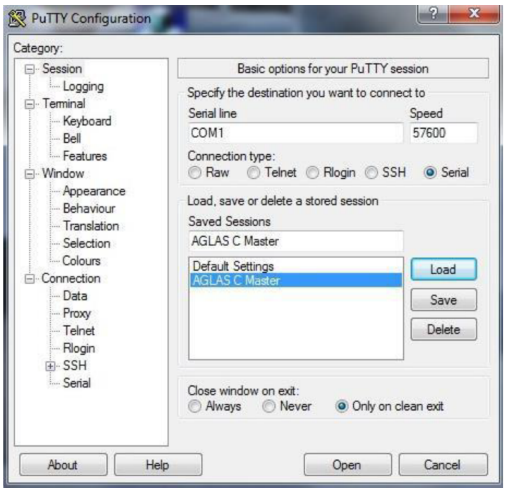
1. Connect a 9-pin null modem cable (pins 2 and 3 crossed) between the "Console" port of the LINC 360 Controller and a serial port on your laptop. This cable needs to have female connections at both ends.
2. A terminal program such as Putty or HyperTerminal is required to send commands to the LINC 360 Controller. PuTTY is a free application: https://www.putty.org/
3. Note the two MAC addresses indicated on the status tab of the LINC 360 Controller touchscreen display.
4. Identify the ALCS IP address, subnet mask and gateway to be used for each MAC address port (defined in the Controller XML config file).

No field circuit connections are necessary for configuration of the IP addresses. The following steps can be used as a guide:

1. Using putty (or your preferred serial console application), connect to the front panel console port using these SERIAL settings:
   a. 57600, 8, 1, n, XON / XOFF

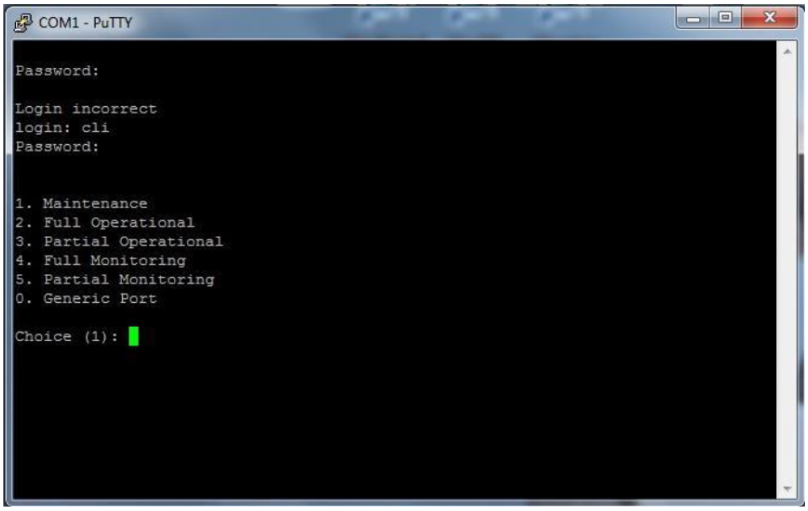


Putty SESSION settings should look like this:

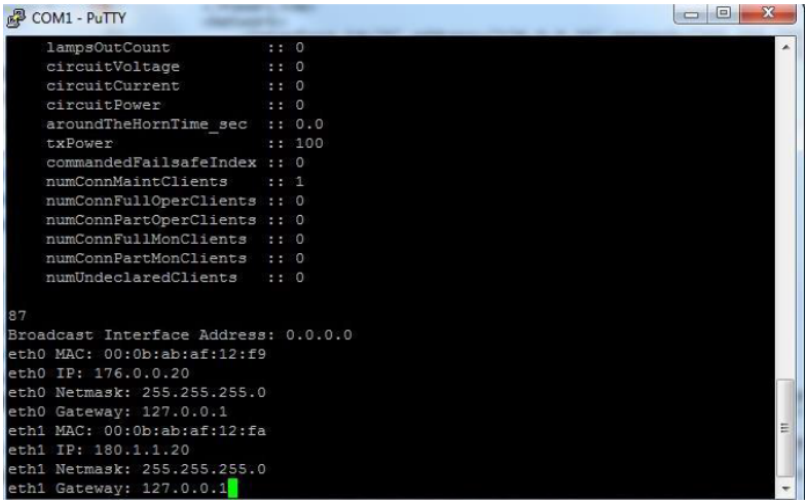


   b. Click **Open** to open a command prompt. Press **Enter** a few times until prompted for a password.

c. Login to the controller using the following credentials:
   - Login: 'cli'
   - Password: 'adb'
   - Select (1) Maintenance Role

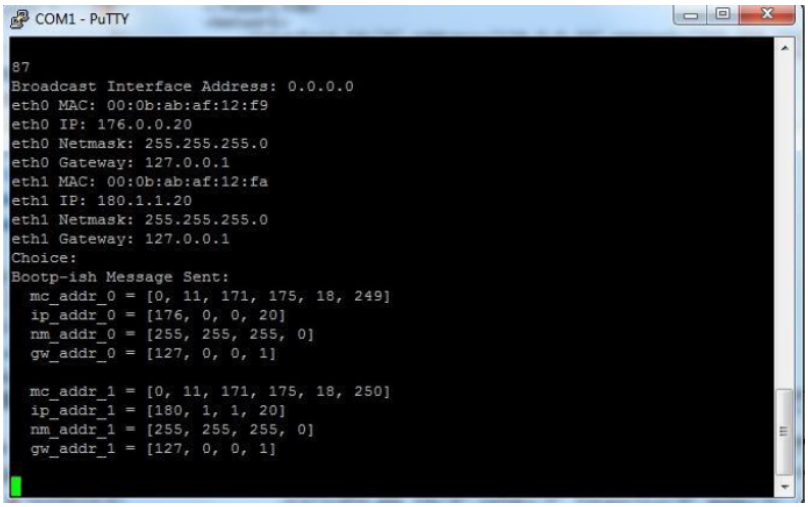


Enter a question mark (?) to list all possible commands.



d. Select menu item command "87" (Send BootP-ish Message) and press **Enter**.

e. Enter the following data for each when prompted:
   - Broadcast Interface, enter '0.0.0.0'
   - Eth0 MAC, enter the address of Eth0 from the front panel display 'About' page
   - Eth0 IP, enter '176.0.0.201' – ALCS Dependent
   - Eth0 Netmask, enter '255.255.0.0' – ALCS Dependent
   - Eth0 Gateway, enter '127.0.0.1 – ALCS Dependent
   - Eth1 MAC, enter the address of Eth1 from the front panel display 'About' page
   - Eth1 IP, enter '180.1.1.201' – ALCS Dependent
   - Eth1 Netmask, enter '255.255.0.0' – ALCS Dependent
   - Eth1 Gateway, enter '127.0.0.1 – ALCS Dependent
   - Press **Enter**.



The controller should reboot, when it comes back it will have the IP addresses assigned.
This can be verified on the **Status** tab on the front touchscreen display of the controller.

10.0 Troubleshooting

If any difficulty is encountered replacing a failed remote unit, there are five likely causes:

1. The field circuit is not energized.
2. The serial number entered in the replace remote field of the GUI does not match the serial number of the remote unit that was installed on the field circuit.
3. The associated isolation transformer has failed or is "noisy" (producing harmonic distortion or interference) and preventing optimum communication.
4. The replacement remote unit installed is failed out of the box, or currently "logged-in" as another unit and not scanning all available communication frequencies
5. Another user is logged in in a Maintenance role from a different network location and is creating conflicts.

Additional troubleshooting guidance can be found in the individual manuals for the MLC and ILC.

Appendix A: SUPPORT

Our experienced engineers are available for support and service at all times, 24 hour/7 days a week. They are part of a dynamic organization making sure the entire ADB SAFEGATE is committed to minimal disturbance for airport operations.

ADB SAFEGATE Support

Technical Support – Global

Customers in Europe, the Middle East, Africa or Asia Pacific are more than welcome to our portal for technical support. Trained in all areas of system issues, troubleshooting, quality control and technical assistance, our highly experienced Technical support specialists are available 24 hours a day, seven days a week to provide assistance over the phone. In the Americas, we also offer live technical support.

Live Technical Support – Americas

If at any time you have a question or concern about your product, contact ADB SAFEGATE's US-based technical support specialists, available 24 hours a day, seven days a week, to assist you via phone.

ADB SAFEGATE Americas Technical Service & Support (US & Canada) :**+1-800-545-4157**

ADB SAFEGATE Americas Technical Service & Support (Canada): **+1-905-631-1597**

ADB SAFEGATE Americas Technical Service & Support (International): **+1-614-861-1304**

We can also be reached via email during regular business hours:

Airfield and Gate: **techservice.us@adbsafegate.com**

Gate: **gateservice.us@adbsafegate.com**

We look forward to working with you!

Before You Call

When you have an airfield lighting or system control system problem, prior to calling, please ensure the following:

- Review the product's manual and troubleshooting guide.
- Be located with the product ready to troubleshoot.
- Have all necessary information available: airport code/company name, customer id number, contact phone number/email address, product/part number.
- Have a True RMS meter available and any other necessary tools.

When calling about an issue with Safedock A-VDGS, we can serve you better if you collect the following information before you call:

- Relevant information regarding the issue you are calling about, such as gate number, flight number, aircraft type and time of the event.
- What, if any, actions have been taken to resolve the issue prior to the call.
- If available, provide a CCTV recording of the incident to aid in aligning the information from the Safedock log file.

Note

For more information, see www.adbsafegate.com, contact ADB SAFEGATE Support via email at support@adbsafegate.com or

Europe: +32 2 722 17 11

Americas: +1 614 861 1304. Press 3 for technical service or press 4 for sales support.

China: +86 (10) 8476 0106

Middle East and Africa: +971 4 452 7575

A.1 ADB SAFEGATE Website

The ADB SAFEGATE website, www.adbsafegate.com, offers information regarding our airport solutions, products, company, news, links, downloads, references, contacts and more.

A.2 Recycling

A.2.1 Local Authority Recycling

The disposal of ADB SAFEGATE products is to be made at an applicable collection point for the recycling of electrical and electronic equipment. The correct disposal of equipment prevents any potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling. The recycling of materials helps to conserve natural resources. For more detailed information about recycling of products, contact your local authority city office.

A.2.2 ADB SAFEGATE Recycling

ADB SAFEGATE is fully committed to environmentally-conscious manufacturing with strict monitoring of our own processes as well as supplier components and sub-contractor operations. ADB SAFEGATE offers a recycling program for our products to all customers worldwide, whether or not the products were sold within the EU.

ADB SAFEGATE products and/or specific electrical and electronic component parts which are fully removed/separated from any customer equipment and returned will be accepted for our recycling program.

All items returned must be clearly labeled as follows:

- For ROHS/WEEE Recycling
- Sender contact information (Name, Business Address, Phone number).
- Main Unit Serial Number.

ADB SAFEGATE will continue to monitor and update according for any future requirements for EU directives as and when EU member states implement new regulations and or amendments. It is our aim to maintain our compliance plan and assist our customers.

Company Addresses

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