Emerson™ Location Awareness
with *Wireless*HART® Protocol

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Emerson™ Location Awareness

Notice

Read this manual before working with the product. For personal and system safety and for optimal product performance, understand the contents completely before installing, using, or maintaining this product.

Emerson™ has two toll-free assistance numbers and one international number.
Customer Central
1 800 999 9307 (7:00 a.m. to 7:00 p.m. CST)

National Response Center (equipment service needs)
1 800 654 7768 (24 hours a day)

International
1 952 906 8888

Nuclear qualification
The products described in this document are NOT designed for nuclear-qualified applications. Using non-nuclear qualified products in applications that require nuclear-qualified hardware or products may cause inaccurate readings.
For information on Rosemount nuclear-qualified products, contact an Emerson Sales Representative.

Wireless Gateway
The Location Anchor and all other wireless devices should be installed only after the Wireless Gateway has been installed and is functioning properly. Wireless devices should also be powered up in order of proximity from the Wireless Gateway, beginning with the closest. This will result in a simpler and faster network configuration.
Use caution when making changes to the TCP/IP network settings. If they are lost or entered incorrectly, the Gateway will require a factory reset. Contact your network administrator for information on the proper TCP/IP network settings.

Hazardous substance
Individuals handling products exposed to hazardous substances can avoid injury if they are informed of and understand the hazard. If the returned product was exposed to a hazardous substance as defined by OSHA, a copy of the Material Safety Data Sheet (MSDS) for each hazardous substance identified must accompany the returned goods.

⚠ WARNING

Failure to follow these installation guidelines could result in death or serious injury.
- Only qualified personnel should perform the installation.
Explosions could result in death or serious injury.
- Verify the operating atmosphere of the transmitter Anchor & Tag is consistent with the appropriate hazardous location certifications.
- The Anchor enclosure has a high surface resistivity that may present a static hazard. Take care during transportation and installation.

Battery considerations
Battery hazards remain when cells are discharged. Batteries should be stored in a clean dry area. For maximum battery life, storage temperature should not exceed 30 °C (86 °F).
The Location Anchor battery shall only be replaced in a non-hazardous area.
The Personnel Tag battery is rechargeable and shall only be charged in a non-hazardous area.

Installation considerations
Only qualified personnel should perform the installation.
Verify the operating atmosphere of the Anchor & Tag are consistent with applicable hazardous area certifications. Reference the Product Certifications section of this manual for information regarding hazardous certification.

The Anchor, Model GEO20, must be installed to ensure a minimum antenna separation distance of 20 cm (8 in.) from all persons. Only use certified Field Communicator for local Anchor configuration.

Location Awareness devices and services are meant to augment, not replace, safety and security measures within a plant and must not be used as the sole method of locating or tracking personnel within a customer's facility. Even when properly installed and maintained, and when working as intended, location position information will only be provided every 32 seconds or longer depending on system configuration. Location Awareness devices and services are designed to provide x and y location in a given level. In addition, structures within a plant, including moveable heavy equipment or other changes made after the initial installation, can prevent or delay detection. Location Awareness devices and services can also experience a loss or delay of signal as a result of software or hardware malfunction, or as a result of interruption or limitation of services by third party networks. Inform employees or contractors about the features and limitations of the Location Awareness System before allowing use.

Section 1: Introduction

1.1 Using This Manual

The sections in this manual provide information on installing, operating, and maintaining the Emerson™ Location Awareness solution. The sections are organized as follows:

Section 2: Plantweb Insight Location application provides overview on installation.

Section 3: Location Anchor Safety Messages contains safety information related to the Location Anchors.

Section 4: Location Anchor Configuration contains techniques for proper configuration.

Section 5: Location Anchor Installation contains techniques for properly installing and mounting.

Section 6: Location Anchor Commissioning contains techniques for proper commissioning.

Section 7: Location Anchor Operation and Maintenance contains operations and maintenance techniques.

Section 8: Location Anchor Troubleshooting provides troubleshooting techniques for the most common operating problems.

Section 9: Personnel Tag Safety Messages contains safety information related to the Personnel Tags.

Section 10: Personnel Tag Commissioning and Configuration contains techniques for proper configuration.

Section 11: Personnel Tag Operation and Maintenance contains operations and maintenance techniques.

Section 12: Plantweb Insight Location Application Configuration contains techniques for proper configuration.

Section 13: Plantweb Insight Location Application Operation and Maintenance contains operations and maintenance techniques.

Appendix A: Specifications and Reference Data supplies reference and specification data, as well as ordering information.

Appendix B: Tools contains readily available tools for reference.

Appendix C: Recommended Practices contains guidelines to achieve the best possible Location Network.

1.2 Product Recycling and Disposal

Recycling of equipment and packaging should be taken into consideration and disposed of in accordance with local and national legislation/regulations.

Section 2: Install Plantweb Insight and Plantweb Insight Location application

Follow instructions in the Plantweb Insight Quick Start Guide.

Section 3: Location Anchor Safety Messages

3.1 Safety Messages

Instructions and procedures in this section may require special precautions to ensure the safety of the personnel performing the operations, information that potentially raises safety issues is indicated by a warning symbol (⚠). Refer to the following safety messages before performing an operation preceded by this symbol.

⚠ CAUTION

Mount Anchors clear of walkways and doorways to reduce risk of someone contacting unit unexpectedly.

⚠ WARNING

If Anchor positions are physically changed/moved in the plant after intial commissioning, their positions need to be updated in the App in order for the App to report accurate Tag locations.

If an Anchor has to be removed for any reason (e.g. for service or battery replacement), make sure that the same Anchor is put back into the same location and orientation from which it was removed since the Plantweb Insight Location application has this location for calculation. If this is not done, the location system may interpret inaccurate locations.

If an Anchor has to be moved for any reason (e.g. for site redesign), make sure that the Anchor location is updated in Plantweb Insight Location application. If this is not done, the location system may interpret inaccurate locations.

Location Awareness Tags and Anchors use lithium batteries and are subject to local, state, national, and/or international requirements. Lithium batteries may ignite, explode or release toxic and harmful materials or chemicals if mishandled. Do not use a battery that is damaged. Do not incinerate batteries. Do not crush, disassemble, heat batteries above 100°C (212°F) or expose contents to water. Please check and comply with all applicable local, state, national, and international regulations before transporting, disposing or recycling lithium batteries. Do not recharge Anchor battery. Do not use Anchor battery that has been dropped. Use of damaged

equipment can be dangerous and could result in injury. Properly dispose of damaged Anchor batteries or Tags immediately.

The Emerson Location Anchor shall be used only with the battery (00G45-9000-0001) supplied by Rosemount. This battery has been officially tested with the Location Anchor as required by the I.S. standards during the assessment of the Emerson Location Anchor.
The battery is not replaceable in a hazardous location.
Dispose of battery in accordance with local and national requirements.

Do not place the Location Awareness Anchor, Anchor battery or the Location Awareness Tag device near fire or heat to reduce the risk of explosion and possible injury.

Notice

Shipping considerations
The Anchor unit was shipped with the battery installed. Each Location Anchor contains one “D” size primary lithium battery. Primary lithium batteries are regulated in transportation by the U. S. Department of Transportation and are also covered by the International Air Transport Association (IATA), International Civil Aviation Organization (CAO), and European Ground Transportation of Dangerous Goods (ARD). It is the shipper’s responsibility to ensure compliance with these or any other local requirements. Consult current regulations and requirements before shipping.

This Location Anchor complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: The Anchor may not cause harmful interference. The Anchor must accept any interference received, including interference that may cause undesired operation. The Anchor, Model GEO20, must be installed to ensure a minimum antenna separation distance of 20 cm (8 in.) from all persons.

Section 4: Location Anchor Configuration

4.1 Location Anchor Configuration

Remove the Location Anchor electronics cover and connect to the HART® Communication terminals for configuration.

The Emerson Location Anchor will receive HART Communication from any HART handheld Field Communicator or AMS™ Device Manager.

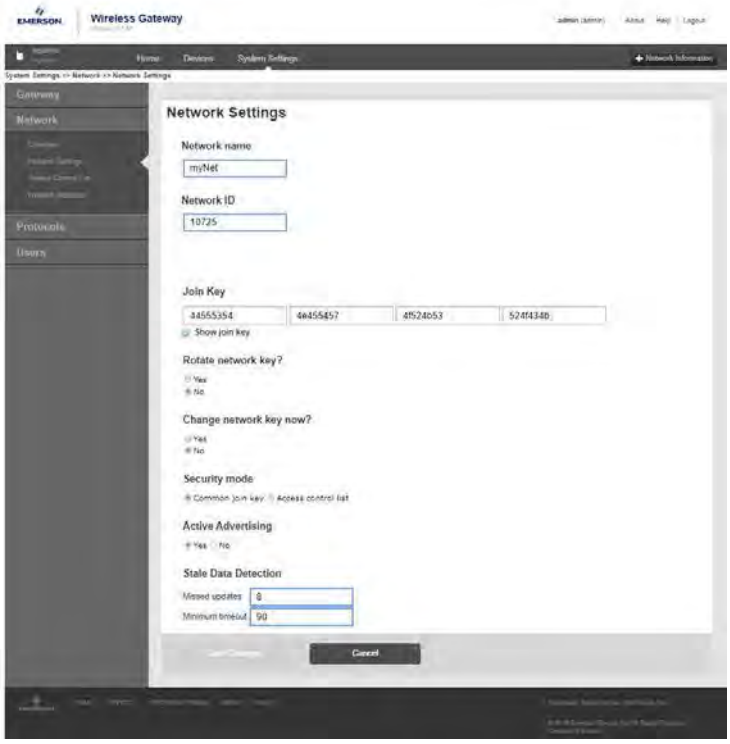
AMS Device Manager

AMS Device Manager can connect to devices directly, using a HART modem, or remotely using the Gateway. To configure the Emerson Location Anchor, double click (or right click and select Configure/Setup) on the device icon that will appear below either the HART modem or Gateway connection tree.

4.2 Device Network Configuration

To communicate with the Gateway (and ultimately the host system), the transmitter must be configured to communicate with the wireless network. Using a Field Communicator or AMS Device Manager, enter the network ID and join key so they match the network ID and join key of the Gateway and other devices in the network. If they do not match, the Location Anchor will not communicate with the network. The network ID and join key may be obtained from the Gateway on the *Systems Settings>Network>Network Settings* page on the web server, shown in Figure 4-1.

Figure 4-1. Gateway Network Settings



4.2.1 AMS Device Manager

Right click on the Location Anchor and select **Configure**. When the menu opens, select **Join Device to Network** and follow the method to enter the network ID and join key. See table 3.1 for menu items.

4.2.2 Field Communicator

The network ID and join key may be changed in the wireless device by using the following the Menu Items. Set both network ID and join key. See table 3.1 for menu items.

Table 4.1. Device Configuration

Function	Menu Items
Join Device to Network	Network ID, Set Join Key
Device Information	Tag, Long Tag, Descriptor, Message, Date,
Guided Setup	Basic Setup, Join Device to Network, Configure Update Rates,
Manual Setup	Wireless, Location Network, HART, Security, Device Information, Power

Wireless	Network ID, Join Device to Network, Broadcast Information

4.3 Power Down

After the Location Anchor has been configured, turn power off to the electronics by moving the power switch to off and reinstall the cover. Power should only be turned back on when the Anchor is ready for commissioning.

Section 5: Location Anchor Installation

5.1 Considerations

5.1.1 General

The Emerson™ Location Awareness solution is comprised of the Emerson Location Tag, Emerson Location Anchor, Emerson Gateways, and Plantweb Insight Location application. Emerson™ Location Awareness provides the user with safety-focused monitoring of their most valued resource - their people. Rechargeable, battery-operated Personnel Tags communicate with WirelessHART® Anchors, creating visibility in the most remote and hazardous areas of the facility for better personnel safety and security. The Plantweb™ Insight Location application provides a streamlined, user interface that manages geofencing, safety mustering, and user assisted safety alerts, helping the user digitally transform their facility's safety.

5.1.2 Wireless Considerations

Power-Up Sequence
The Wireless Gateway should be installed and functioning properly before any wireless devices are powered. Battery is already installed in the Location Anchor. Move power switch to “ON” position to power up. This results in a simpler and faster network configuration. Enabling Active Advertising on the Gateway ensures new devices are able to join the network faster. For more information, see the Smart Wireless Gateway Reference Manual.

Antenna Position
The antenna is internal to the Location Anchor. To achieve optimal range and performance, position the Location Anchor with the stem in a horizontal position as shown in Figure 5-1. Good connectivity can also be achieved in other orientations. The antenna should also be approximately 1 m (3 ft.) from any large structure, building, or conductive surface, and a minimum of 2 m (6 ft) and maximum of 4 m (13 ft) from the ground to allow for clear communication to other devices. Refer to best practices for additional information on optimal mounting locations of the Location Anchor.

Recommended Practices
When mounting the Location Anchor, recommended practices should be considered to achieve the best wireless performance. See Appendix C: Recommended Practices for more information on recommended practices.

5.1.3 Electrical

Battery

The Emerson Location Anchor is self-powered. The battery is a single “D” size primary lithium/thionyl chloride battery. Each battery contains approximately 5.0 grams of lithium. Under normal conditions, the battery materials are self-contained and are not reactive as long as the battery is maintained. Care should be taken to prevent thermal, electrical, or mechanical damage. Contacts should be protected to prevent premature discharge. Battery cannot be changed in a hazardous location.

5.1.4 Installation Considerations

1. Inspect mounting bands periodically and re-tighten if necessary. Some loosening may occur after initial installation due to thermal expansion/contraction.
2. The stainless-steel mounting bands could be affected by stress corrosion and potentially fail when in the presence of chlorides.
3. The Location Anchor should be installed such that steam or other high temperature fluids do not directly impinge the housing of the Location Anchor.
4. Good connectivity can also be achieved in other orientations. The antenna should also be approximately 1 m (3 ft.) from any large structure, building, or conductive surface, and a minimum of 2m (6 ft) and a max of 4m (13 ft) from the ground to allow for clear communication to other devices.

5.2 Mounting

1. For optimal radio connectivity the Anchor needs to be installed with the on/off switch on the top, as shown in below image. The below mounting procedure will walk through how to properly install the Anchor without removing the electronics cover to check the switch orientation.

2. Locate mounting position on stanchion that is at least 2m above ground.
3. Install pipe mount, using pipe clamp, to stanchion with opening facing upward (as shown below). Install off the left side of the pipe (as you are facing it) for optimal radio performance, if possible.

4. Tighten clamp to 10.2 N-m (90 in-lb) using 5/16” (8mm) socket and torque wrench.
5. Slide Anchor universal connection into pipe mount from above. Anchor should sit in pipe mount with nut loose.

6. Tighten nut hand tight. Anchor should now look below image. Mount off the left side of the pipe with the cover facing you (as shown), if possible.

7. If commissioning the Location Anchor, refer to Location Awareness Quick Start Guide
8. Ensure the cover is fully tightened to prevent moisture ingress. The lip of the polymer electronics cover should be in contact with the surface of the polymer enclosure to ensure a proper seal. Do not overtighten

Section 6: Location Anchor Commissioning

6.1 Verify Operation

There are three methods available to verify operation:

- Field Communicator
- Gateway's integrated web interface
- AMS™ Suite Wireless Configurator or AMS Device Manager

If the Emerson Location Anchor was configured with the network ID and join key, and sufficient time has passed, the Anchor will be connected to the network. If network ID and join key were not configured, reference "Troubleshooting".

Note:
It may take several minutes for the Location Anchor to join the network.

6.1.1 Field Communicator

For *Wireless*HART® transmitter communication, an Emerson Location Anchor Device Driver (DD) is required. To obtain the latest DD, visit the Emerson™ Easy Upgrade site at: Emerson.com/Rosemount/Device-Install-Kits.

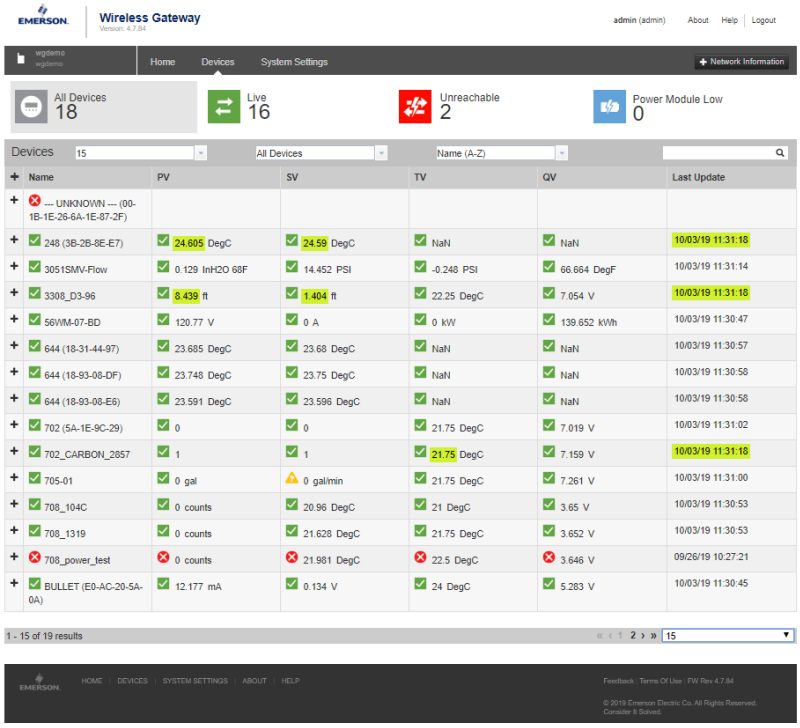
The communication status may be verified in the wireless device using the following the menu items.

Function	Menu Items
Communications	Join Status, Wireless Mode, Join Mode, Number of Available Neighbors, Number of Advertisements Heard, Number of Join Attempts

6.1.2 Wireless Gateway

Using the Gateway's web interface, navigate to the Devices page as shown in Figure 6-1. Locate the device in question and verify all status indicators are good (green).

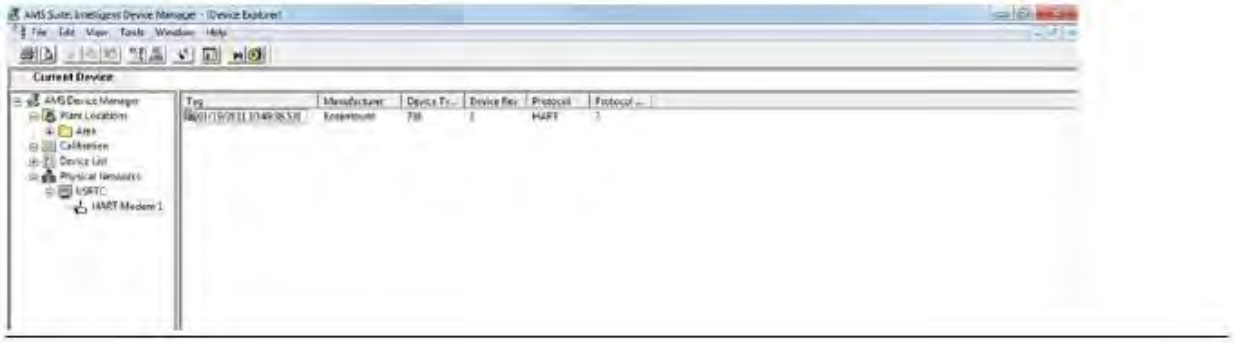
Figure 6-1. Wireless Gateway Explorer Page



AMS Device Manager

When the Location Anchor has joined the network, it will appear in the AMS Device Manager as illustrated in Figure 6-2. For *Wireless*HART transmitter communication, a Location Anchor DD is required. To obtain the latest DD, visit the Emerson Easy Upgrade site at: Emerson.com/Rosemount/Device-Install-Kits.

Figure 6-2. AMS Device Manager



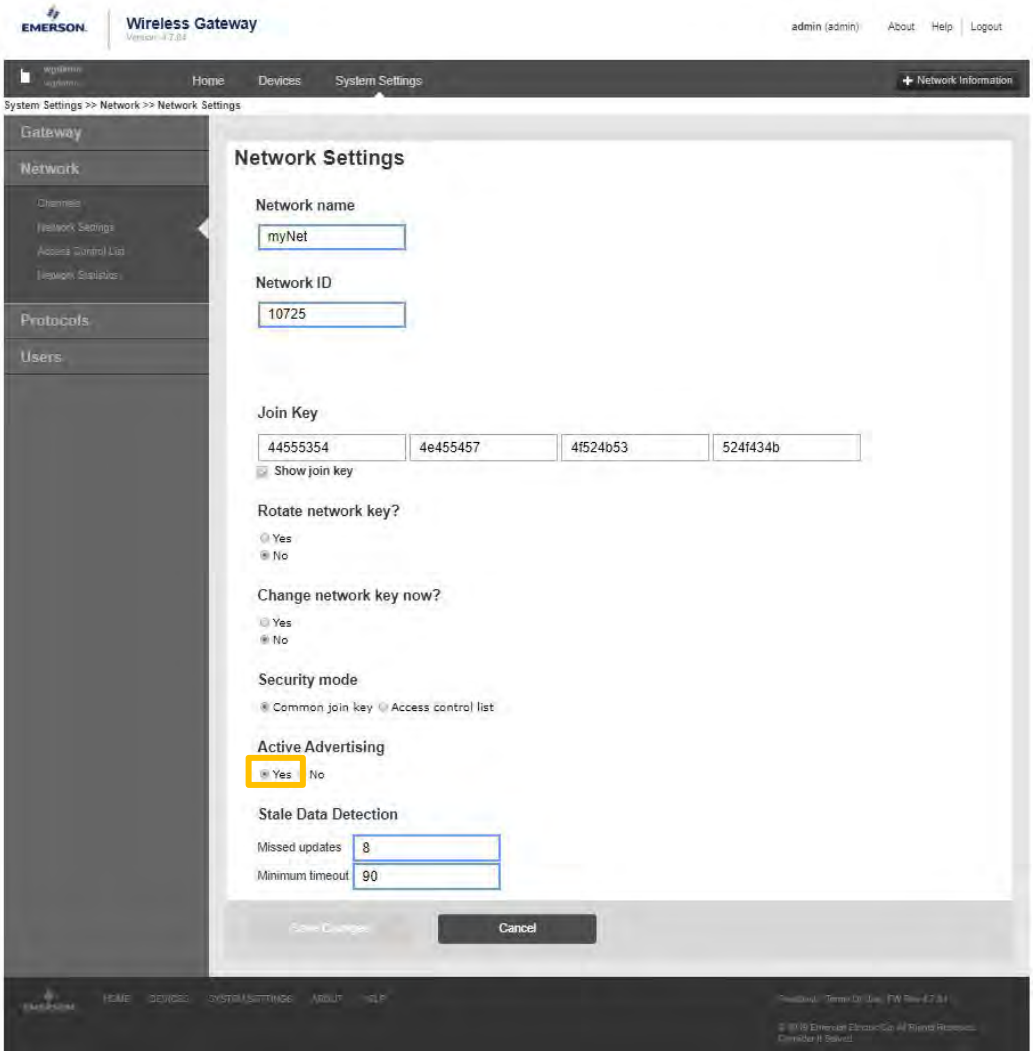
Note:
Plantweb Insight™ Location application is provided for viewing Location Anchor status.

Troubleshooting:

If the device is not joined to the network after power up, verify the correct configuration of the network ID and join key, and that Active Advertising has been enabled on the Gateway. The network ID and join key in the device must match the network ID and join key of the Gateway. The network ID and join key may be obtained from the Gateway on the *System Settings>Network>Network Settings* page of the web server (see Figure 6-3). The network ID and join key may be changed in the wireless device by following the Menu Items sequence shown below.

Function	Menu Items
Join Device to Network	Network ID, Set Join Key

Figure 6-3. Wireless Gateway Network Settings



6.1.3 Field Communicator

Note:
In order to establish communication with a Field Communicator, power the Location Anchor by switching the power switch to the “ON” position.

Function	Menu Items
Guided Setup	Basic Setup, Join Device to Network, Configure Update Rates,
Wireless	Network ID, Join Device to Network, Broadcast Information

Section 7: Location Anchor Operation and Maintenance

This section contains information on commissioning and operating Location Anchors. Field Communicator and AMS™ Device Manager instructions are provided for convenience.

7.2 Battery Replacement

The Emerson Location Anchor shall be used only with the battery (00G45-9000-0001) supplied by Rosemount. The battery is not replaceable in a hazardous location.

Procedure to replace the battery:

1. Remove devices from hazardous area.
2. Remove enclosure cover.
3. Switch the Location Anchor “OFF”.
4. Loosen the screw holding the electronics assembly to the enclosure.
5. Release battery connection from electronics board.
6. Loosen the two screws on the battery holder and slide the battery holder to the left.

Note

The screws holding down the electronics board do not need to be removed, just loosened. Take care not to let the battery fall out of the enclosure.

7. Remove battery from enclosure.
8. Installation of new battery is the reverse of the removal.

7.3 Local Location Anchor Status and Notifications

The flashing LED indicated Location Anchor status using the colors described in table 6.2. To see the LED, remove the enclosure cover.

Table 7.2. Anchor LED Status Descriptions

LED Color		Device Status
	Green	Functioning properly
	Amber	Battery is low, battery replacement recommended
	Red	Battery replacement required OR Device is Malfunctioning
• =	No Color	No power, verify ON/OFF switch is in “ON” position

Section 8: Location Anchor Troubleshooting

8.1 Service Support

To expedite the return process outside of the United States, contact the nearest Emerson™ representative.

Within the United States, call the Emerson Instrument and Valve

Response Center using the 1-800-654-RSMT (7768) toll-free number. This center, available 24 hours a day, will assist with any needed information or materials.

The center will ask for product model and serial numbers and will provide a Return Material Authorization (RMA) number. The center will also ask for the process material to which the product was last exposed.

For inquiries outside of the United States, contact the nearest Emerson representative for RMA instructions.

Emerson representatives will explain the additional information and procedures necessary to return goods exposed to hazardous substances.

8.2 Local Troubleshooting

Table 8-1. Interpreting Local Notifications

LED Color	Device Status	Recommended Action(s)
Green	Functioning properly	No action required.
Amber	Battery is low	Battery replacement recommended.
Red	Battery replacement required OR Device is malfunctioning	Investigate active notification via a HART Communicator. Replace battery if device is determined to be functioning properly and notifications have been verified.
Black, no color ● =	No power	Verify ON/OFF switch is in “ON” position

8.3 Remote Troubleshooting

Table 8-2. Interpreting Device Status

Status	Notification	Description	Recommended Action(s)
Good	None	Functioning Properly	No action required
Advisory	Database Storage Error	The device has failed to write to the database memory at some point in the past. Any data written during this time may have been lost.	1. Perform a Device Reset. 2. If logging dynamic data is not needed, this advisory alert can be safely ignored. 3. If the condition persists, replace the device.
	Simulate Active	The device is in simulation mode and may not be reporting actual information.	1. Verify that simulation is no longer required. 2. Disable simulation mode. 3. Reset the device.
	Anchor/Device Overload	The device is not able to receive information from all the Location Tags in the area	1. May need to deploy more Anchors/device to cover the load
	Non-Critical User Data	A user written parameter does not match its expected value.	1. Restart the device. 2. Reconfirm all configuration items in the device. 3. Restore the default settings and reconfigure device.

			4. If the condition persists, replace the device.
	Muster mode activated	The device is placed into a mode where it is not forwarding information to calculate full position	1. Verify that muster mode is needed 2. Disable muster mode 3. Reset the device
Status	Notification	Description	Recommended Action(s)
Maintenance	Voltage Conditions Out of Range	The supply voltage is low and may soon affect device operation.	1. Replace the battery.
	Environmental Conditions Out of Range	The device is outside its normal environmental operating conditions which may affect accuracy and/or proper operation.	1. Verify process and ambient temperature is within the device's operating range. 2. Remote mount the device away from process and environmental conditions. 3. Reset the device. 4. If the condition persists, replace the device.
	Capacity Denied	The device has failed to acquire the wireless communication bandwidth necessary to support the configured update rates.	1. Obtaining the bandwidth may take some time depending on the configured update rates and other devices in the network. Wait several minutes to see if the error resolves itself. 2. There may be too many devices attached to the *Wireless*HART network, or the update rates may be too fast. Try using a different network, or slowing down the update rate on one or more devices.
Status	Notification	Description	Recommended Action(s)
Failure	Configuration Alert	The device has detected a configuration error.	1.Click on details for more information. 2. Correct the parameter that has a configuration error. 3. Reset the device. 4. If the condition persists, replace the device.
	Critical Power Failure	The supply voltage is too low for the device to broadcast updates.	1. Replace the battery.
	Electronics Failure	An electronics error that could impact the device measurement reading has occurred.	1.Restore device to default settings. 2. Perform a Device Reset. 3. If the condition persists, replace the device.

Section 9: Personnel Tag Safety Messages

9.1 Safety Messages

Instructions and procedures in this section may require special precautions to ensure the safety of the personnel performing the operations, information that potentially raises safety issues is

indicated by a warning symbol (⚠). Refer to the following safety messages before performing an operation preceded by this symbol.

⚠ WARNING

Location Awareness Tags and Anchors use lithium batteries and are subject to local, state, national, and/or international requirements. Lithium batteries may ignite, explode or release toxic and harmful materials or chemicals if mishandled. Do not use a battery that is damaged. Do not incinerate batteries. Do not crush, disassemble, heat batteries above 100°C (212°F) or expose contents to water. Please check and comply with all applicable local, state, national, and international regulations before transporting, disposing or recycling lithium batteries. Do not recharge Anchor battery. Do not use Anchor battery that has been dropped. Use of damaged equipment can be dangerous and could result in injury. Properly dispose of damaged Anchor batteries or Tags immediately.
The Location Awareness Personnel Tag is equipped with a permanently installed, lithium-ion rechargeable battery. Do not disassemble Personnel Tag or attempt to replace the battery. Do not store Personnel Tag in areas where there is excessive heat or cold (e.g. inside vehicles). Recharge Location Awareness Personnel Tag only with Qi certified wireless chargers in a non-hazardous area. Charger must be approved as SELV or Class 2 equipment against CSA/UL 60950, CSA/UL 61010-1 or equivalent ordinary location standard. The maximum voltage from the charger must not exceed 30 VDC. Adhere to all Qi charger manufacturer guidelines and recommendations.
Do not charge the Personnel Tag in a damp or wet location to reduce the risk of electric shock. The Personnel Tag should only be charged when the Tag is at room temperature. If the Personnel Tag has been in a cold environment, make sure to allow it to warm to room temperature before charging.

Do not place the Location Awareness Anchor, Anchor battery or the Location Awareness Tag device near fire or heat to reduce the risk of explosion and possible injury.

If wearing the Tag with a lanyard, it must be a breakaway lanyard worn properly.

Section 10: Personnel Tag Commissioning and Configuration

Power Up Sequence

1. Charge Personnel Tag for approximately three hours using a certified Qi Charger.
2. To remove Personnel Tag from shipping mode, press and hold safety button until LED is solid green. This should take approximately three seconds.
3. Once you release the safety button, the Personnel Tag LED will follow the status shown in Table 12.1.

Commissioning and Configuration

Follow steps outlined in Section 13 for Personnel Tag commissioning and configuration.

Section 11: Personnel Tag Operation and Maintenance

11.1 Personnel Tag Status and Notifications

The flashing LED Location Tag status using the colors described in table 12.1.
To see the LED, remove the enclosure cover.

Table 11.1. Personnel Tag LED Status Descriptions

LED Color	Blink rate	Device status
Green	1 blink per second	Normal operation
Green/Red	Toggle blink	User assistance button has been activated
Amber	1 blink per 0.5 seconds	Aggressive network search
Amber	1 blink per second	Moderate network search
Amber	1 blink per 2.5 seconds	Slow network search, conserving power
Red	1 blink per second	Critical low battery AND Battery charge required
No Color	N/A	No power OR Shipping mode

11.2 Personnel Tag User Assistance

The Personnel Tag has a user assistance t button than can be exposed by sliding the grey cover. This button, once pressed, sends and alert to the Plantweb Insight Location application to inform that the personnel may need help.

11.3 Personnel Tag Charging

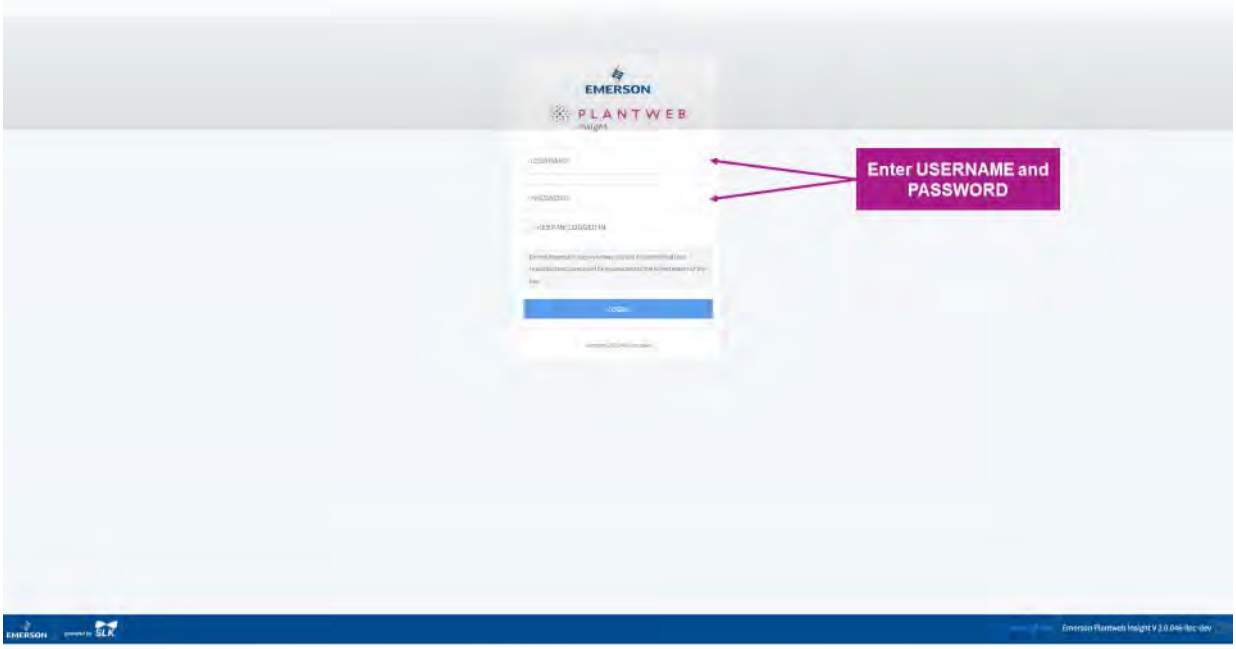
The Personnel Tag has a rechargeable battery and is charged using a certified Qi charger. Emerson has spare parts available for a single charging pad.

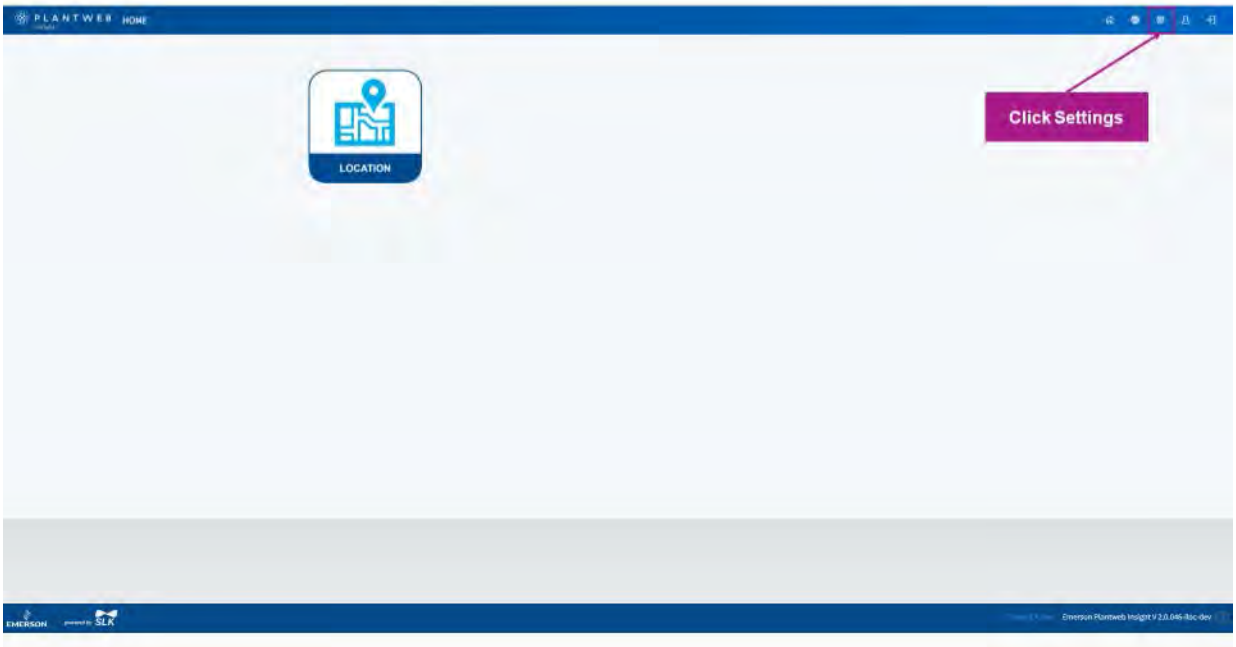
11.4 Personnel Tag Mounting Considerations

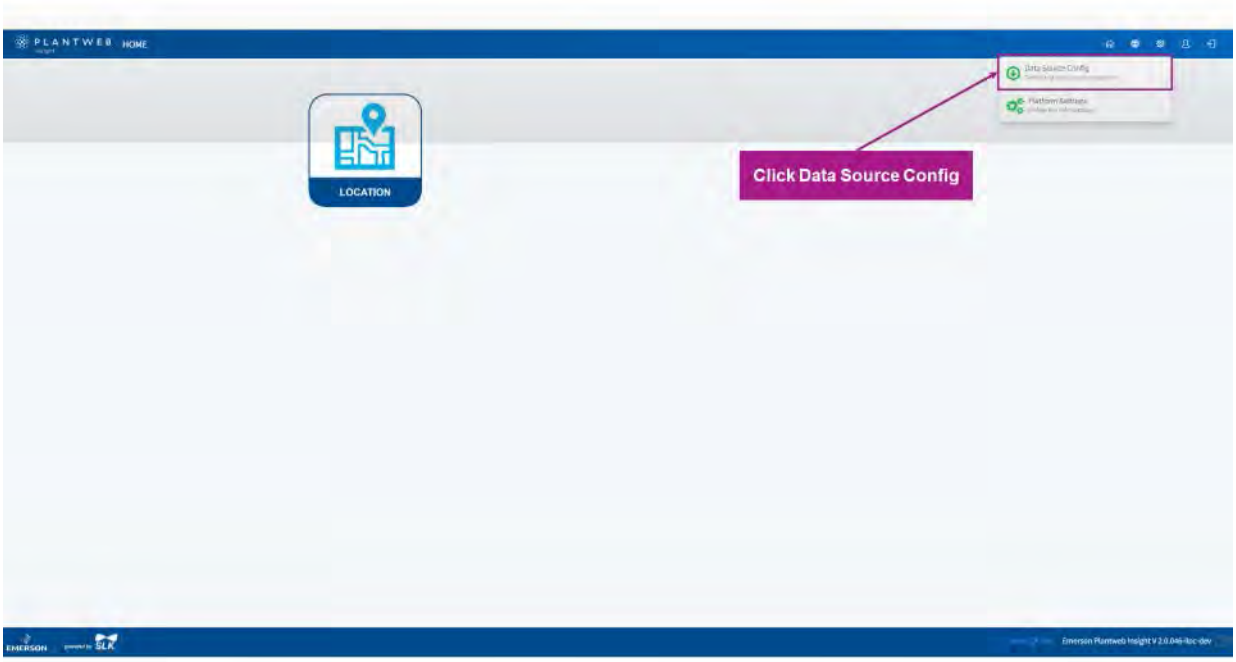
The Personnel Tag has flexible wearing options to accommodate a variety of PPE. It can be worn with a lanyard or belt clip. Lanyards are shipped with the Personnel Tags. Belt clips can be ordered separately.

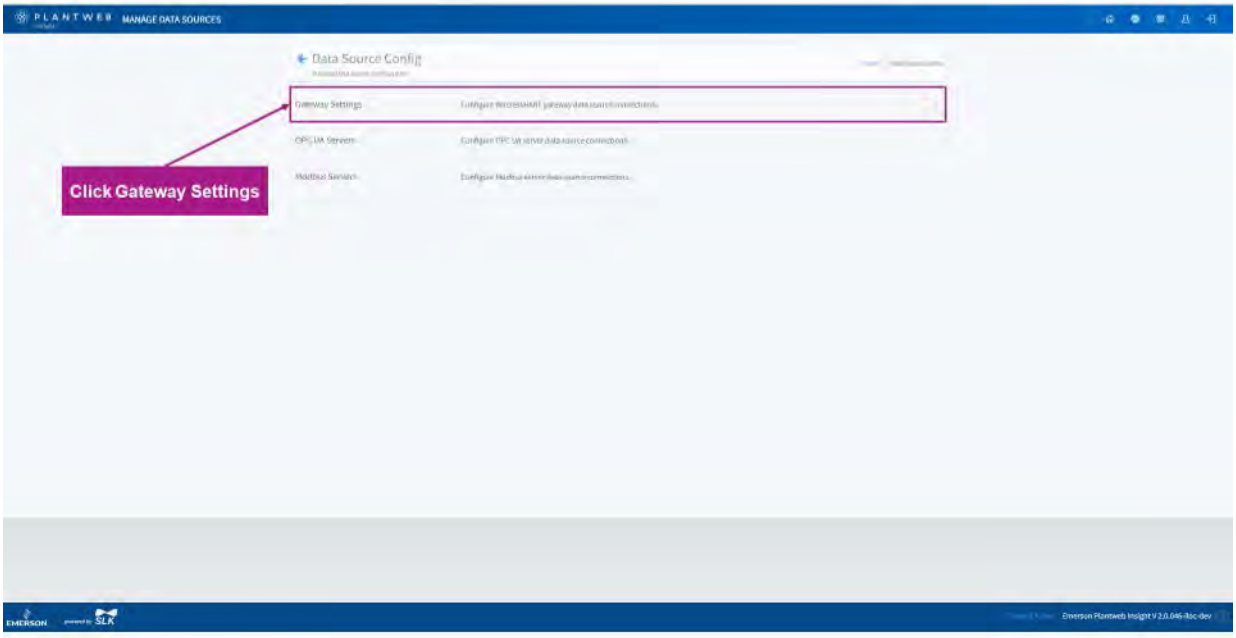
Section 12: Plantweb Insight Location Application Configuration

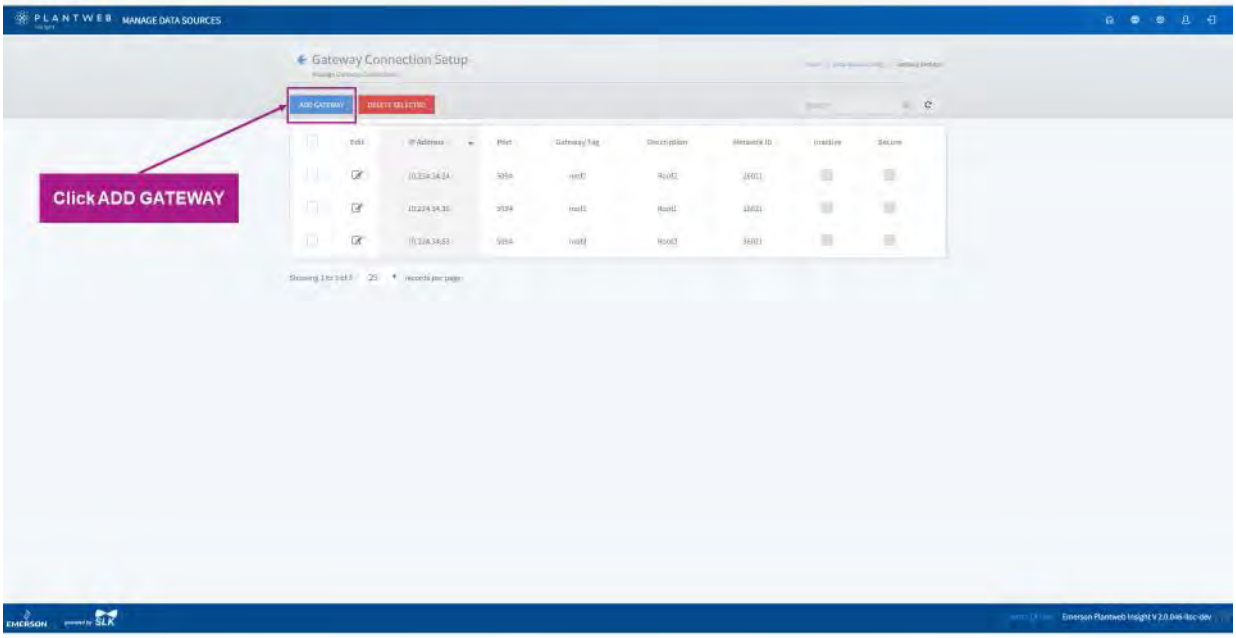
12.1 Gateway Configuration

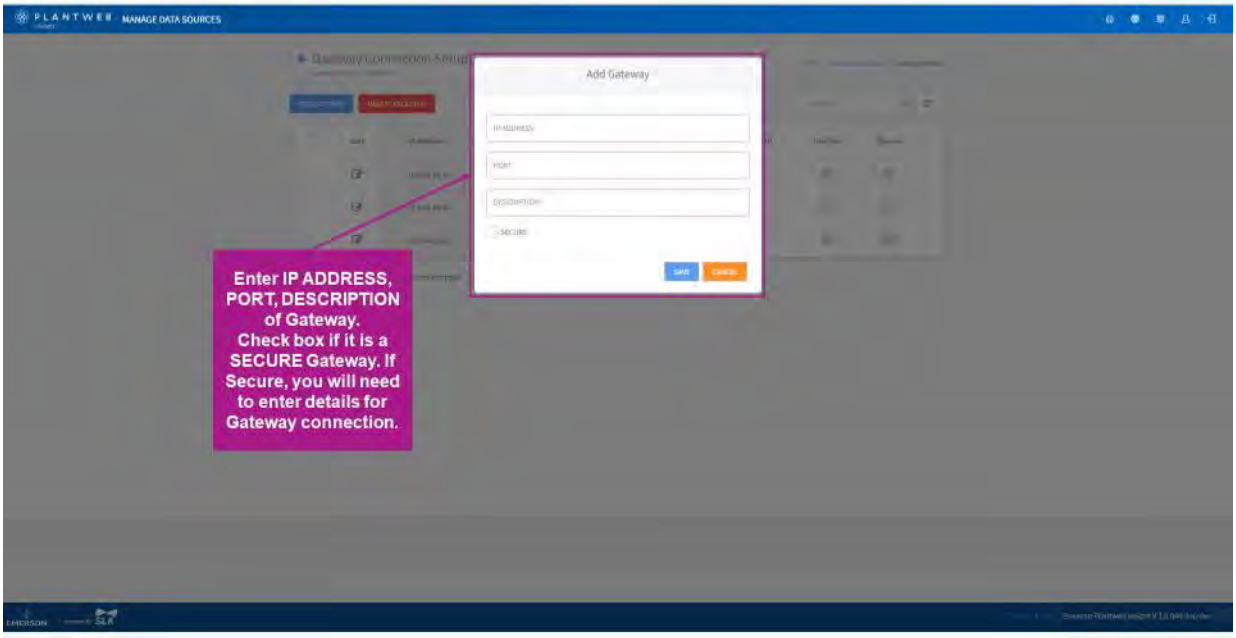


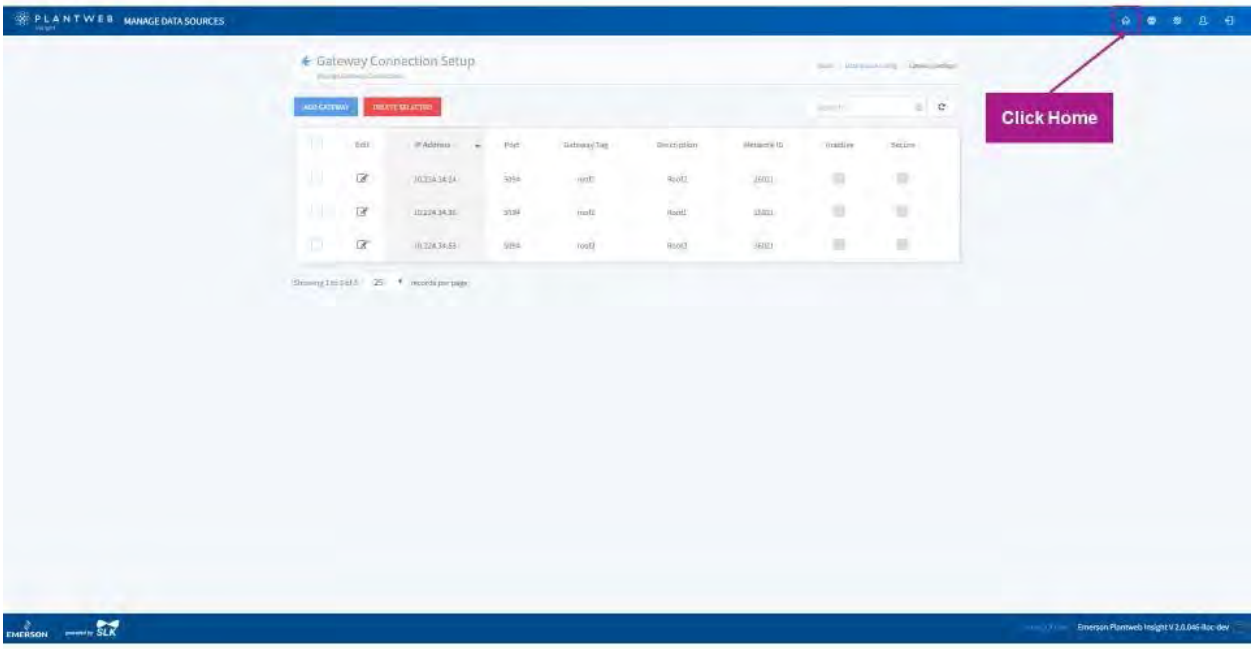



PLANTWEB HOME
LOCATION
Click Data Source Config

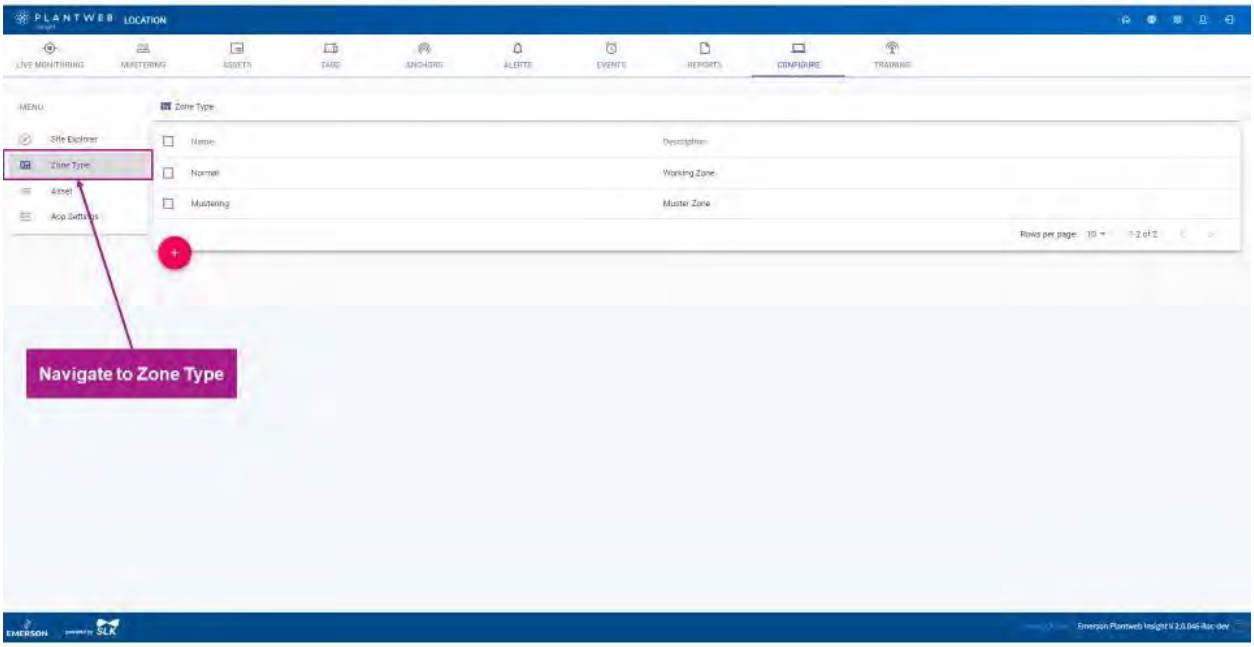

PLANTWEB MANAGE DATA SOURCES
Data Source Config
Gateway Settings
Click Gateway Settings

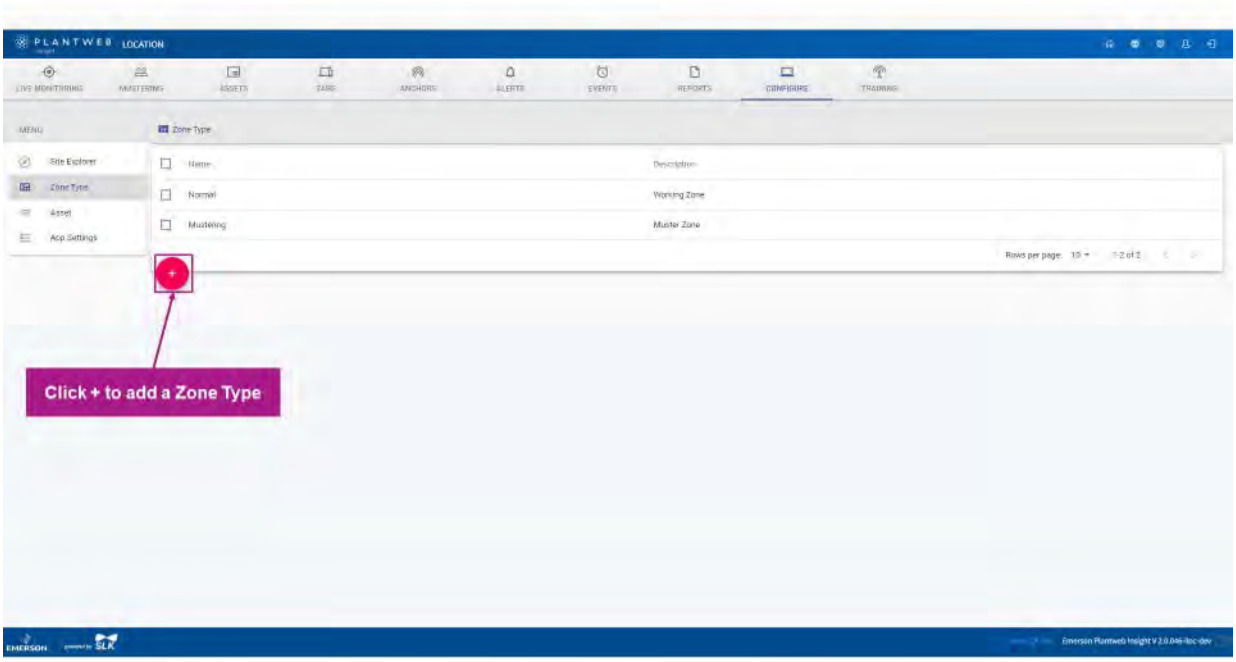

PLANTWEB MANAGE DATA SOURCES
Gateway Connection Setup
ADD GATEWAY
DELETE SELECTED
Click ADD GATEWAY

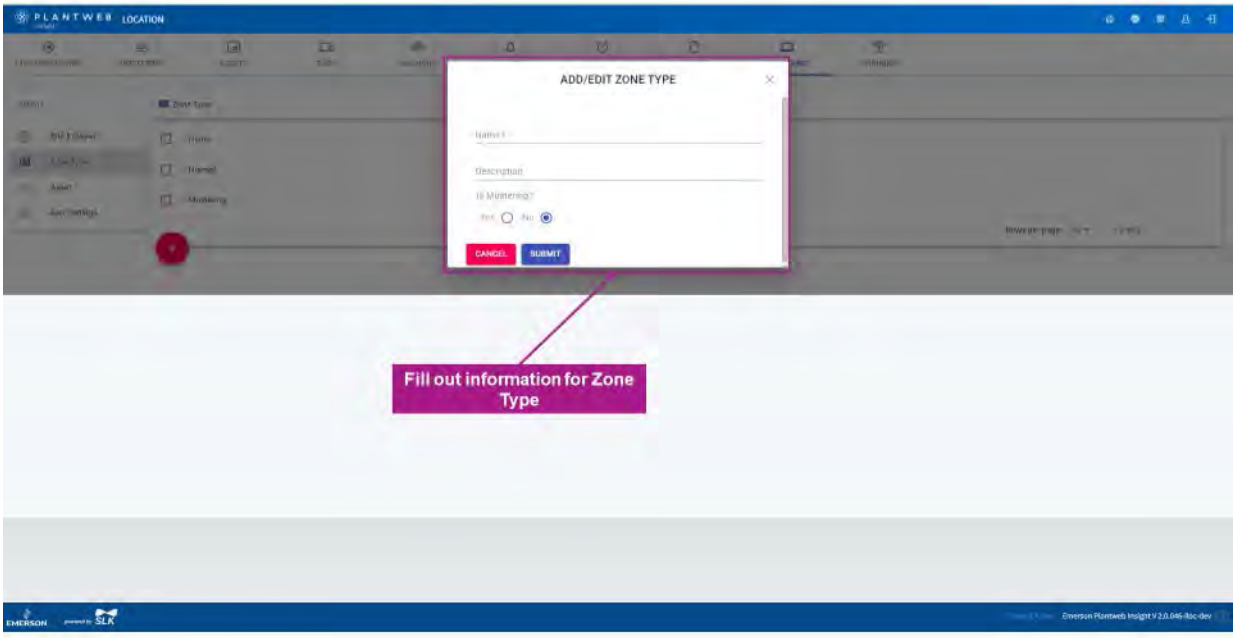

PLANTWEB MANAGE DATA SOURCES
Add Gateway
Enter IP ADDRESS, PORT, DESCRIPTION of Gateway. Check box if it is a SECURE Gateway. If Secure, you will need to enter details for Gateway connection.

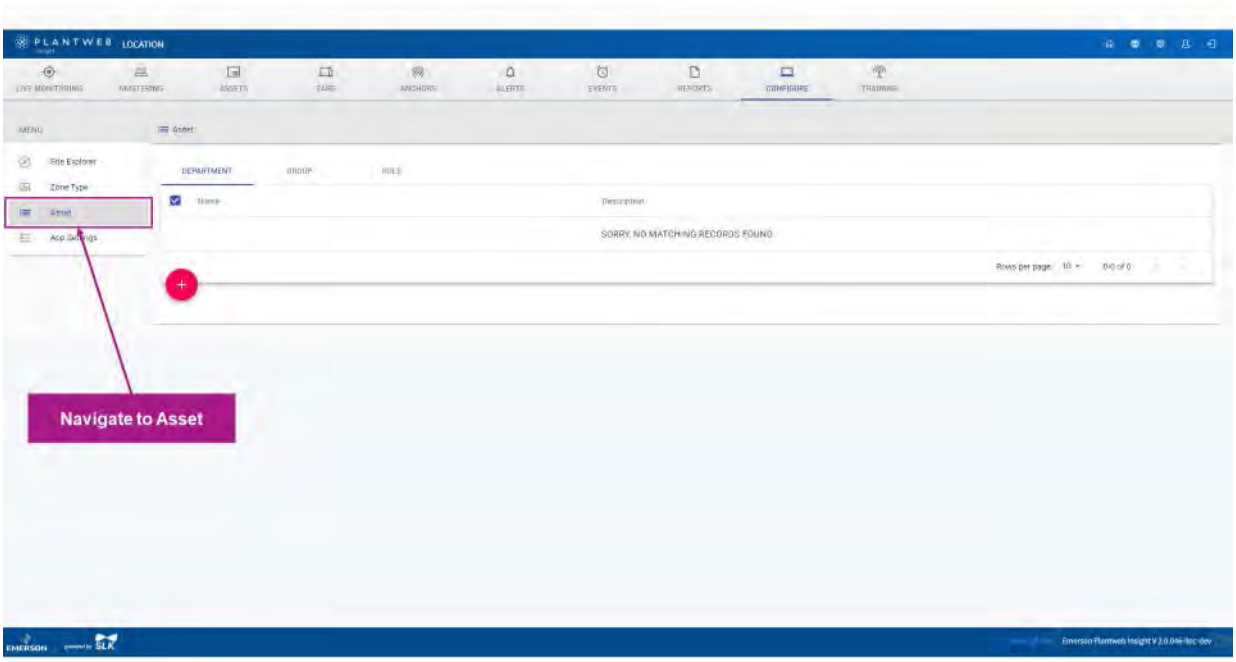


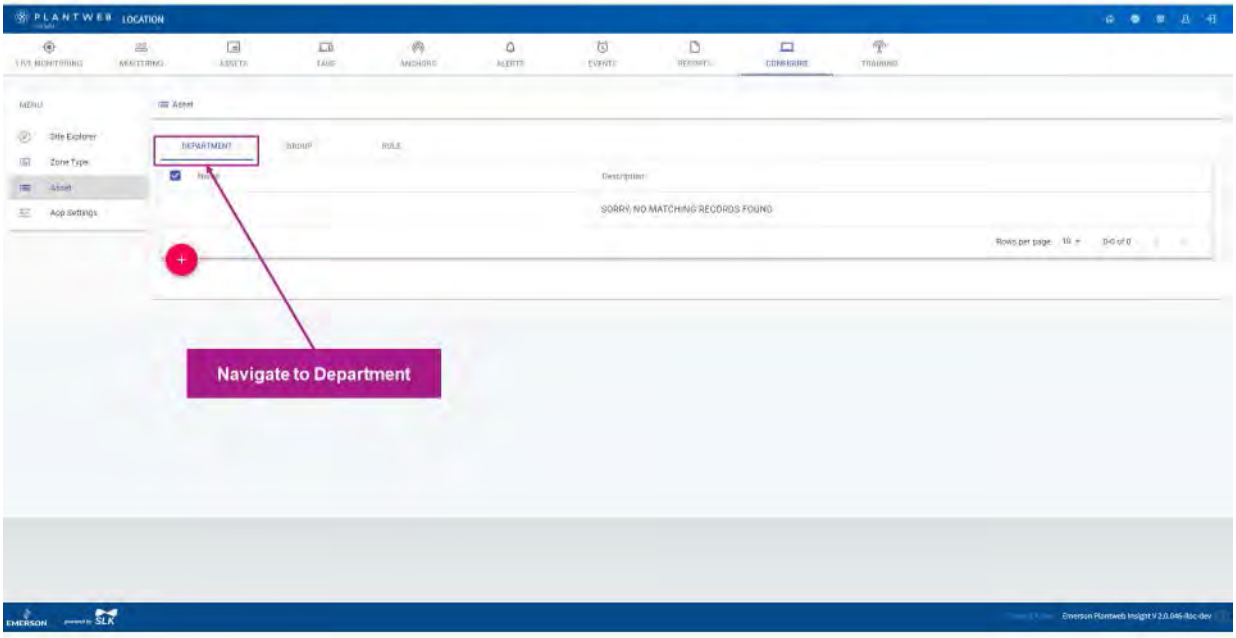
12.2 General Configuration

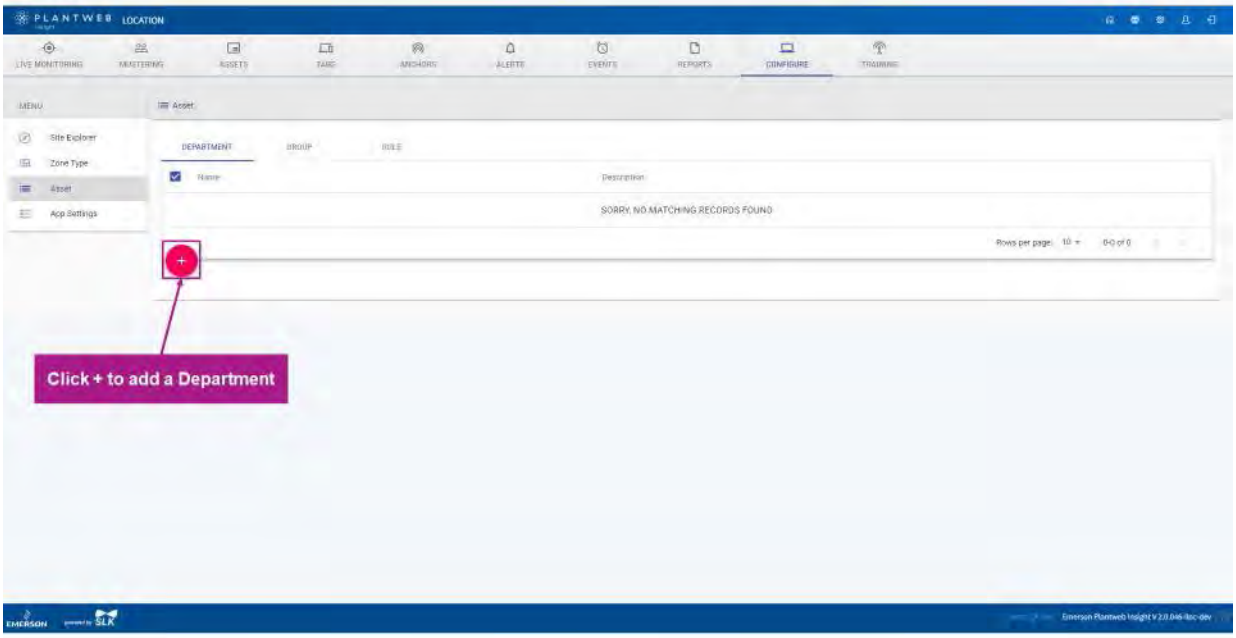


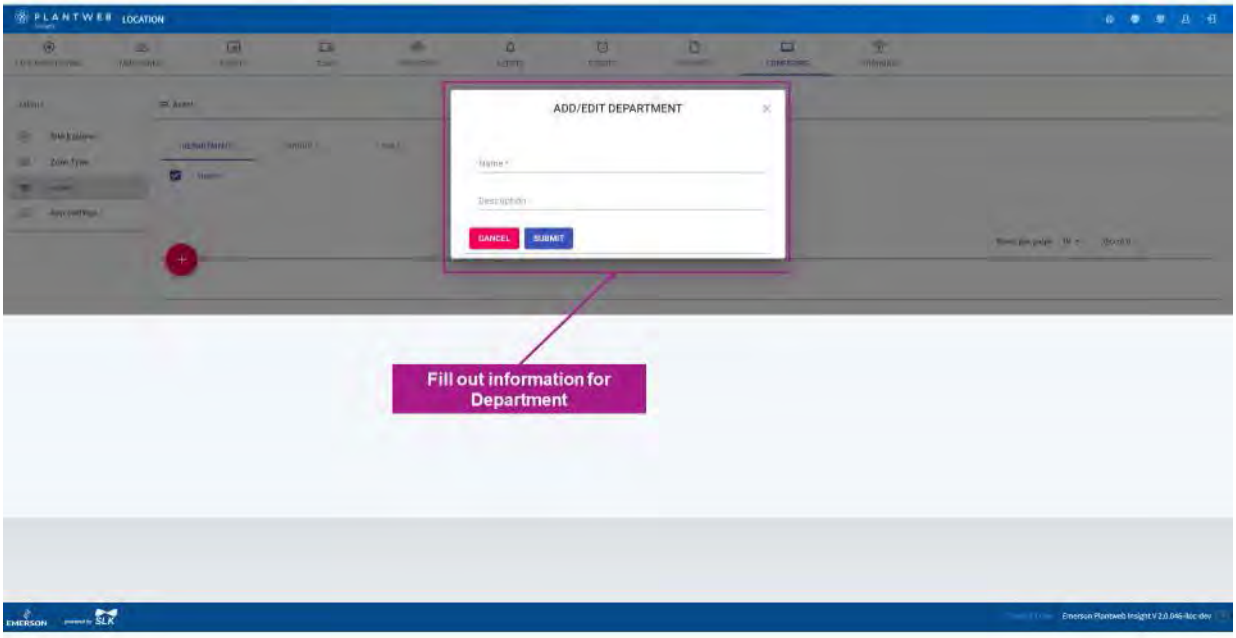

PLANTWEB LOCATION
Zone Type
Click + to add a Zone Type

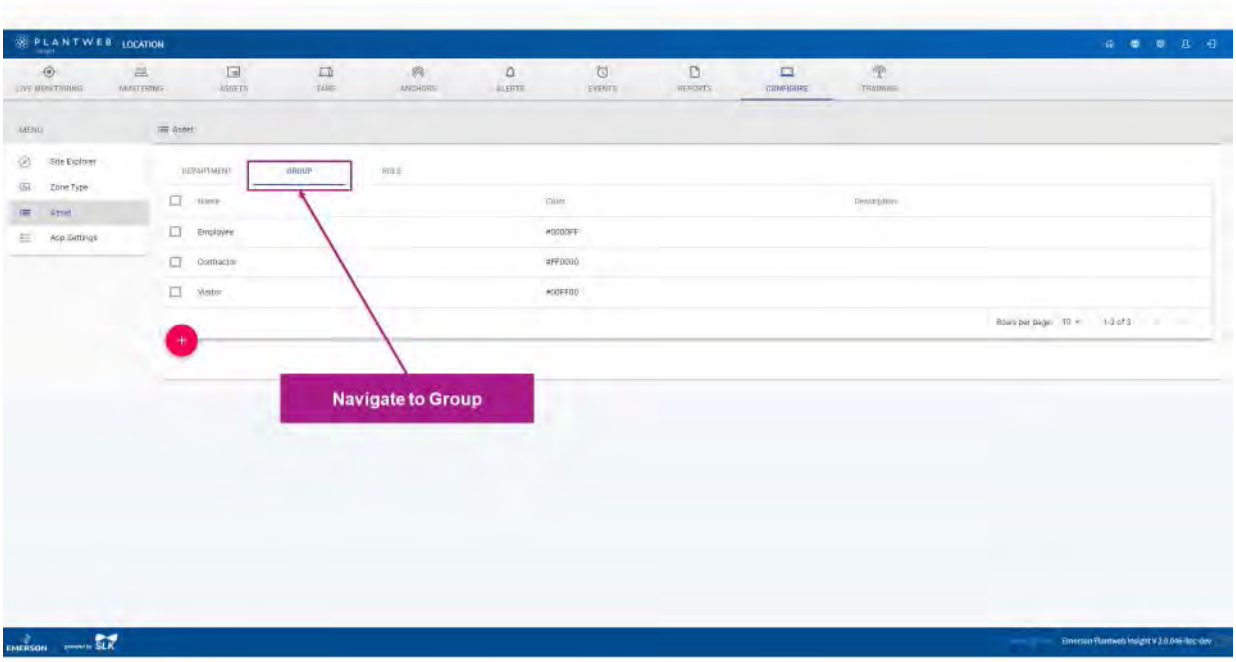

PLANTWEB LOCATION
ADD/EDIT ZONE TYPE
CANCEL
SUBMIT
Fill out information for Zone Type

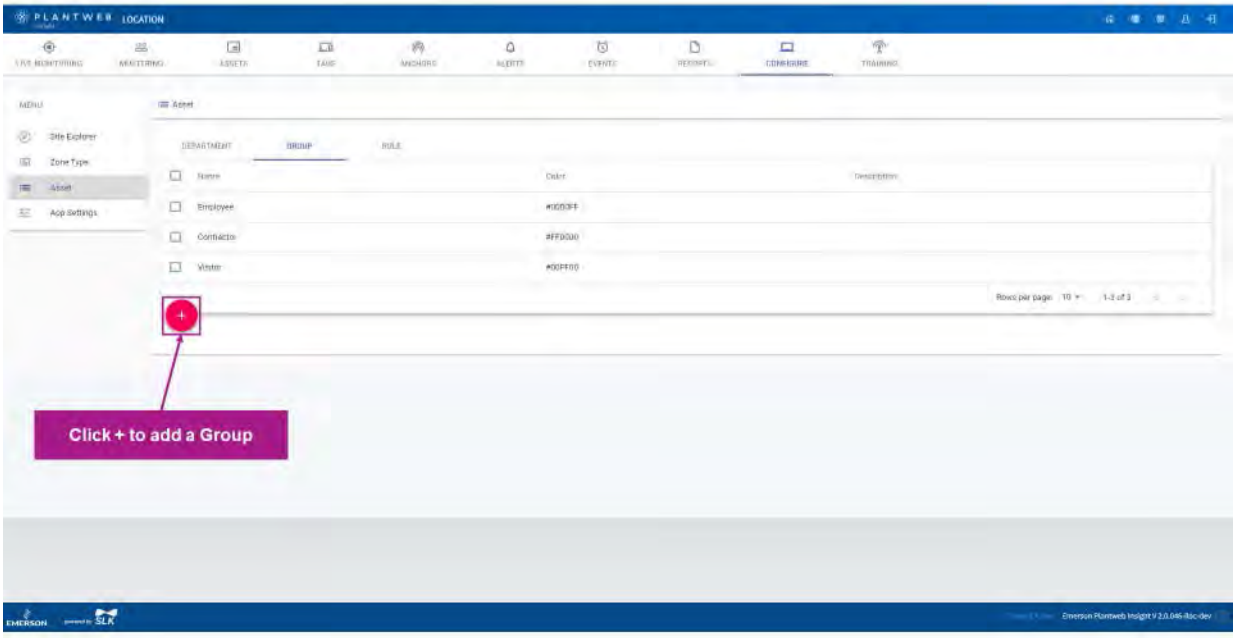

PLANTWEB
LOCATION
CONFIGURE
Site Explorer
Zone Type
Asset
App Settings
DEPARTMENT
GROUP
ROLE
SORRY, NO MATCHING RECORDS FOUND
Navigate to Asset

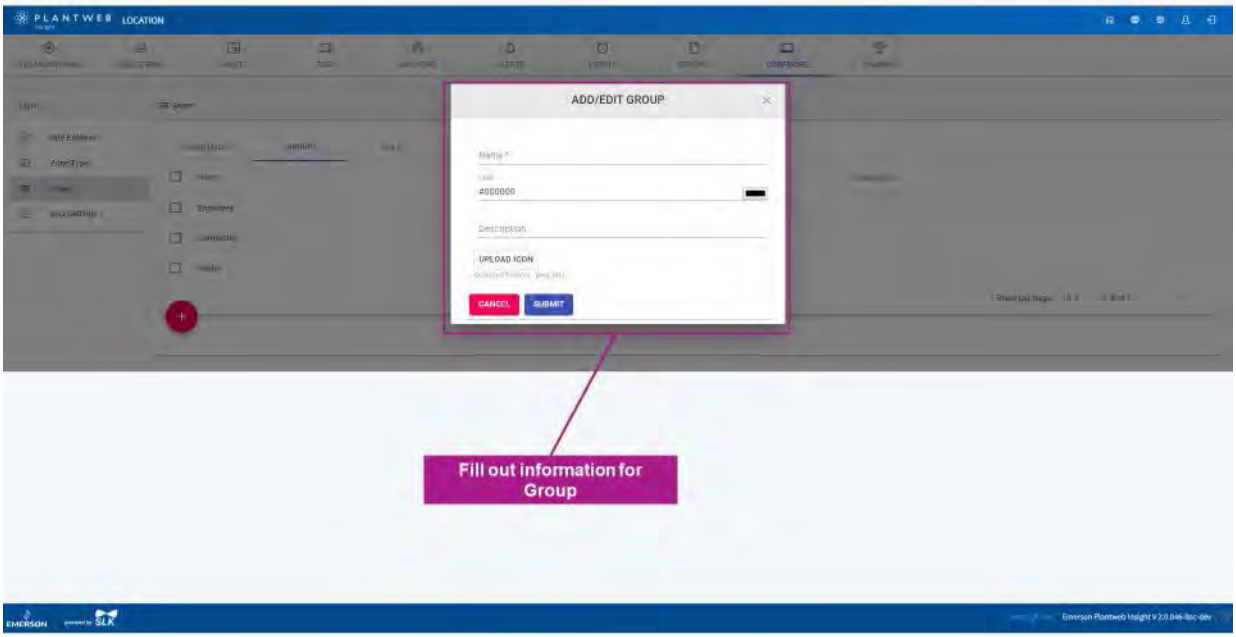

PLANTWEB
LOCATION
CONFIGURE
Site Explorer
Zone Type
Asset
App Settings
DEPARTMENT
GROUP
ROLE
SORRY, NO MATCHING RECORDS FOUND
Navigate to Department

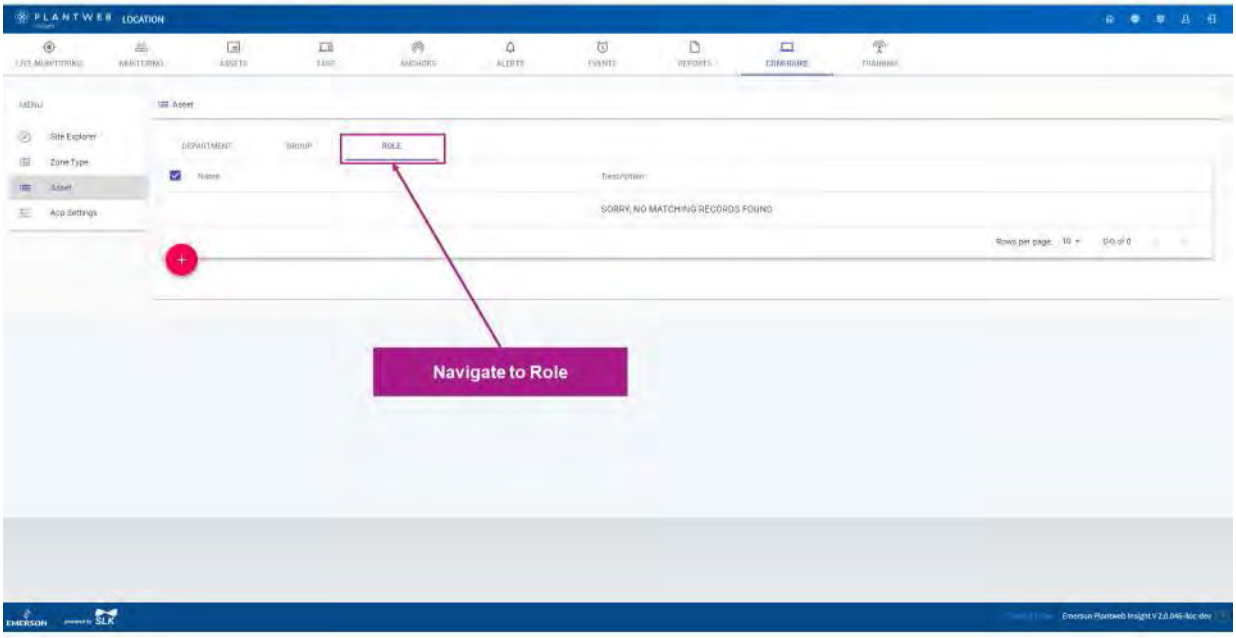

PLANTWEB LOCATION
CONFIGURE
Site Explorer
Zone Type
Asset
App Settings
DEPARTMENT
GROUP
SORRY, NO MATCHING RECORDS FOUND
Click + to add a Department

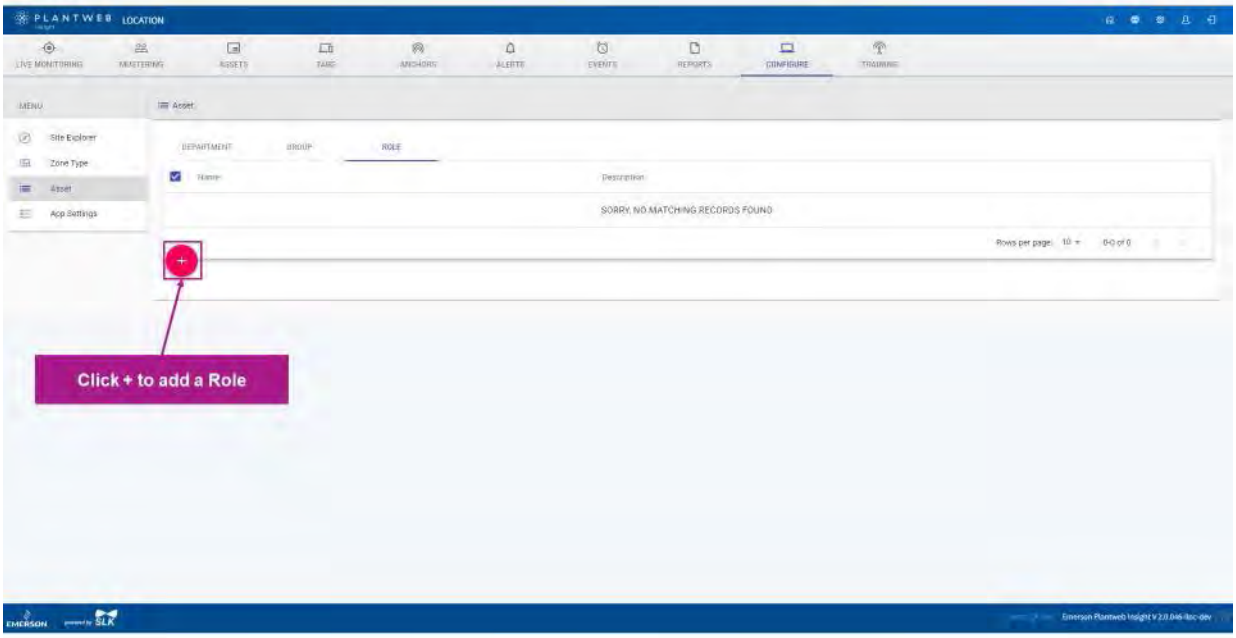

PLANTWEB LOCATION
ADD/EDIT DEPARTMENT
CANCEL
SUBMIT
Fill out information for Department

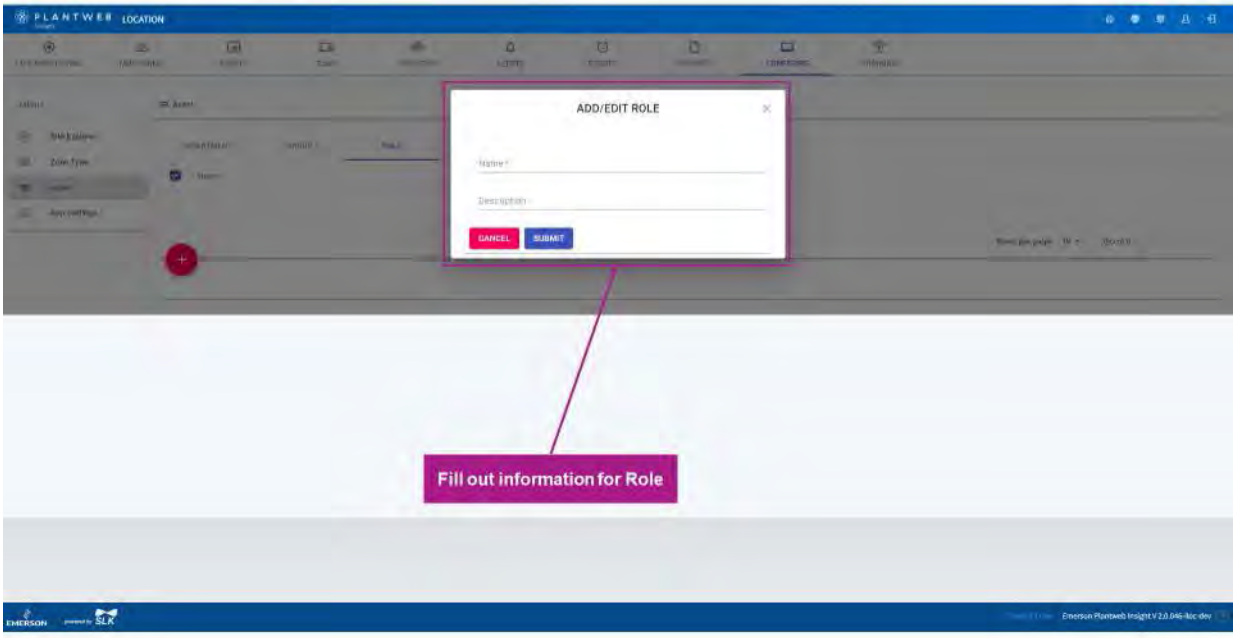

Navigate to Group

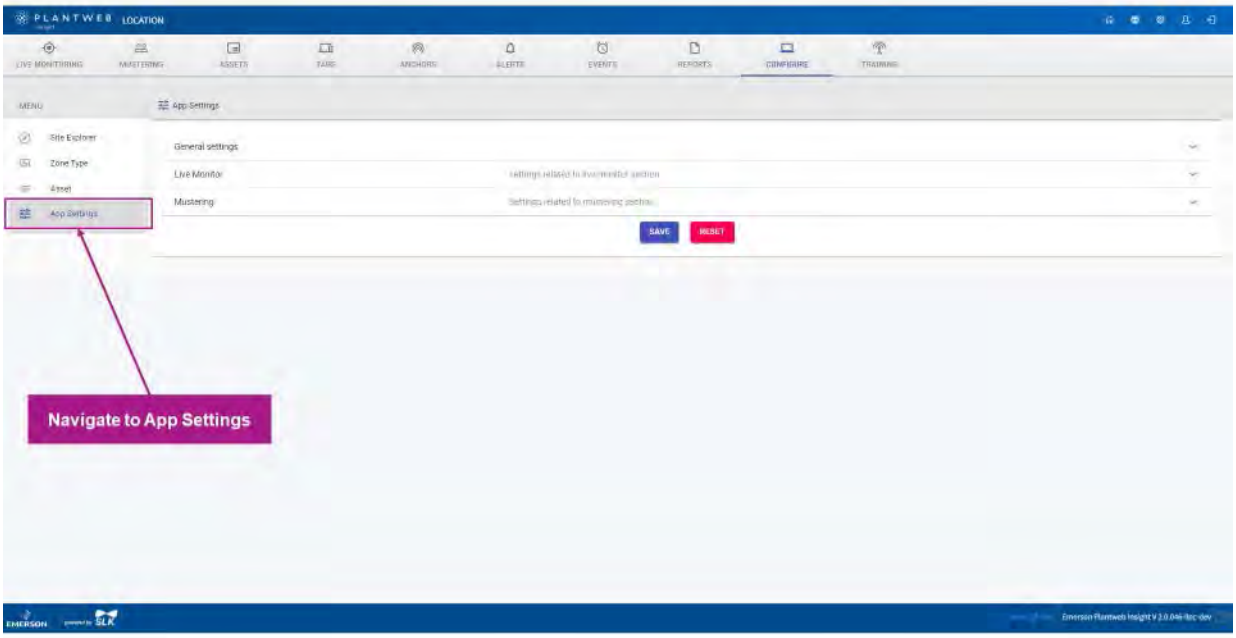

Click + to add a Group

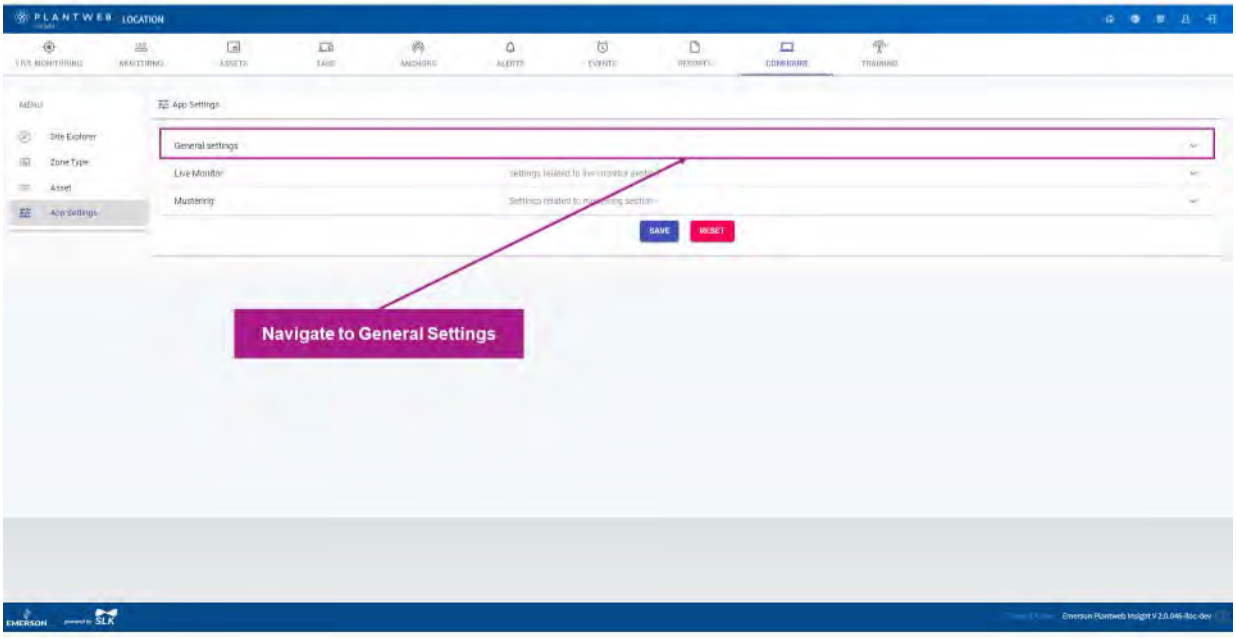

PLANTWEB LOCATION
ADD/EDIT GROUP
UPLOAD ICON
CANCEL
SUBMIT
Fill out information for Group

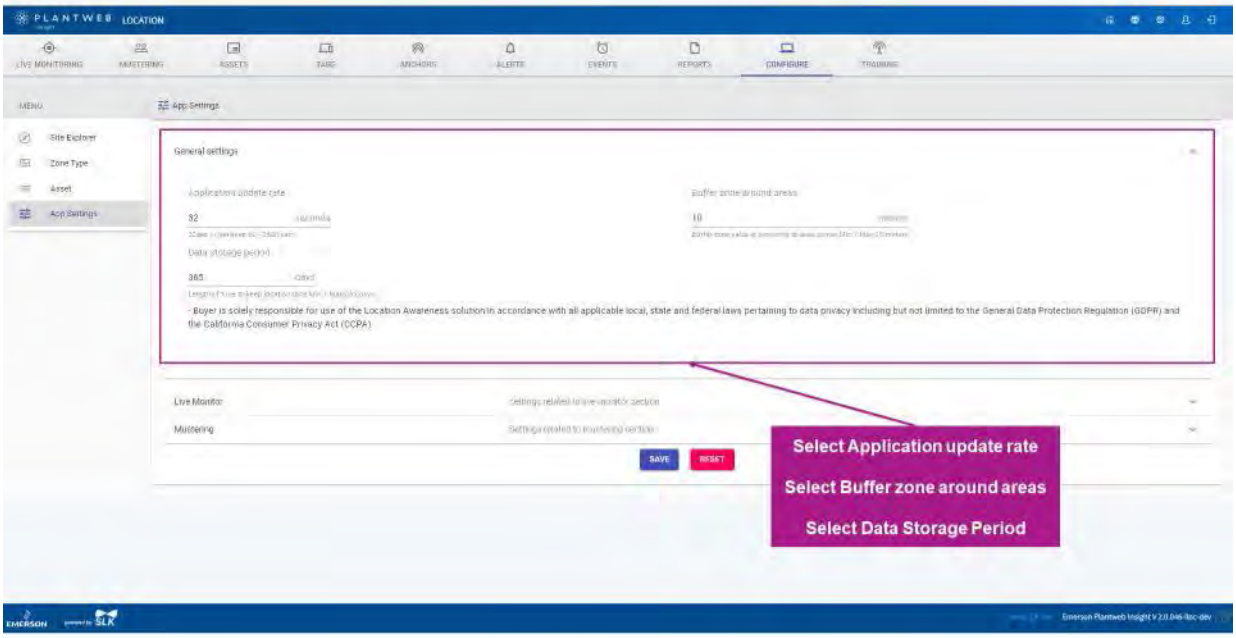

PLANTWEB LOCATION
MENU
Site Explorer
Zone Type
Asset
App Settings
DEPARTMENT
GROUP
ROLE
SORRY, NO MATCHING RECORDS FOUND
Navigate to Role

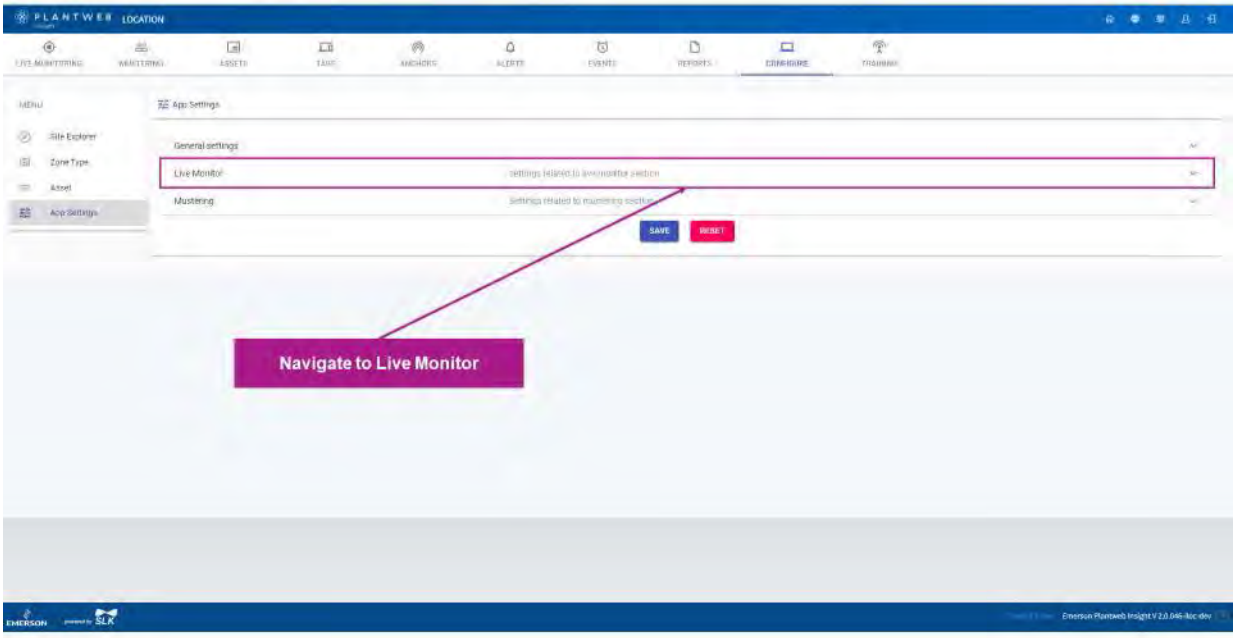

PLANTWEB LOCATION
CONFIGURE
Site Explorer
Zone Type
Asset
App Settings
DEPARTMENT
GROUP
ROLE
SORRY, NO MATCHING RECORDS FOUND
Click + to add a Role

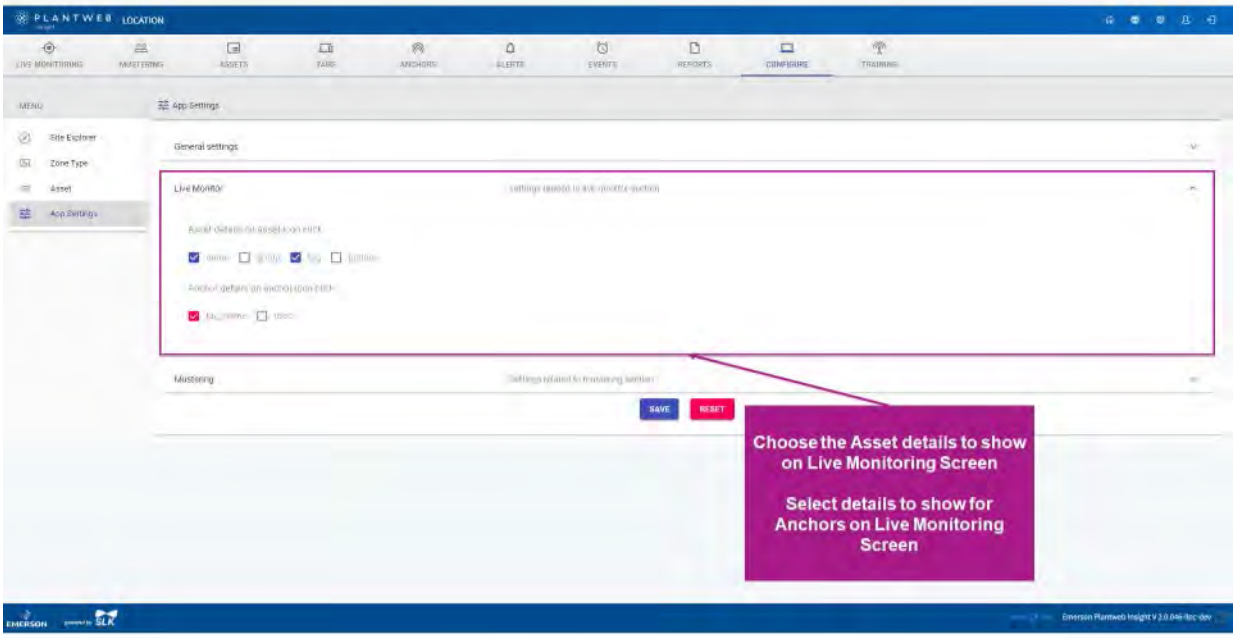

PLANTWEB LOCATION
ADD/EDIT ROLE
CANCEL
SUBMIT
Fill out information for Role

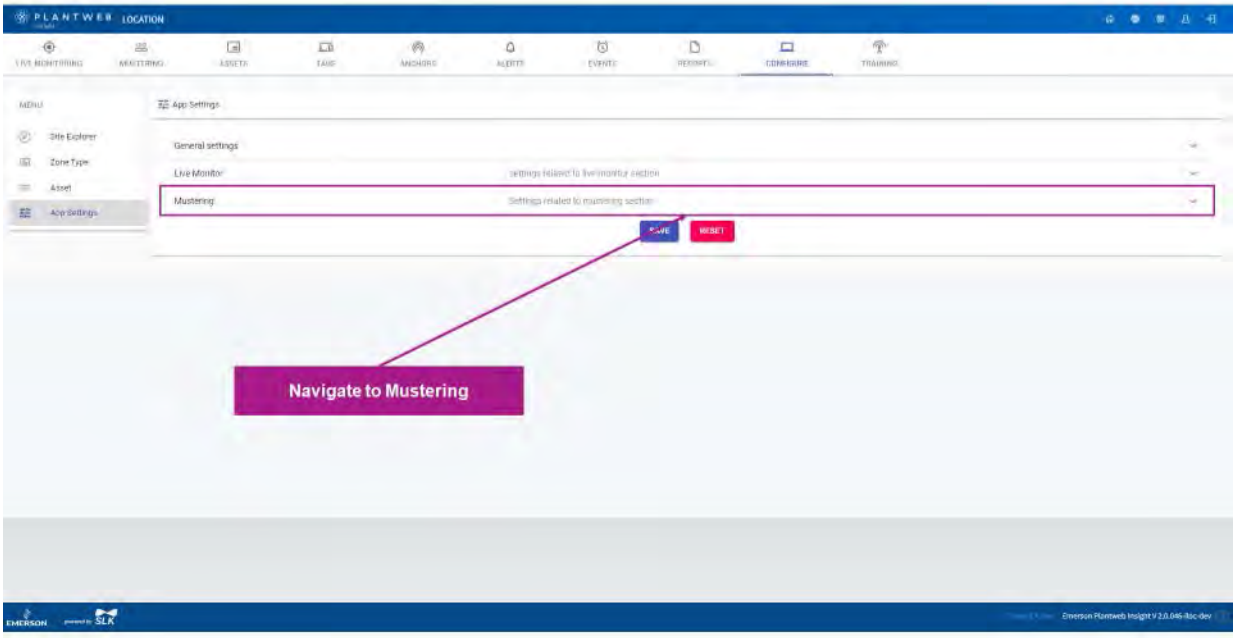

PLANTWEB LOCATION
CONFIGURE
App Settings
General settings
Live Monitor
Mustering
SAVE
RESET
Navigate to App Settings

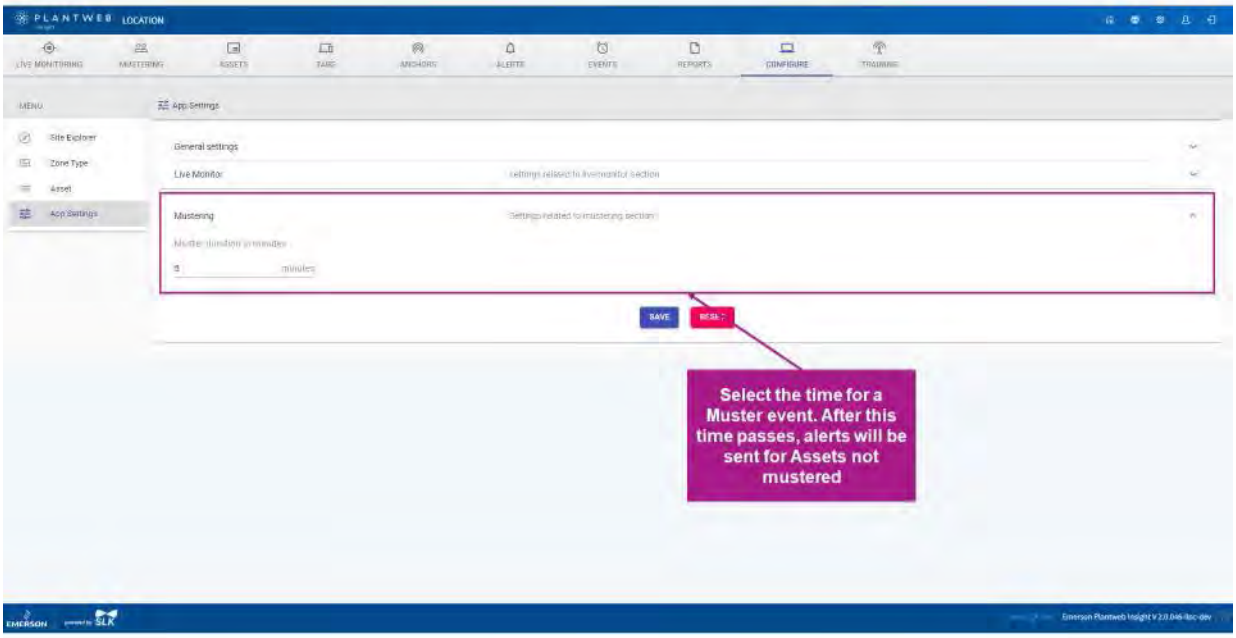

PLANTWEB LOCATION
CONFIGURE
App Settings
General settings
Live Monitor
Mustering
SAVE
RESET
Navigate to General Settings

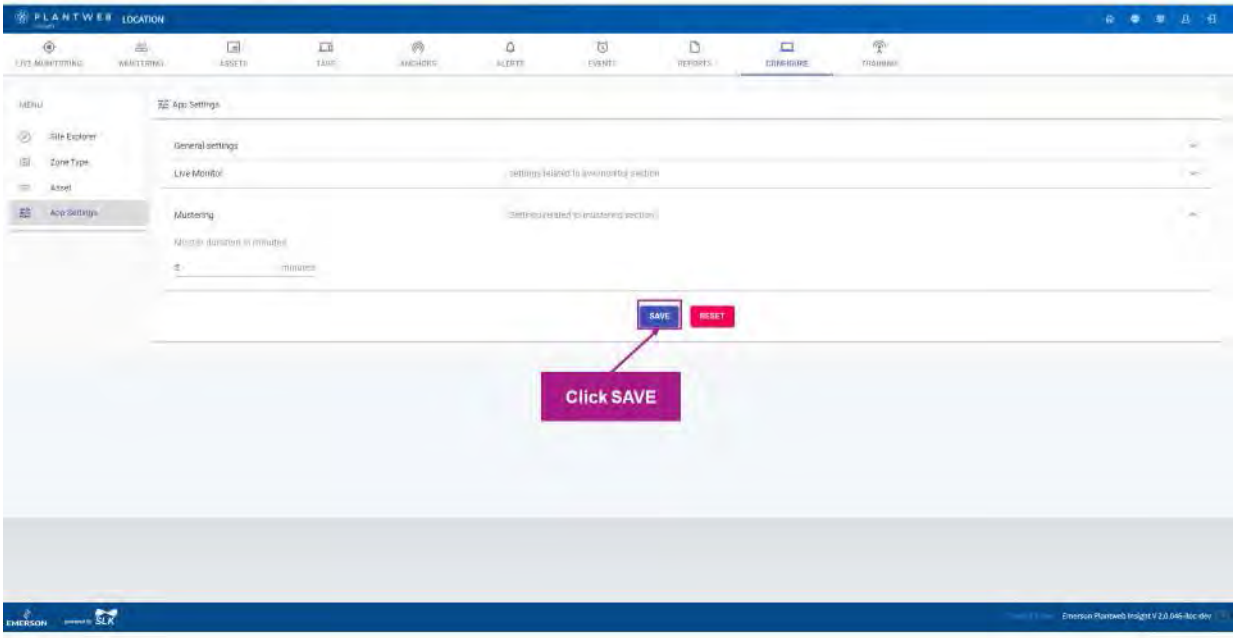

PLANTWEB LOCATION
CONFIGURE
App Settings
General settings
Live Monitor
Mustering
SAVE
RESET
Select Application update rate
Select Buffer zone around areas
Select Data Storage Period


PLANTWEB LOCATION
CONFIGURE
App Settings
General settings
Live Monitor
Mustering
SAVE
RESET
Navigate to Live Monitor

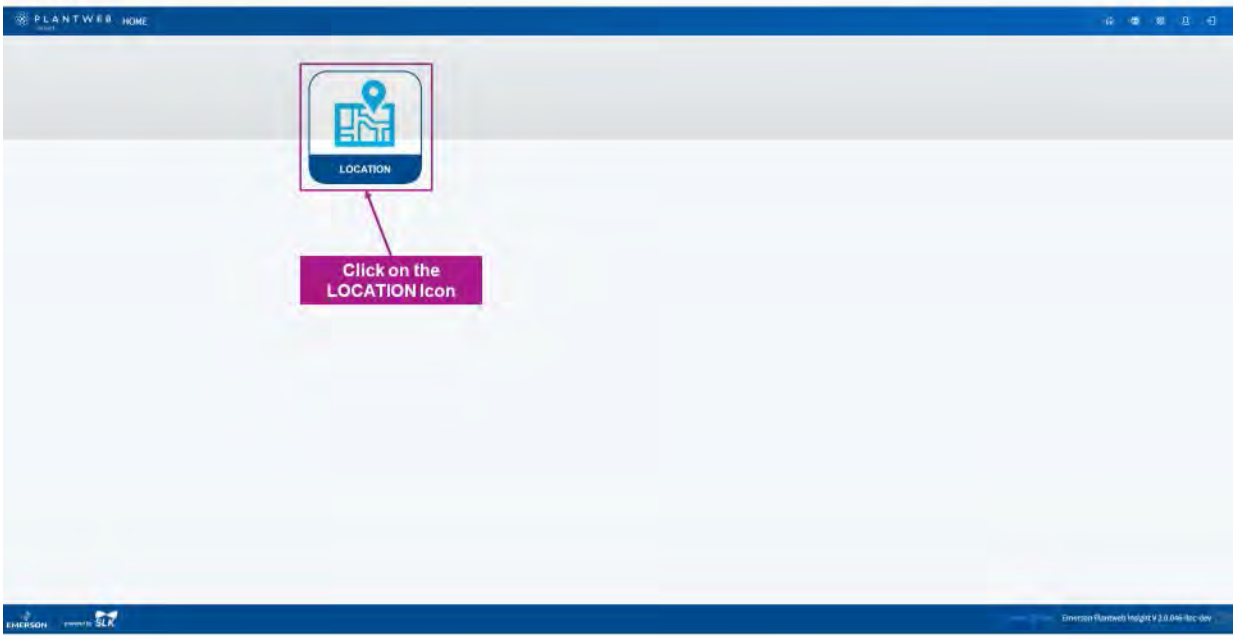

Choose the Asset details to show on Live Monitoring Screen
Select details to show for Anchors on Live Monitoring Screen

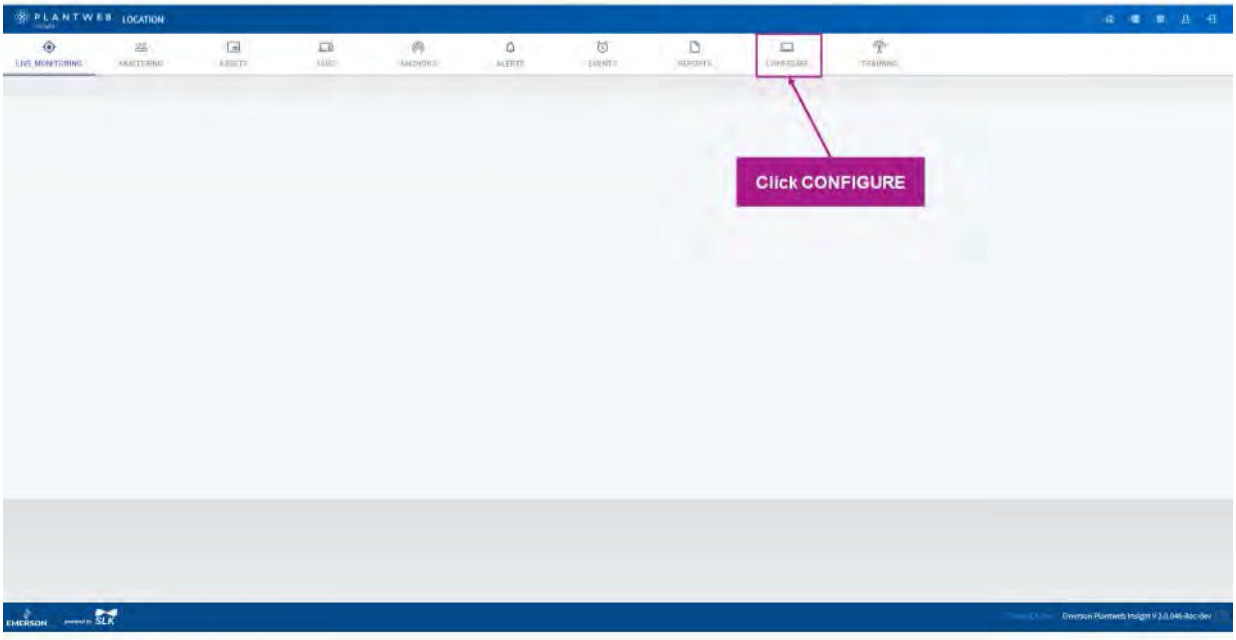

Navigate to Mustering

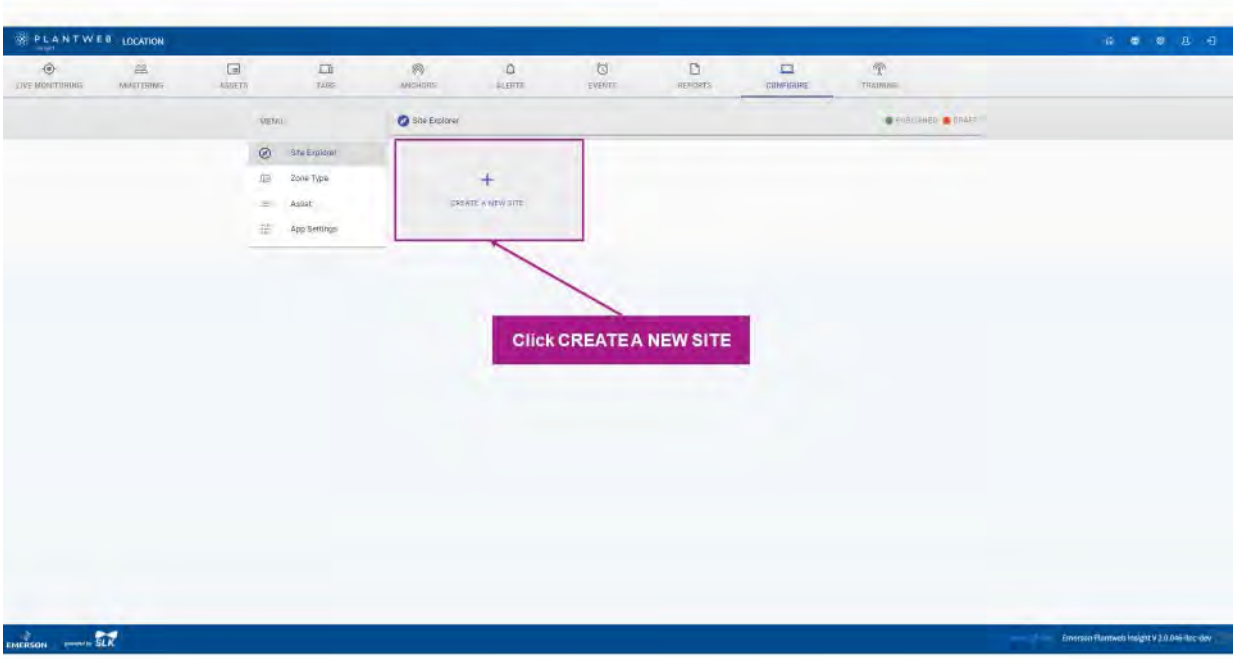

PLANTWEB LOCATION
CONFIGURE
App Settings
General settings
Live Monitor
Mustering
SAVE
Select the time for a Muster event. After this time passes, alerts will be sent for Assets not mustered

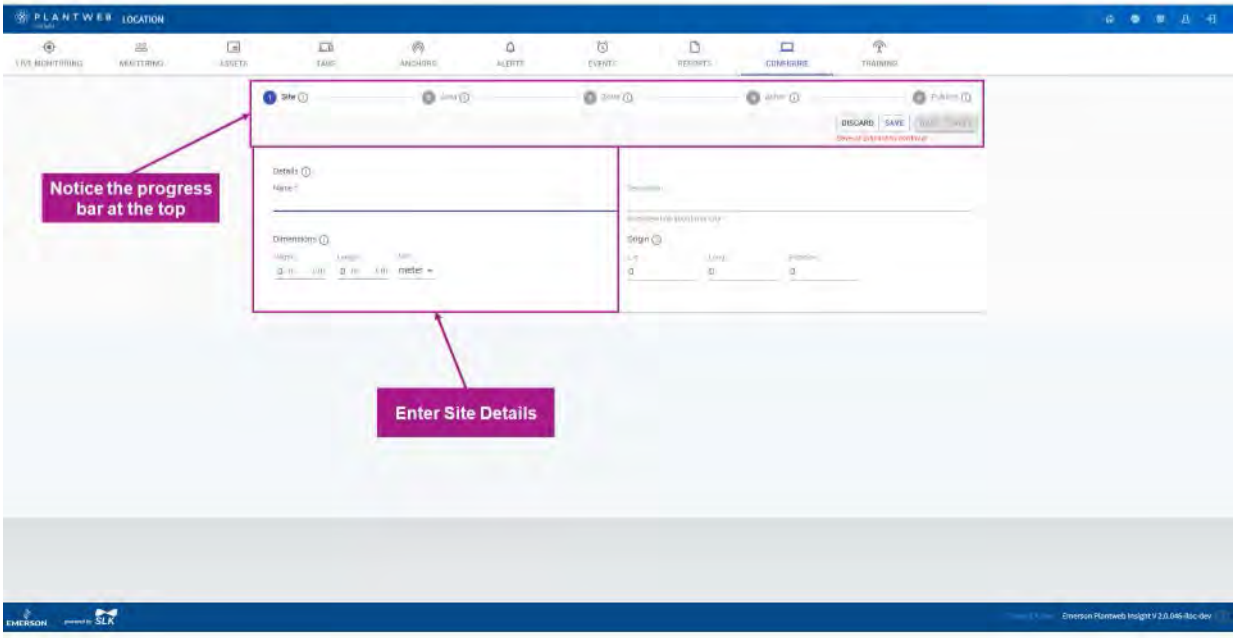

PLANTWEB LOCATION
CONFIGURE
App Settings
General settings
Live Monitor
Mustering
SAVE
Click SAVE

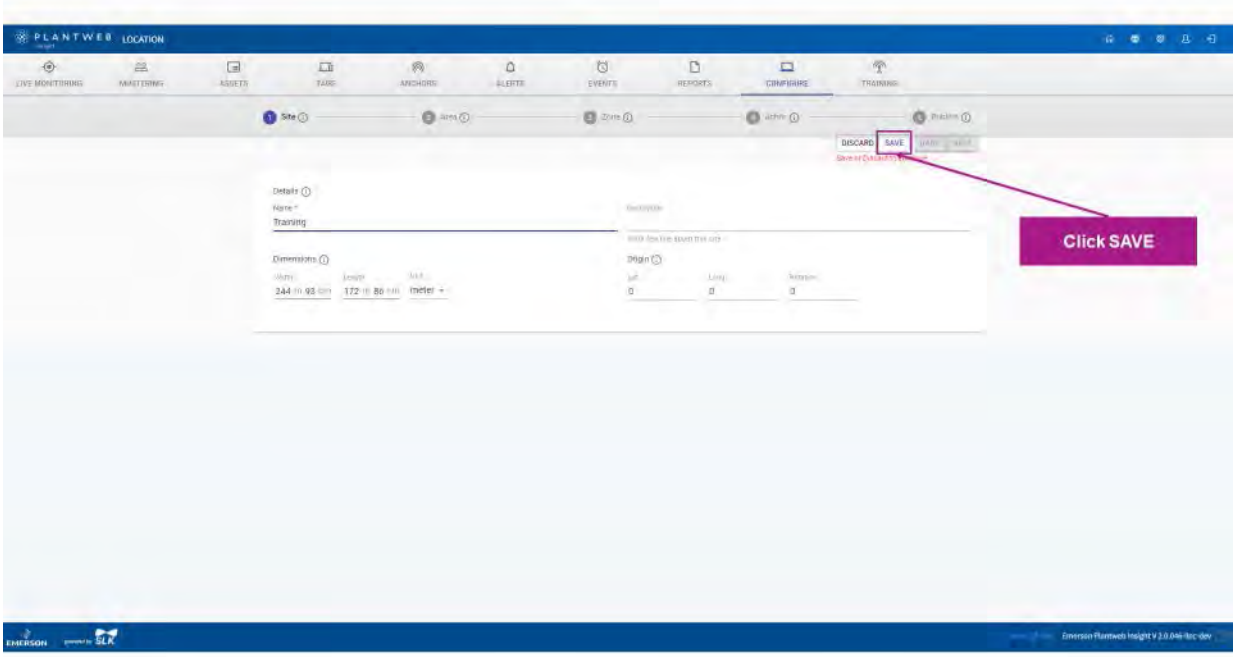
12.3 Site Configuration

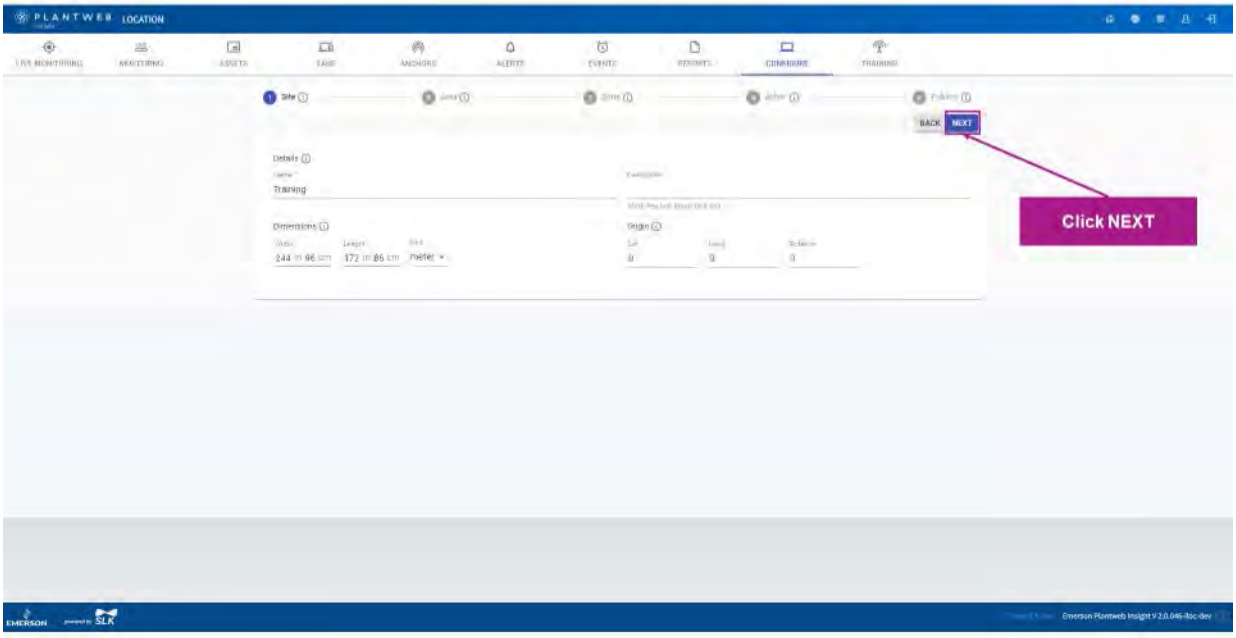


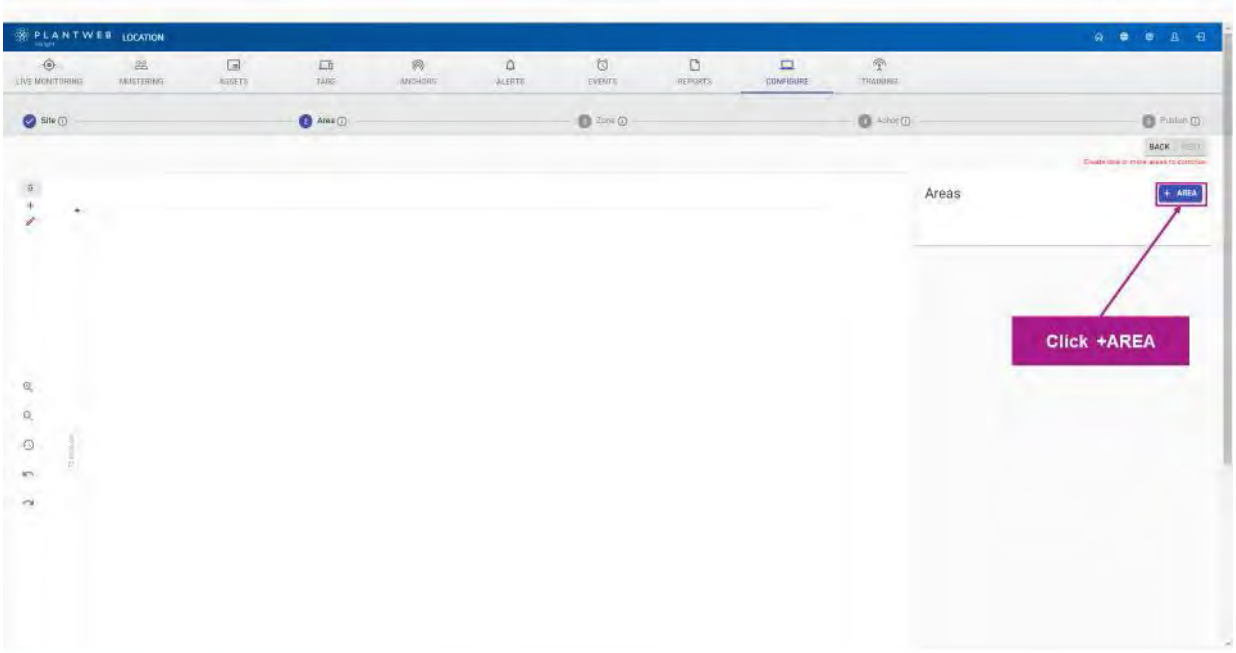


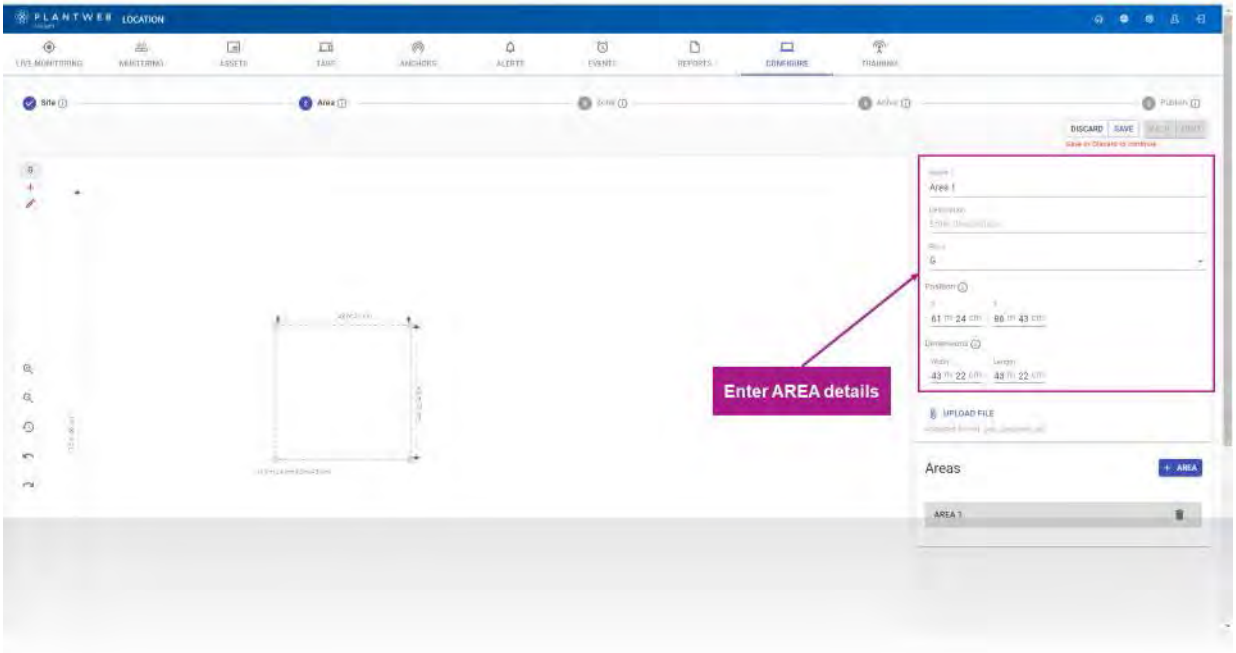

Click CREATE A NEW SITE

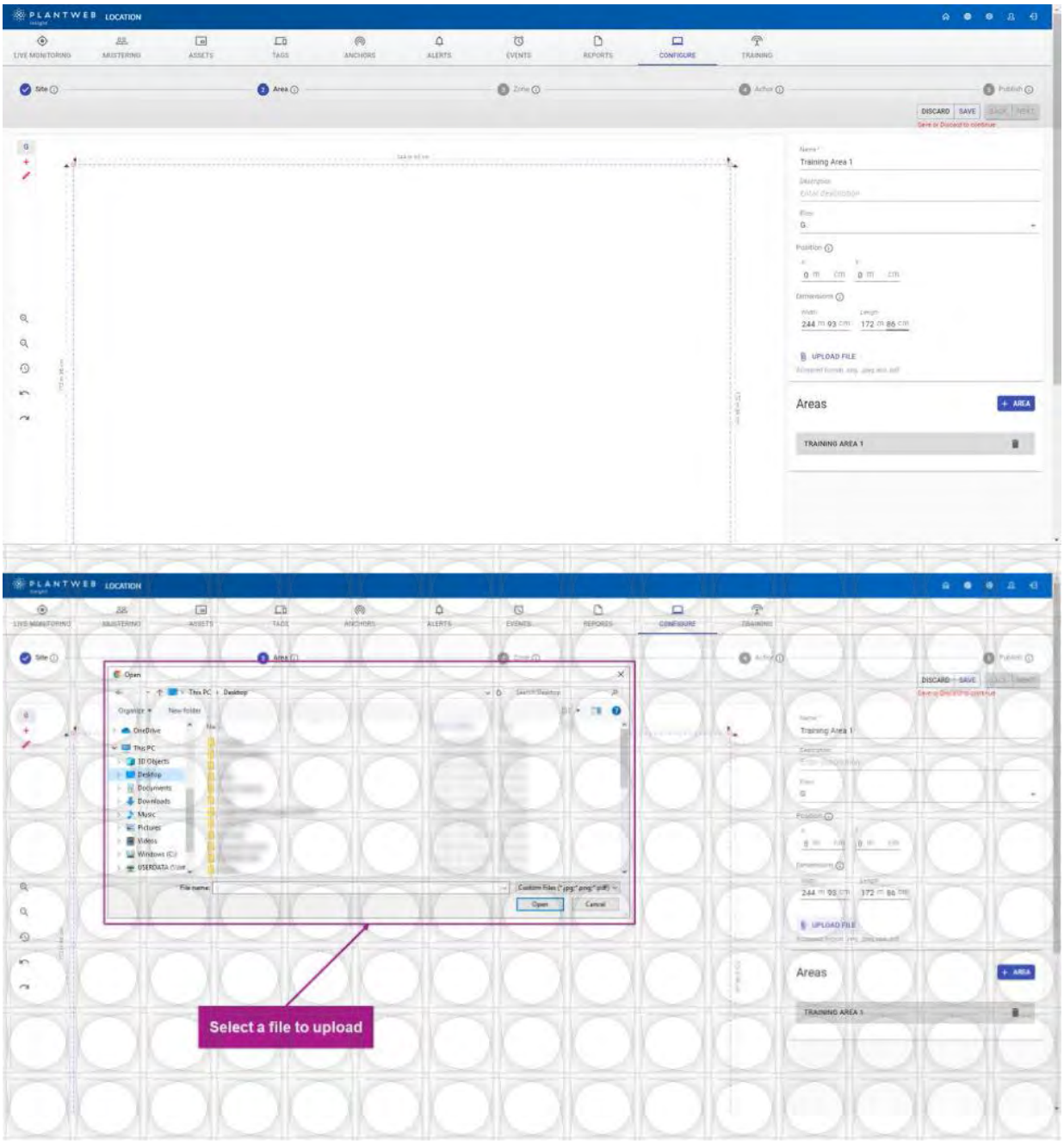

Notice the progress bar at the top
Enter Site Details

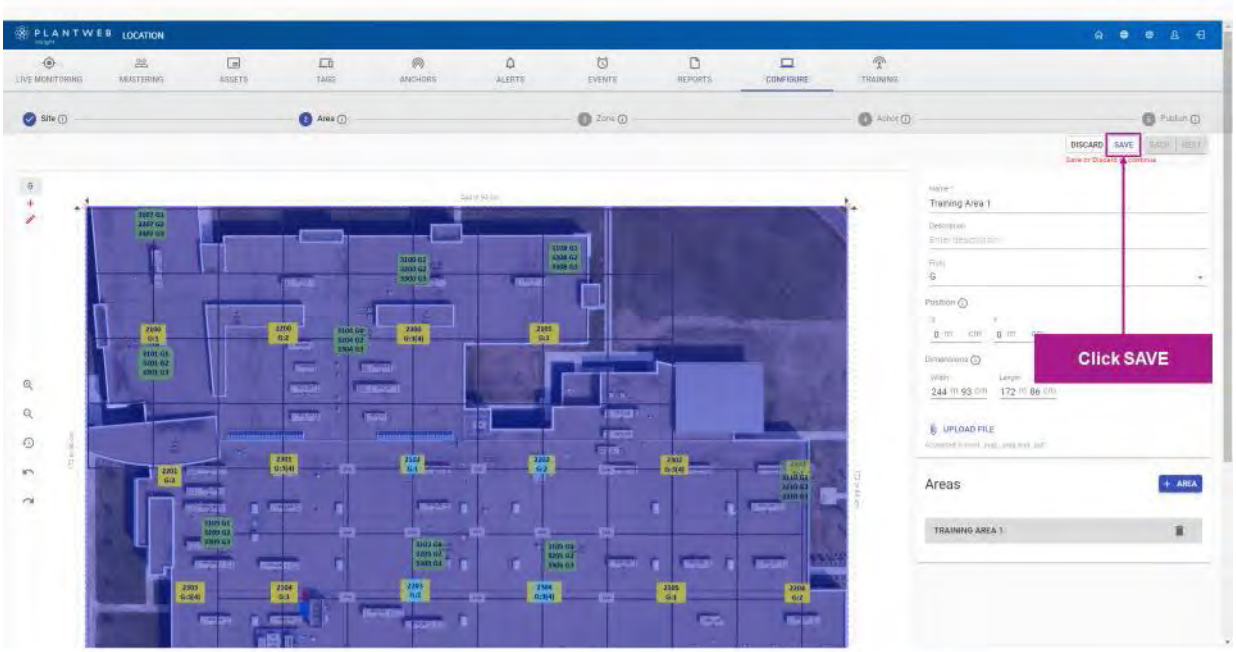

PLANTWEB
LOCATION
DISCARD
SAVE
Click SAVE

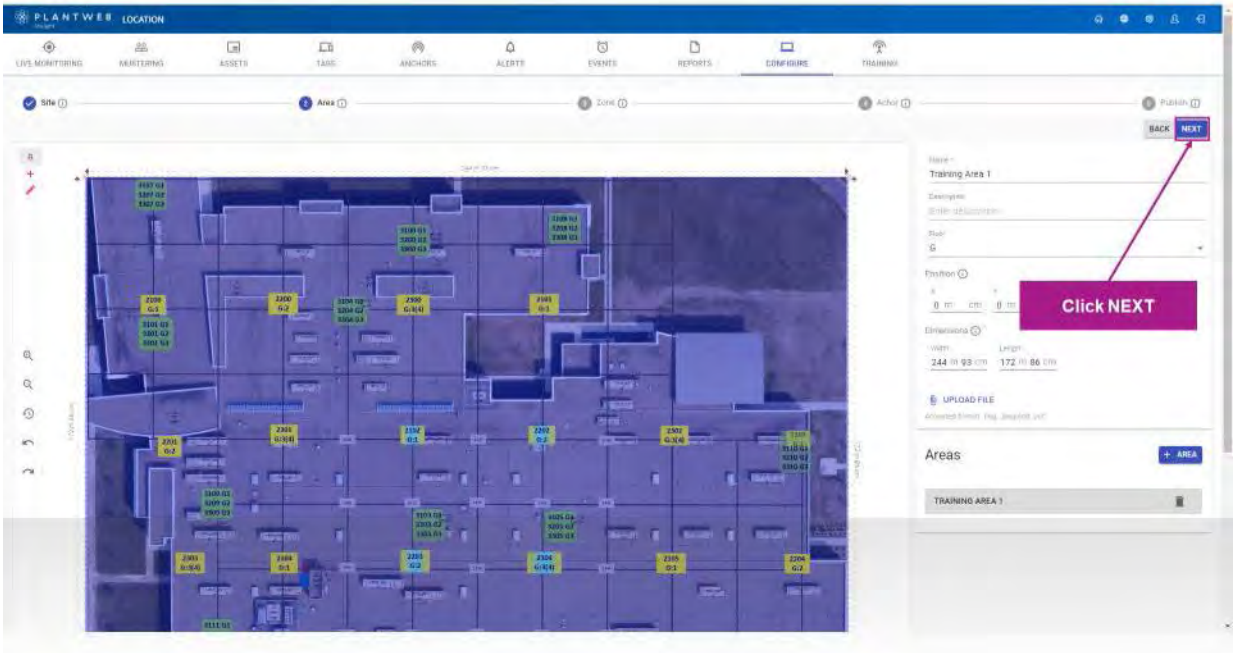

PLANTWEB
LOCATION
BACK
NEXT
Click NEXT

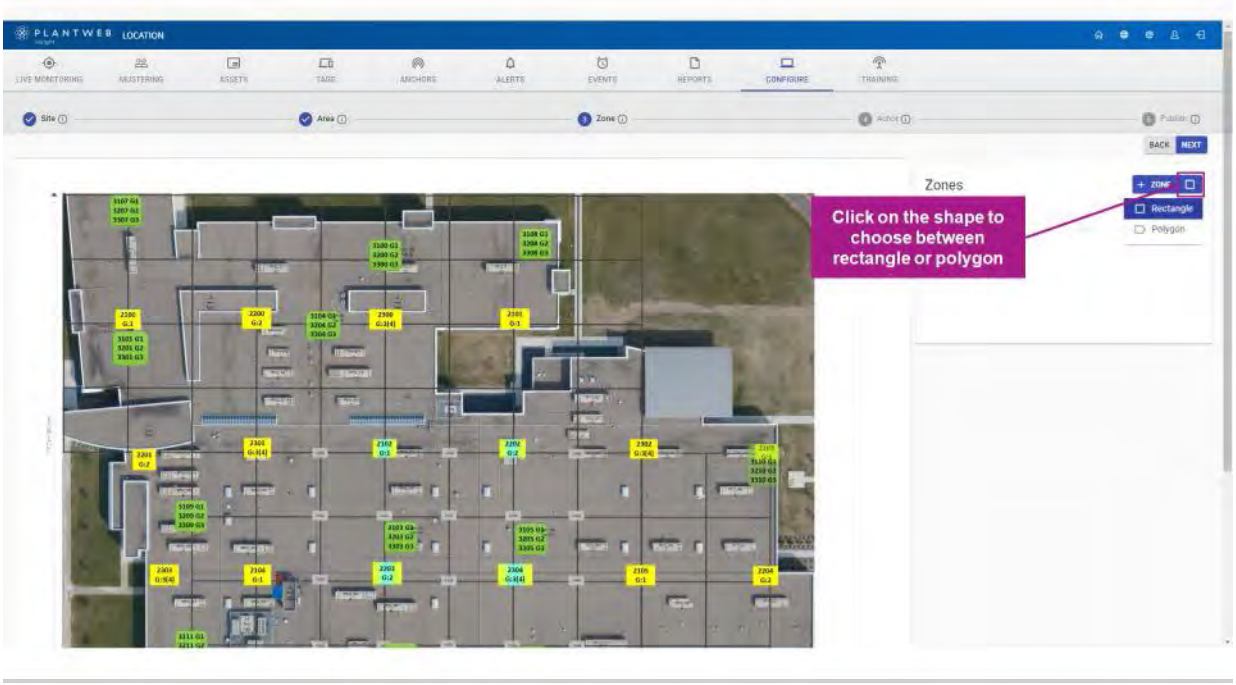

PLANTWEB LOCATION
Areas
+ AREA
Click +AREA

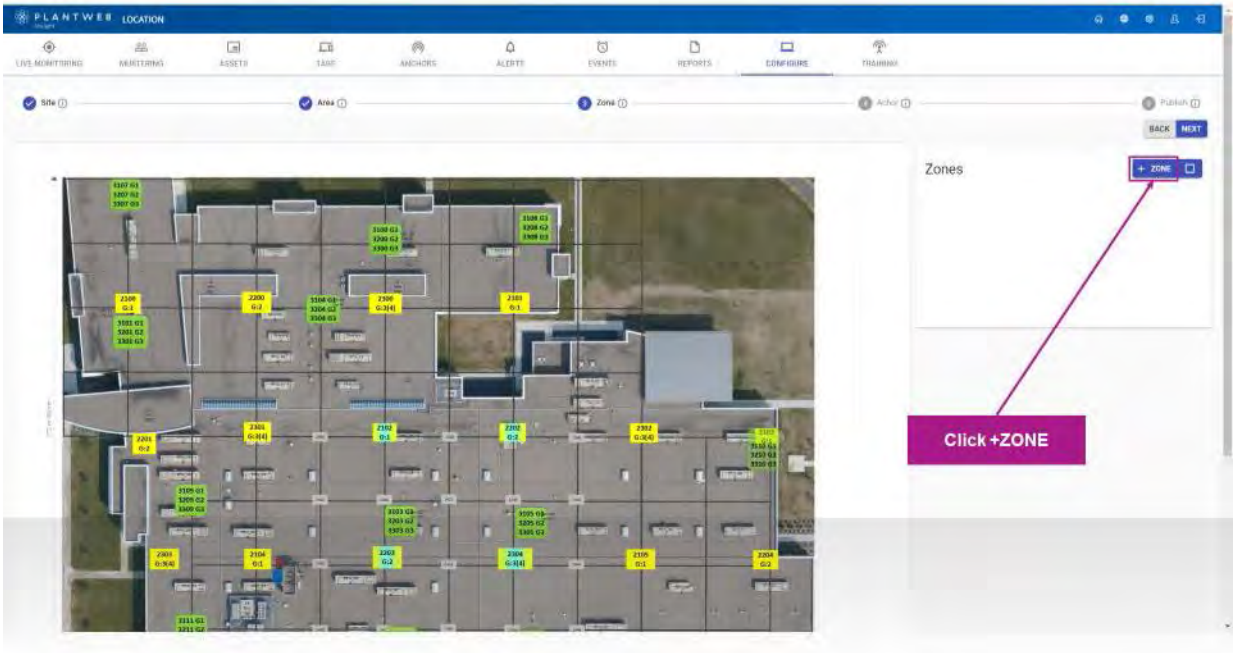

PLANTWEB LOCATION
DISCARD
SAVE
Area 1
Enter AREA details
UPLOAD FILE
Areas
+ AREA
AREA 1

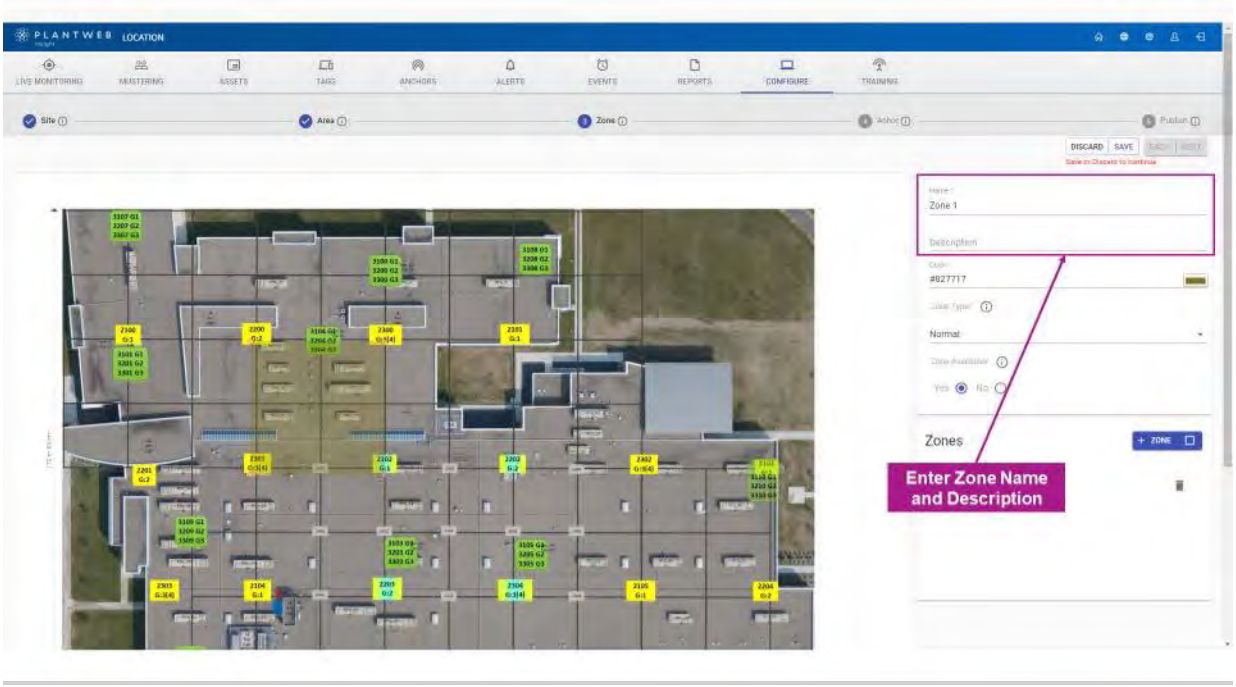

PLANTWEB LOCATION
Training Area 1
UPLOAD FILE
Areas
+ AREA
TRAINING AREA 1
Select a file to upload

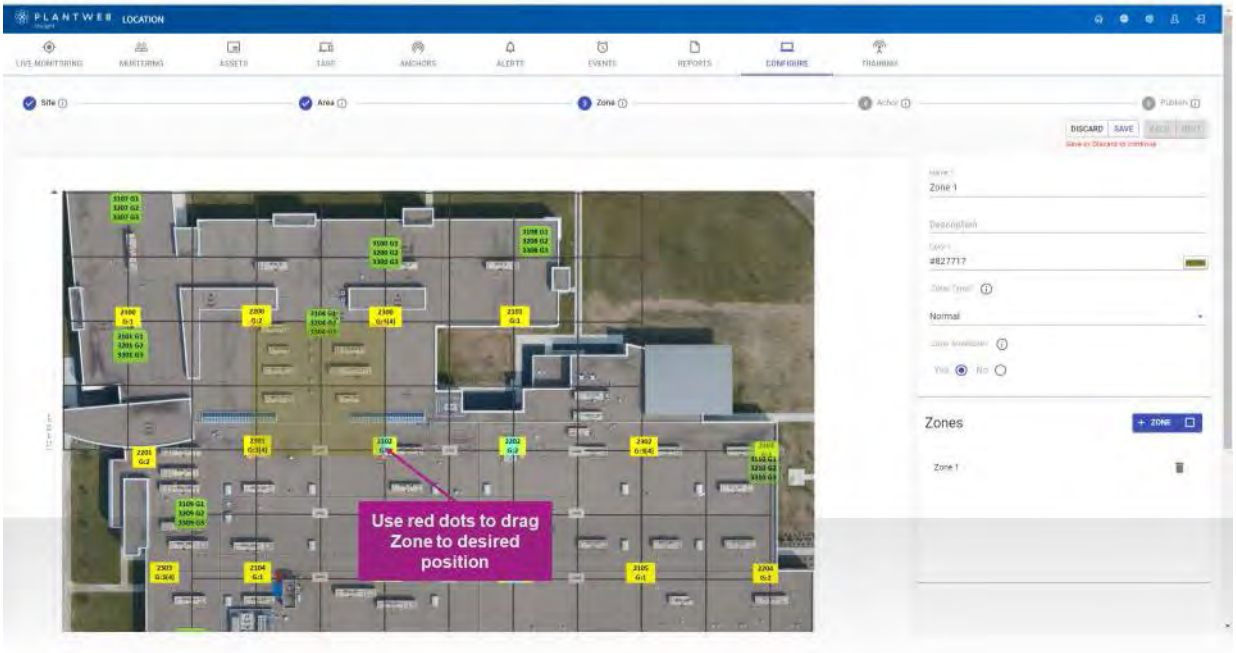

PLANTWEB LOCATION
CONFIGURE
DISCARD
SAVE
Training Area 1
Click SAVE
UPLOAD FILE
Areas
+ AREA
TRAINING AREA 1

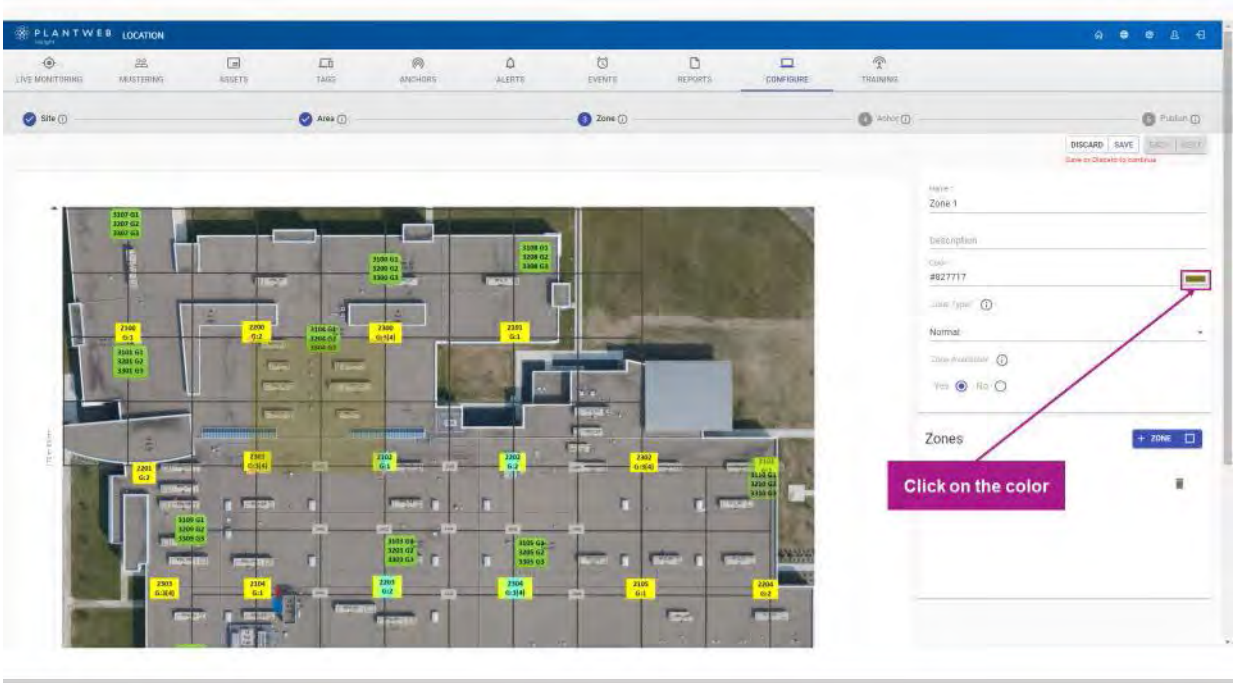

PLANTWEB LOCATION
CONFIGURE
BACK
NEXT
Training Area 1
Click NEXT
UPLOAD FILE
Areas
+ AREA
TRAINING AREA 1

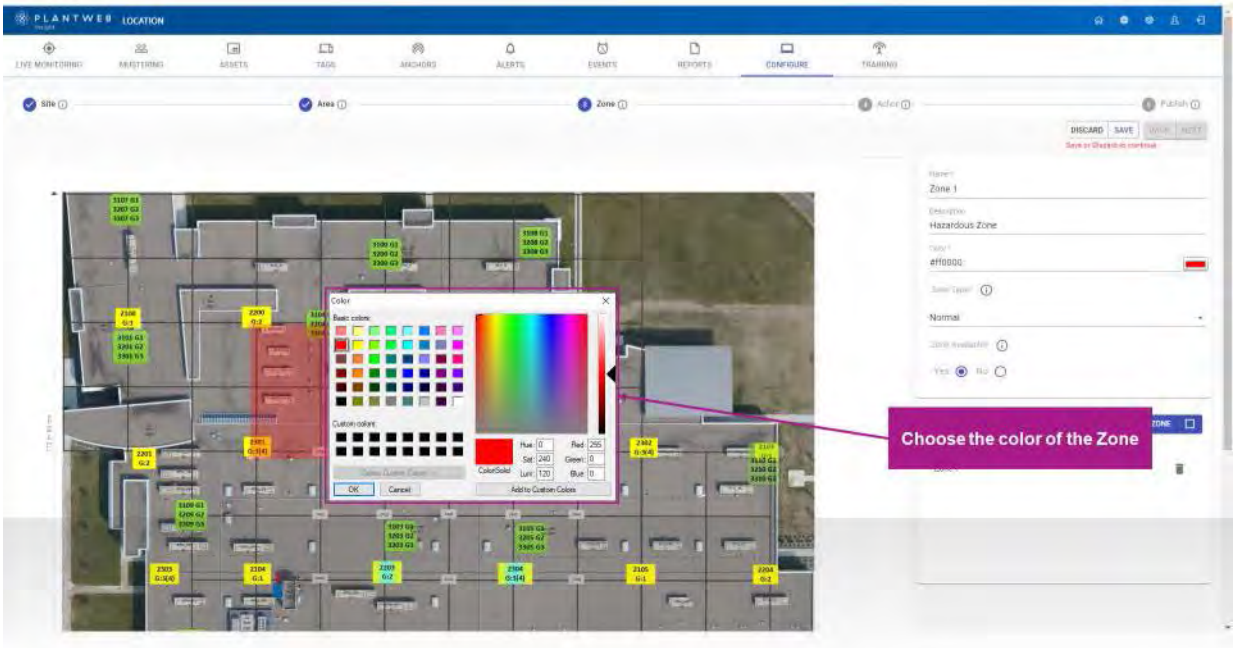

PLANTWEB LOCATION
Zones
+ ZONE
Rectangle
Polygon
Click on the shape to choose between rectangle or polygon

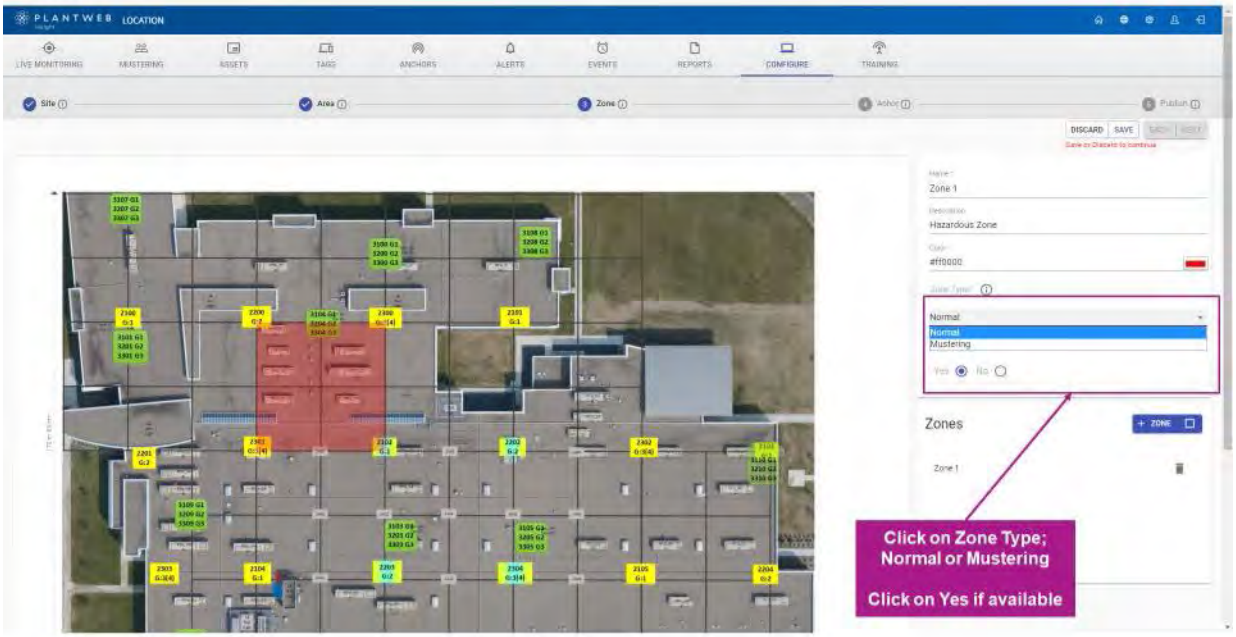

PLANTWEB LOCATION
Zones
+ ZONE
Click +ZONE

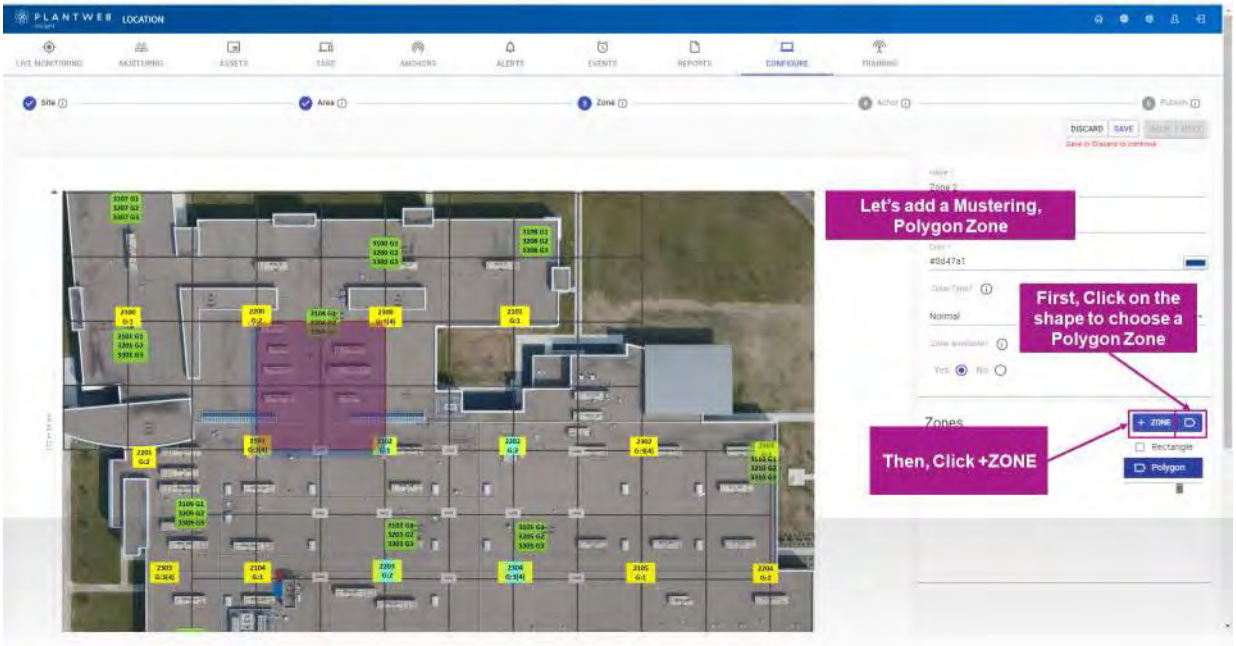

PLANTWEB LOCATION
Zone 1
Zones
+ ZONE
Enter Zone Name and Description

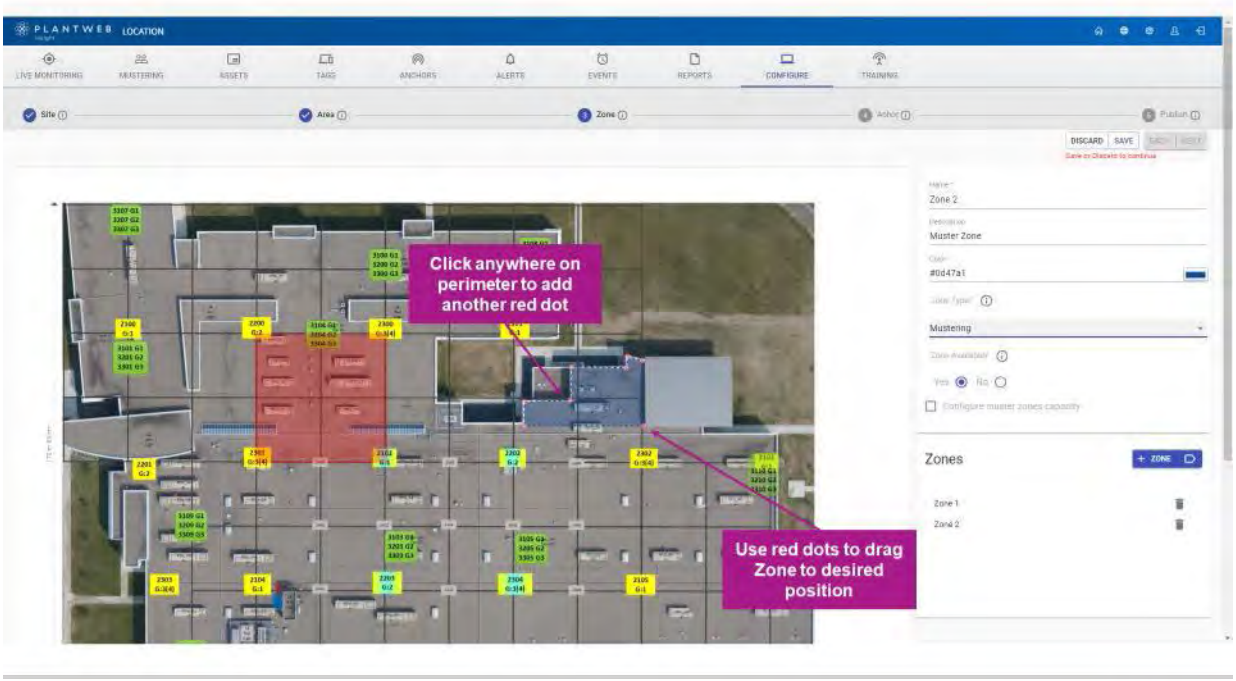

PLANTWEB LOCATION
Zone 1
Zones
+ ZONE
Use red dots to drag Zone to desired position

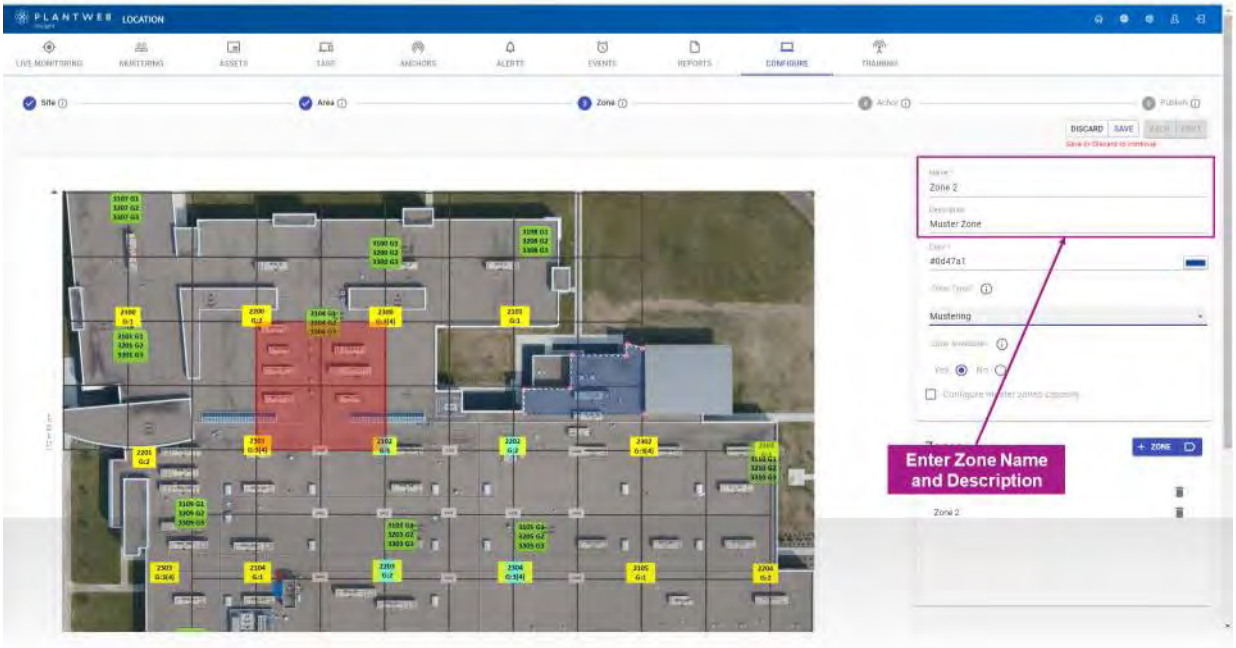

PLANTWEB LOCATION
Zone 1
Description
#827717
Normal
Zones
+ ZONE
Click on the color

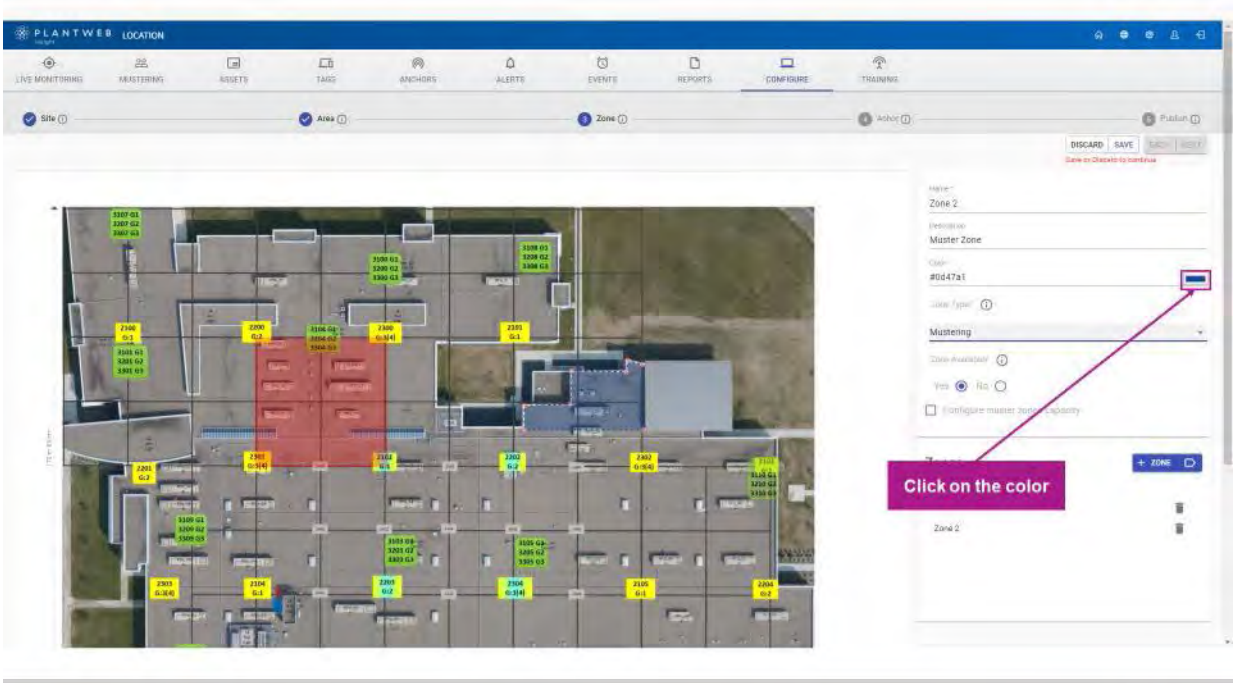

PLANTWEB LOCATION
Zone 1
Hazardous Zone
Normal
Choose the color of the Zone

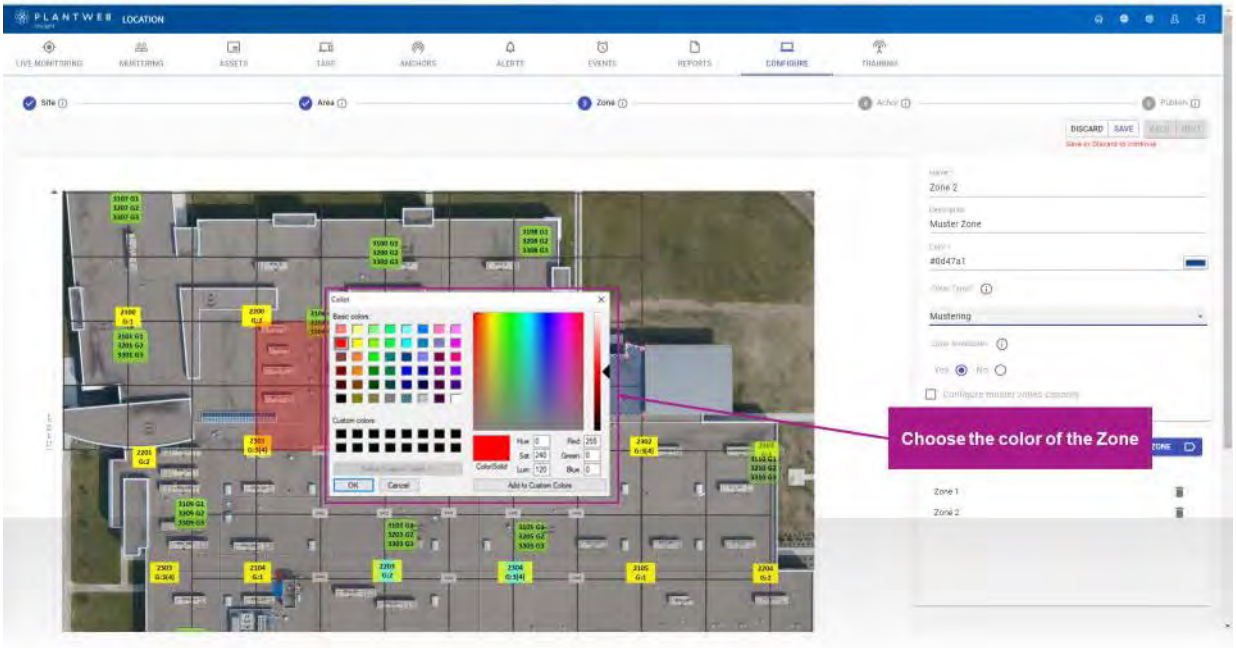

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Site
Area
Zone
DISCARD
SAVE
Zone 1
Hazardous Zone
#ff0000
Normal
Normal
Mustering
Zones
+ ZONE
Zone 1
Click on Zone Type;
Normal or Mustering
Click on Yes if available

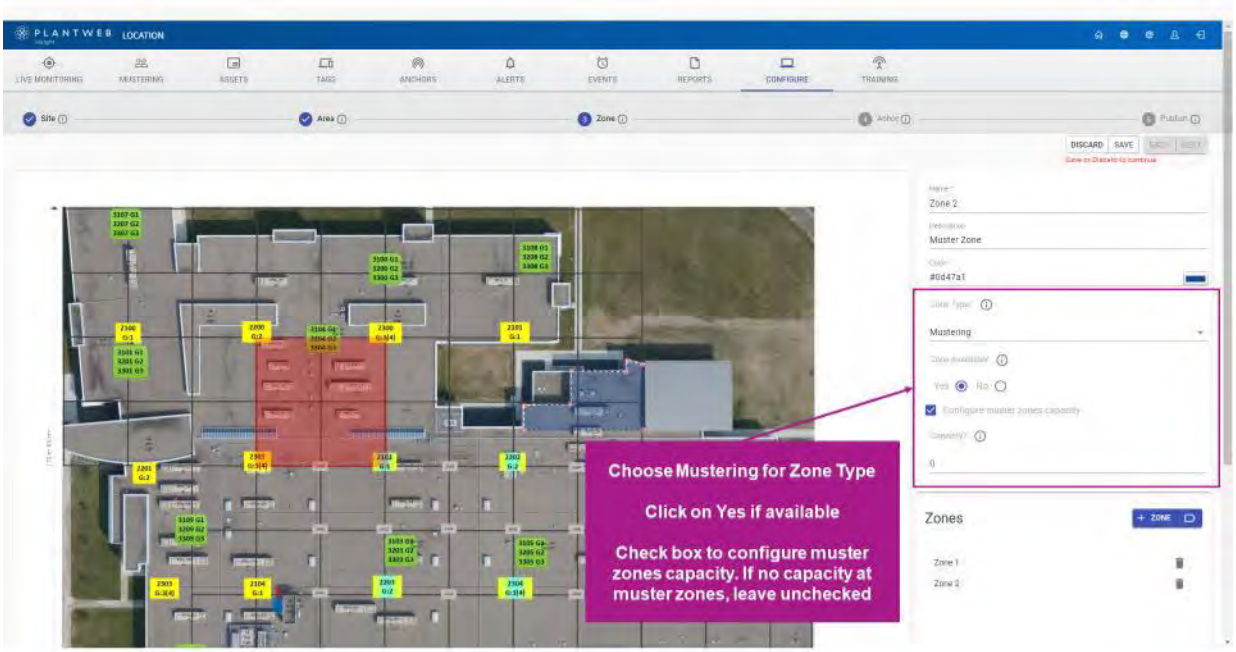

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Site
Area
Zone
DISCARD
SAVE
Let's add a Mustering,
Polygon Zone
#0d47a1
Normal
First, Click on the
shape to choose a
Polygon Zone
Zones
+ ZONE
Rectangle
Polygon
Then, Click +ZONE

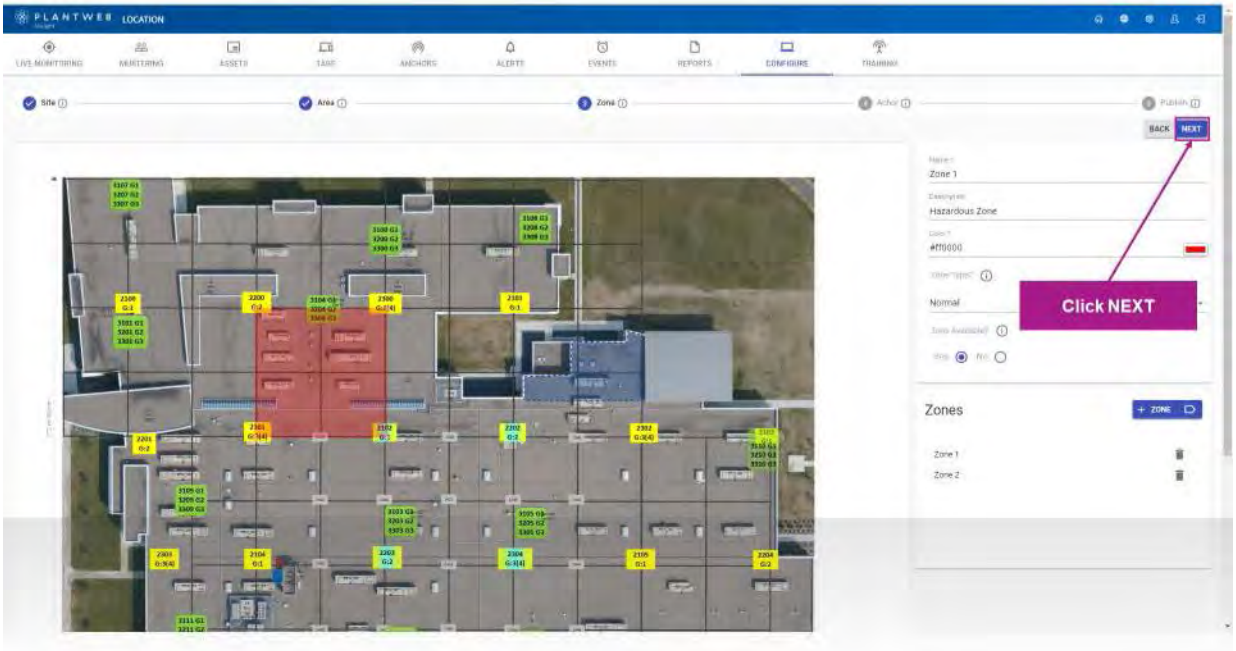

PLANTWEB LOCATION
Click anywhere on perimeter to add another red dot
Use red dots to drag Zone to desired position
Zone 2
Muster Zone
Mustering
Zones
+ ZONE
Zone 1
Zone 2

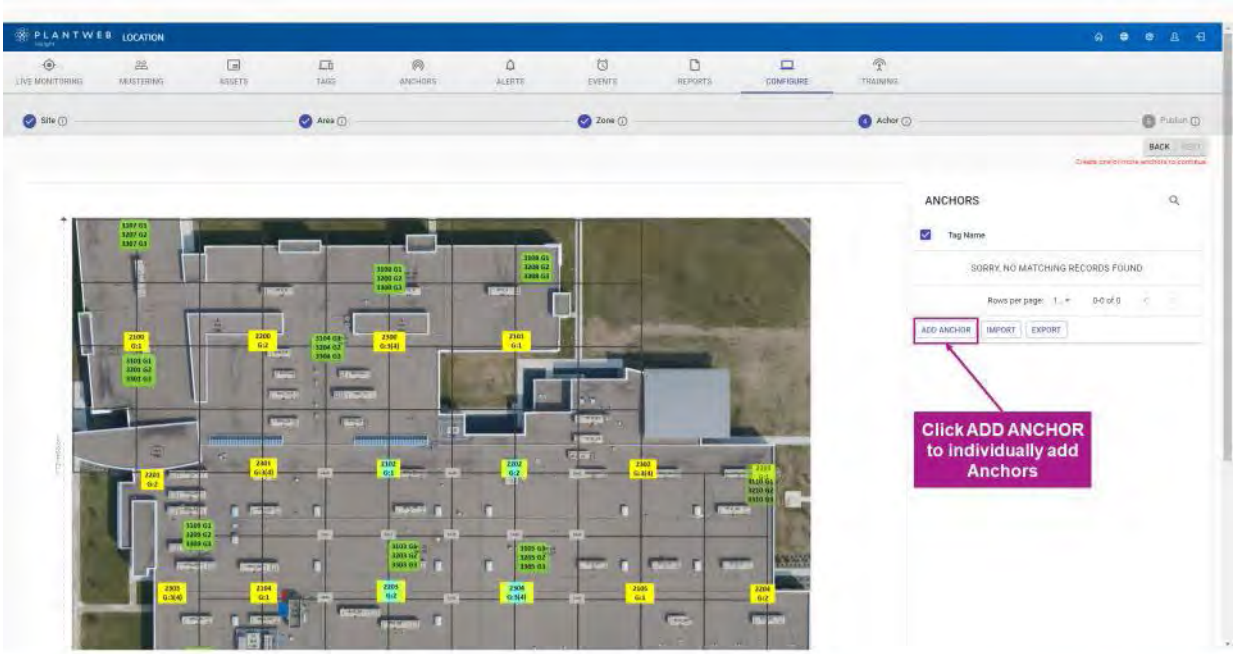

PLANTWEB LOCATION
Enter Zone Name and Description
Zone 2
Muster Zone
Mustering
+ ZONE
Zone 2

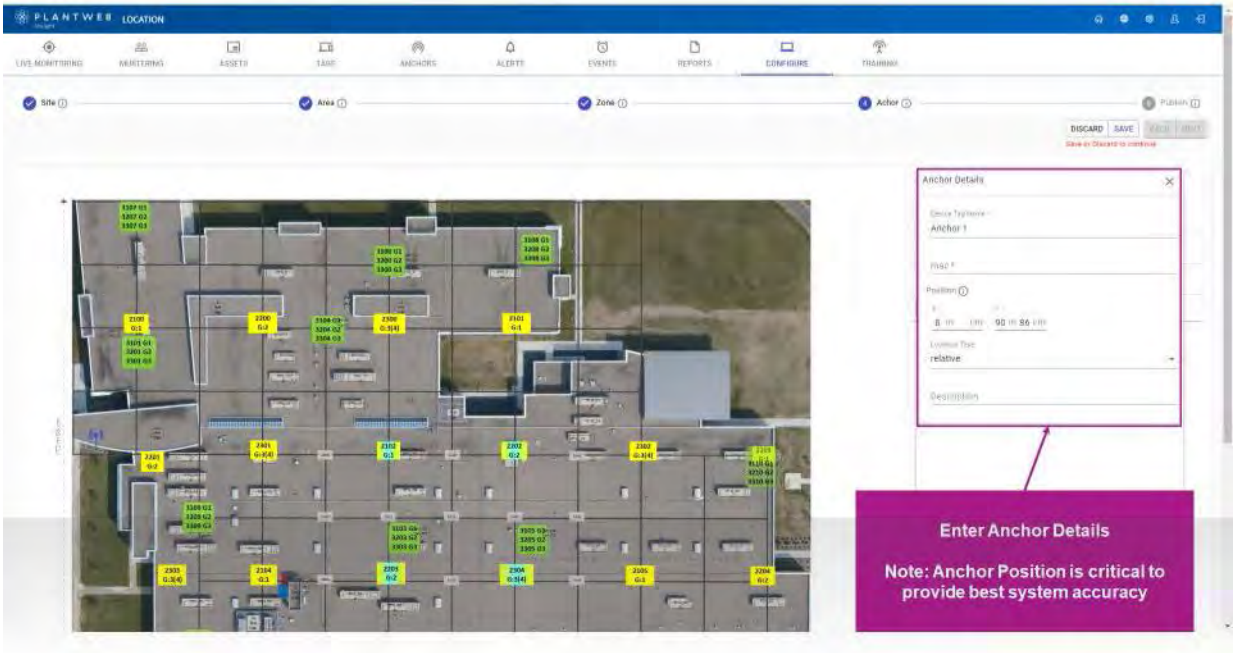

PLANTWEB LOCATION
Click on the color

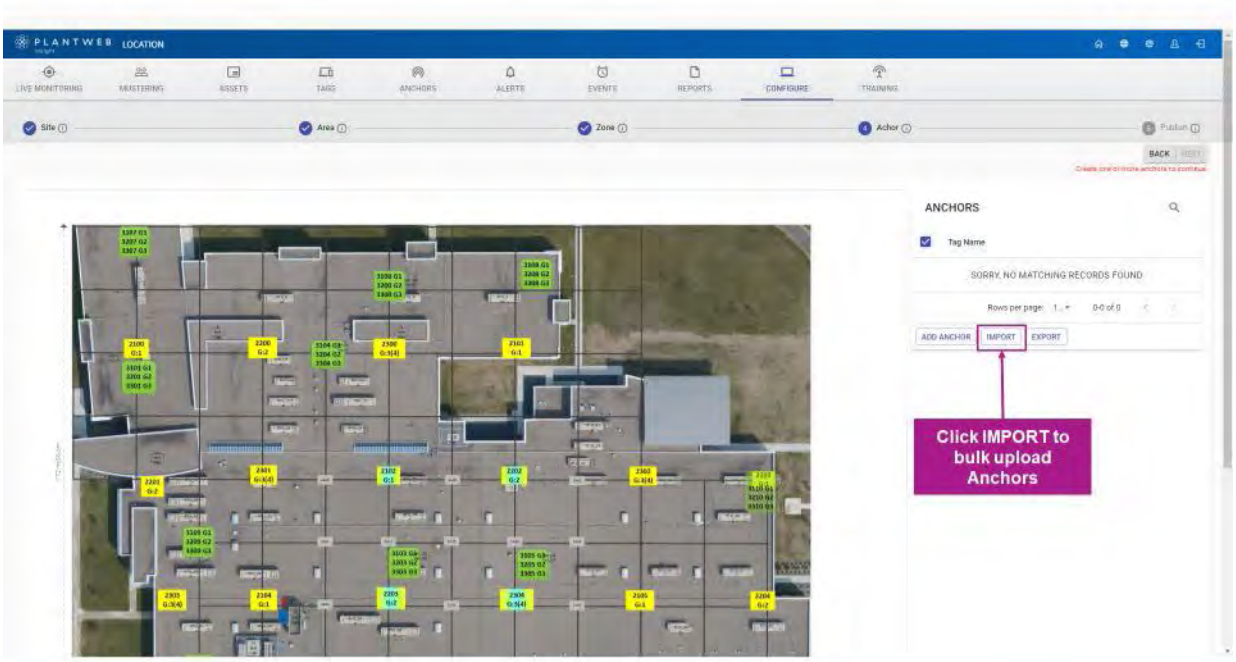

PLANTWEB LOCATION
Choose the color of the Zone

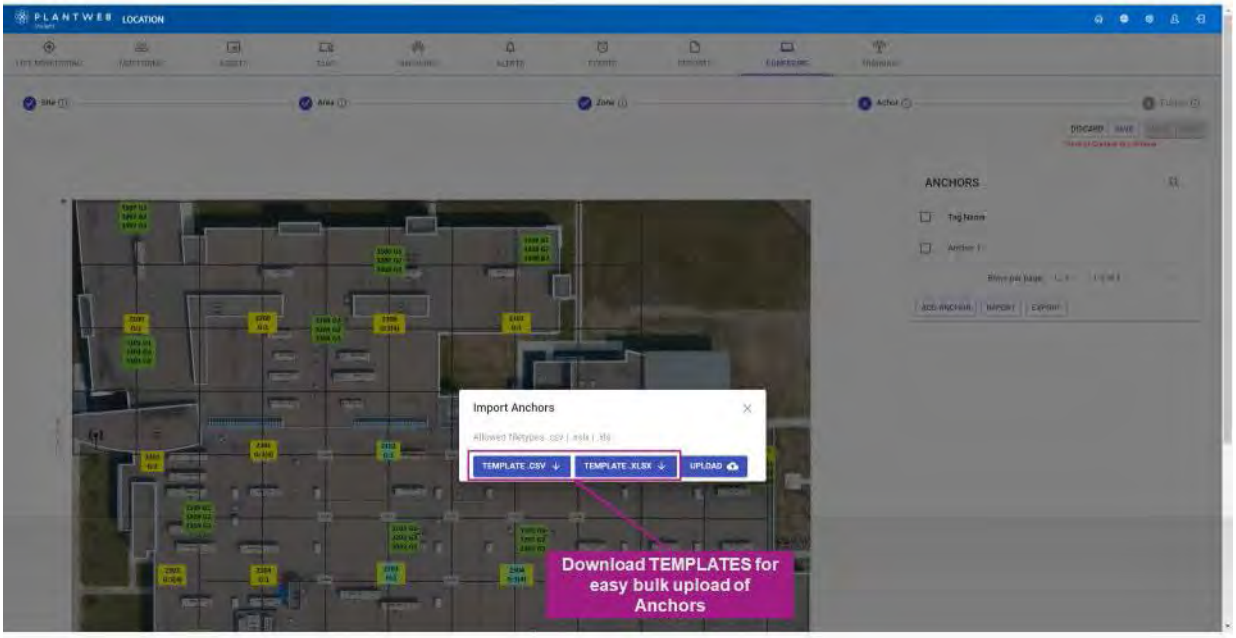

PLANTWEB LOCATION
Choose Mustering for Zone Type
Click on Yes if available
Check box to configure muster zones capacity. If no capacity at muster zones, leave unchecked
Zones

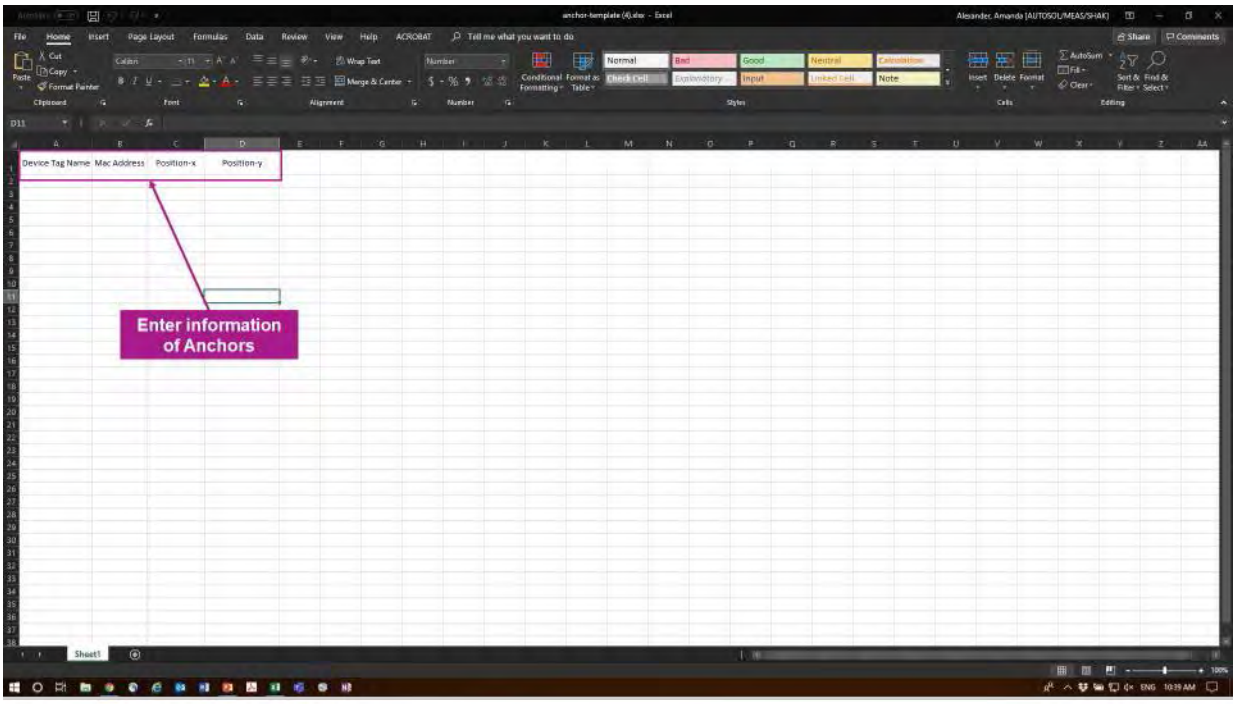

PLANTWEB LOCATION
Click NEXT
Zones

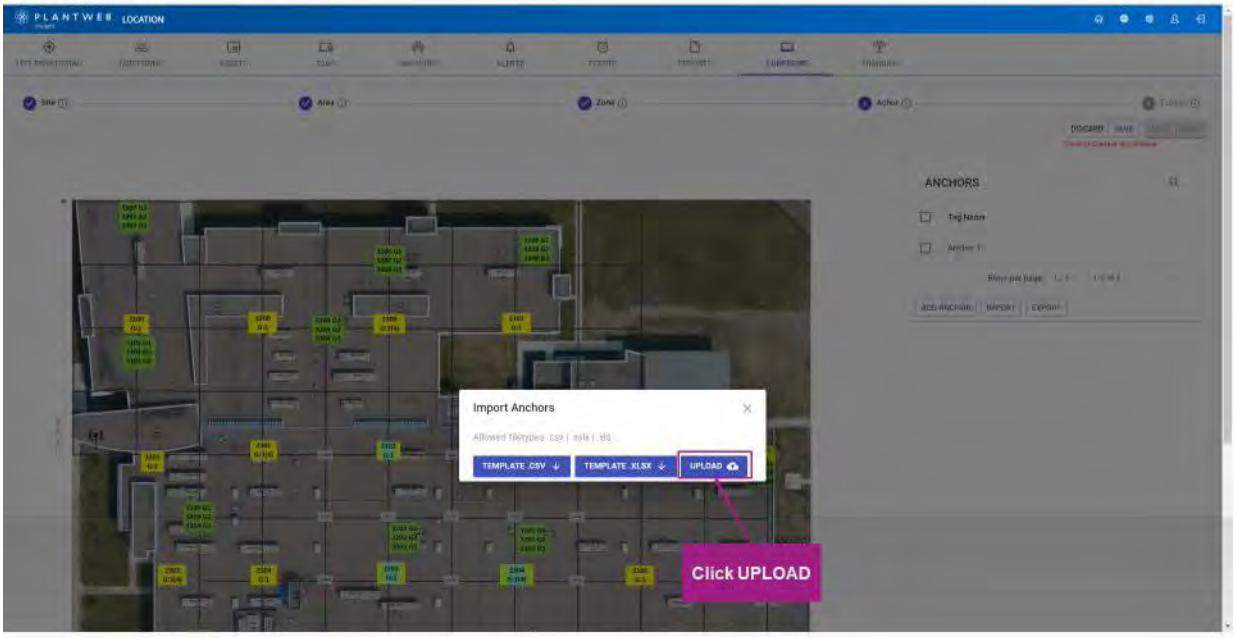

PLANTWEB LOCATION
ANCHORS
SORRY, NO MATCHING RECORDS FOUND
ADD ANCHOR
IMPORT
EXPORT
Click ADD ANCHOR to individually add Anchors

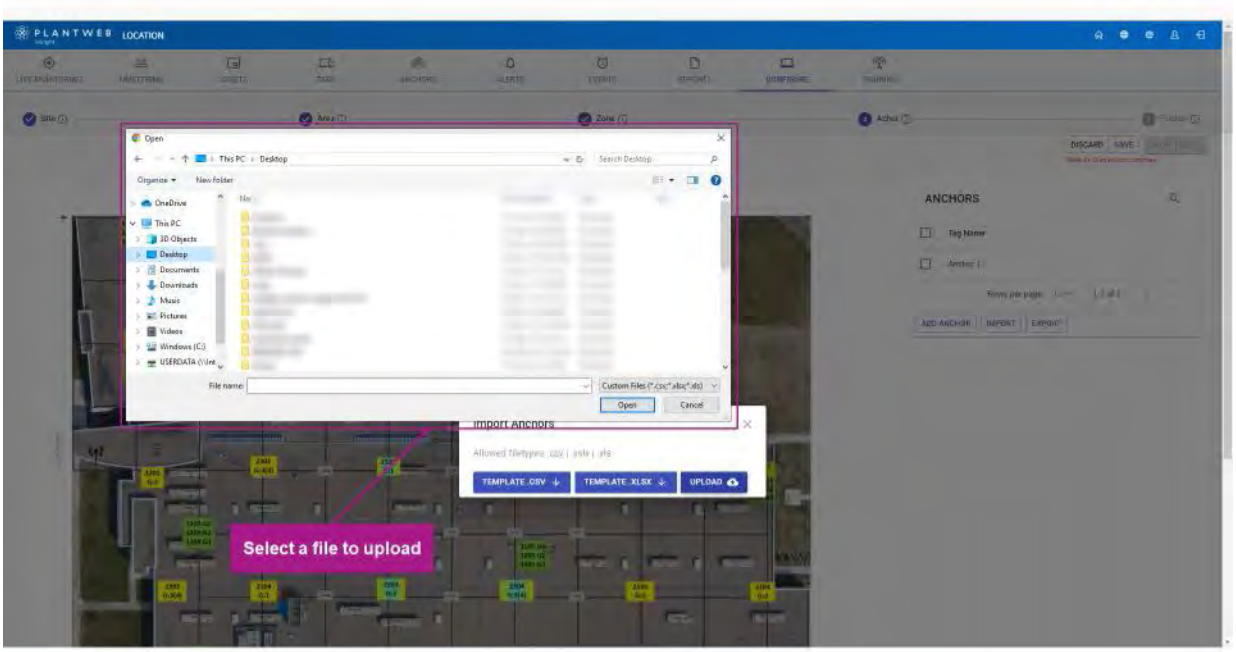

PLANTWEB LOCATION
Anchor Details
Enter Anchor Details
Note: Anchor Position is critical to provide best system accuracy

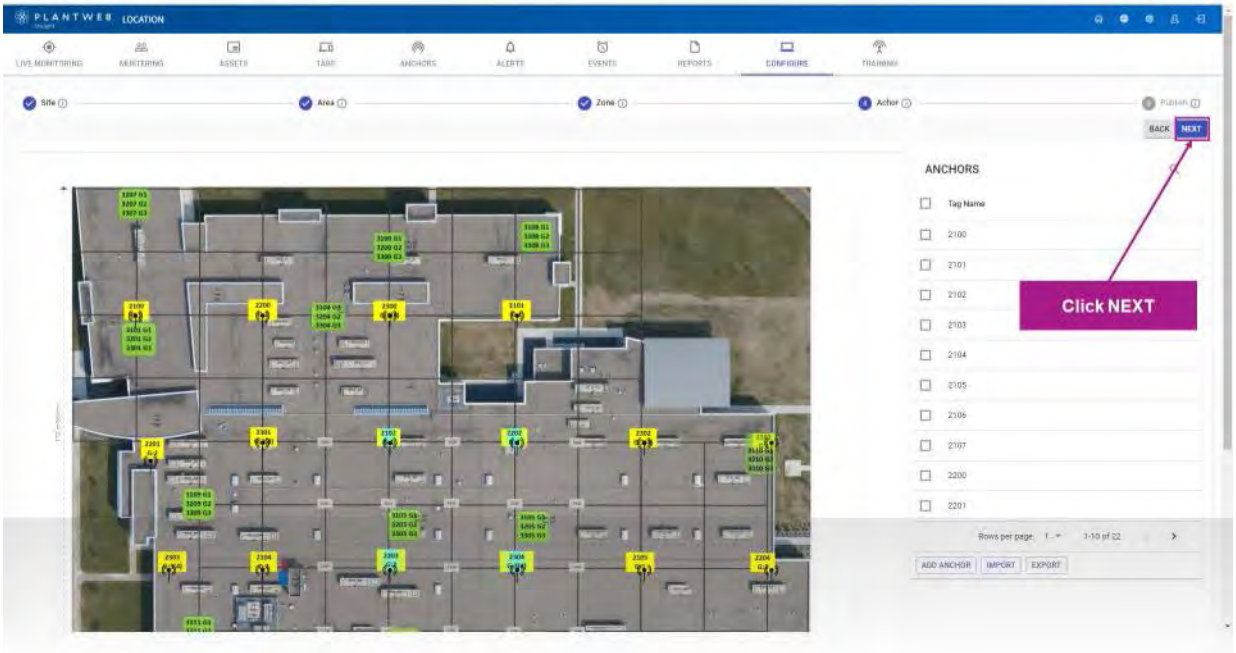

PLANTWEB LOCATION
ANCHORS
SORRY, NO MATCHING RECORDS FOUND
ADD ANCHOR
IMPORT
EXPORT
Click IMPORT to bulk upload Anchors

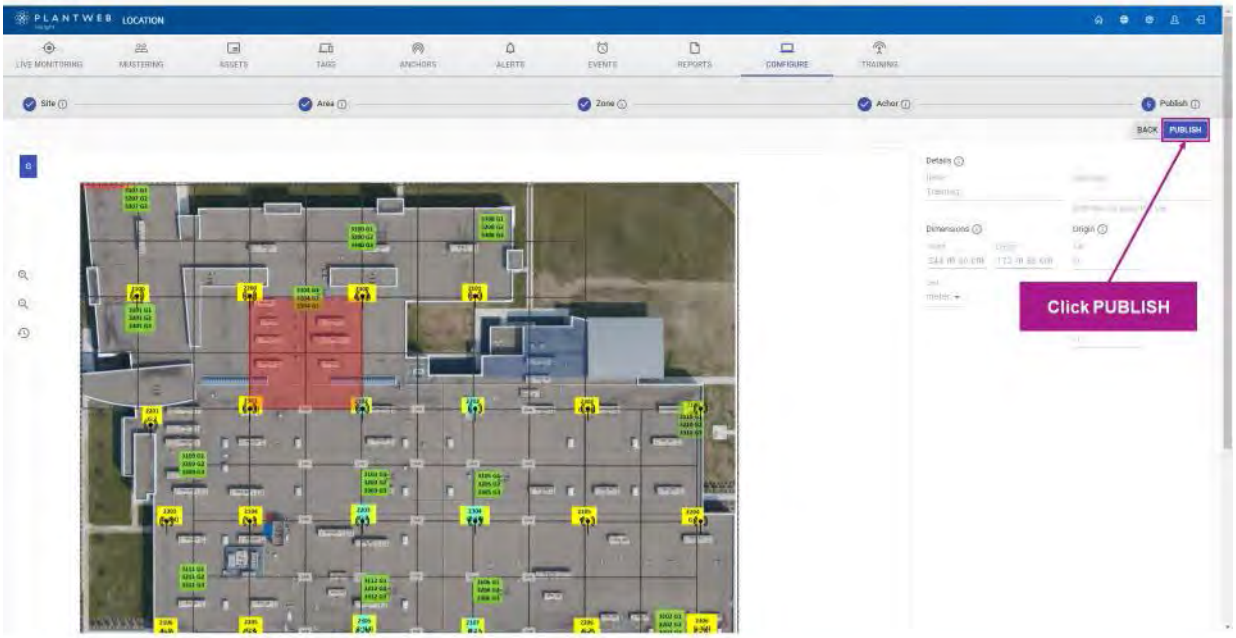

PLANTWEB LOCATION
ANCHORS
Import Anchors
TEMPLATE .CSV
TEMPLATE .XLSX
UPLOAD
Download TEMPLATES for easy bulk upload of Anchors

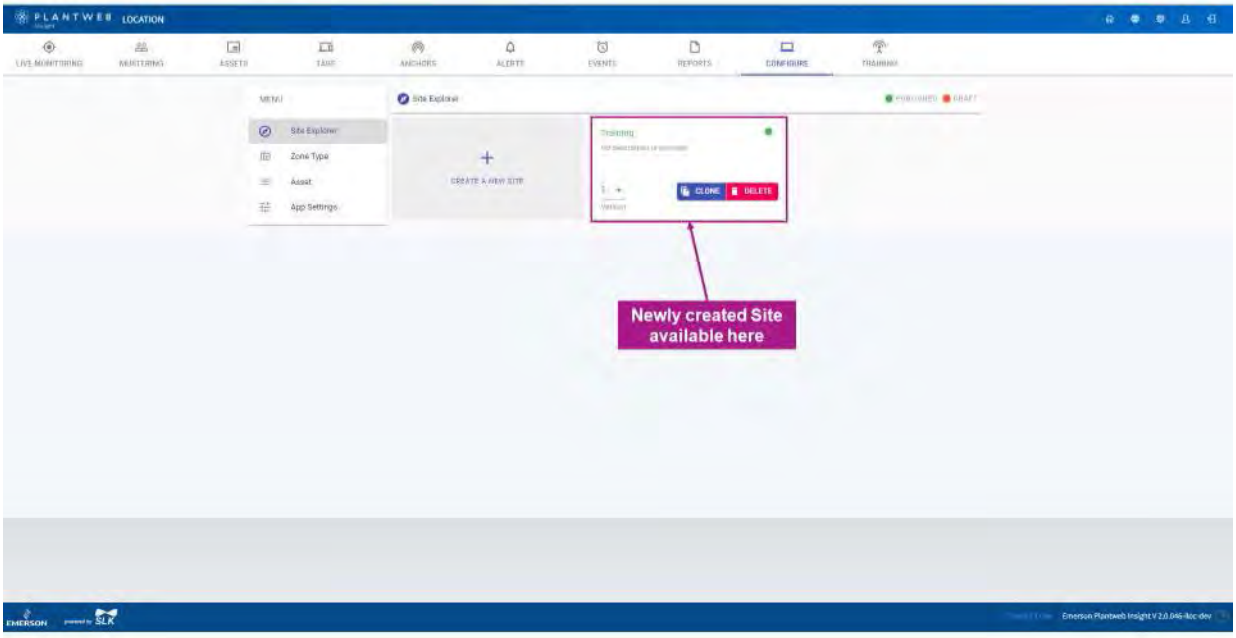

Device Tag Name
Mac Address
Position-x
Position-y
Enter information of Anchors


PLANTWEB
LOCATION
ANCHORS
Import Anchors
TEMPLATE .CSV
TEMPLATE .XLSX
UPLOAD
Click UPLOAD

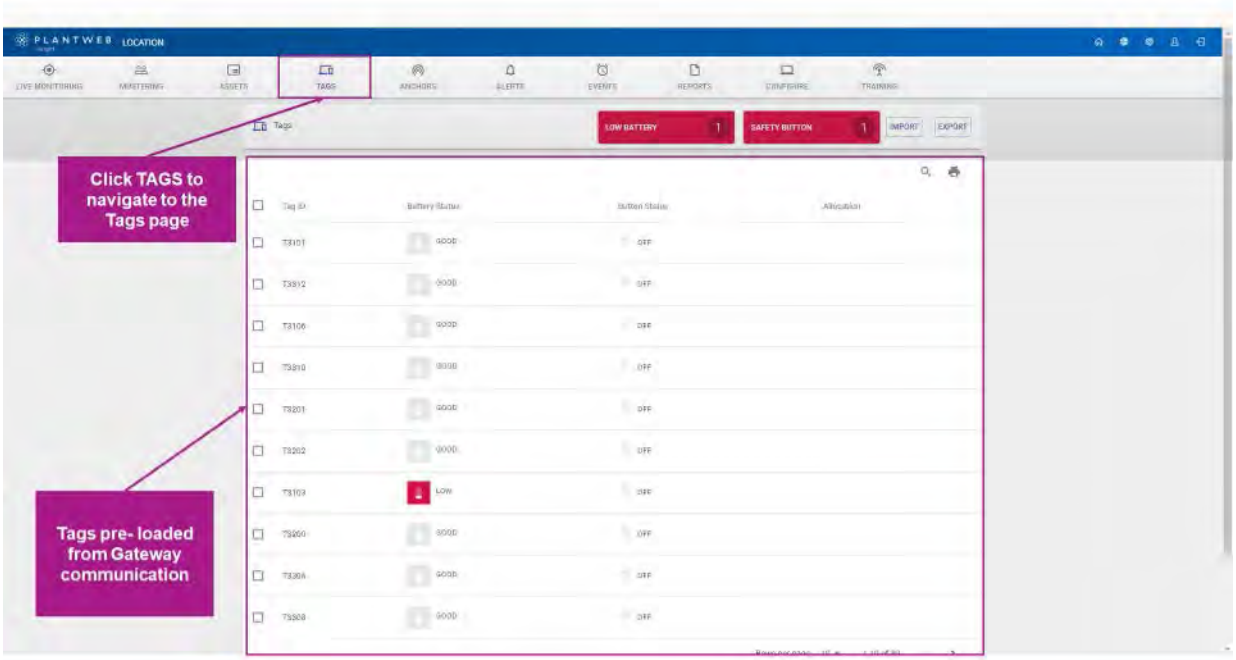

PLANTWEB LOCATION
ANCHORS
Select a file to upload

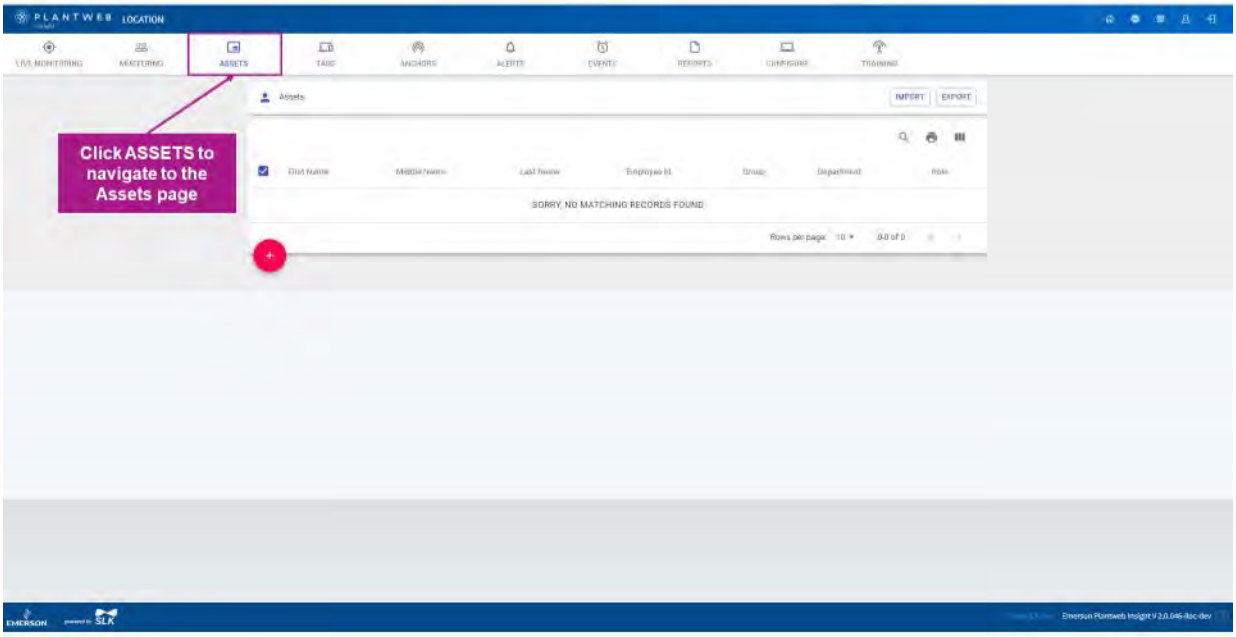

PLANTWEB LOCATION
ANCHORS
Click NEXT

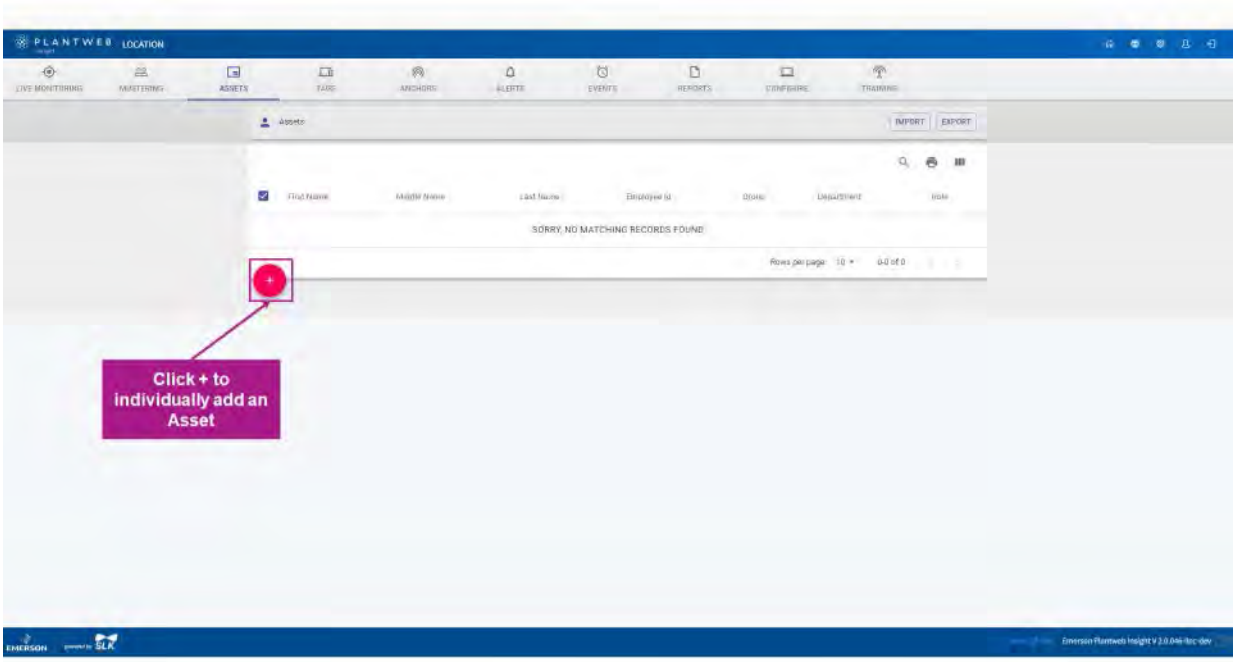

PLANTWEB LOCATION
PUBLISH
Click PUBLISH

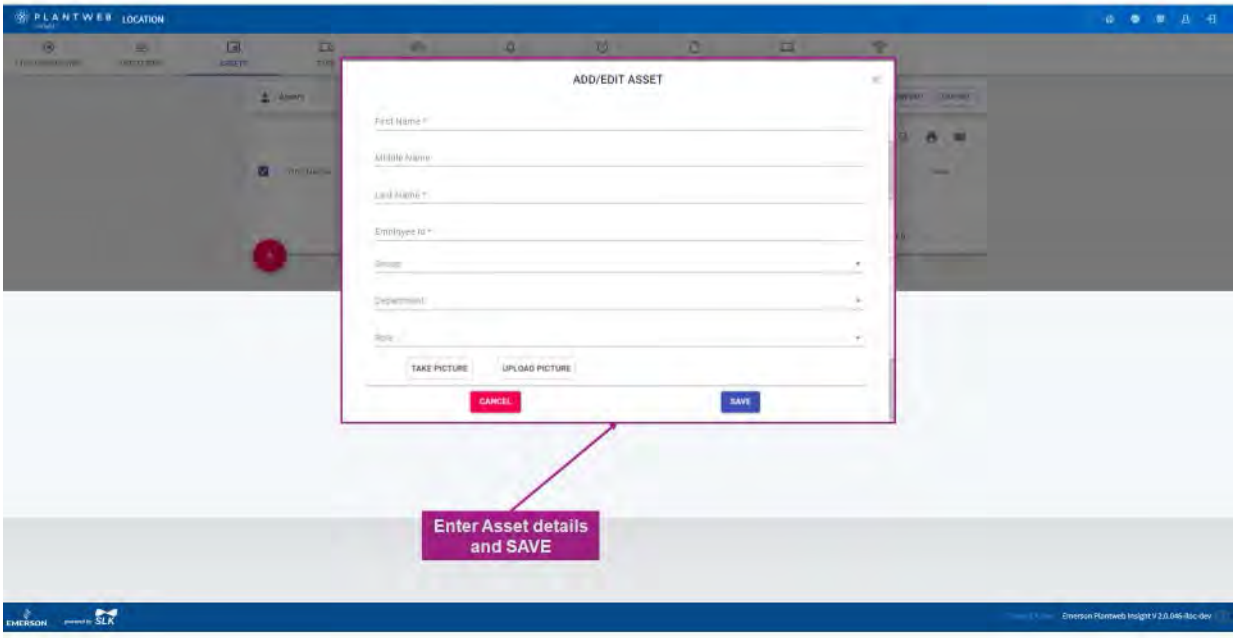

PLANTWEB LOCATION
Site Explorer
Zone Type
Asset
App Settings
CLONE
DELETE
Newly created Site available here

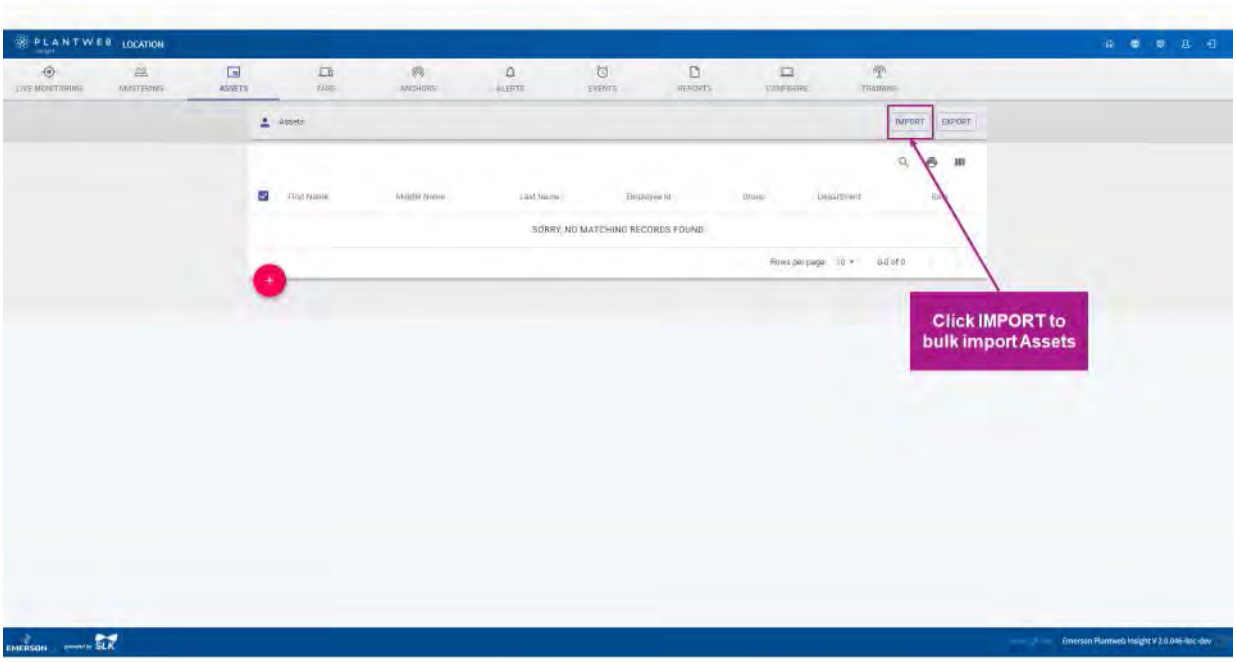
12.4 Asset Configuration

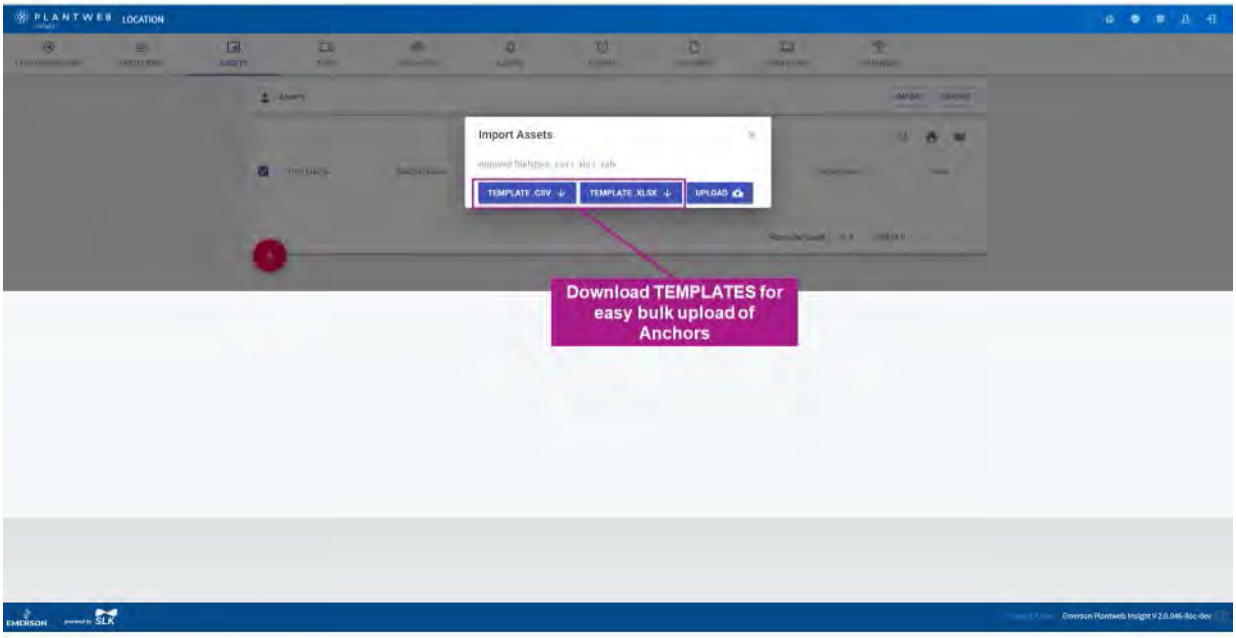


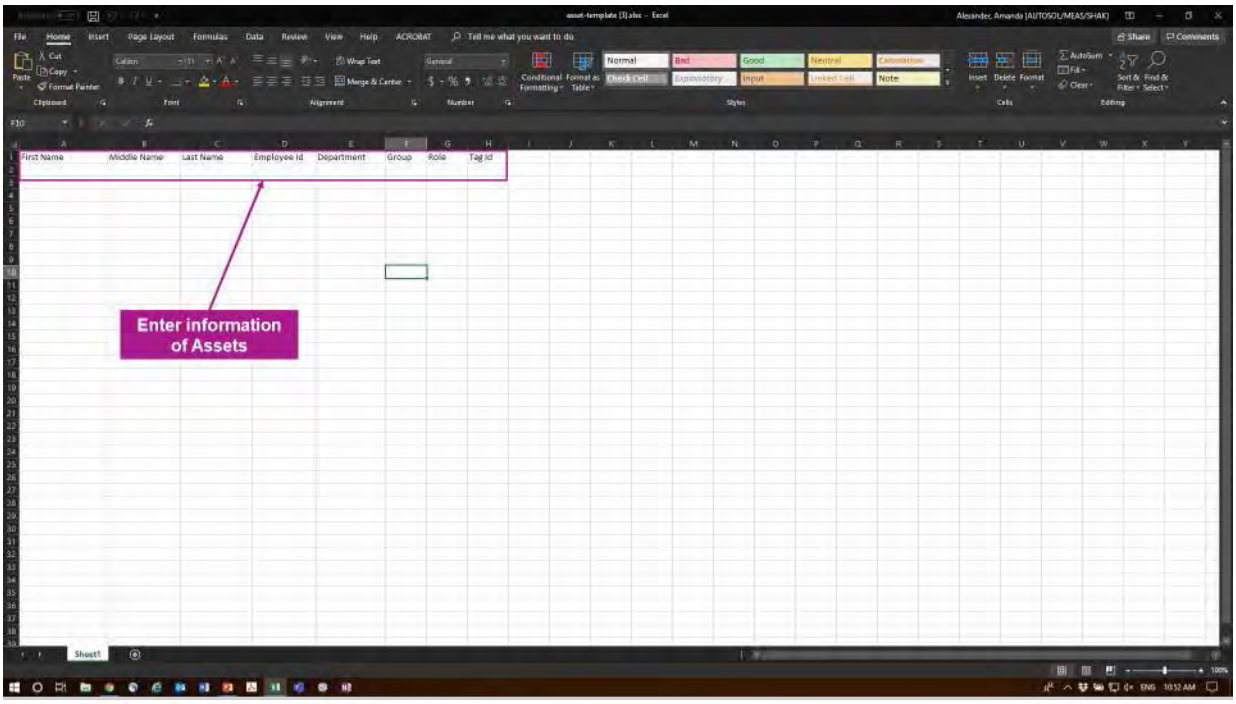


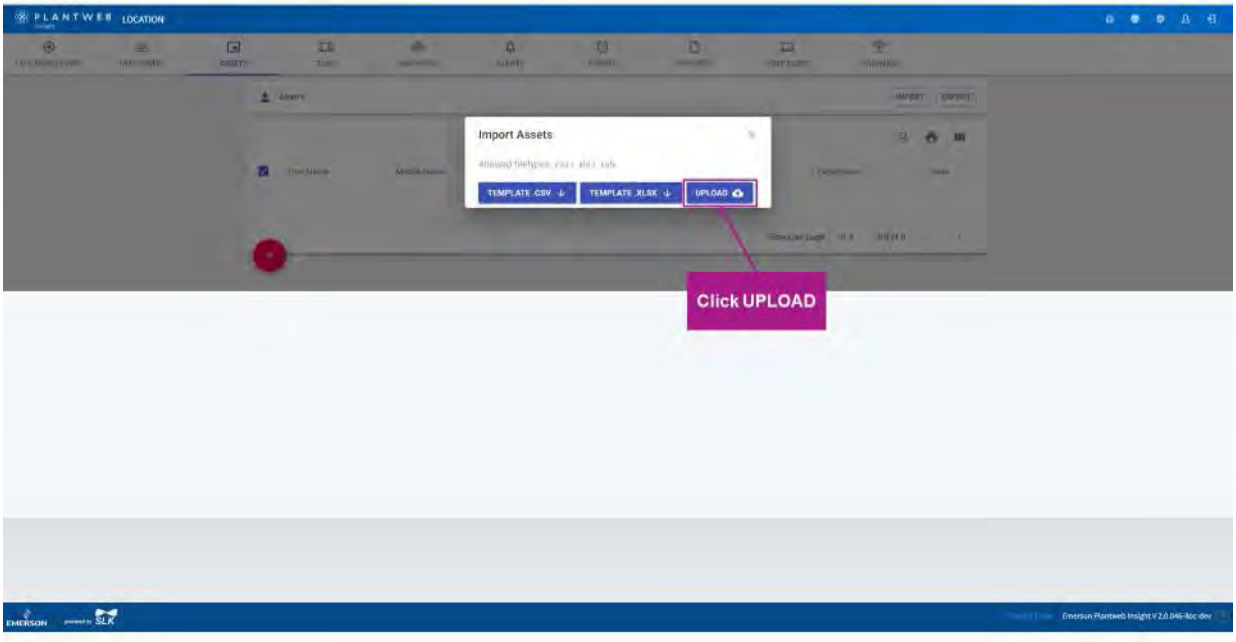

PLANTWEB LOCATION
SORRY, NO MATCHING RECORDS FOUND
Click + to individually add an Asset

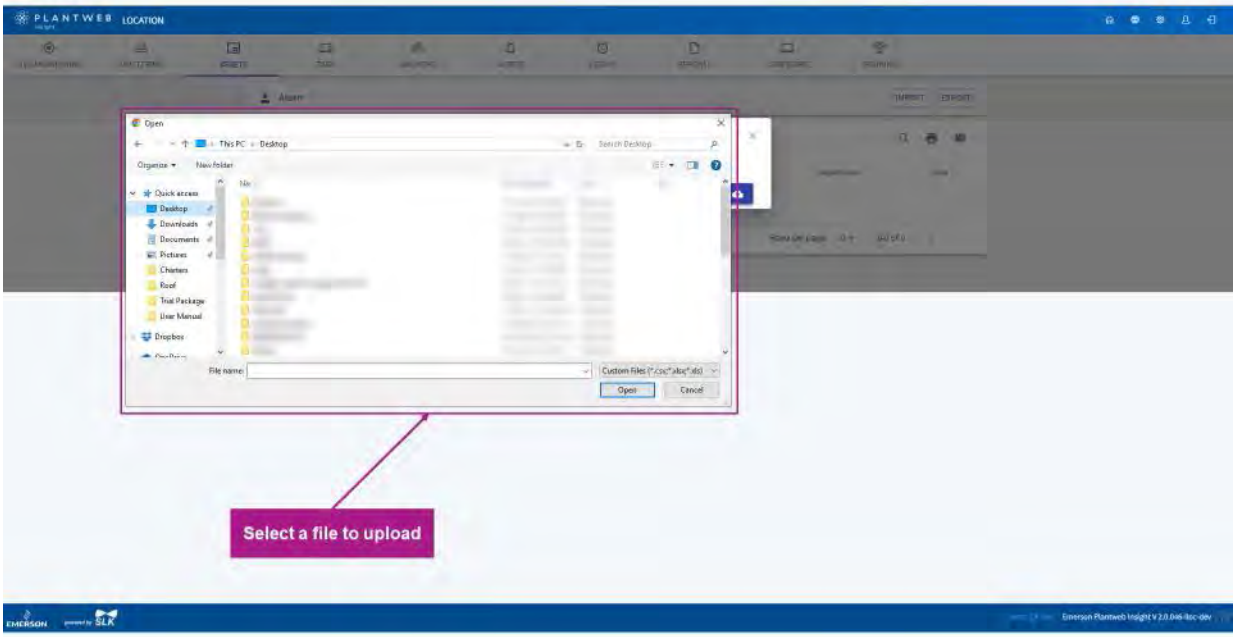

PLANTWEB LOCATION
ADD/EDIT ASSET
TAKE PICTURE
UPLOAD PICTURE
CANCEL
SAVE
Enter Asset details and SAVE

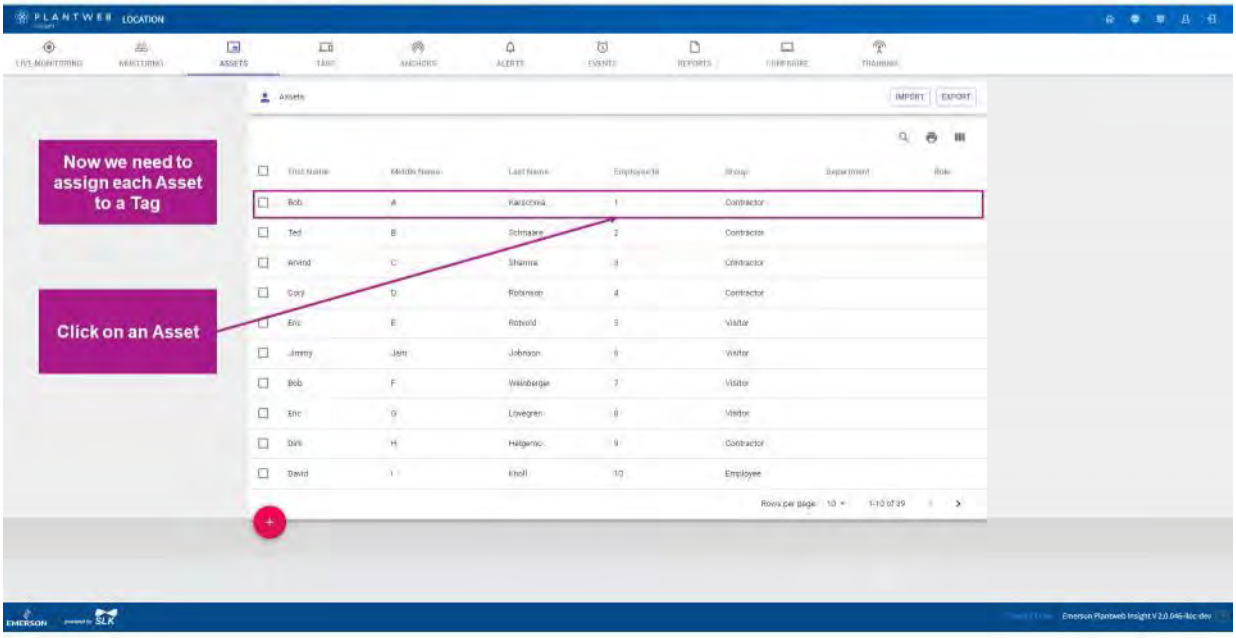

PLANTWEB LOCATION
IMPORT
EXPORT
SORRY, NO MATCHING RECORDS FOUND
Click IMPORT to bulk import Assets

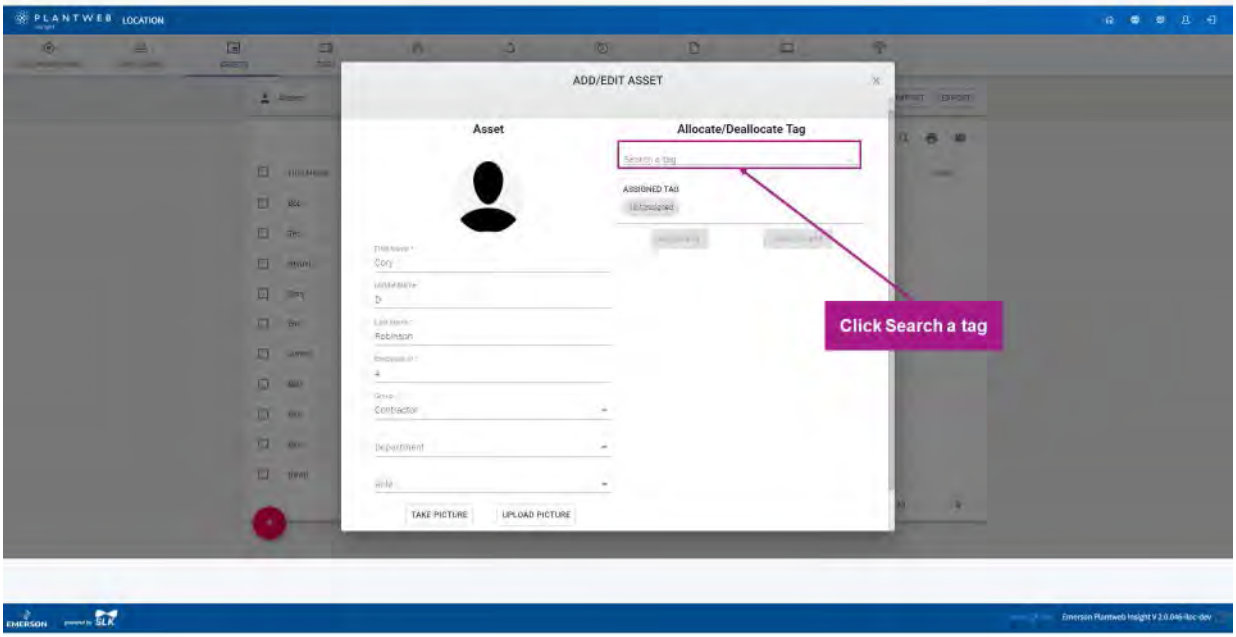

PLANTWEB LOCATION
Import Assets
TEMPLATE .CSV
TEMPLATE .XLSX
UPLOAD
Download TEMPLATES for easy bulk upload of Anchors

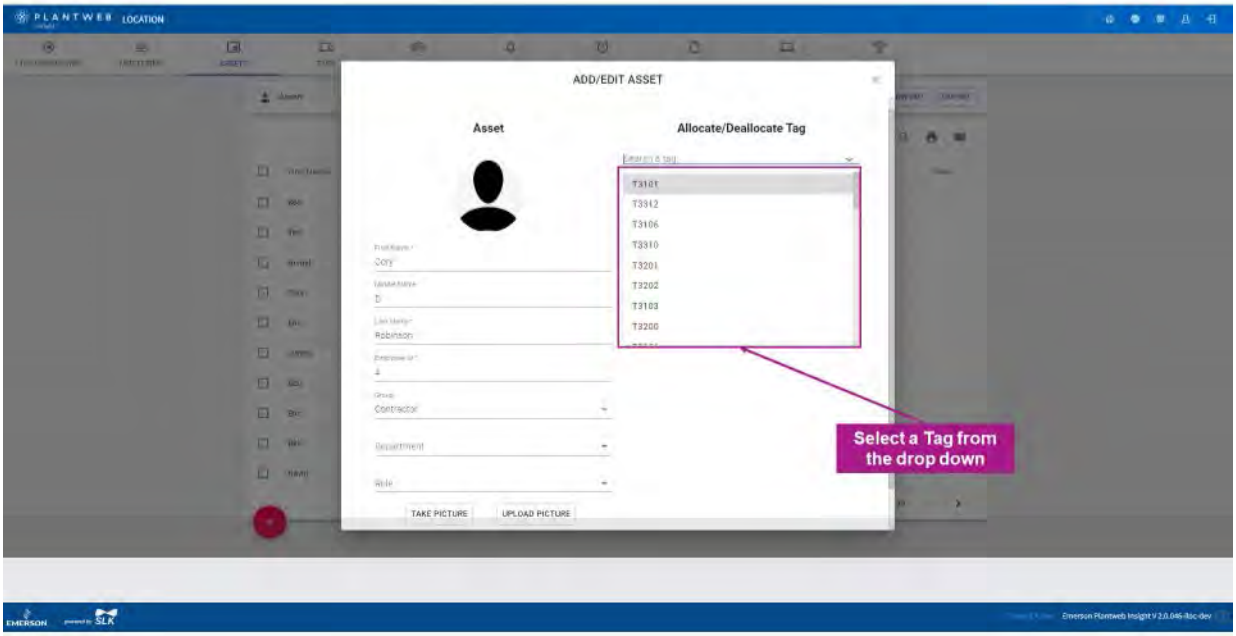

First Name
Middle Name
Last Name
Employee Id
Department
Group
Role
Tag Id
Enter information of Assets

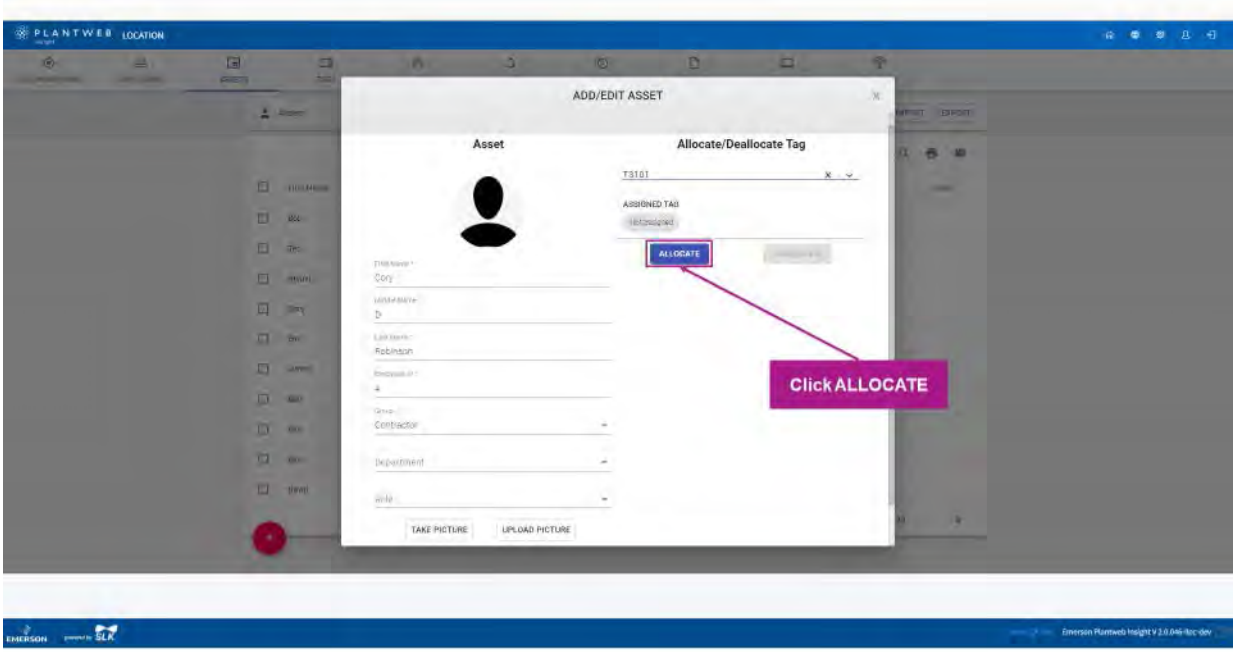

PLANTWEB
LOCATION
Import Assets
TEMPLATE .CSV
TEMPLATE .XLSX
UPLOAD
Click UPLOAD

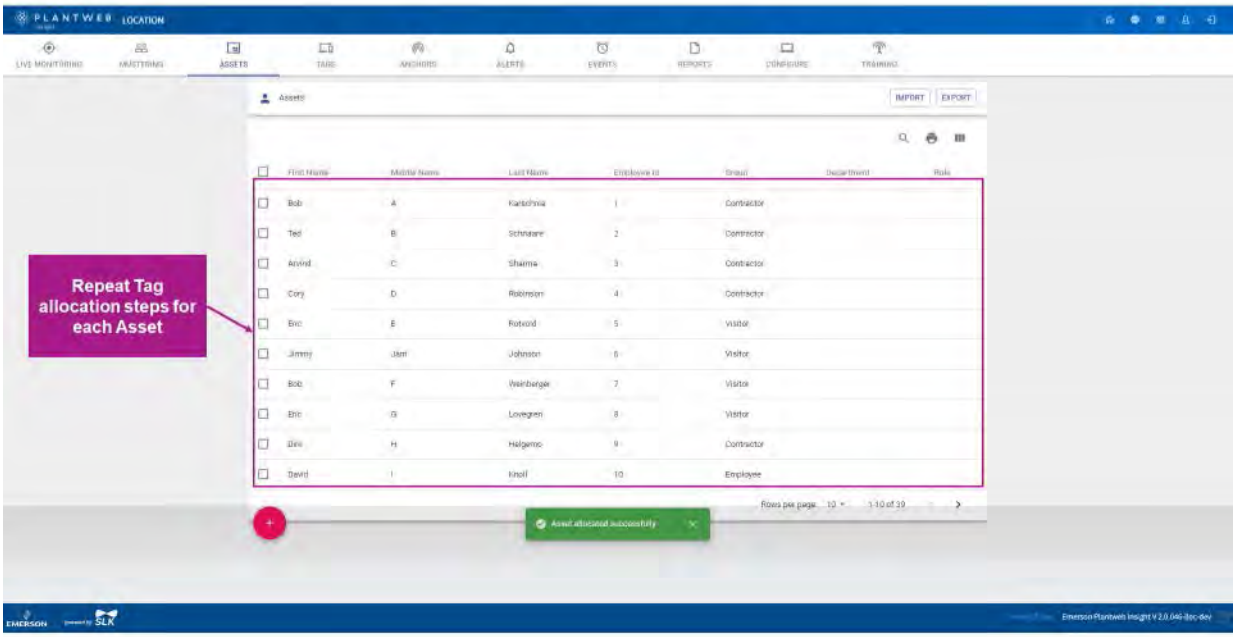

Select a file to upload


Now we need to assign each Asset to a Tag
Click on an Asset

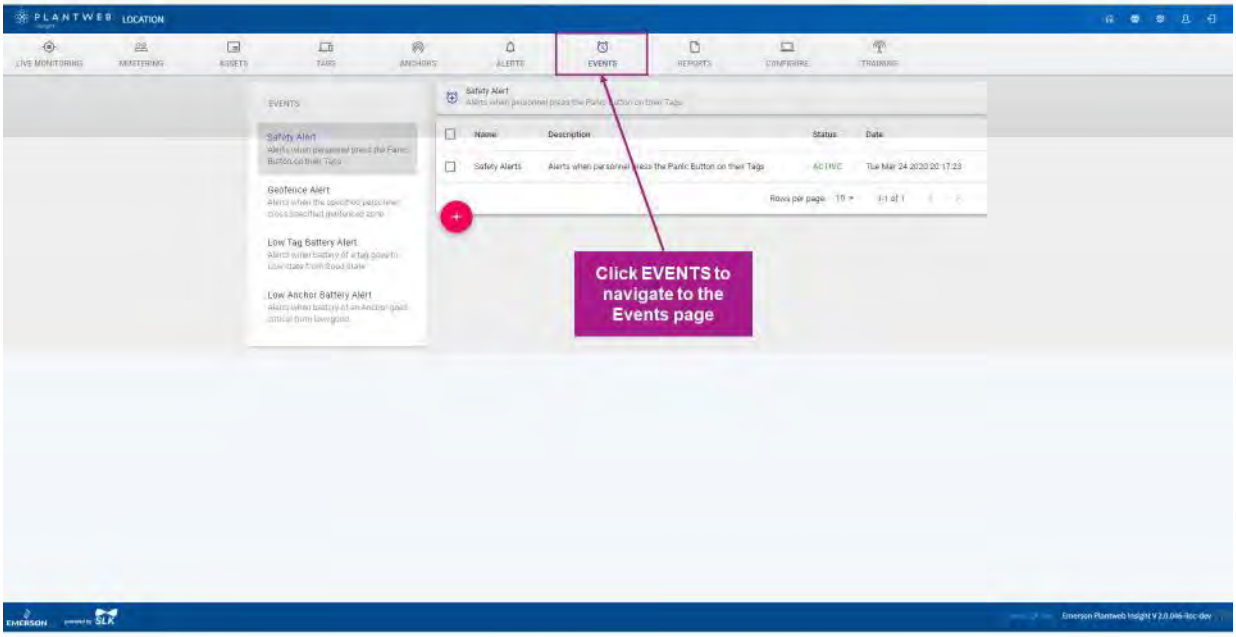

PLANTWEB LOCATION
ADD/EDIT ASSET
Asset
Allocate/Deallocate Tag
Search a tag
ASSIGNED TAG
Unassigned
Cory
D
Robinson
4
Contractor
Department
Role
TAKE PICTURE
UPLOAD PICTURE
Click Search a tag
EMERSON

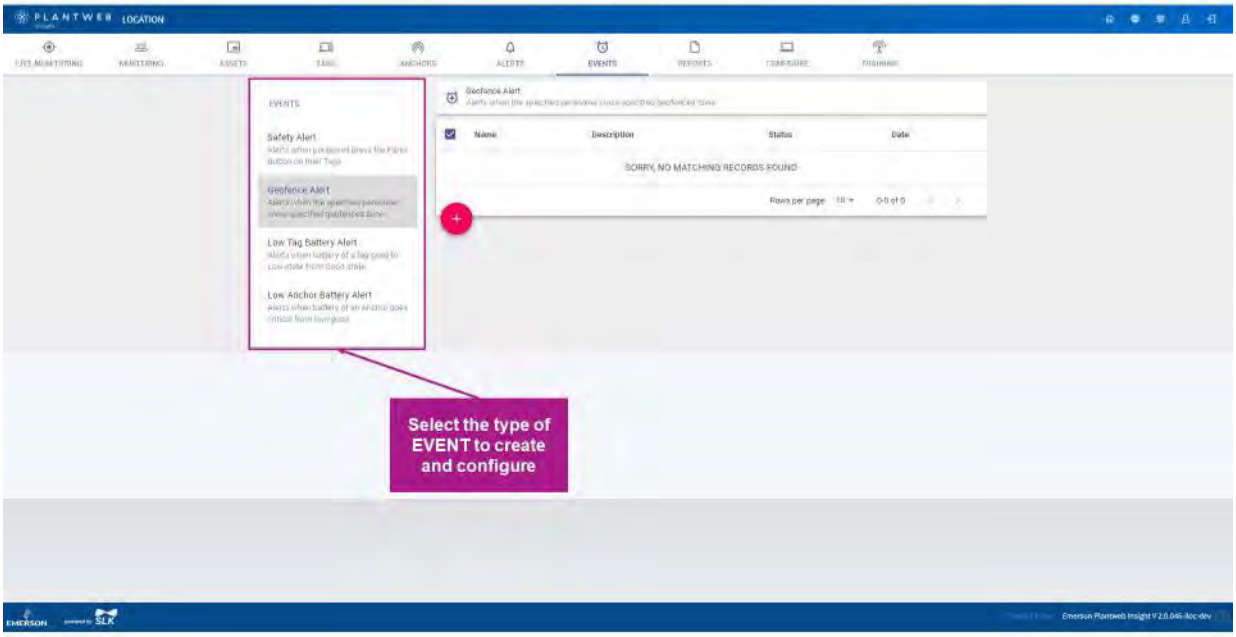

PLANTWEB LOCATION
ADD/EDIT ASSET
Asset
Allocate/Deallocate Tag
Search a tag
T3101
T3112
T3106
T3110
T3201
T3202
T3103
T3200
Cory
D
Robinson
4
Contractor
Department
Role
TAKE PICTURE
UPLOAD PICTURE
Select a Tag from the drop down
EMERSON

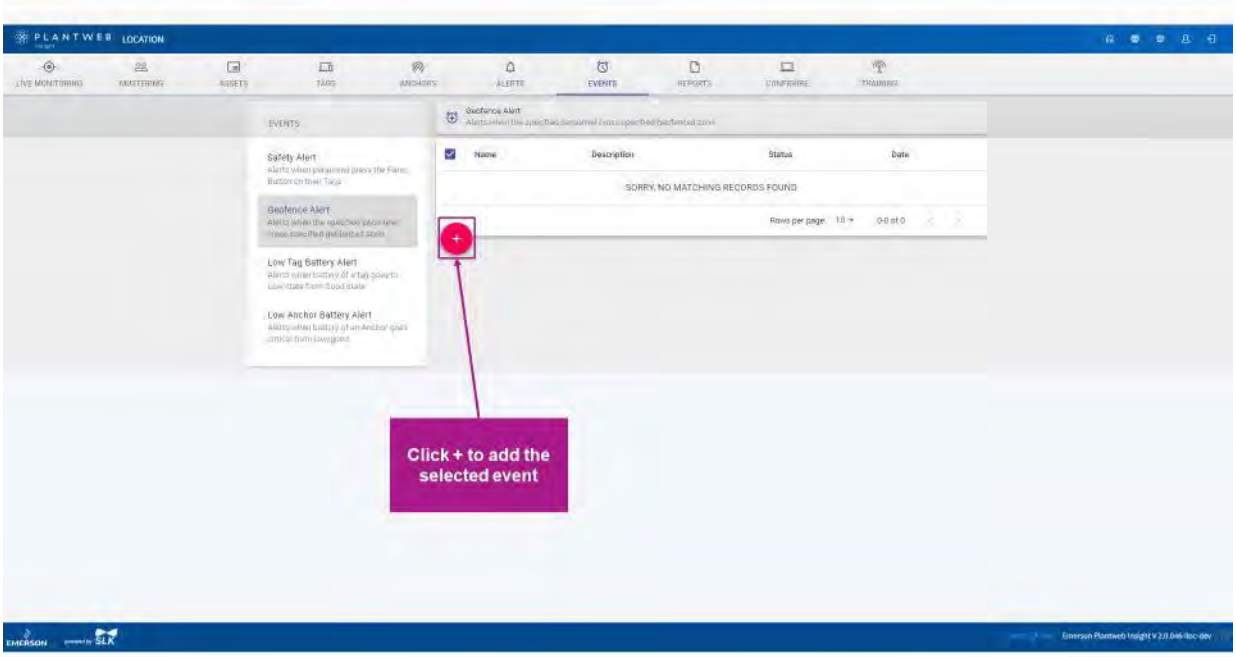

PLANTWEB LOCATION
ADD/EDIT ASSET
Asset
Allocate/Deallocate Tag
T3101
ASSIGNED TAG
ALLOCATE
Click ALLOCATE
TAKE PICTURE
UPLOAD PICTURE
EMERSON

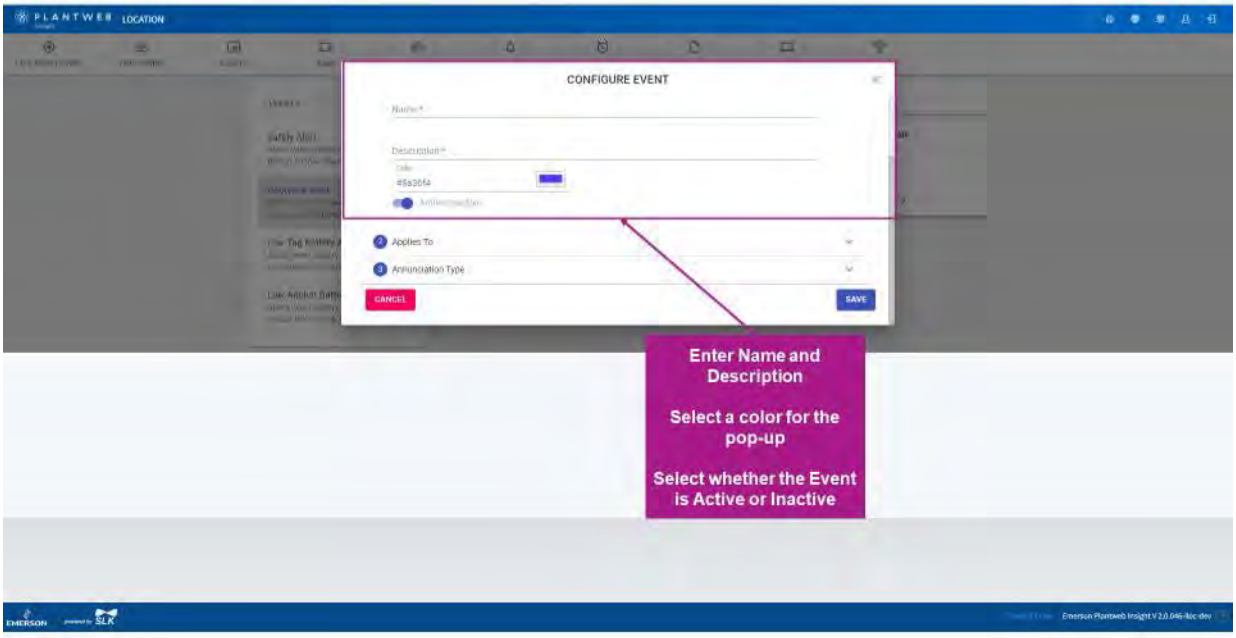

PLANTWEB LOCATION
IMPORT
EXPORT
Repeat Tag allocation steps for each Asset
EMERSON

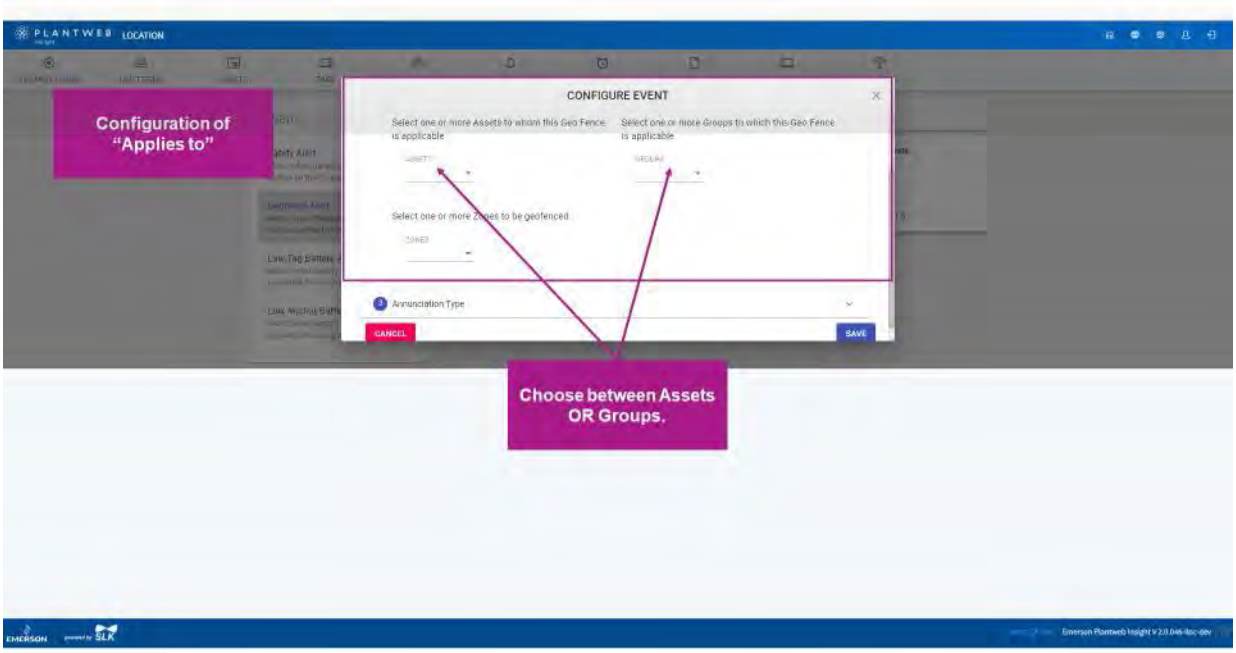
12.5 Event Configuration

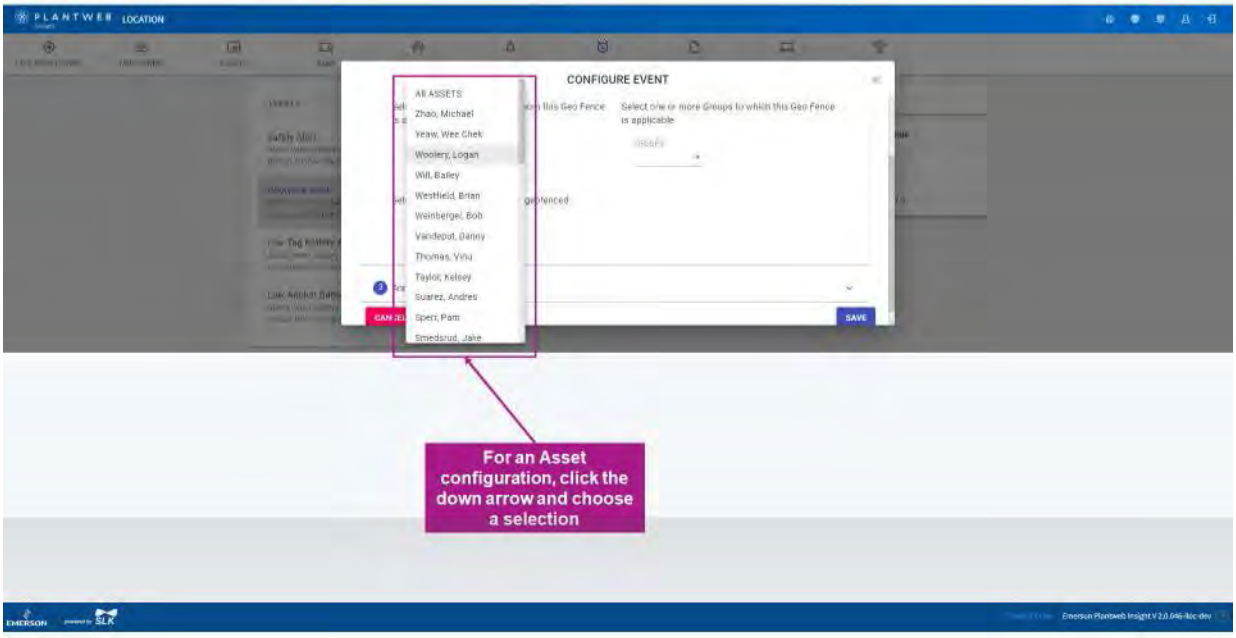


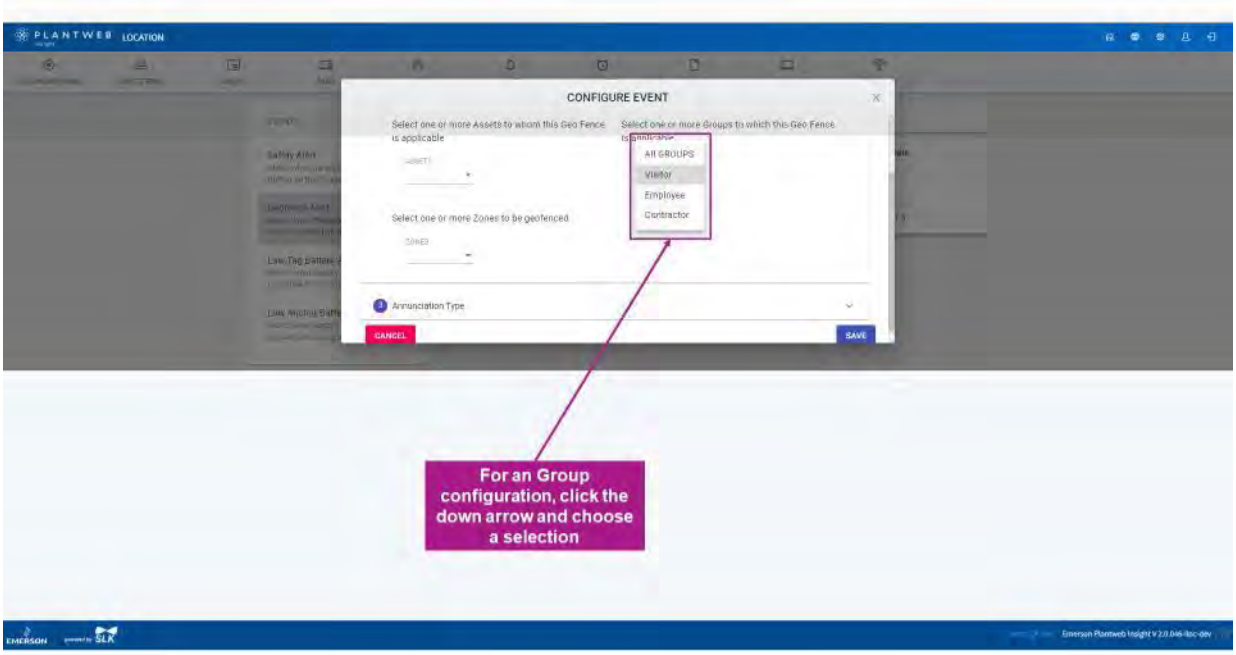


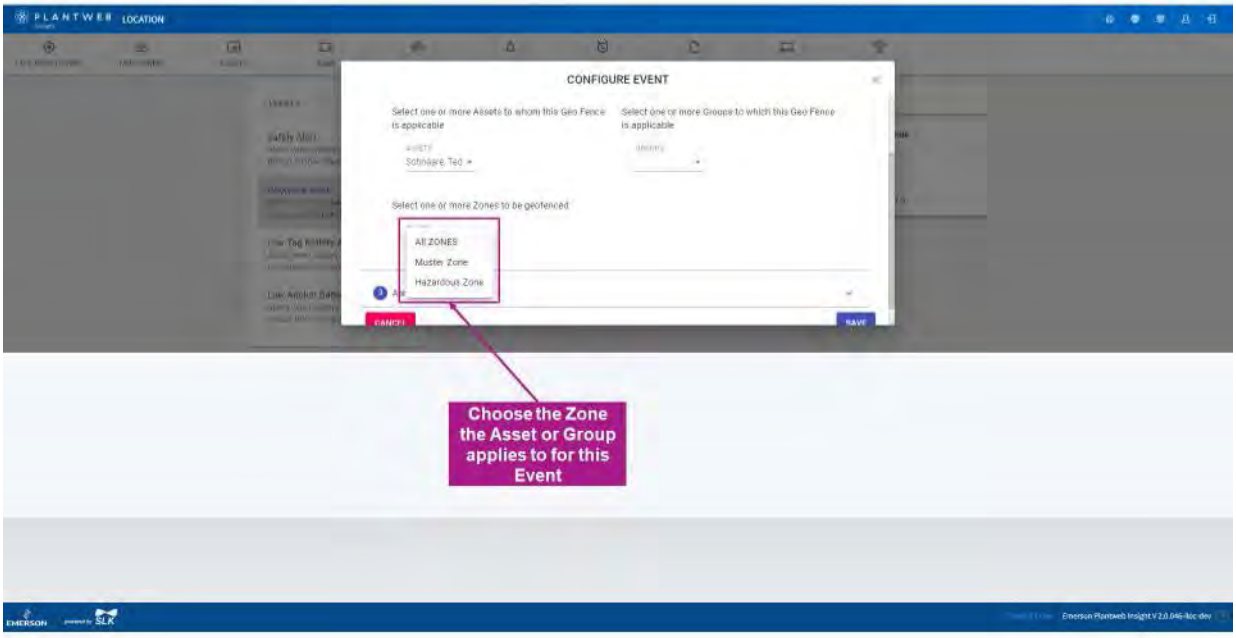

PLANTWEB LOCATION
EVENTS
Safety Alert
Geofence Alert
Low Tag Battery Alert
Low Anchor Battery Alert
Name
Description
Status
Date
SORRY, NO MATCHING RECORDS FOUND
Click + to add the selected event

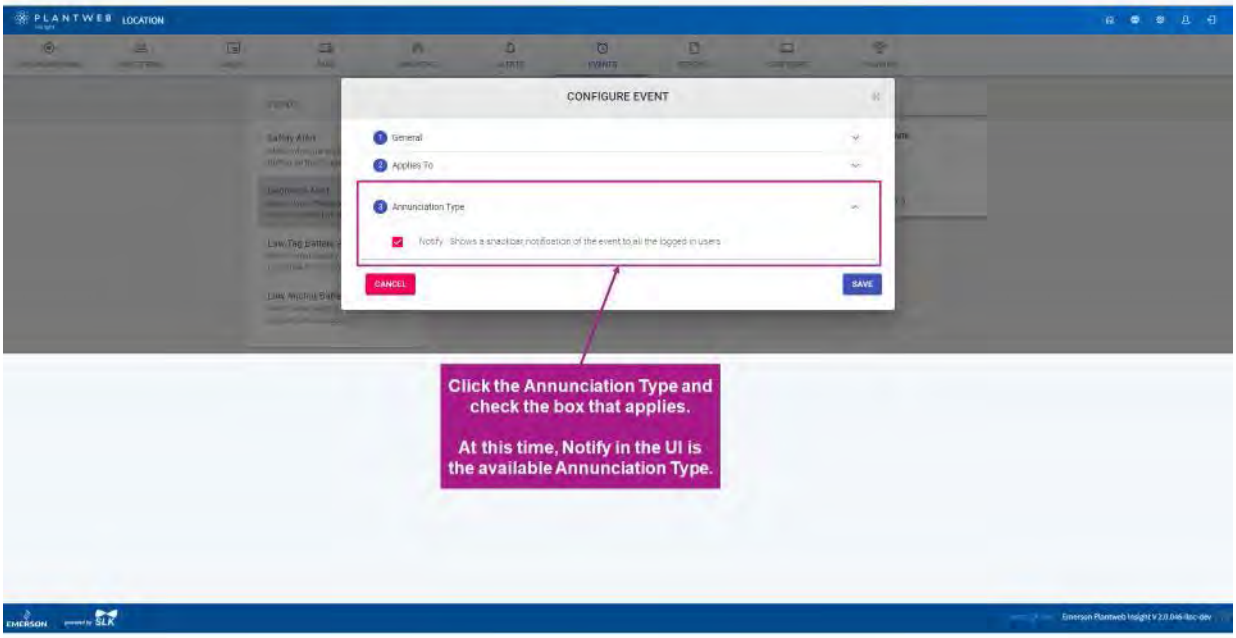

PLANTWEB LOCATION
CONFIGURE EVENT
Applies To
Annunciation Type
CANCEL
SAVE
Enter Name and Description
Select a color for the pop-up
Select whether the Event is Active or Inactive

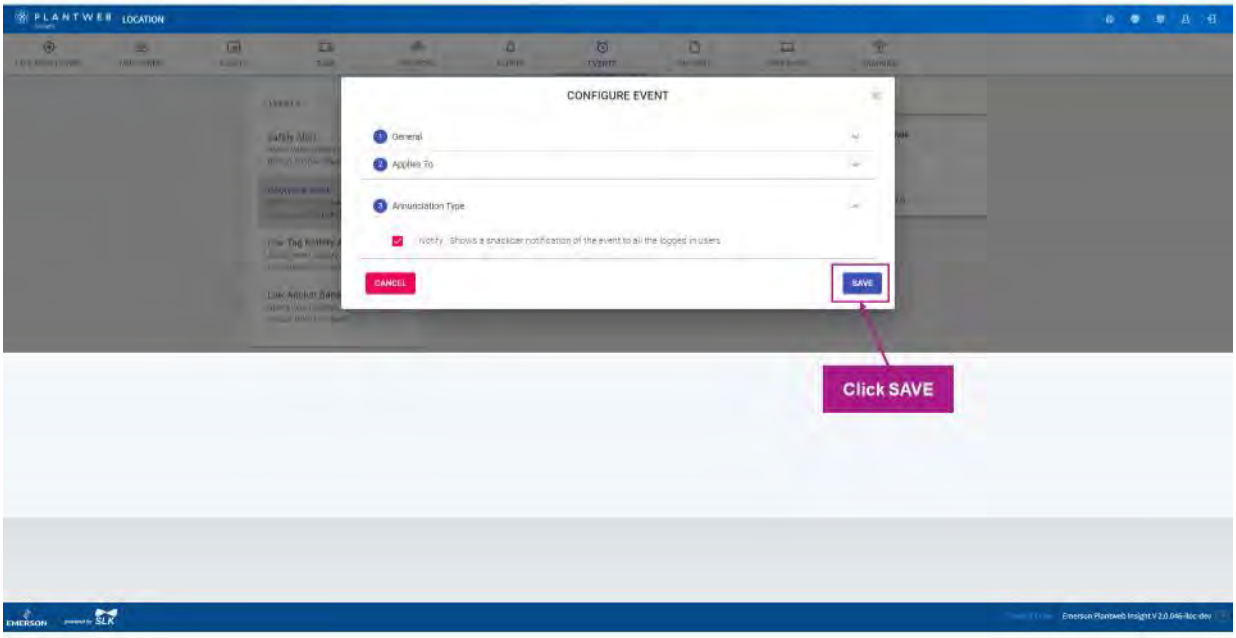

Configuration of "Applies to"
CONFIGURE EVENT
Select one or more Assets to whom this Geo Fence is applicable
Select one or more Groups to which this Geo Fence is applicable
Select one or more Zones to be geofenced
Annunciation Type
CANCEL
SAVE
Choose between Assets OR Groups.

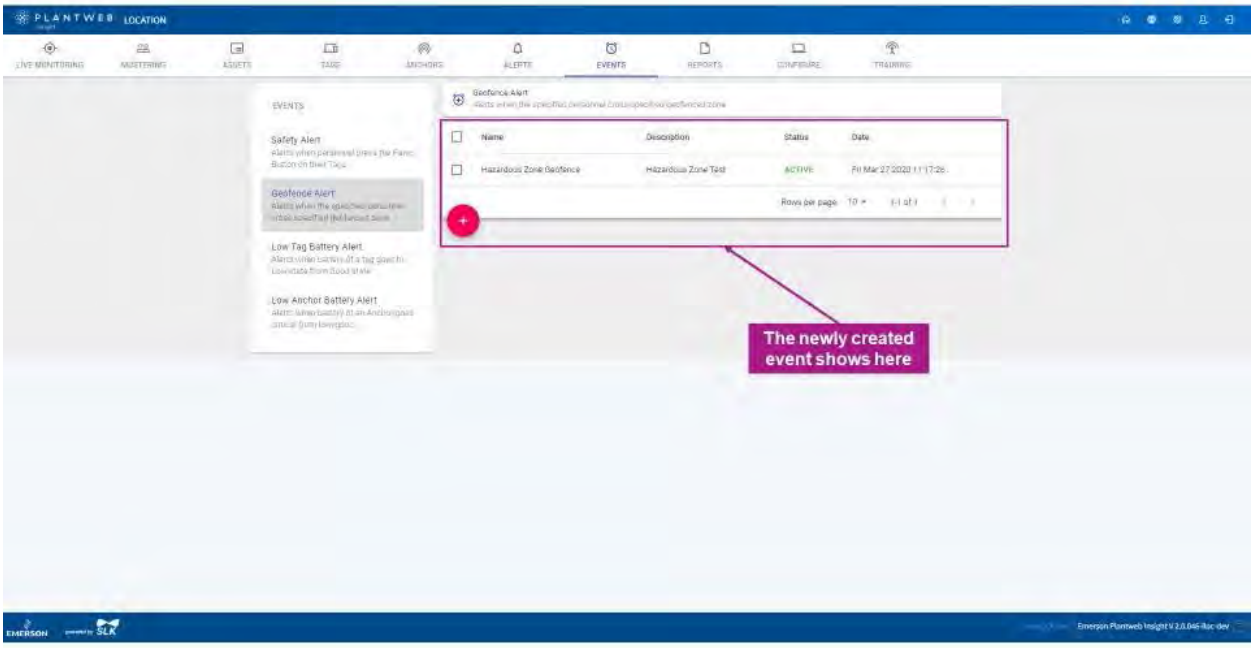

CONFIGURE EVENT
All ASSETS
Zhao, Michael
Yeaw, Wee Chek
Woolery, Logan
Will, Bailey
Westfield, Brian
Weinbergel, Bob
Vandeput, Danny
Thomas, Vinu
Taylor, Kelsey
Suarez, Andres
Sperr, Pam
Smedsrud, Jake
Select one or more Groups to which this Geo Fence is applicable
SAVE
For an Asset configuration, click the down arrow and choose a selection


PLANTWEB LOCATION
CONFIGURE EVENT
Select one or more Assets to whom this Geo Fence is applicable
Select one or more Groups to which this Geo Fence is applicable
All GROUPS
Visitor
Employee
Contractor
Select one or more Zones to be geofenced
Annunciation Type
CANCEL
SAVE
For an Group configuration, click the down arrow and choose a selection


PLANTWEB LOCATION
CONFIGURE EVENT
Select one or more Assets to whom this Geo Fence is applicable
Select one or more Groups to which this Geo Fence is applicable
Select one or more Zones to be geofenced
All ZONES
Master Zone
Hazardous Zone
CANCEL
SAVE
Choose the Zone the Asset or Group applies to for this Event

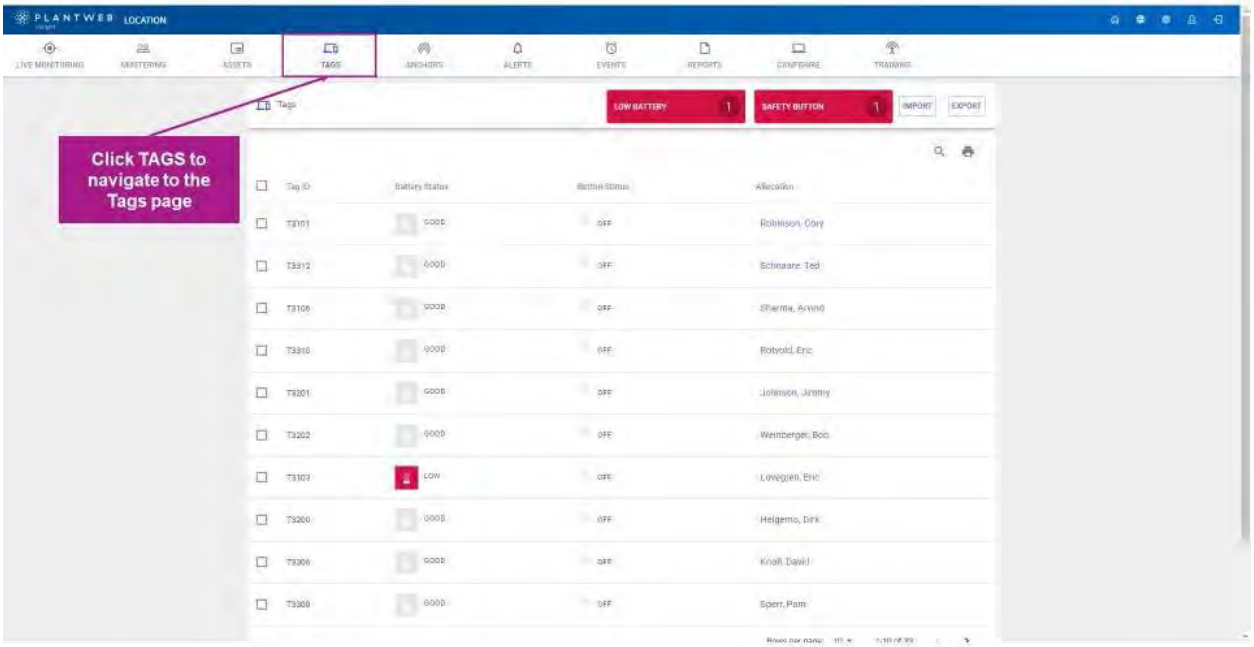

PLANTWEB LOCATION
CONFIGURE EVENT
General
Applies To
Annunciation Type
Notify Shows a snackbar notification of the event to all the logged in users
CANCEL
SAVE
Click the Annunciation Type and check the box that applies.
At this time, Notify in the UI is the available Annunciation Type.

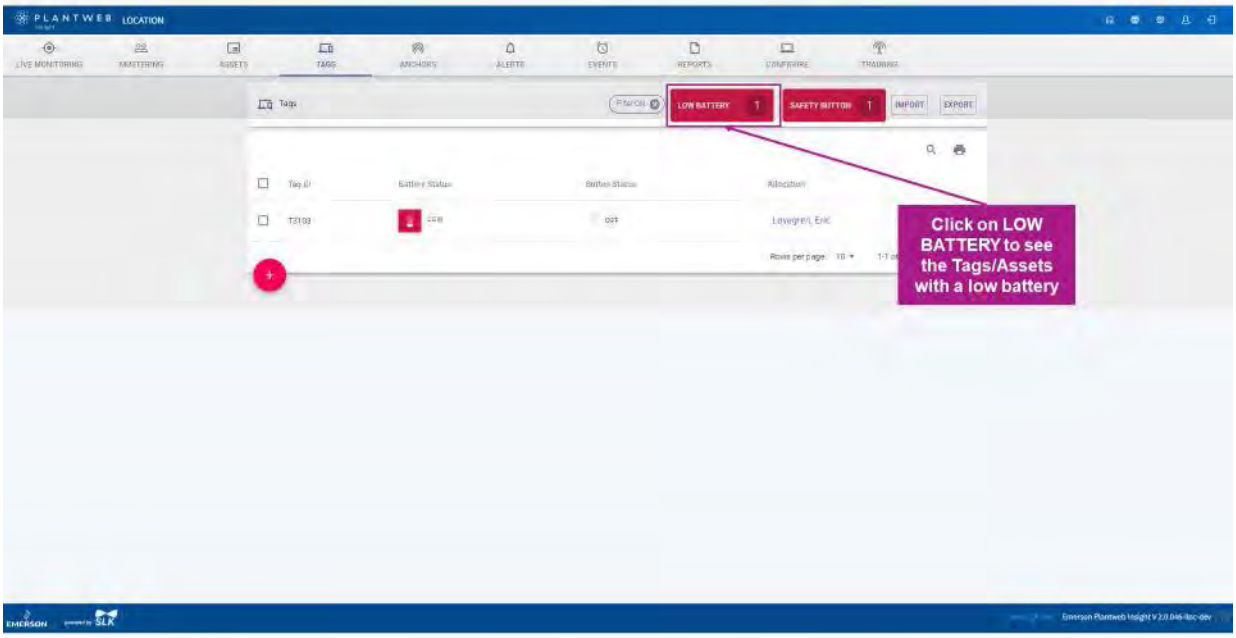

PLANTWEB LOCATION
CONFIGURE EVENT
General
Applies To
Annunciation Type
Notify Shows a snackbar notification of the event to all the logged in users
CANCEL
SAVE
Click SAVE

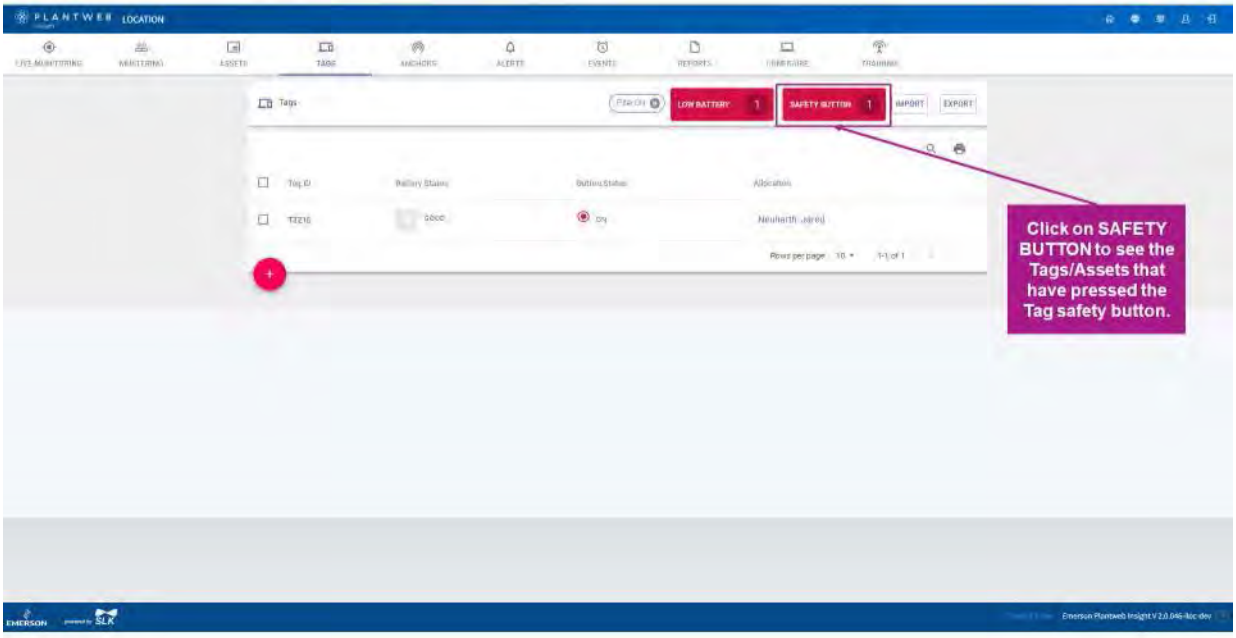


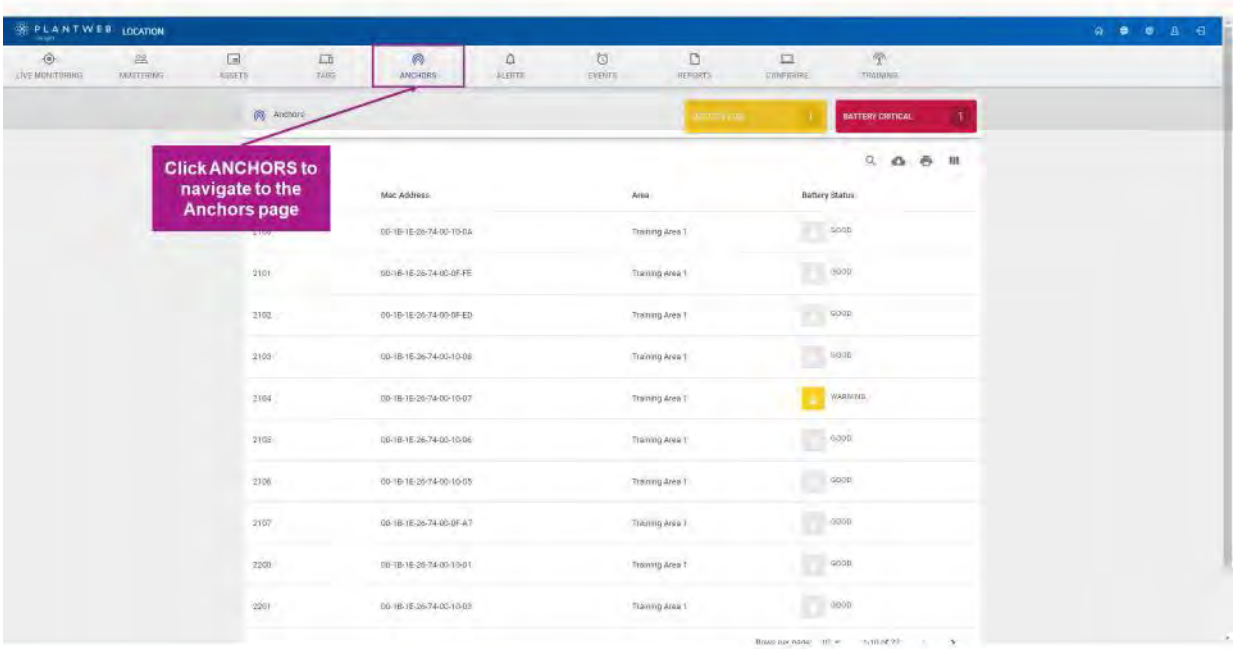
Section 13: Plantweb Insight Location Application Operation and Maintenance

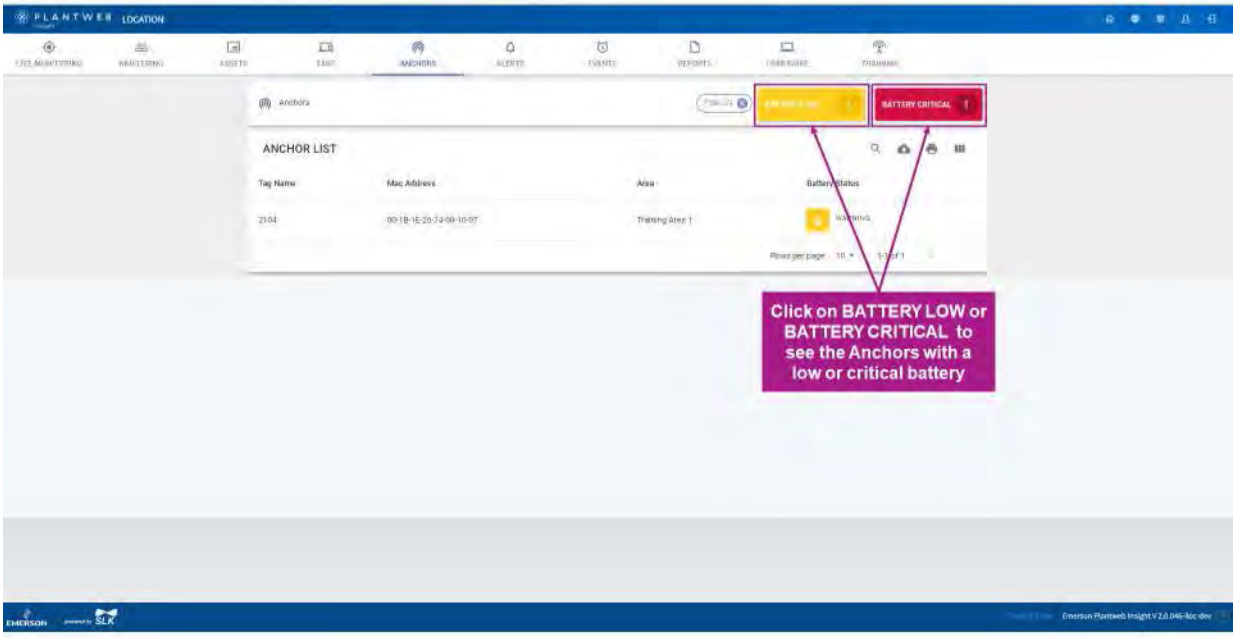
13.1 Tag and Anchor Navigation



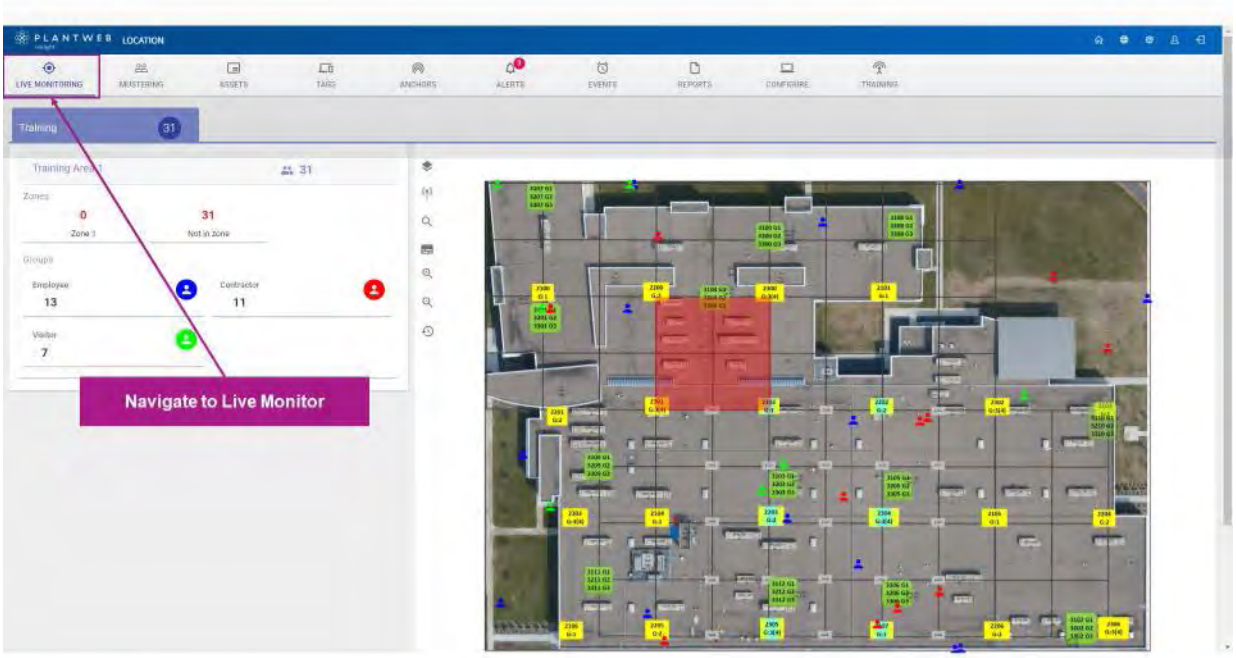

PLANTWEB LOCATION
LOW BATTERY
SAFETY BUTTON
IMPORT
EXPORT
Click on LOW BATTERY to see the Tags/Assets with a low battery

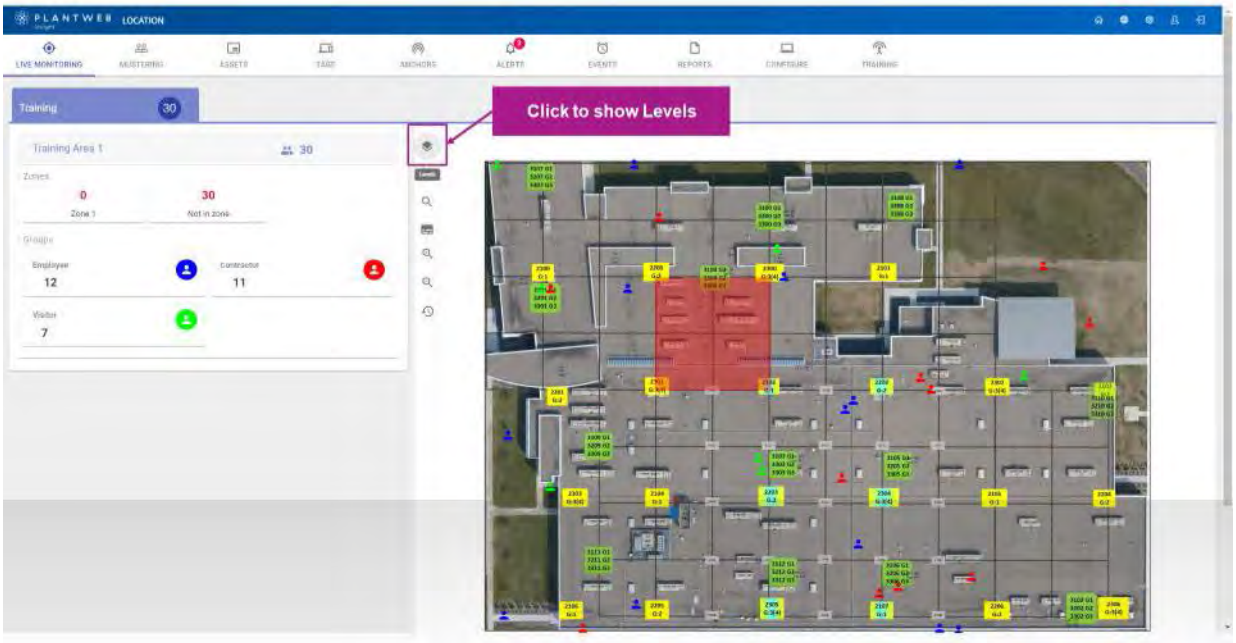

PLANTWEB LOCATION
LOW BATTERY
SAFETY BUTTON
IMPORT
EXPORT
Click on SAFETY BUTTON to see the Tags/Assets that have pressed the Tag safety button.

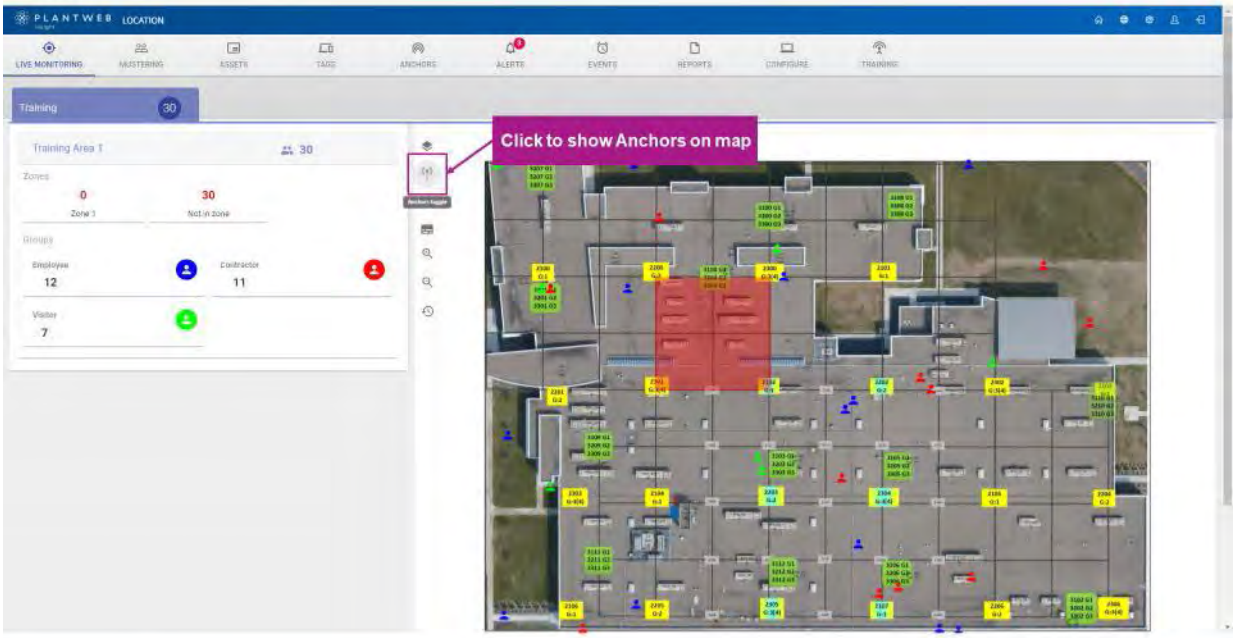

Click ANCHORS to navigate to the Anchors page

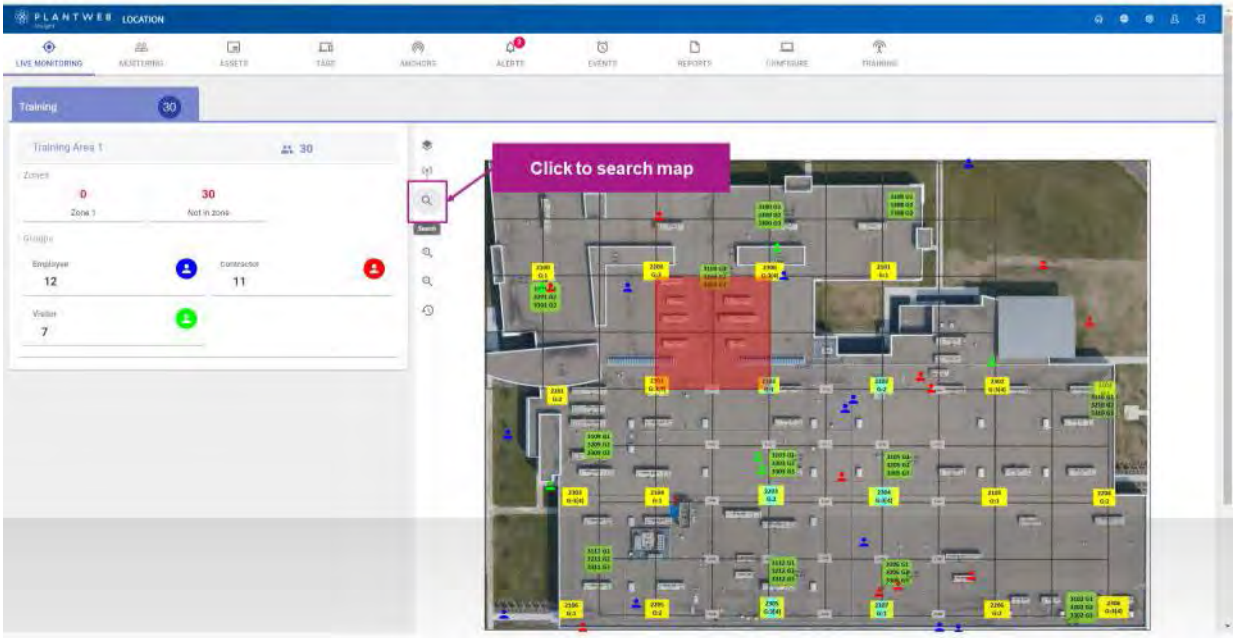

ANCHOR LIST
Click on BATTERY LOW or BATTERY CRITICAL to see the Anchors with a low or critical battery

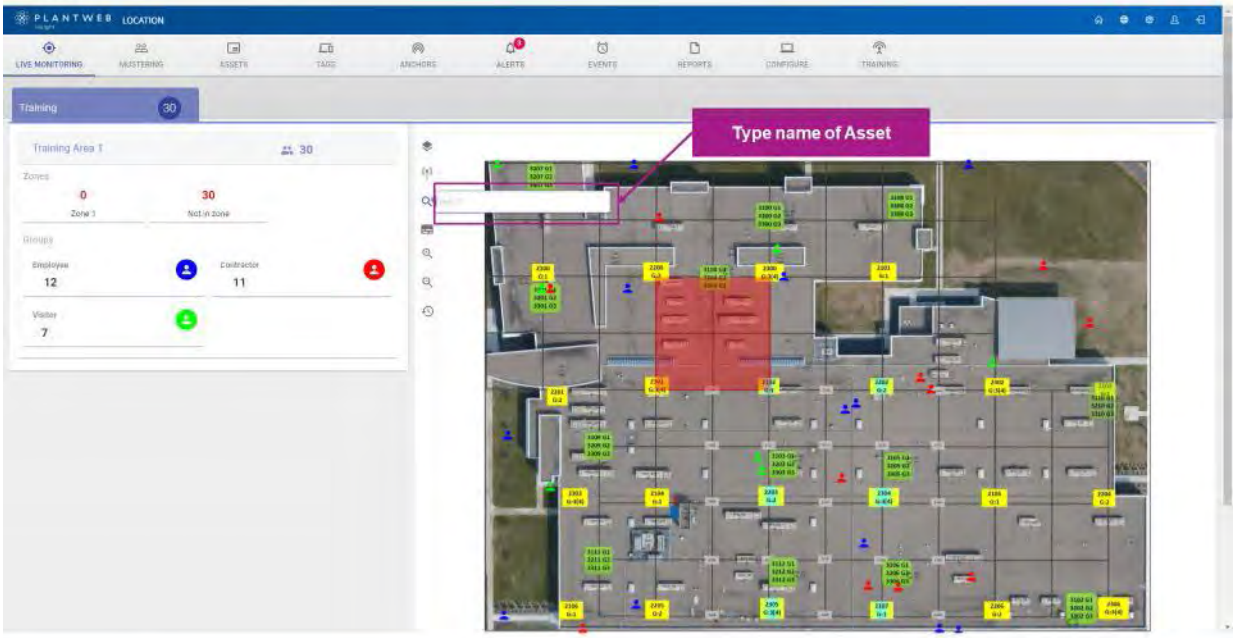
13.3 Live Monitoring

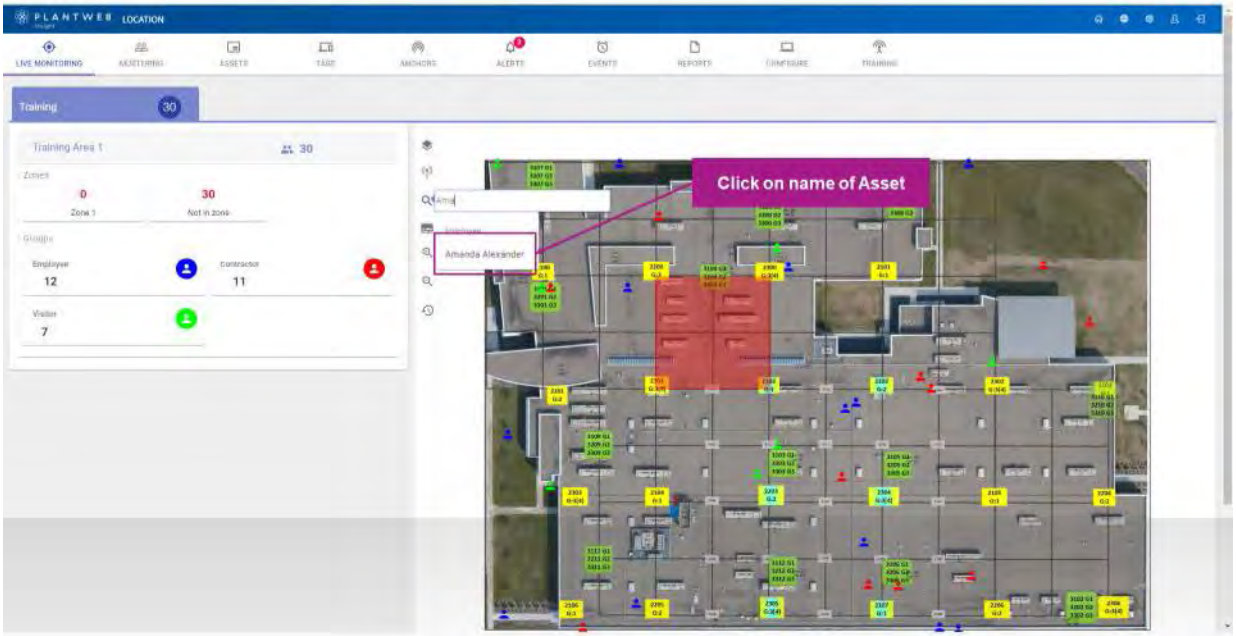


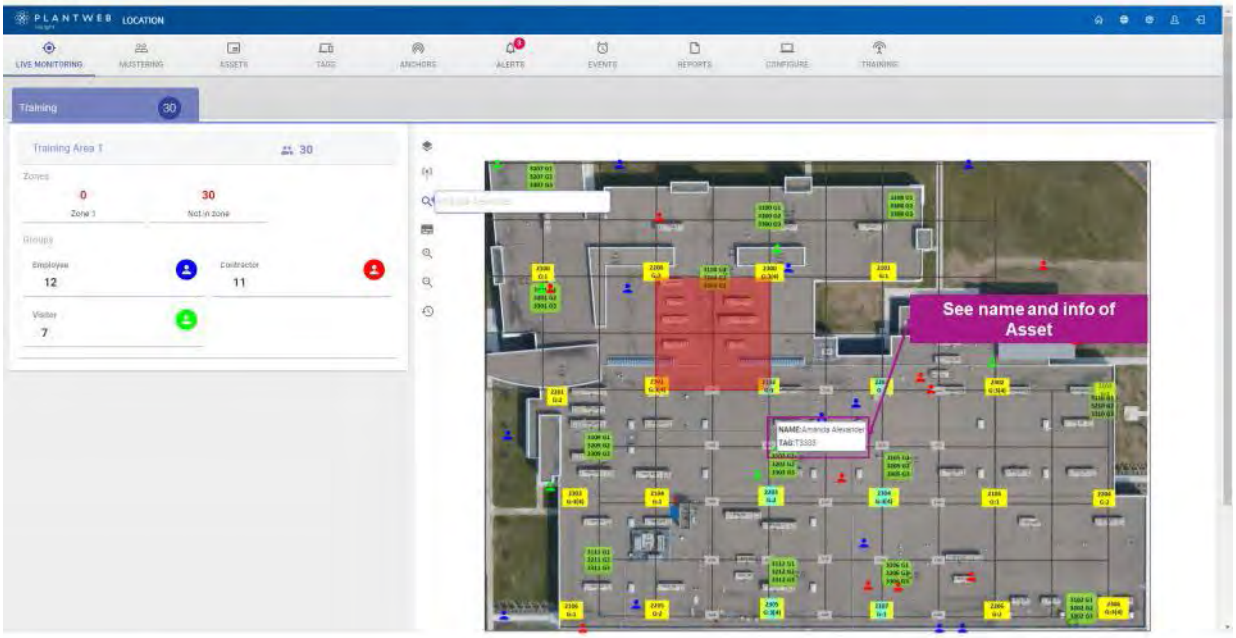


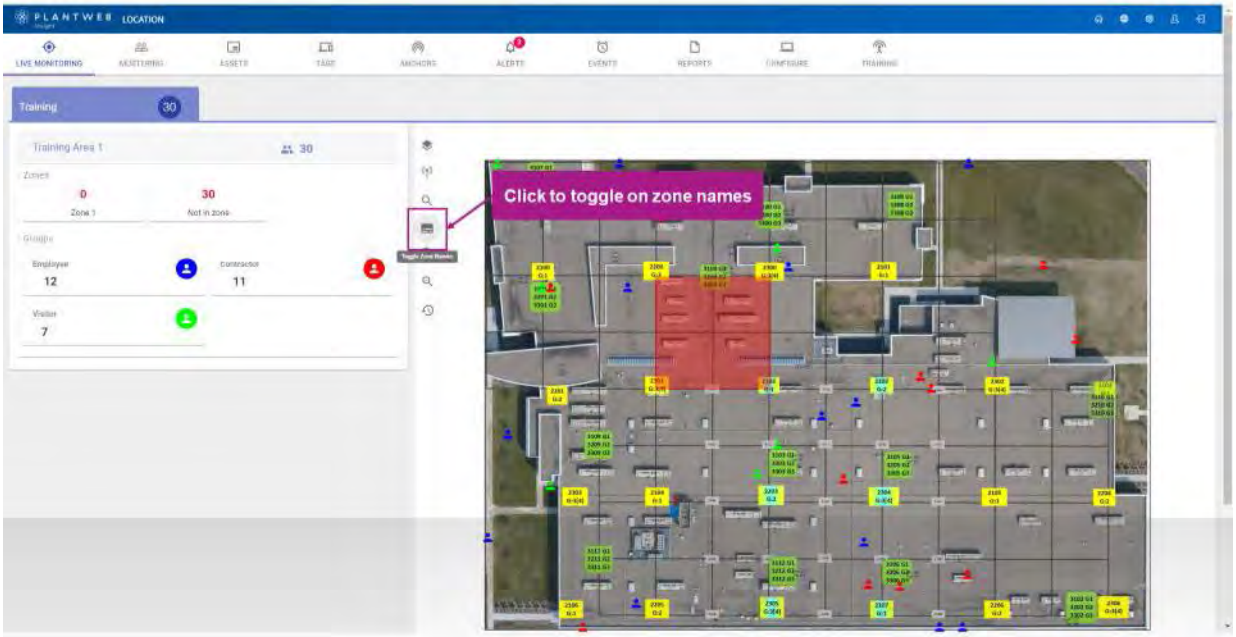

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Training
30
Training Area 1
30
Zones
0
Zone 1
30
Not in Zone
Groups
Employee
12
Contractor
11
Visitor
7
Click to show Anchors on map

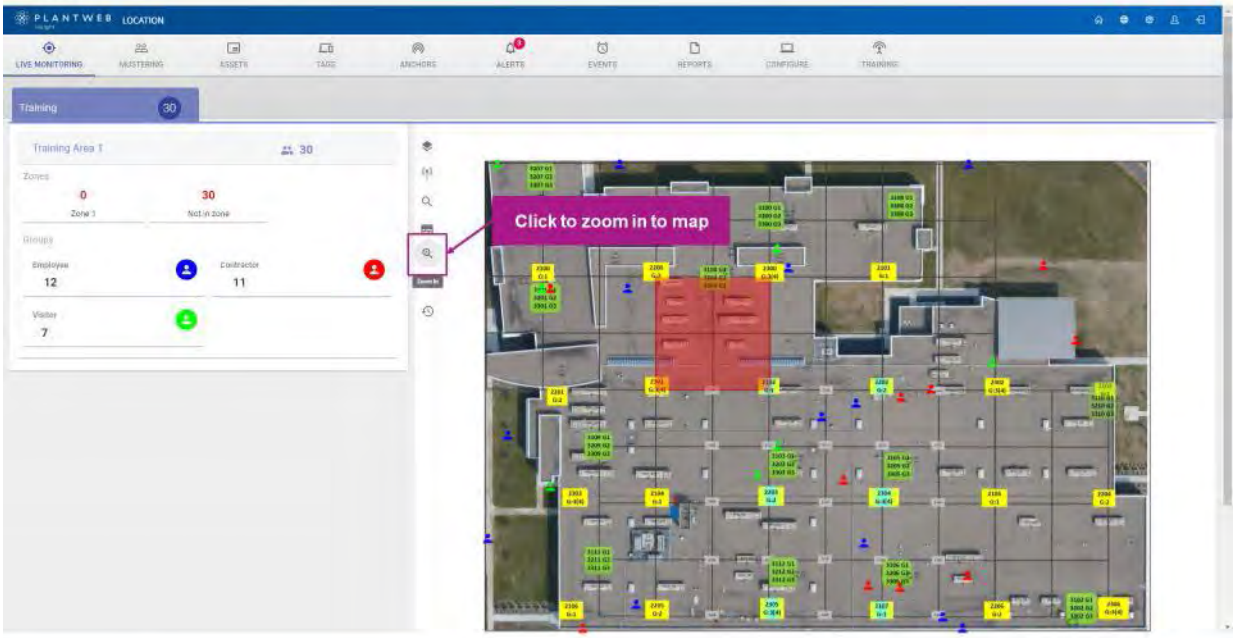

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Training
30
Training Area 1
30
Zones
0
Zone 1
30
Not in Zone
Groups
Employee
12
Contractor
11
Visitor
7
Click to search map

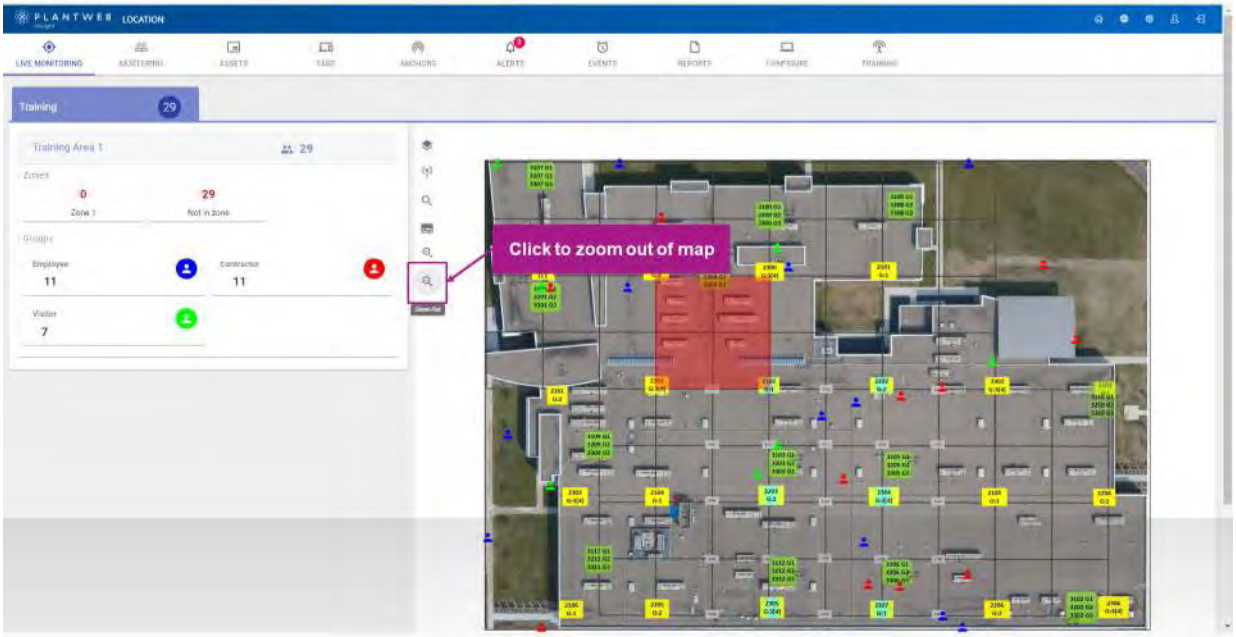

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Training
30
Training Area 1
30
Zones
0
Zone 1
30
Not in Zone
Groups
Employee
12
Contractor
11
Visitor
7
Type name of Asset

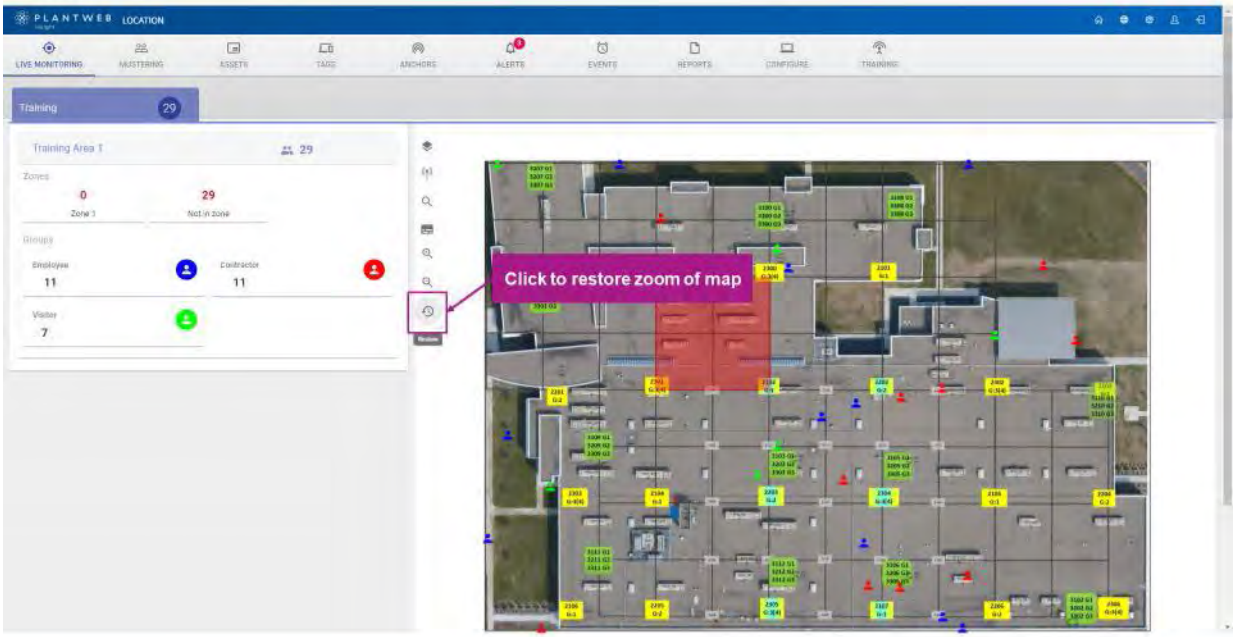

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Training
30
Training Area 1
30
Zones
0
Zone 1
30
Not in Zone
Groups
Employee
12
Contractor
11
Visitor
7
Amanda Alexander
Click on name of Asset

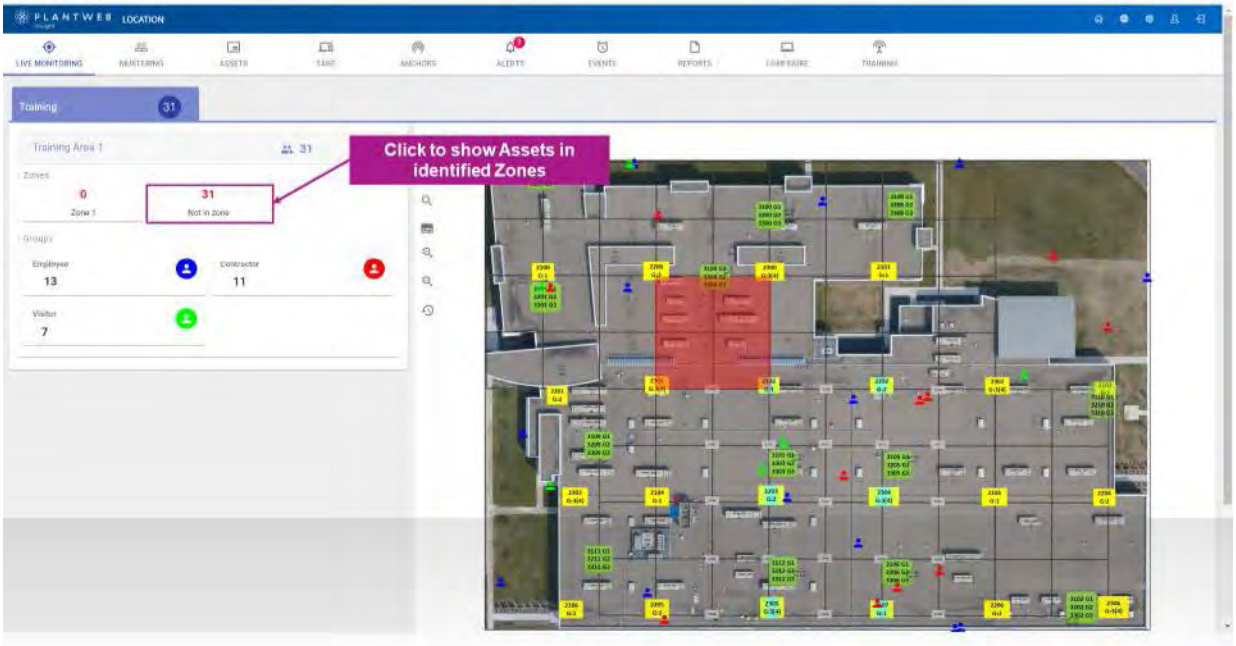

PLANTWEB LOCATION
LIVE MONITORING
Training
30
Training Area 1
30
Zones
0
Zone 1
30
Not in Zone
Groups
Employee
12
Contractor
11
Visitor
7
See name and info of Asset

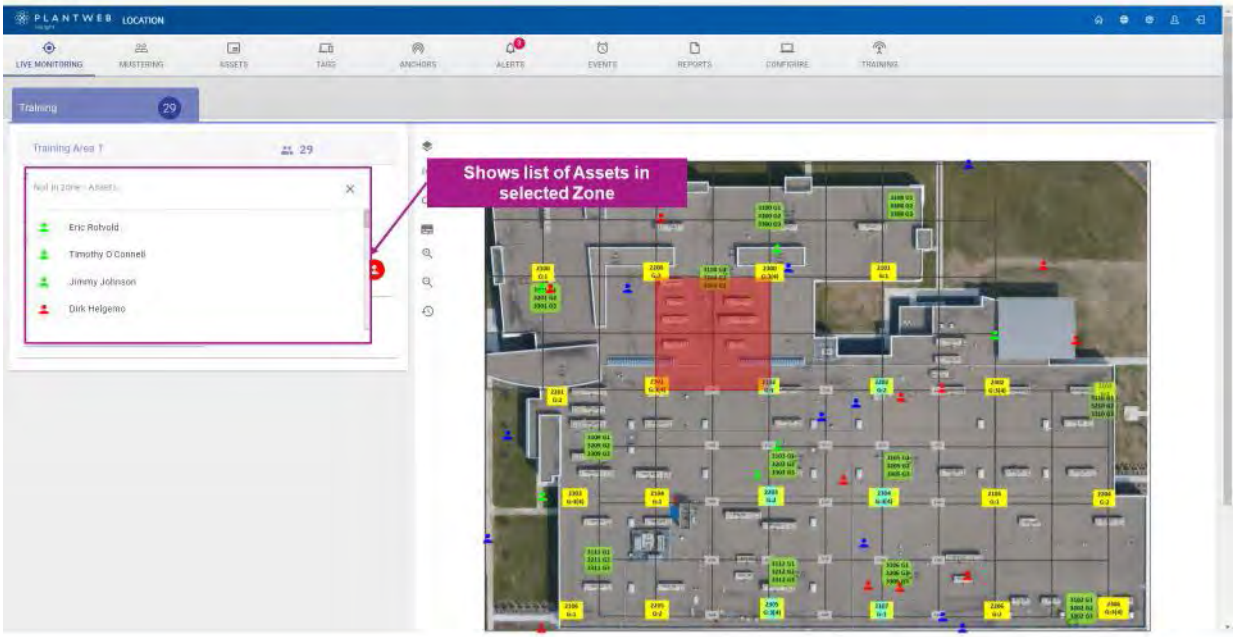

PLANTWEB LOCATION
LIVE MONITORING
Training
30
Training Area 1
30
Zones
0
Zone 1
30
Not in Zone
Groups
Employee
12
Contractor
11
Visitor
7
Click to toggle on zone names

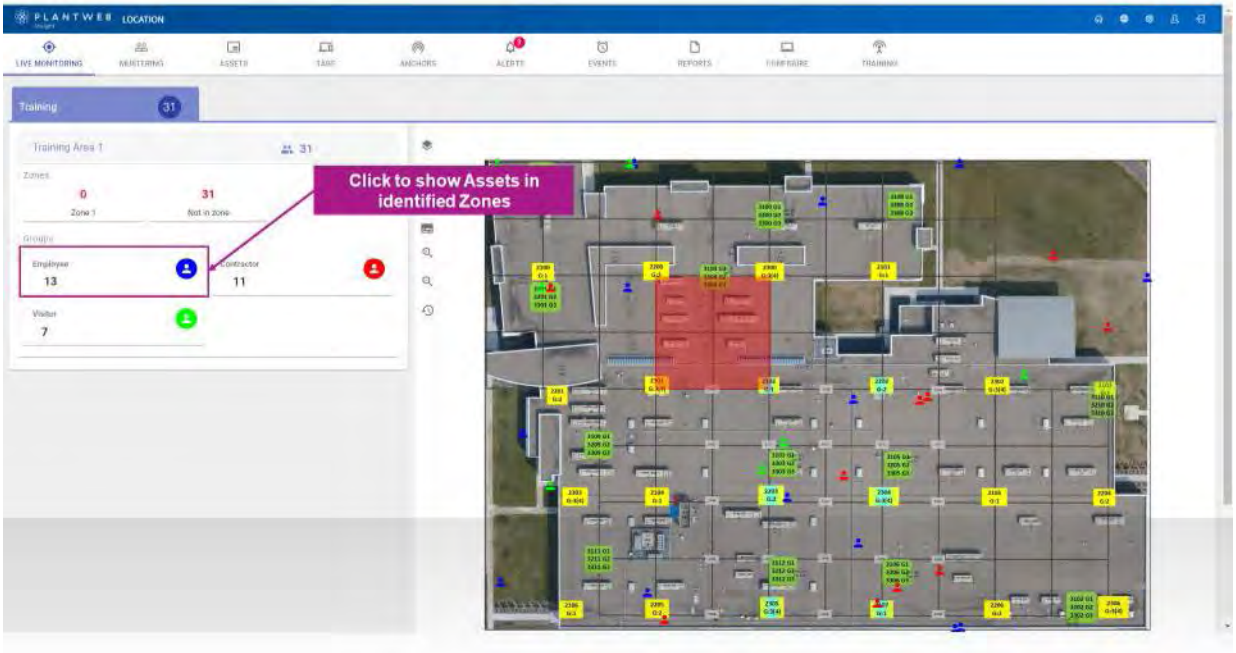

PLANTWEB LOCATION
LIVE MONITORING
Training 30
Training Area 1 30
Zones
0
Zone 1
30
Not in Zone
Groups
Employee
12
Contractor
11
Visitor
7
Click to zoom in to map

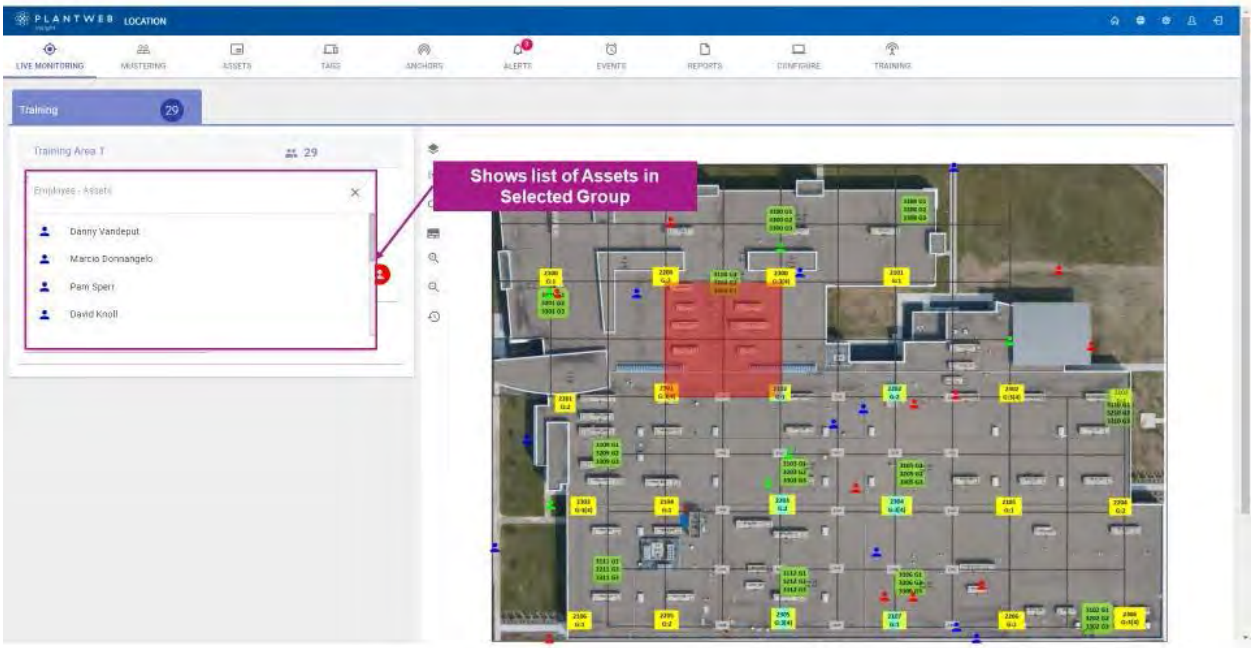

PLANTWEB LOCATION
LIVE MONITORING
Training 29
Training Area 1 29
Zones
0
Zone 1
29
Not in Zone
Groups
Employee
11
Contractor
11
Visitor
7
Click to zoom out of map


PLANTWEB LOCATION
LIVE MONITORING
Training 29
Training Area 1 29
Zones
0
Zone 1
29
Not in Zone
Groups
Employee
11
Contractor
11
Visitor
7
Click to restore zoom of map

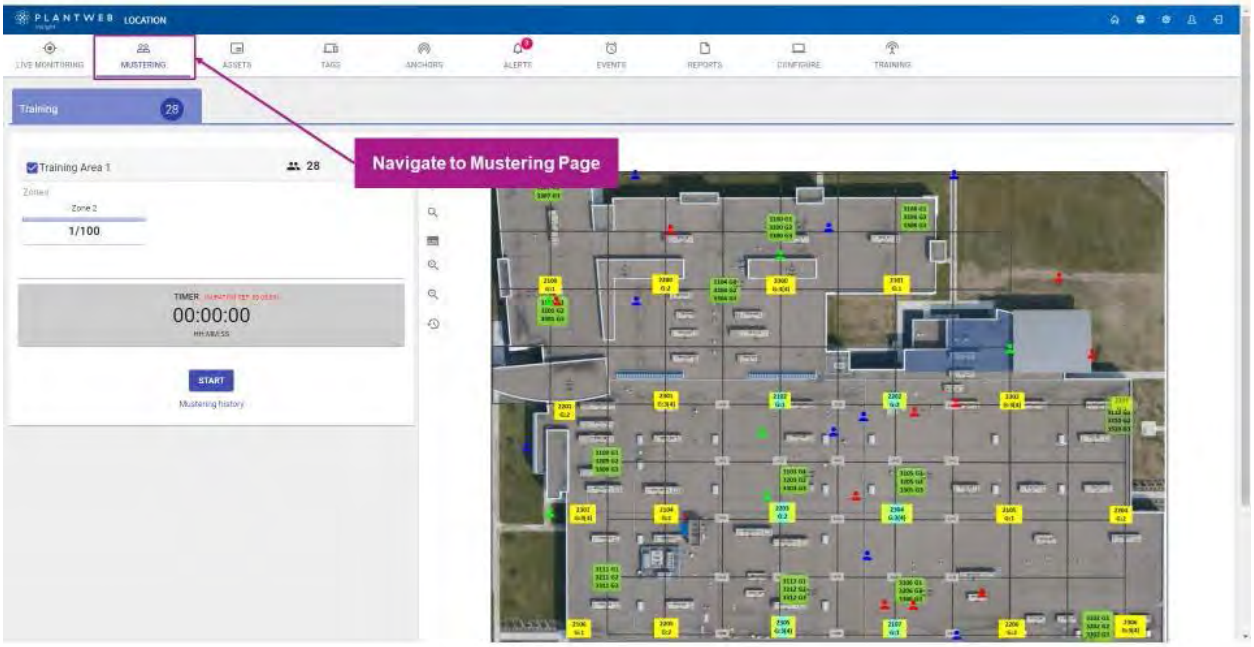

PLANTWEB LOCATION
LIVE MONITORING
Training 31
Training Area 1 31
Click to show Assets in identified Zones
Zones
0
Zone 1
31
Not in Zone
Groups
Employee
13
Contractor
11
Visitor
7

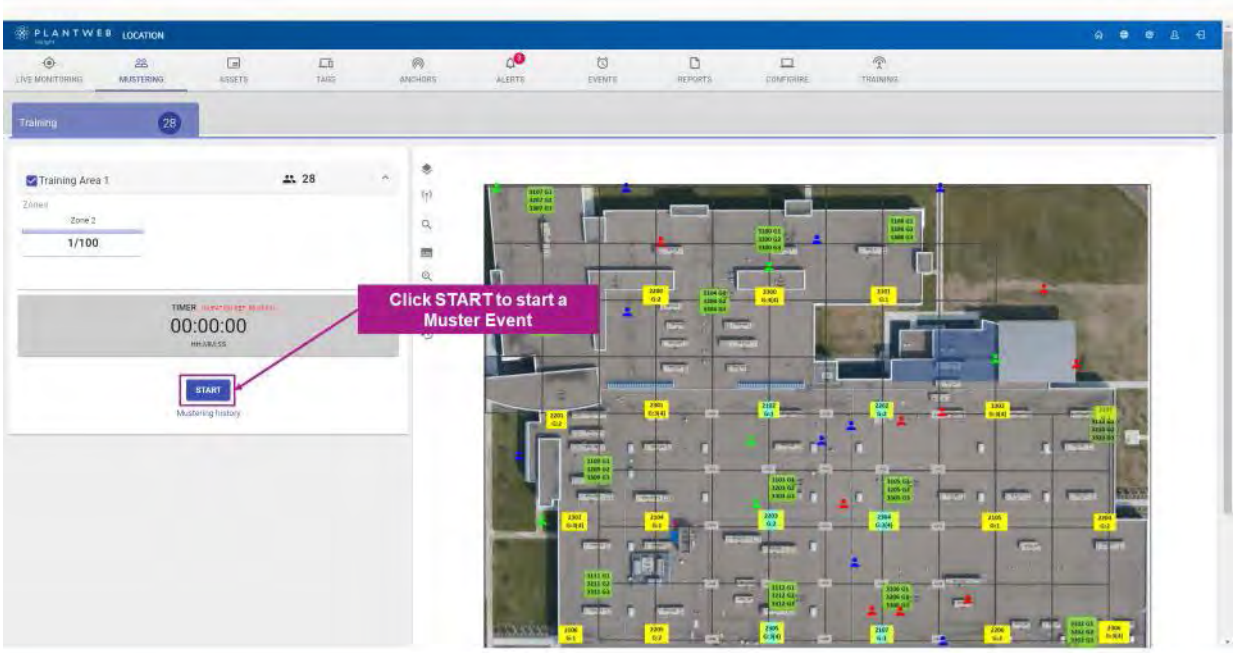

PLANTWEB LOCATION
LIVE MONITORING
Training 29
Training Area 1
29
Eric Rolvold
Timothy O Connell
Jimmy Johnson
Dirk Helgerno
Shows list of Assets in selected Zone

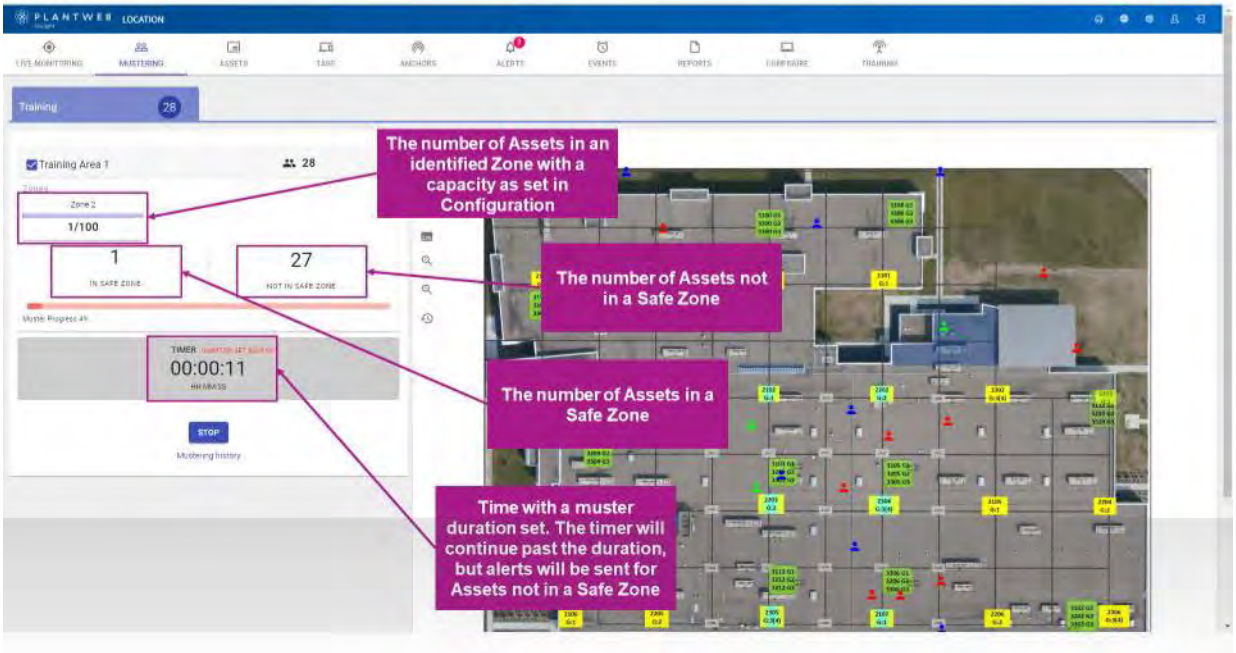

PLANTWEB LOCATION
LIVE MONITORING
Training 31
Training Area 1
31
Zones
0
Zone 1
31
Not in Zone
Groups
Employee
13
Contractor
11
Visitor
7
Click to show Assets in identified Zones

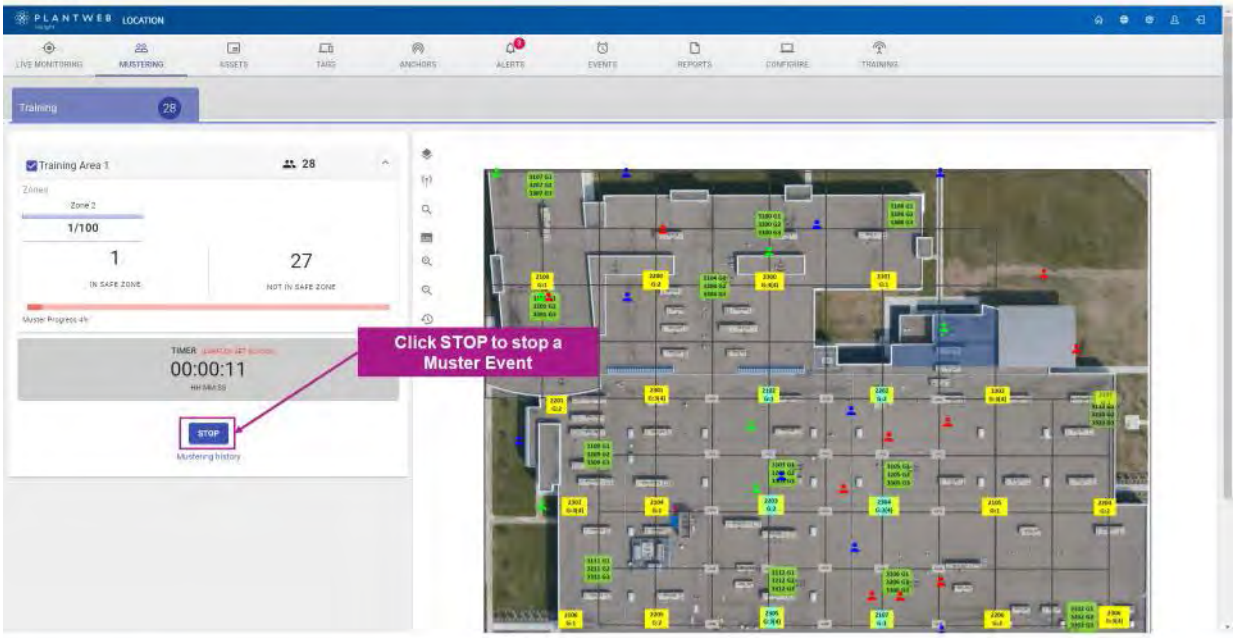


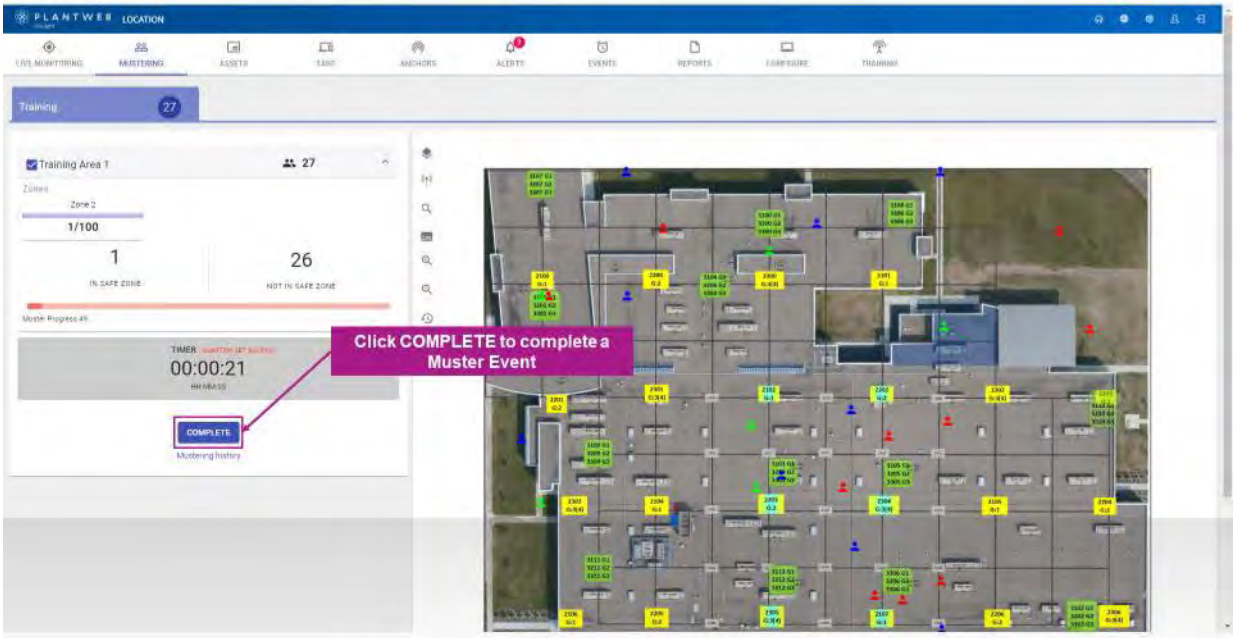
13.4 Safety Mustering

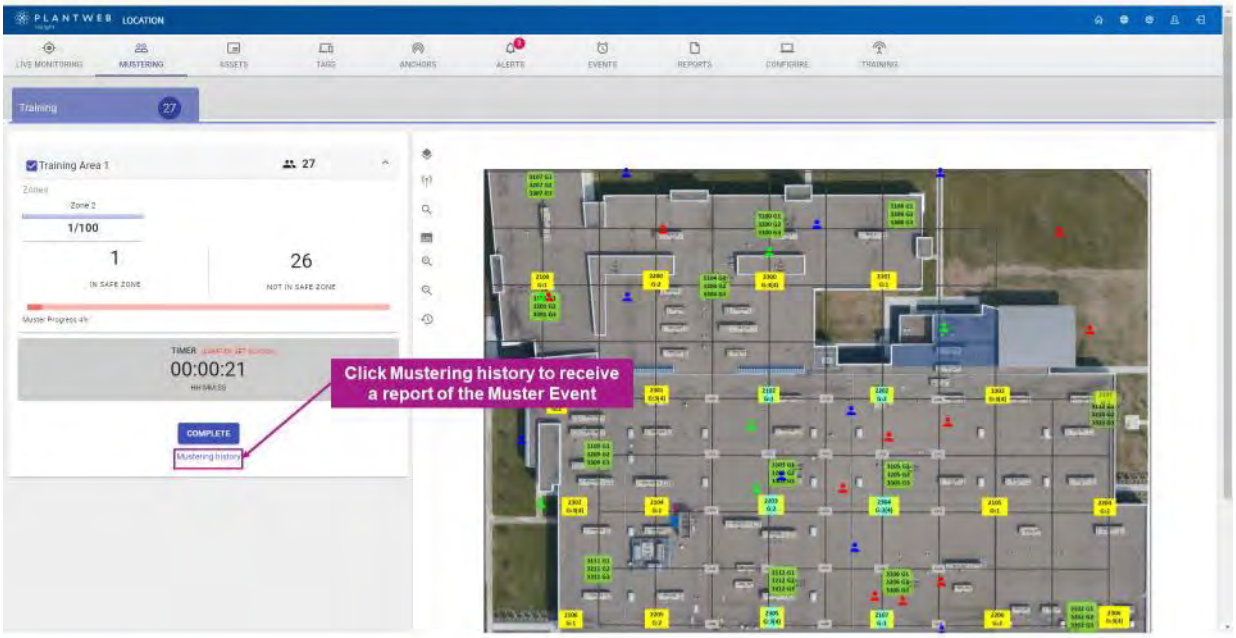


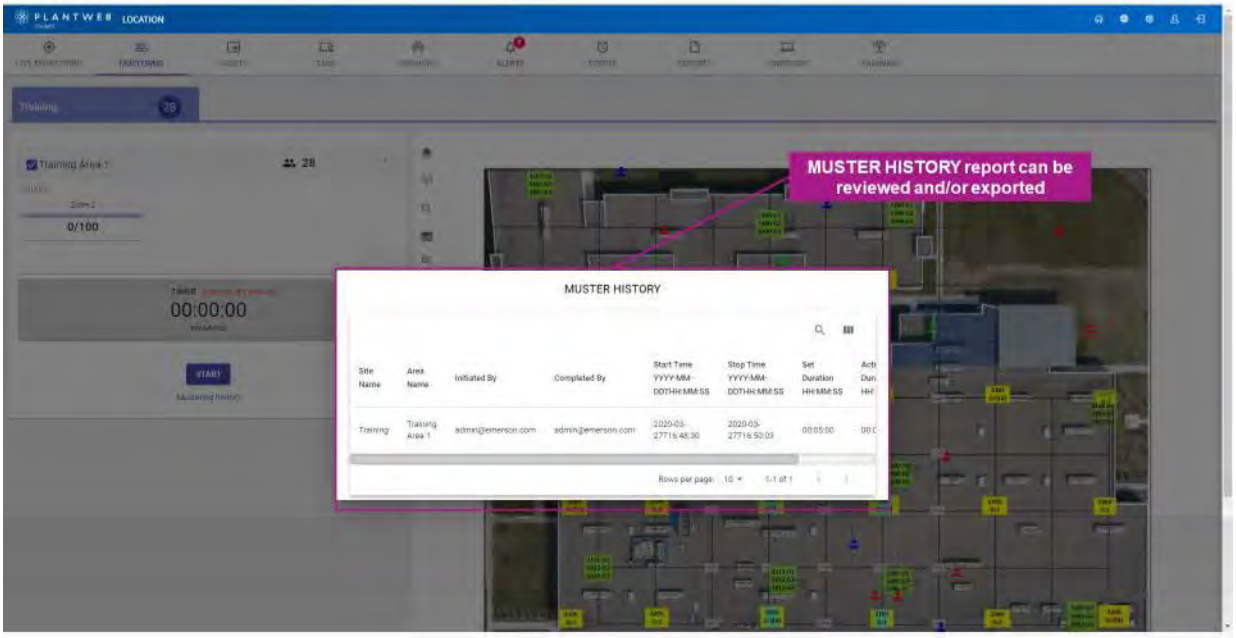

PLANTWEB LOCATION
Training
28
Training Area 1
28
Zone 2
1/100
TIMER
00:00:00
START
Mustering history
Click START to start a Muster Event


PLANTWEB LOCATION
Training
28
Training Area 1
28
Zone 2
1/100
1
IN SAFE ZONE
27
NOT IN SAFE ZONE
TIMER
00:00:11
STOP
Mustering history
The number of Assets in an identified Zone with a capacity as set in Configuration
The number of Assets not in a Safe Zone
The number of Assets in a Safe Zone
Time with a muster duration set. The timer will continue past the duration, but alerts will be sent for Assets not in a Safe Zone

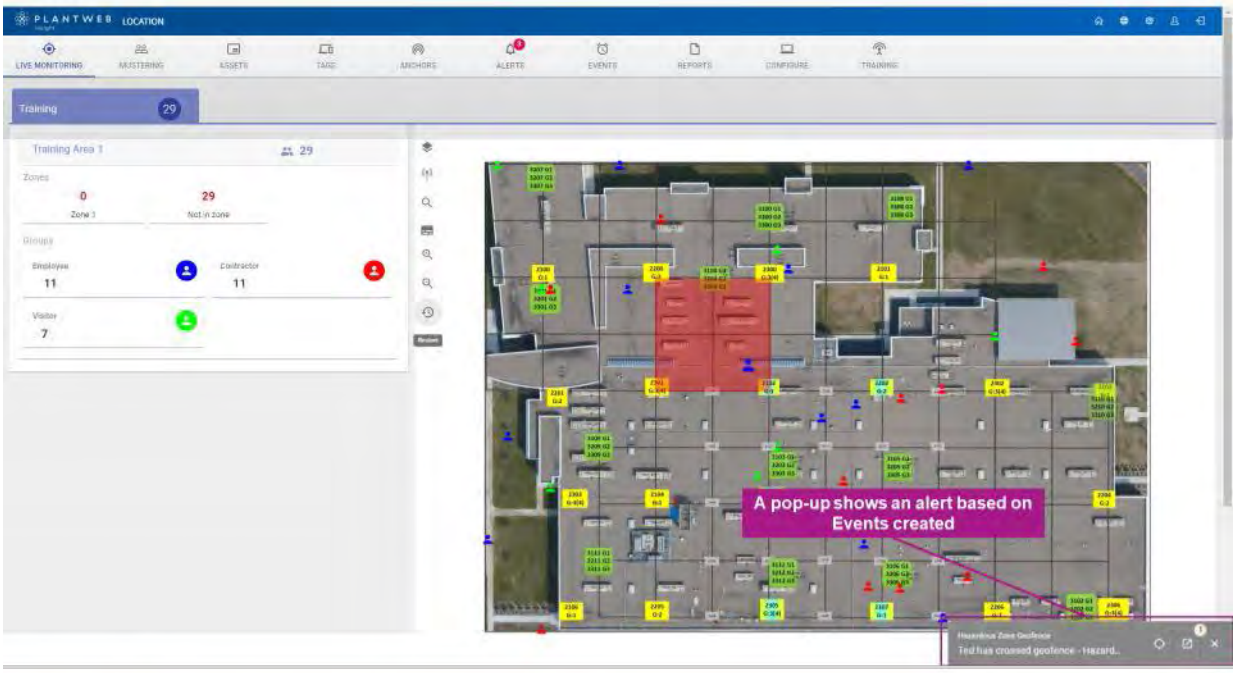

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Training 28
Training Area 1
28
Zone 2
1/100
1
IN SAFE ZONE
27
NOT IN SAFE ZONE
TIMER
00:00:11
STOP
Muster history
Click STOP to stop a Muster Event

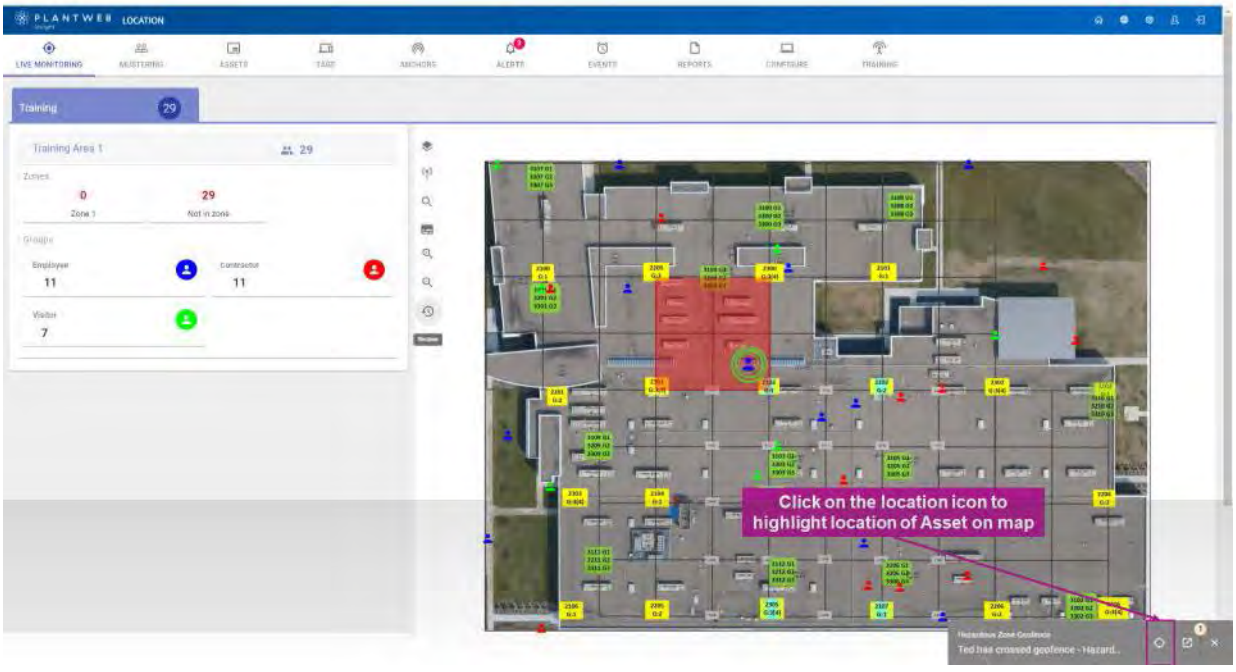

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Training 27
Training Area 1
27
Zone 2
1/100
1
IN SAFE ZONE
26
NOT IN SAFE ZONE
TIMER
00:00:21
COMPLETE
Muster history
Click COMPLETE to complete a Muster Event

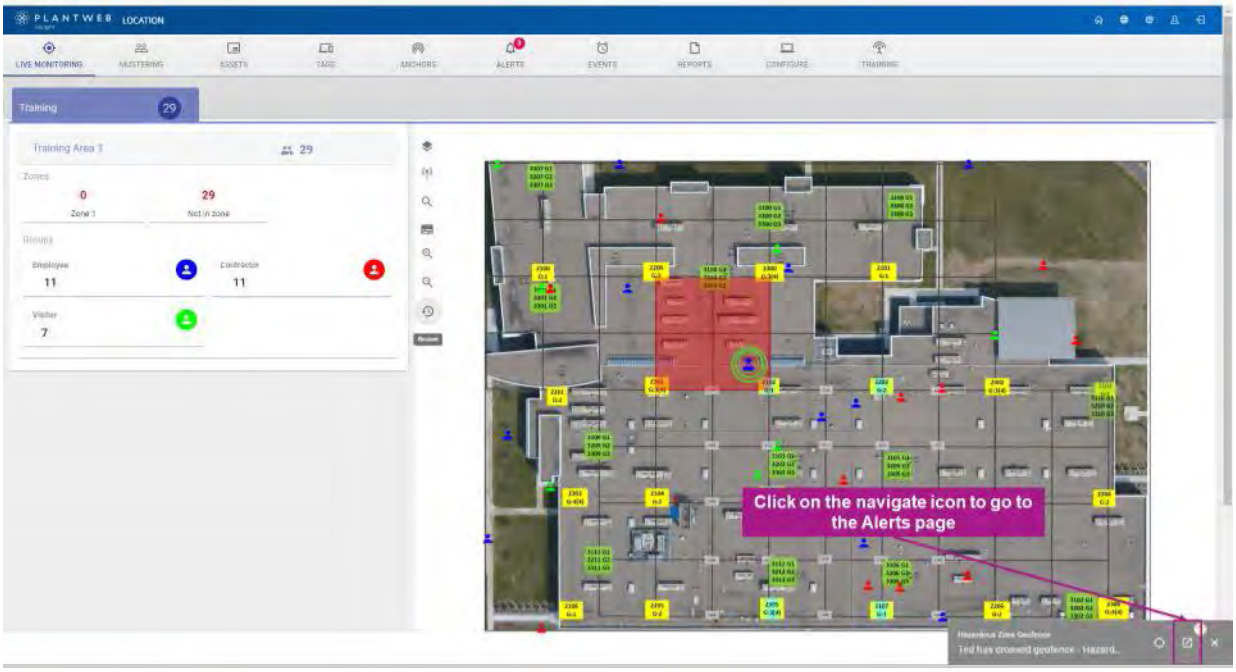

PLANTWEB LOCATION
Training
Training Area 1
27
1/100
1
IN SAFE ZONE
26
NOT IN SAFE ZONE
00:00:21
COMPLETE
Mustering history
Click Mustering history to receive a report of the Muster Event

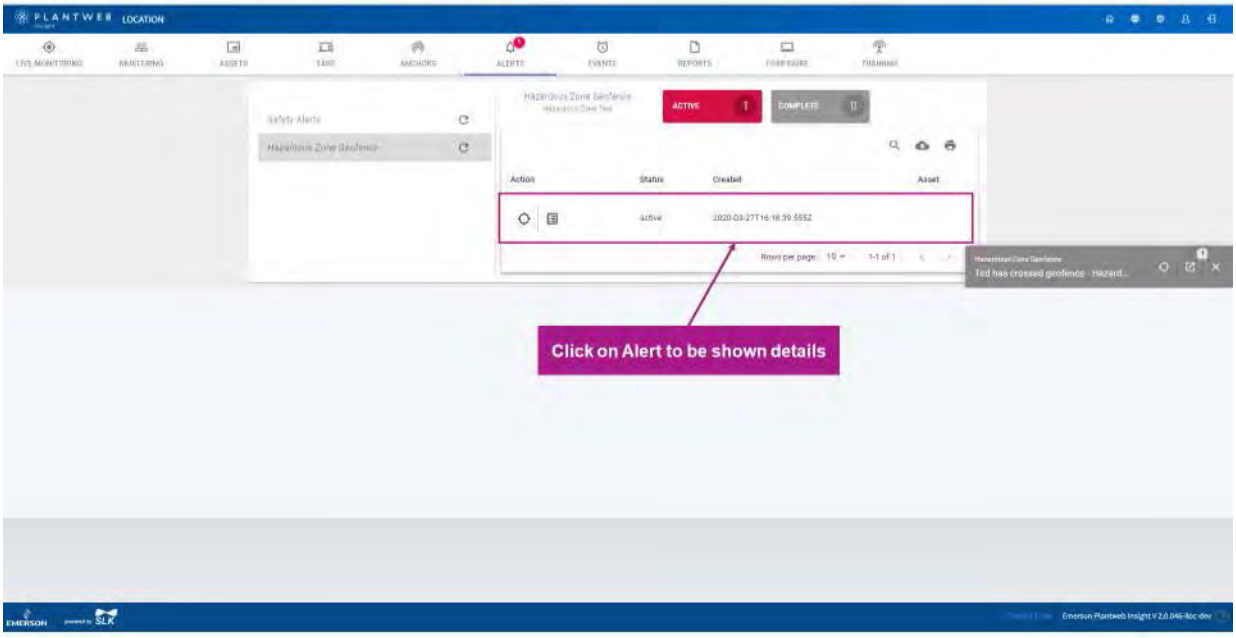

PLANTWEB LOCATION
MUSTER HISTORY report can be reviewed and/or exported
MUSTER HISTORY
00:00:00
START

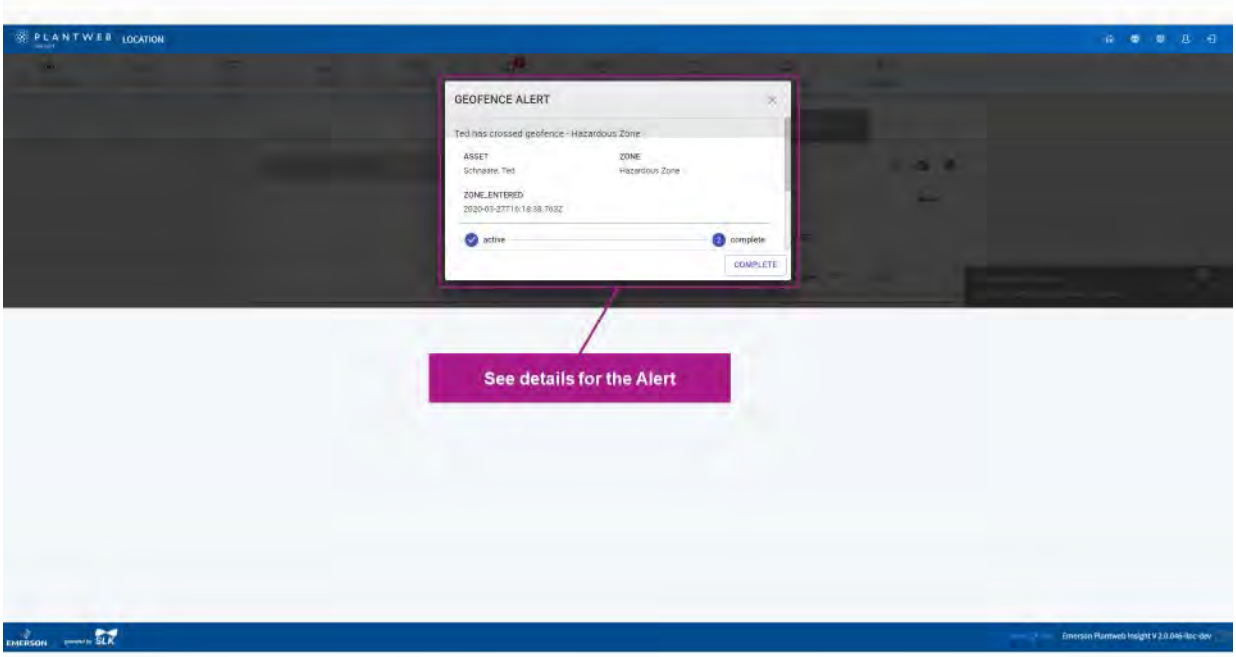
13.5 Alert Navigation

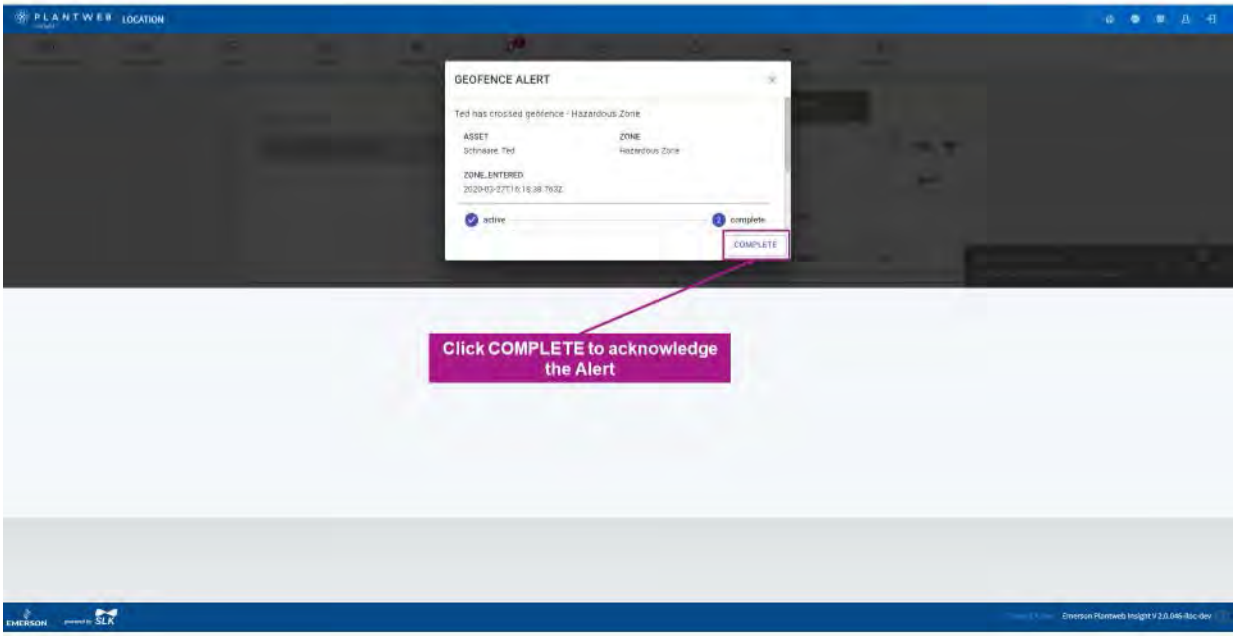


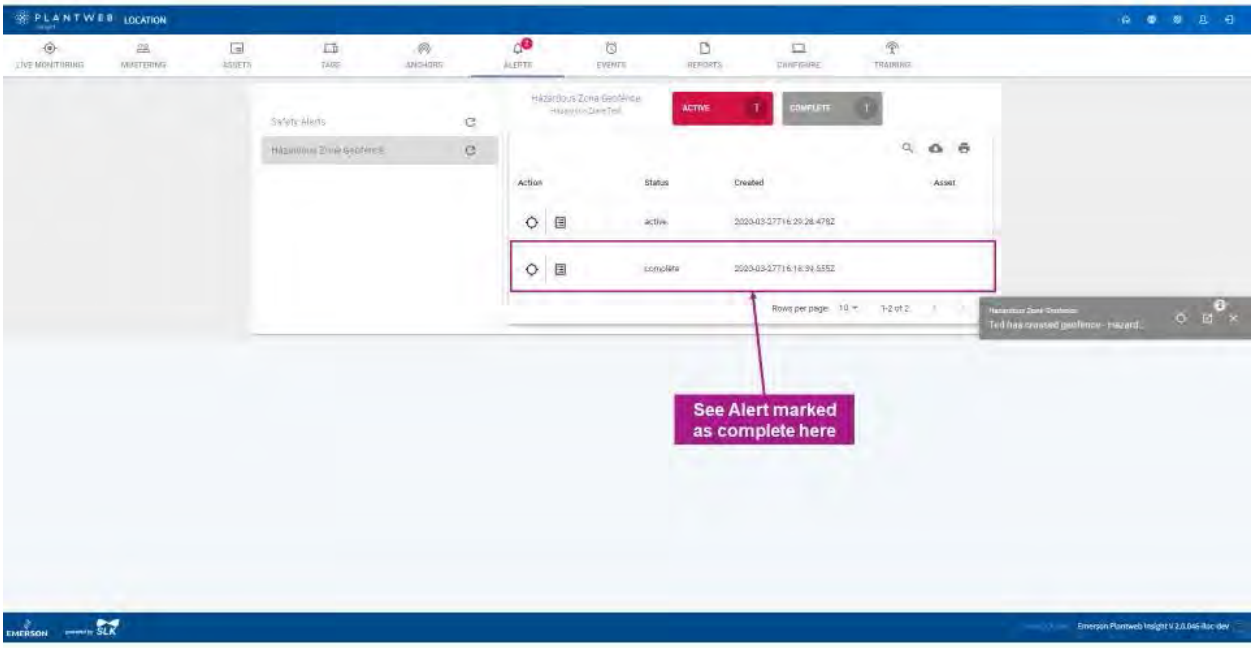



PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Training 29
Training Area 1
29
Zones
0
Zone 1
29
Not in zone
Groups
Employee
11
Contractor
11
Visitor
7
Click on the navigate icon to go to the Alerts page

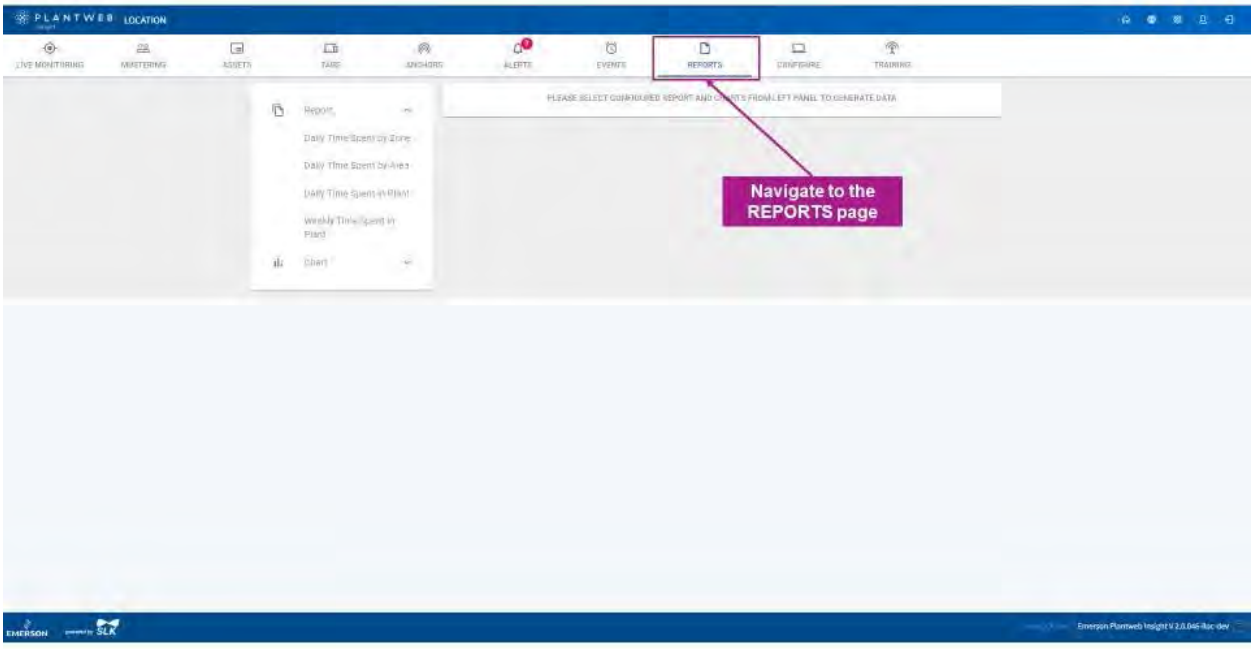

PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
Safety Alerts
Hazardous Zone Geofence
ACTIVE 1
COMPLETE
Action
Status
Created
Asset
active
Click on Alert to be shown details

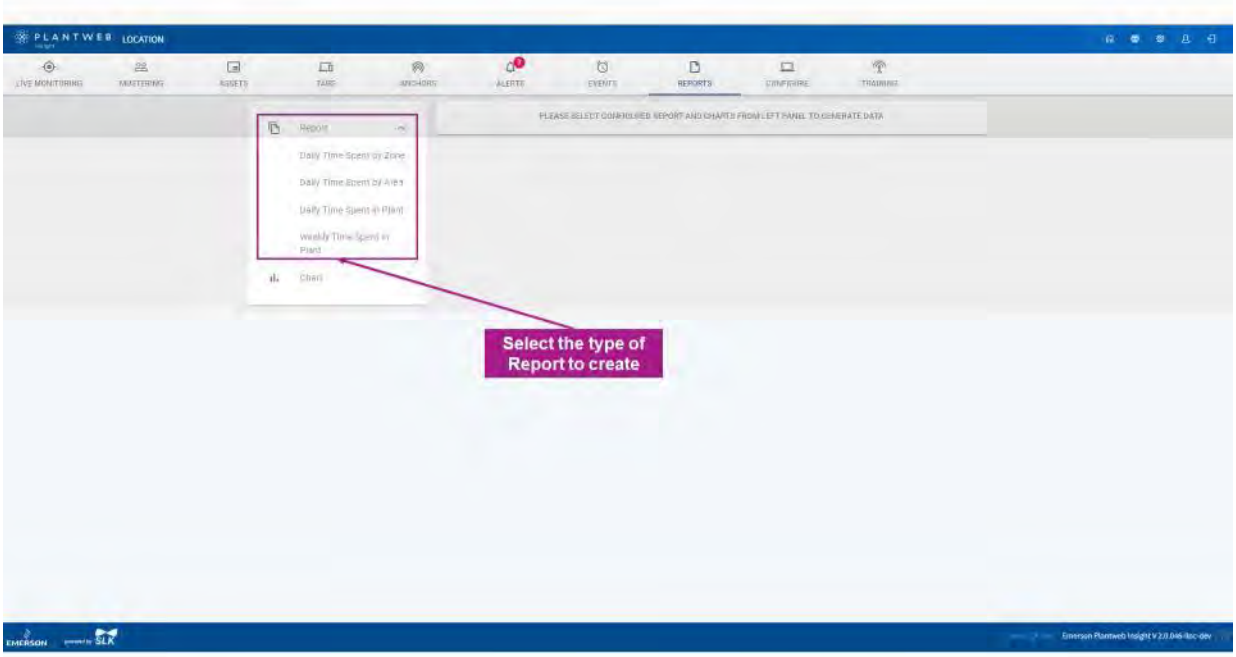

PLANTWEB LOCATION
GEOFENCE ALERT
Ted has crossed geofence - Hazardous Zone
ASSET
Schnaare, Ted
ZONE
Hazardous Zone
ZONE_ENTERED
active
complete
COMPLETE
See details for the Alert

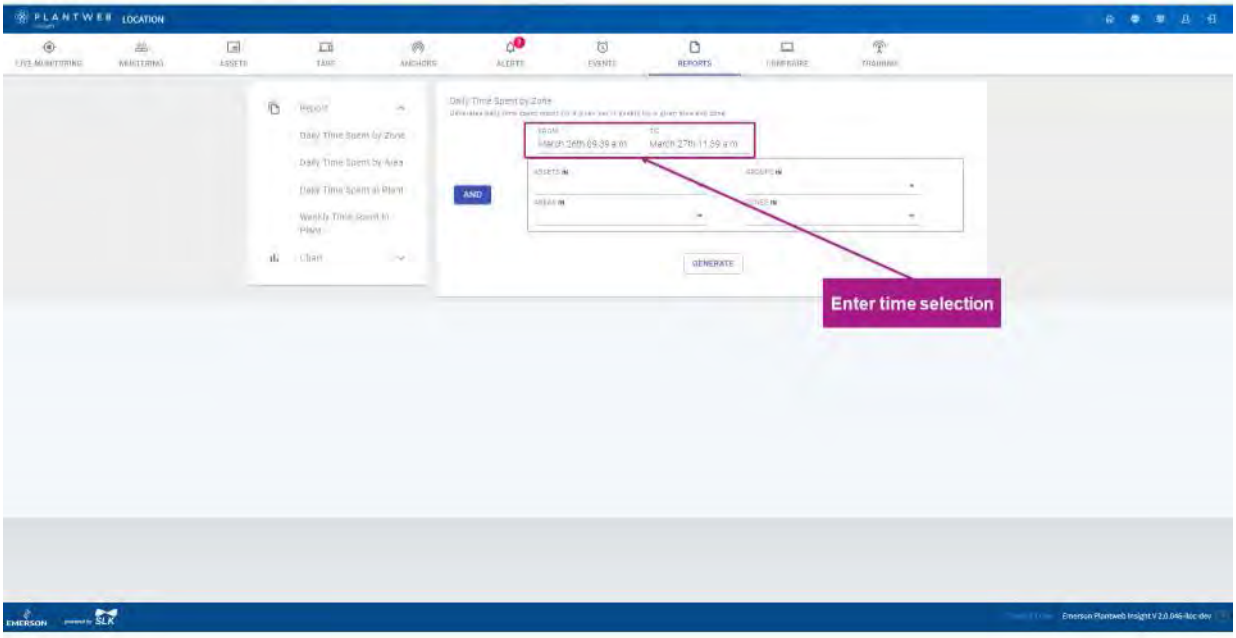

PLANTWEB LOCATION
GEOFENCE ALERT
Ted has crossed geofence - Hazardous Zone
ASSET
Schnaare, Ted
ZONE
Hazardous Zone
ZONE_ENTERED
active
complete
COMPLETE
Click COMPLETE to acknowledge the Alert

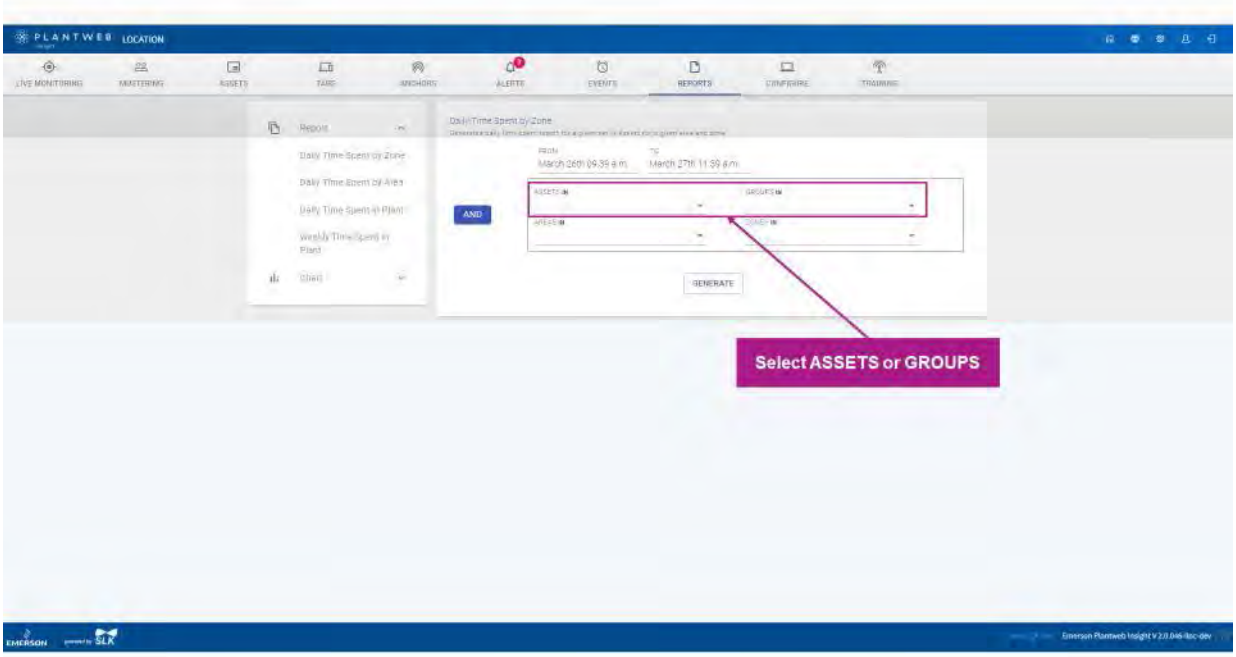


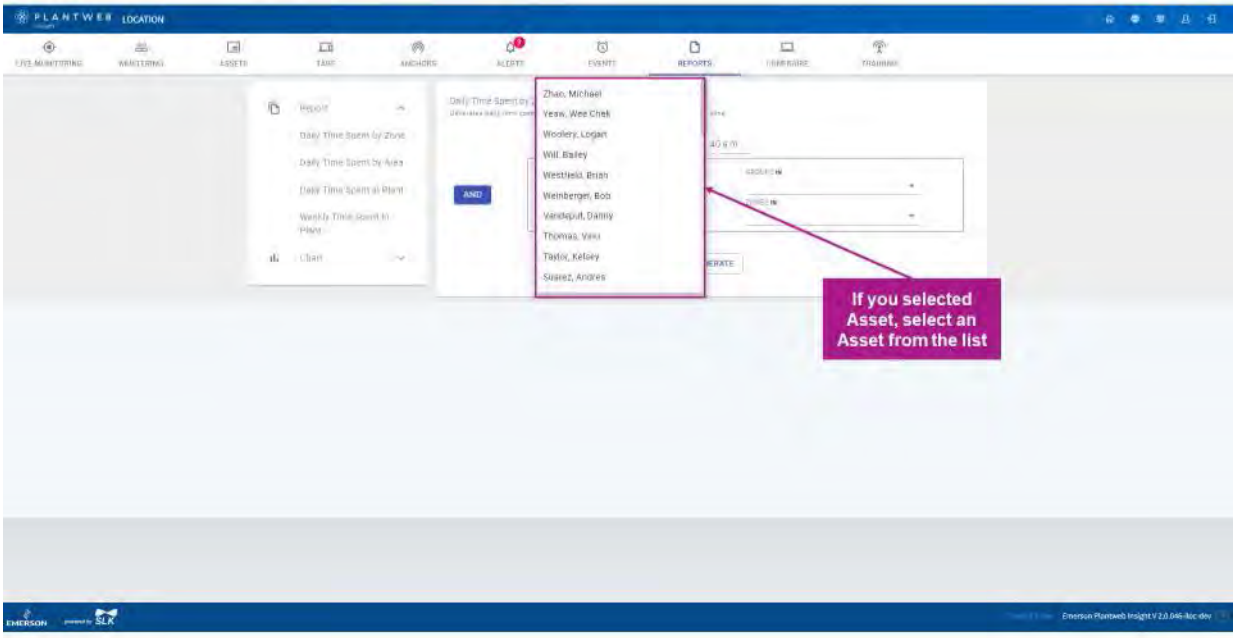
13.6 Reports and Charts Navigation

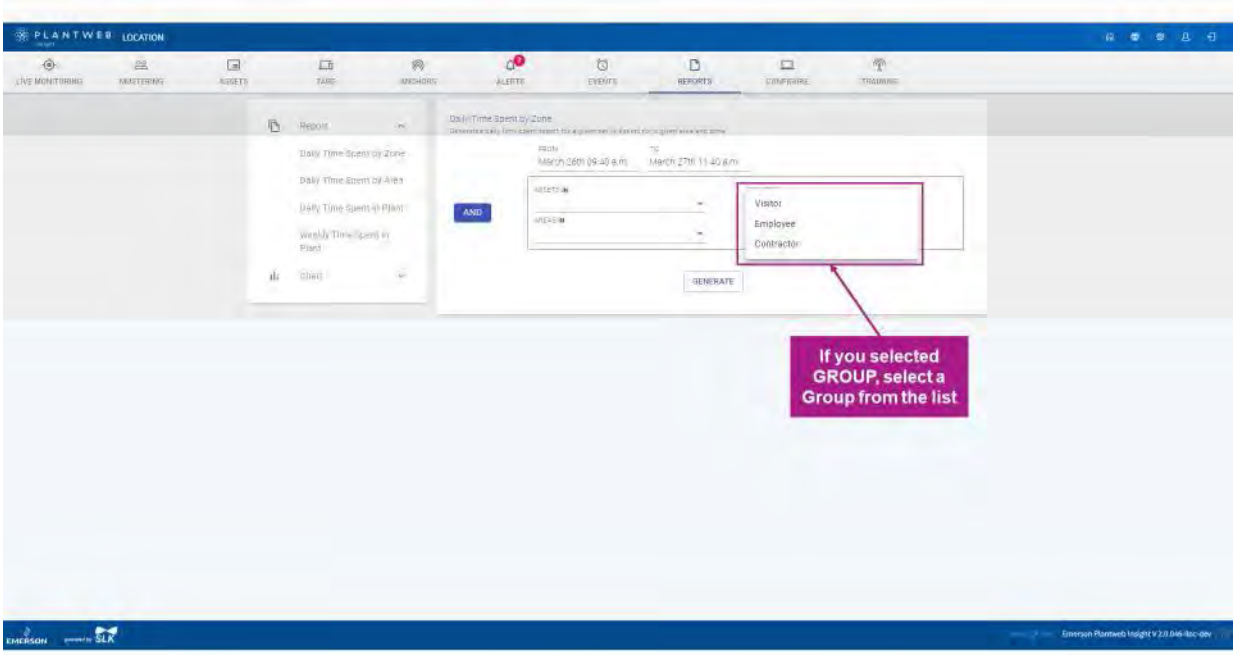


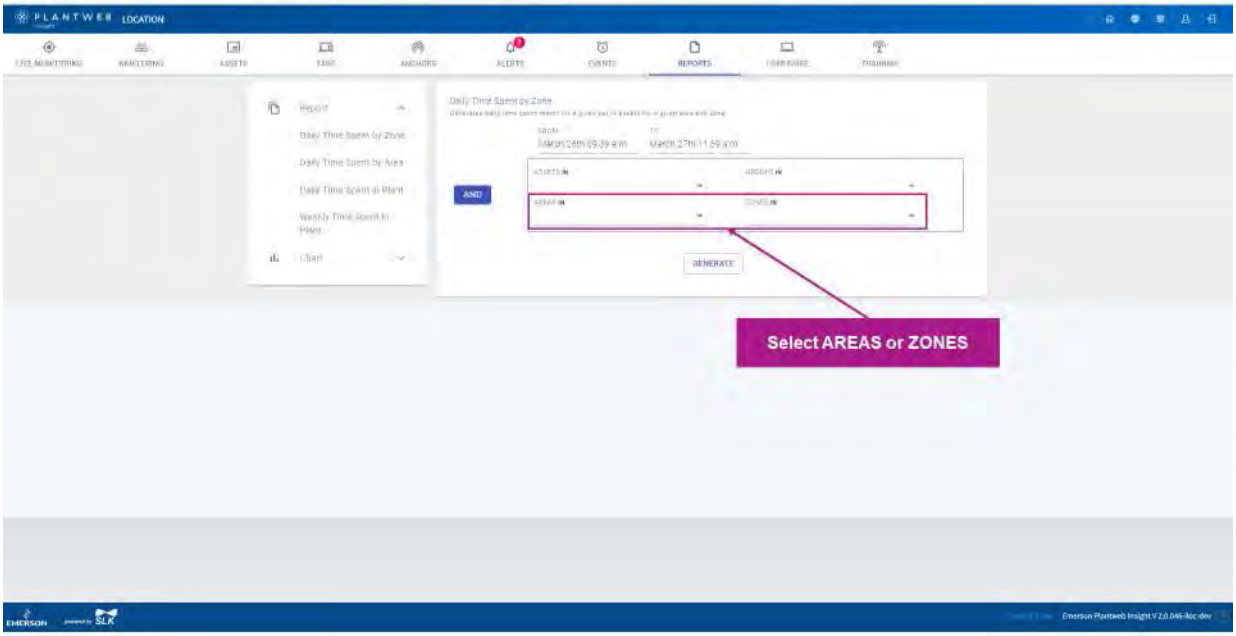

Select the type of Report to create

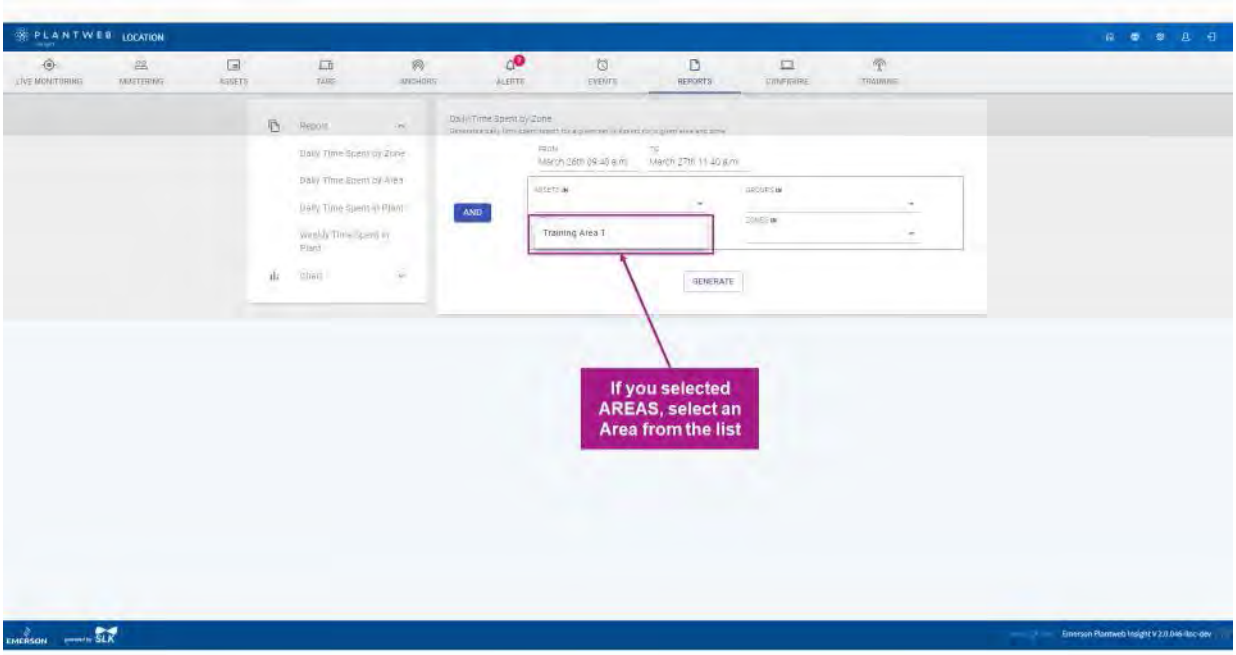

Enter time selection

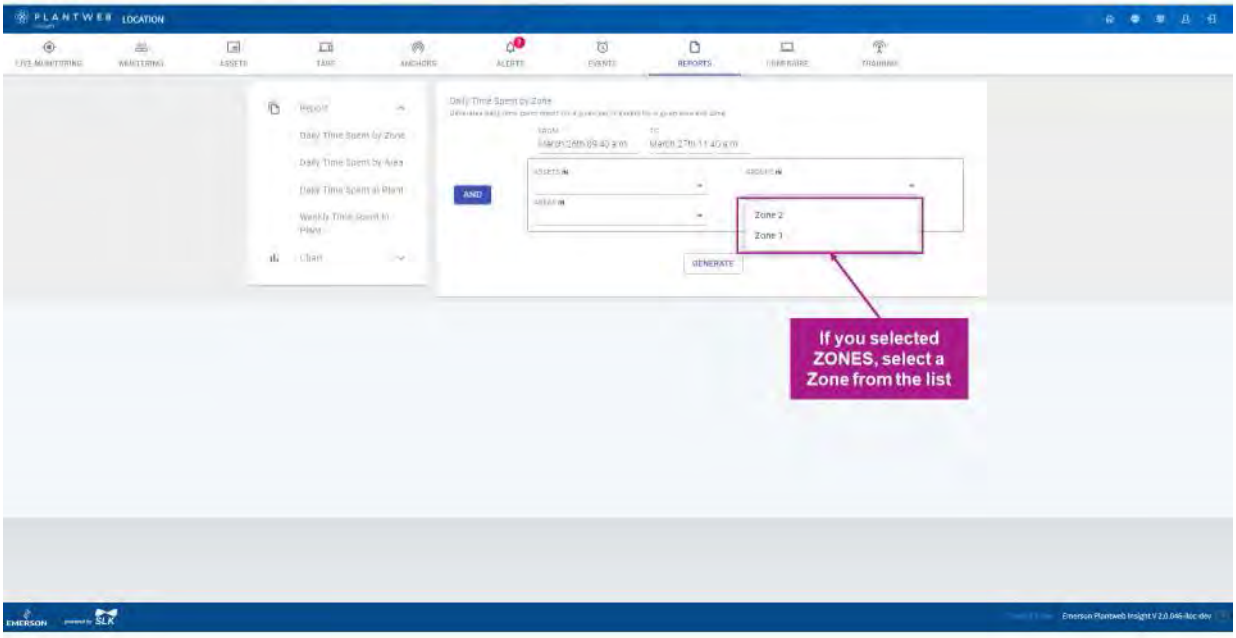

PLANTWEB LOCATION
REPORTS
AND
GENERATE
Select ASSETS or GROUPS

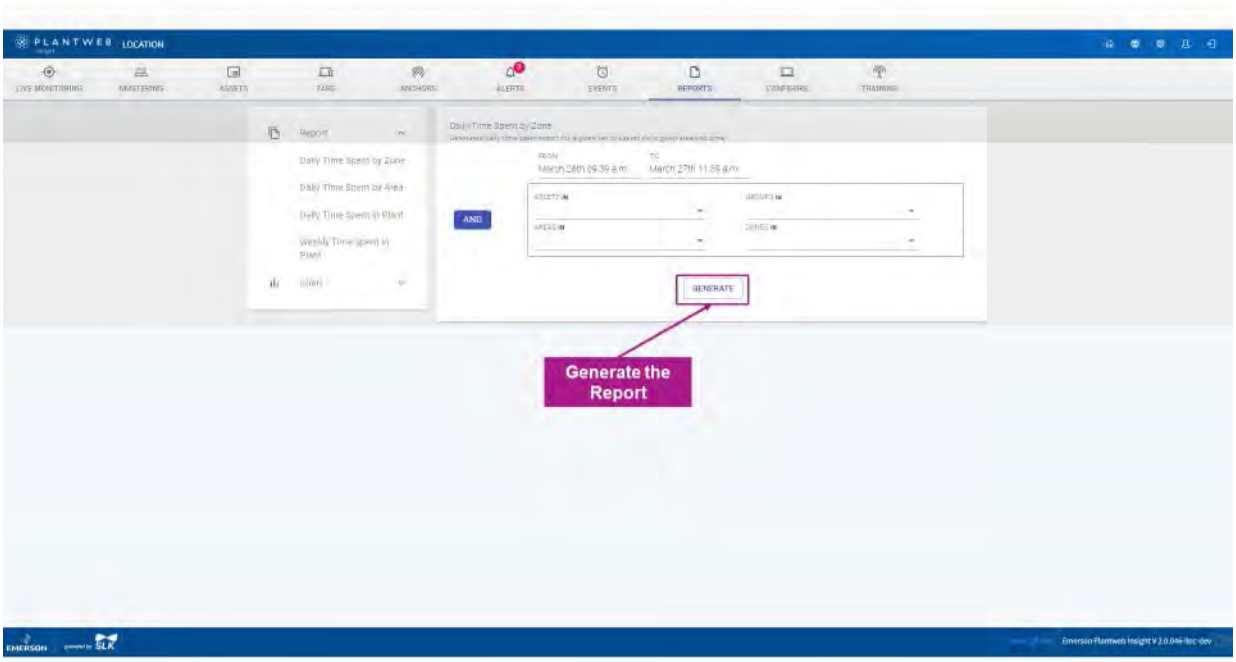

PLANTWEB LOCATION
REPORTS
AND
Zhao, Michael
Yeaw, Wee Chek
Woolery, Logan
Will, Bailey
Westfield, Brian
Weinberger, Bob
Vandeputt, Danny
Thomas, Varu
Taylor, Kelsey
Suarez, Andres
If you selected Asset, select an Asset from the list

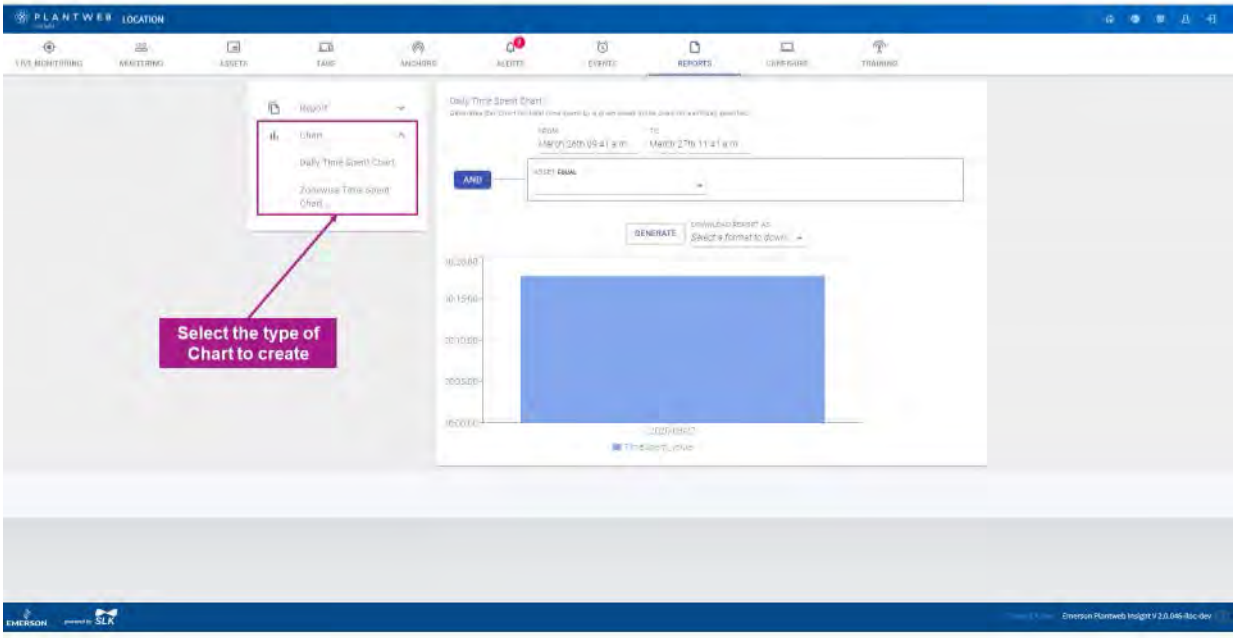

PLANTWEB LOCATION
REPORTS
Visitor
Employee
Contractor
AND
GENERATE
If you selected GROUP, select a Group from the list

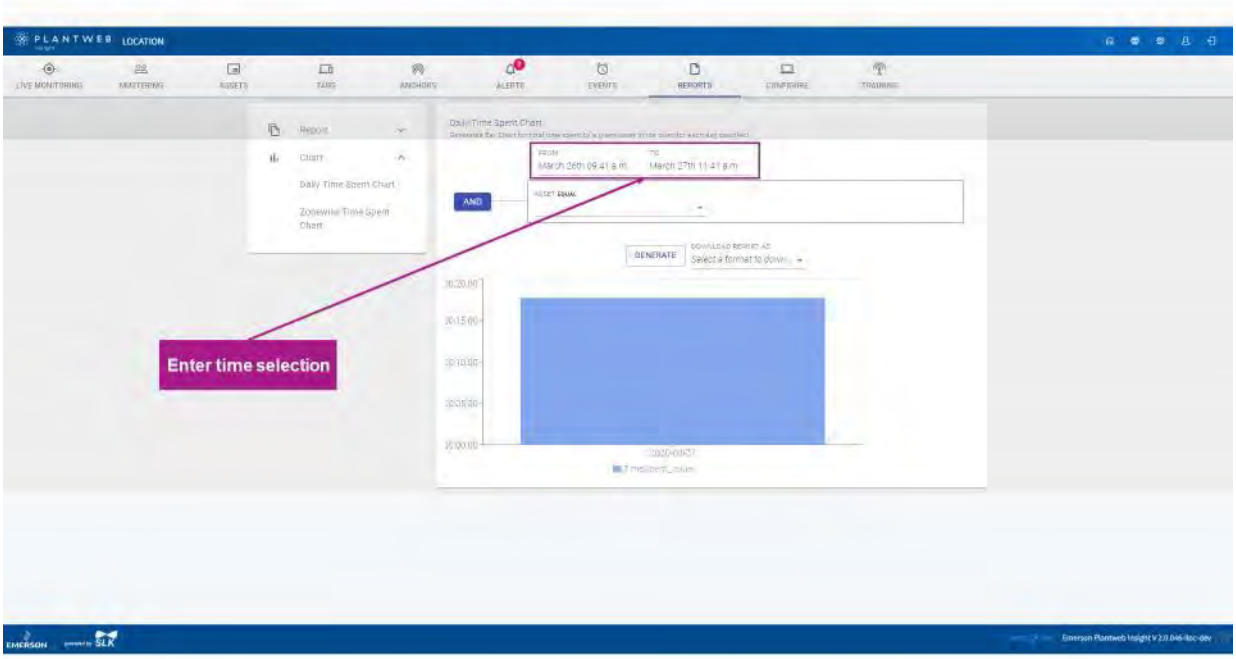

PLANTWEB LOCATION
REPORTS
AND
GENERATE
Select AREAS or ZONES

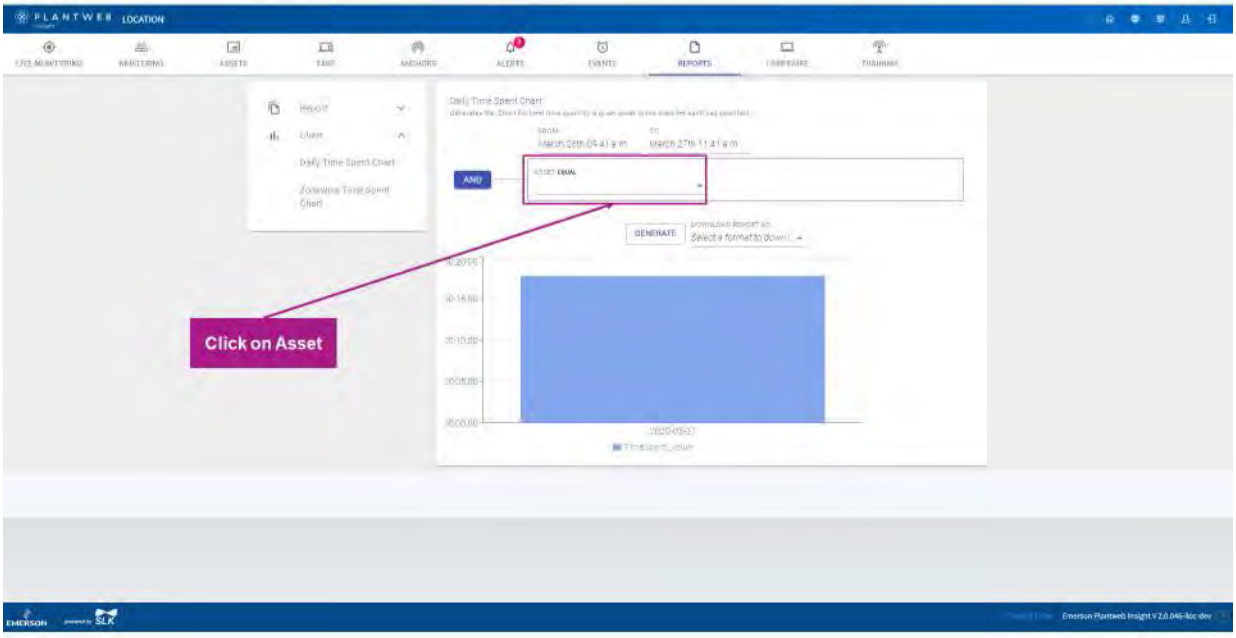

PLANTWEB LOCATION
REPORTS
AND
Training Area 1
GENERATE
If you selected AREAS, select an Area from the list

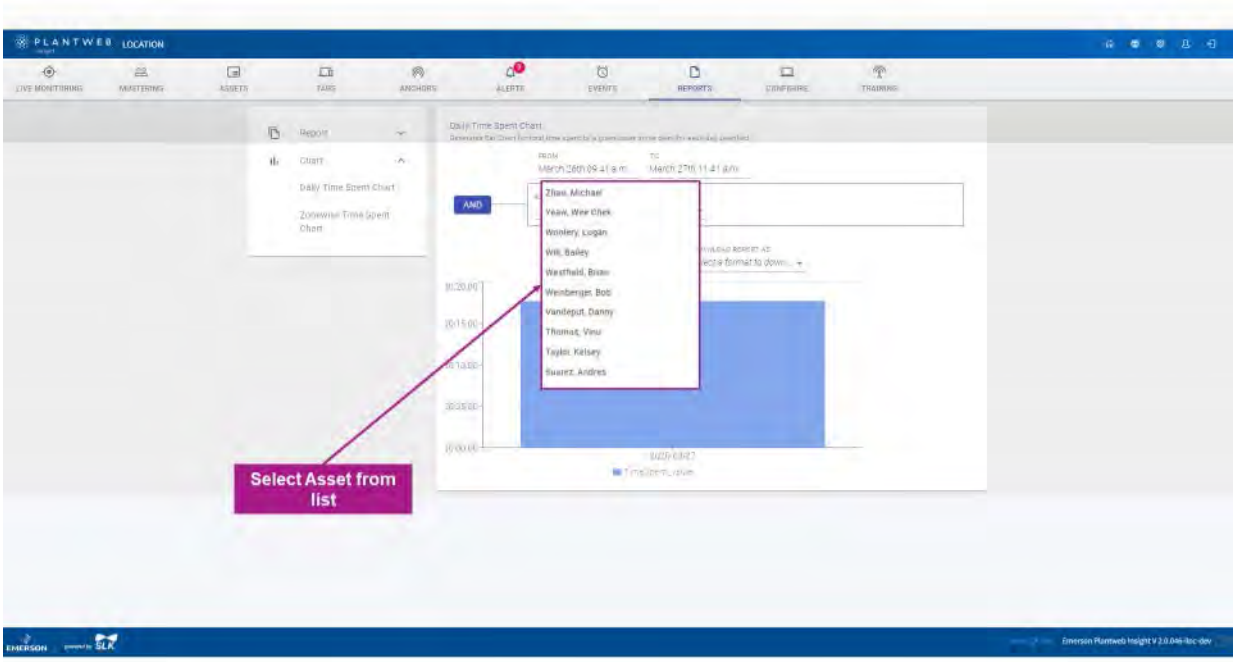

PLANTWEB LOCATION
REPORTS
AND
Zone 2
Zone 1
GENERATE
If you selected ZONES, select a Zone from the list

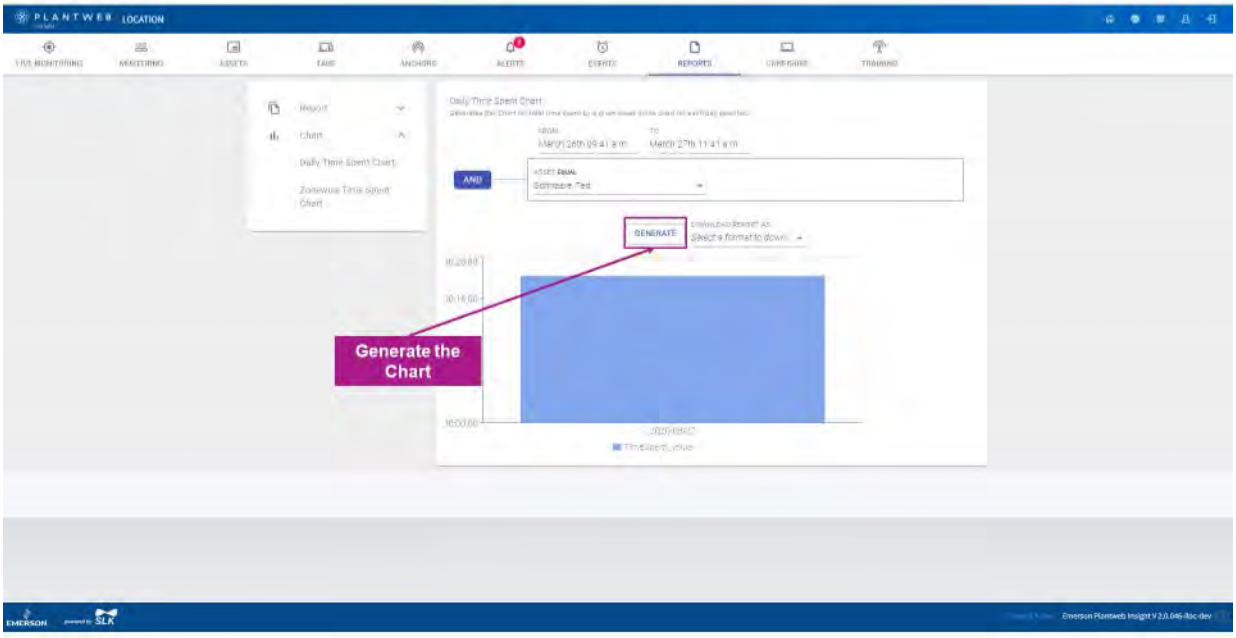

PLANTWEB LOCATION
REPORTS
AND
GENERATE
Generate the Report


PLANTWEB LOCATION
REPORTS
AND
GENERATE
Select the type of Chart to create

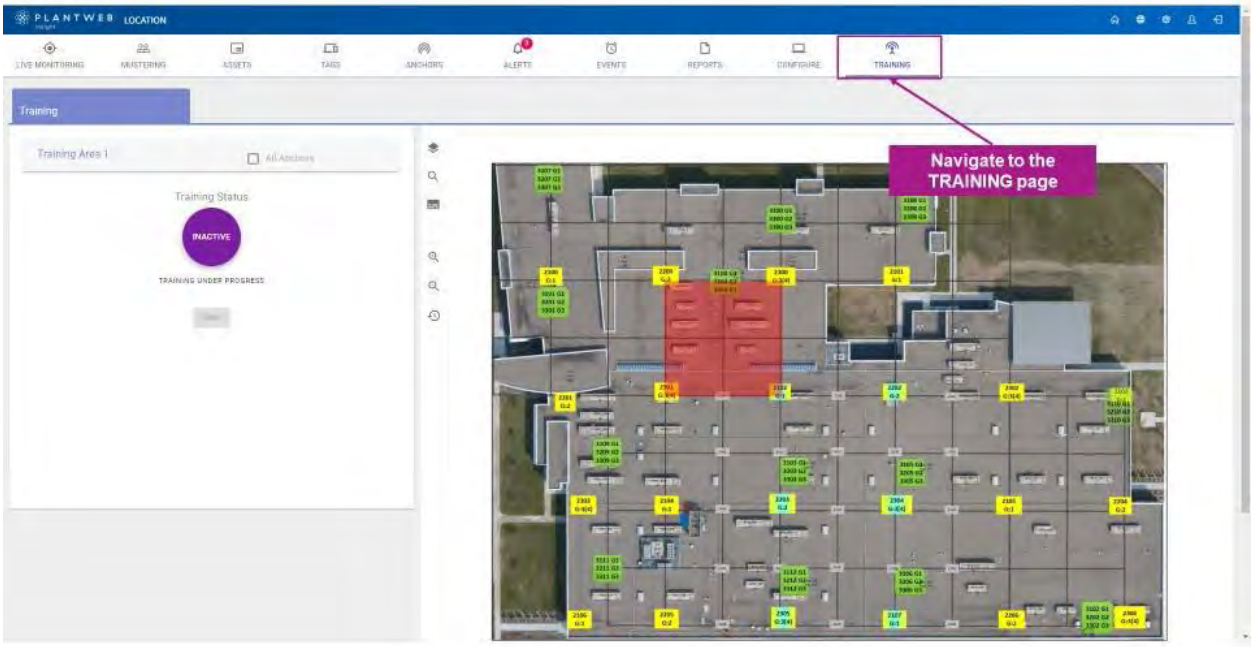

PLANTWEB
LOCATION
REPORTS
AND
GENERATE
Enter time selection

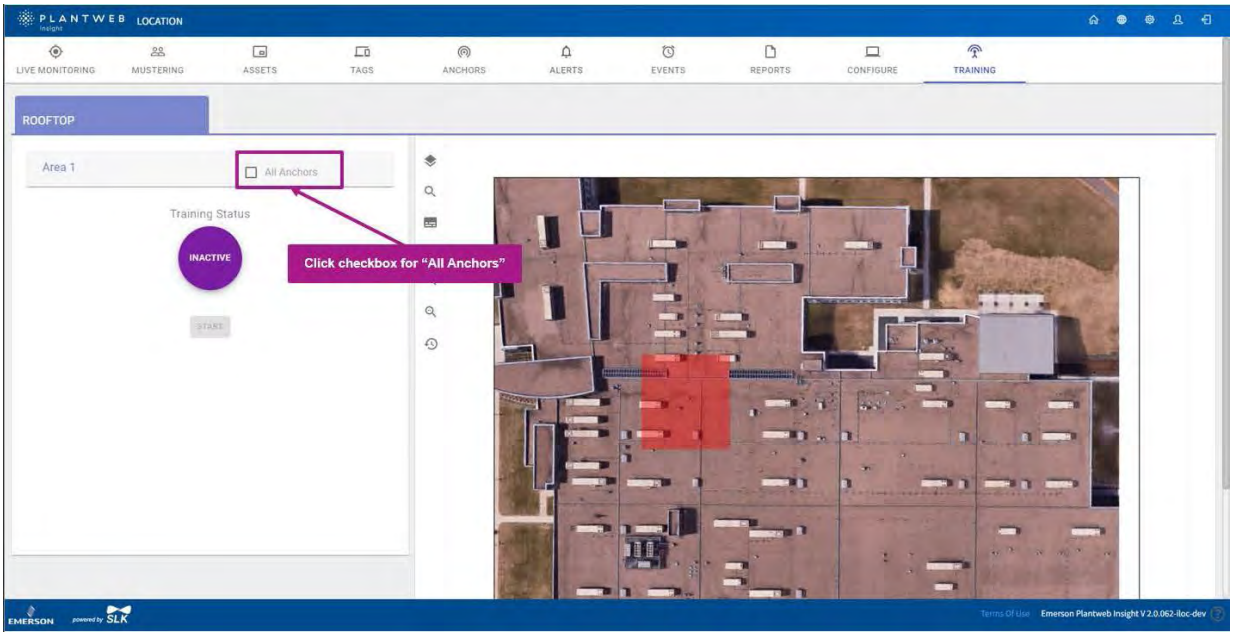

PLANTWEB
LOCATION
REPORTS
AND
GENERATE
Click on Asset

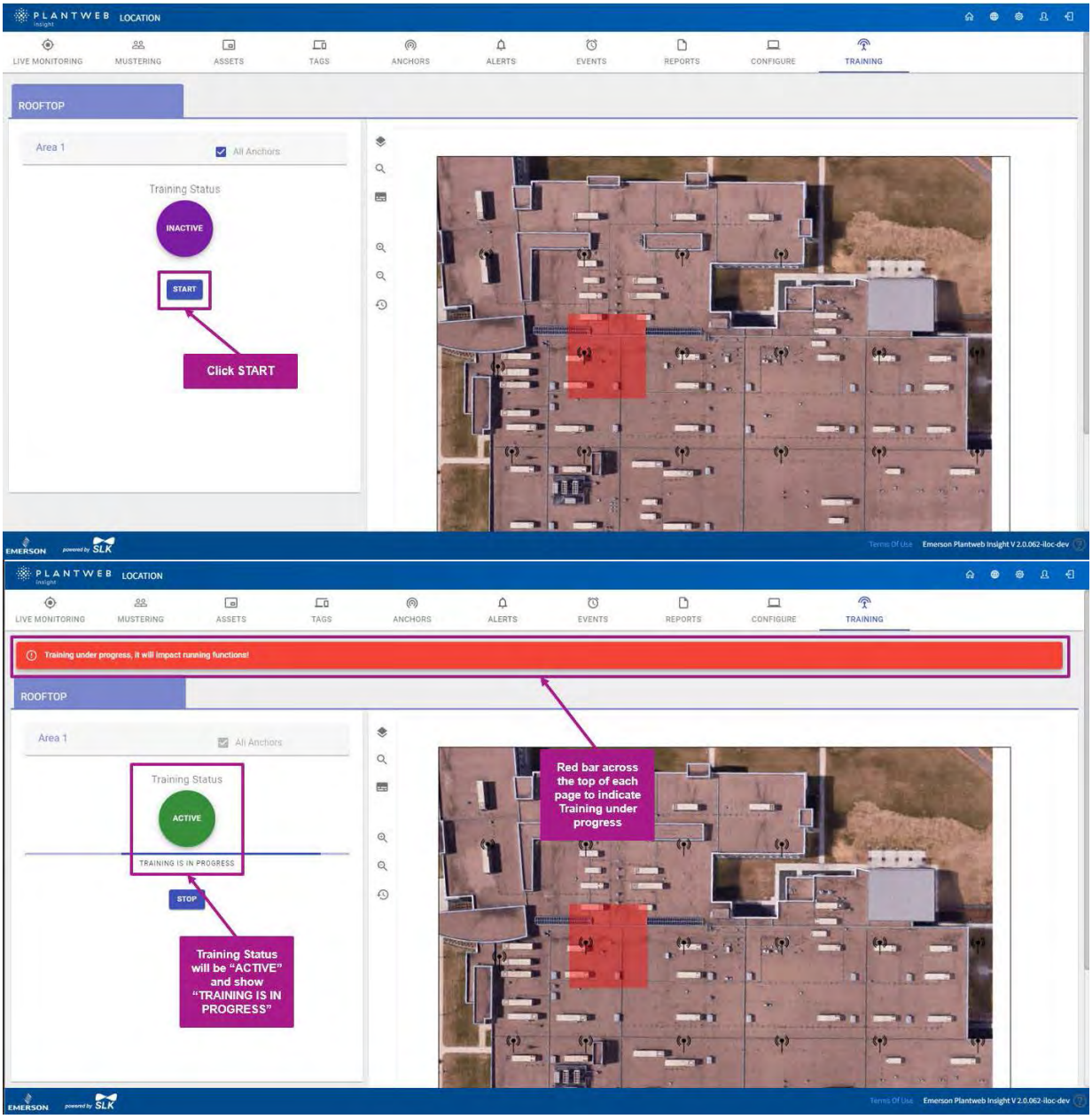

PLANTWEB LOCATION
Select Asset from list

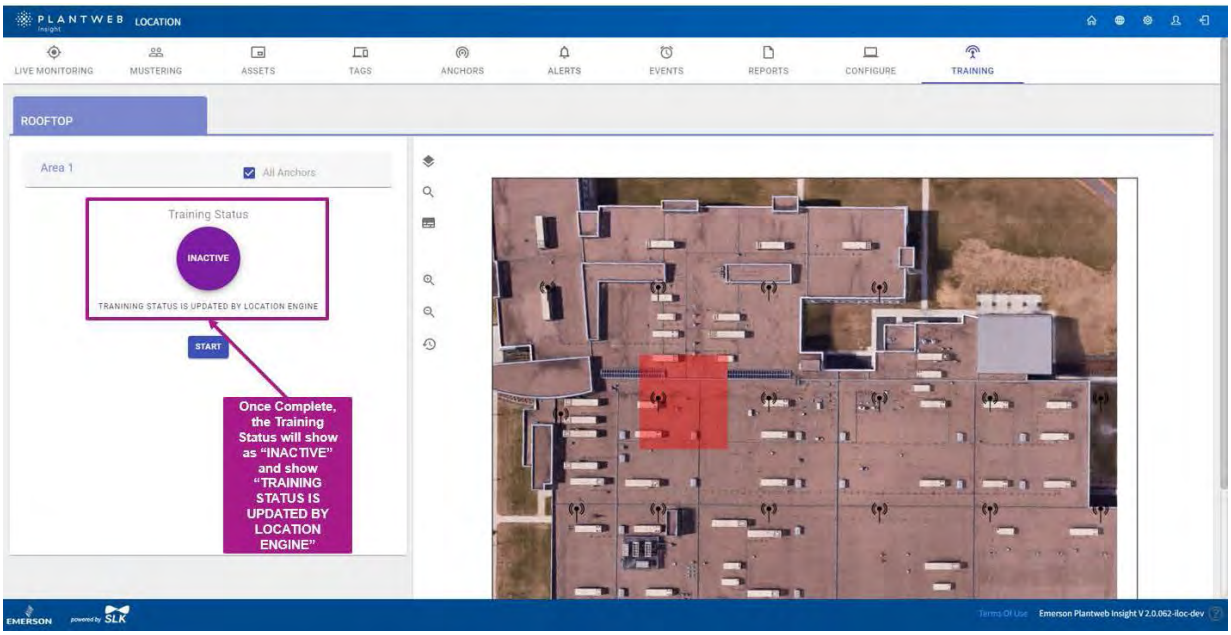

PLANTWEB LOCATION
GENERATE
Generate the Chart

13.7 Anchor Training






PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
ROOFTOP
Area 1
All Anchors
Training Status
INACTIVE
START
Click START
Training under progress, it will impact running functions!
ACTIVE
TRAINING IS IN PROGRESS
STOP
Red bar across the top of each page to indicate Training under progress
Training Status will be "ACTIVE" and show "TRAINING IS IN PROGRESS"
EMERSON
Emerson Plantweb Insight V 2.0.062-iloc-dev


PLANTWEB LOCATION
LIVE MONITORING
MUSTERING
ASSETS
TAGS
ANCHORS
ALERTS
EVENTS
REPORTS
CONFIGURE
TRAINING
ROOFTOP
Area 1
All Anchors
Training Status
INACTIVE
TRAINING STATUS IS UPDATED BY LOCATION ENGINE
START
Once Complete, the Training Status will show as "INACTIVE" and show "TRAINING STATUS IS UPDATED BY LOCATION ENGINE"
EMERSON
Terms Of Use
Emerson Plantweb Insight V 2.0.062-iloc-dev

Appendix

Appendix A: Specifications and Reference Data

Product Data Sheet
00813-0100-4542,
Rev AA
May 2020

Emerson Location Awareness

with *Wireless*HART® Protocol

- World's first personnel and asset location system using *Wireless*HART protocol
- Human-centered design and user-tested interface for consistent and intuitive navigation
- Improve facility monitoring, safety, and security with the implementation of the latest location system
- Relevant information and insights about known hazardous locations, identified muster points, zoned work areas, accidents, and emergencies

EMERSON

Location Awareness

Within the Plantweb™ digital ecosystem, Emerson's Location Awareness utilizes the *Wireless*HART protocol to deliver accurate, reliable location information. Location Awareness consists of mobile Personnel Tags, fixed Anchors, and the Plantweb Insight Location application.

Safety mustering

- Create designated areas for safety mustering in the event of a drill or emergency
- In an emergency, know that your personnel are safe and accounted for at designated muster points.
- Plantweb Insight Location provides a live map showing locations of all personnel with a listed view of mustered and not mustered personnel.

Geofencing & live monitoring

- Geofencing is a method that enables a customer to create designated zones to notify the user interface when personnel enter those zones.
- Keep contractors safe and efficient with designated work zones.
- Keep workers safe by creating zones of known hazardous locations.
- Plantweb Insight Location provides a live map showing zoned locations and a count of the personnel in each of those zones.

Safety alerts

- Know where a fallen worker is located to quickly dispatch emergency responders.
- Personnel may have an accident or need emergency assistance. Safety alerts provide the ability to quickly locate both the fallen personnel and the closest emergency responders.

Contents

Location Awareness. 2
Component details. 3
Ordering information. 4
Specifications. 8
Product certifications. 10
Dimensional drawings. 10

Componentdetails

Location Personnel Tags
Personnel Tags can be worn using a lanyard or belt clip. They have rechargeable, non-replaceable batteries that last up to six weeks on a single charge while operating at 10 hours per day. Personnel Tags are to be charged using a Qi certified charger. Personnel Tags are permanently sealed and should not be opened.

Location Anchors
Battery powered and easily mounted to infrastructure, Anchors utilize the *Wireless*HART network to communicate and synchronize. Using batteries and the *Wireless*HART network eliminates the need to install costly and time-consuming conduit, power, and cabling. Anchors use a single d-cell battery and should only be replaced with Emerson PN 00G45-9000-0001 batteries.

Plantweb Insight Location
Intuitive user interface provides customers with many relevant safety features including safety mustering, geofencing, live monitoring, and safety alerts.

Wireless communication
Figure 1: Location Awareness Communication

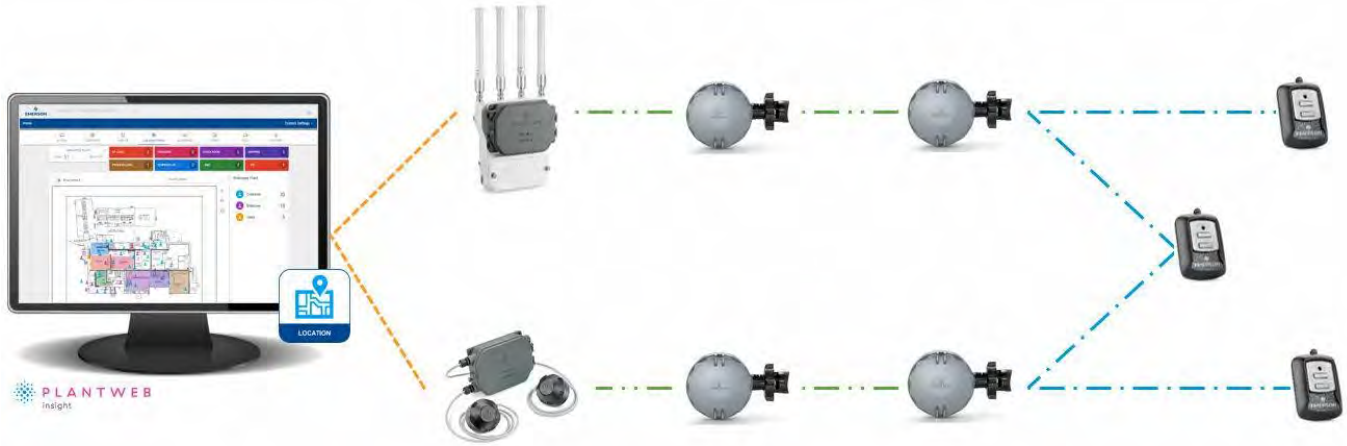


Figure 2: Location Awareness Components

*Wireless*HART Location Anchor

Personnel Tag

Ordering information

Model codes

Model codes contain the detail related to each product. Exact model codes will vary, but generally contain one or all of these:

1. Required model components (choices may be available)
2. Additional options (variety of features and functions that may be added to products)

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

VIEW PRODUCT >

Location Awareness GEO10 - required model components

Note

Typical model code for Emerson GEO10: GEO10 T1 R01

Model

Code	Description	
GEO10	Emerson Location Tag	★

Component type

Code	Description	
T1	Personnel Tag	★

Regulatory zone

Code	Description	
R01	Americas and Europe	★
R02	Asia (China and Japan are not included)	★
R03	Middle East and Africa	★

Location Awareness GEO20 - required model components

Note

Typical model code for the Emerson GEO20: GEO20 A1 R01 A01

Model

Code	Description	
GEO20	Emerson Location Anchor	★

Component type

Code	Description	
A1	Anchor	★

Regulatory zone

Code	Description	
R01	Americas and Europe	★
R02	Asia (China and Japan are not included)	★
R03	Middle East and Africa	★

Accessories type

Code	Description	
A01	Pole mount	★

Plantweb Insight 7001X - required model components

Note
Typical model code for Plantweb Insight 7001X: 7001X V 002 LA L1 L13

Model

Code	Description	
7001X	Plantweb Insight	★

Installation type

Code	Description	
V	Virtual Machine	★
E	Existing platform (used for adding applications)	★

Number of networks

Code	Description	
002	20 Gateways	★
010	100 Gateways	★

Applications

Code	Description	
LA	Location Awareness	★
LU	Location Awareness upgrade	★

Code	Description	
LW	Location Awareness Subscription Support addition	★

Location Awareness Tags

Code	Description	
L1	Tags 1-250	★
L2	Tags 251-500	★
L3	Tags 501-1000	★
L4	Tags 1001-2500	★
L5	Tags 2501-5000	★

Subscription support

Code	Description	
L11	1 Year Subscription Support for Location Awareness L1	★
L13	3 Year Subscription Support for Location Awareness L1	★
L15	5 Year Subscription Support for Location Awareness L1	★
L21	1 Year Subscription Support for Location Awareness L2	★
L23	3 Year Subscription Support for Location Awareness L2	★
L25	5 Year Subscription Support for Location Awareness L2	★
L31	1 Year Subscription Support for Location Awareness L3	★
L33	3 Year Subscription Support for Location Awareness L3	★
L35	5 Year Subscription Support for Location Awareness L3	★
L41	1 Year Subscription Support for Location Awareness L4	★
L43	3 Year Subscription Support for Location Awareness L4	★
L45	5 Year Subscription Support for Location Awareness L4	★
L51	1 Year Subscription Support for Location Awareness L5	★
L53	3 Year Subscription Support for Location Awareness L5	★
L55	5 Year Subscription Support for Location Awareness L5	★
S01	1 Year Subscription Support Upgrade for Location Awareness Upgrade U12	★
S03	3 Year Subscription Support Upgrade for Location Awareness Upgrade U12	★
S05	5 Year Subscription Support Upgrade for Location Awareness Upgrade U12	★
S11	1 Year Subscription Support Upgrade for Location Awareness Upgrade U13	★
S13	3 Year Subscription Support Upgrade for Location Awareness Upgrade U13	★
S15	5 Year Subscription Support Upgrade for Location Awareness Upgrade U13	★
S21	1 Year Subscription Support Upgrade for Location Awareness Upgrade U14	★
S23	3 Year Subscription Support Upgrade for Location Awareness Upgrade U14	★
S25	5 Year Subscription Support Upgrade for Location Awareness Upgrade U14	★

Code	Description	
S31	1 Year Subscription Support Upgrade for Location Awareness Upgrade U15	★
S33	3 Year Subscription Support Upgrade for Location Awareness Upgrade U15	★
S35	5 Year Subscription Support Upgrade for Location Awareness Upgrade U15	★
S41	1 Year Subscription Support Upgrade for Location Awareness Upgrade U23	★
S43	3 Year Subscription Support Upgrade for Location Awareness Upgrade U23	★
S45	5 Year Subscription Support Upgrade for Location Awareness Upgrade U23	★
S51	1 Year Subscription Support Upgrade for Location Awareness Upgrade U24	★
S53	3 Year Subscription Support Upgrade for Location Awareness Upgrade U24	★
S55	5 Year Subscription Support Upgrade for Location Awareness Upgrade U24	★
S61	1 Year Subscription Support Upgrade for Location Awareness Upgrade U25	★
S63	3 Year Subscription Support Upgrade for Location Awareness Upgrade U25	★
S65	5 Year Subscription Support Upgrade for Location Awareness Upgrade U25	★
S71	1 Year Subscription Support Upgrade for Location Awareness Upgrade U34	★
S73	3 Year Subscription Support Upgrade for Location Awareness Upgrade U34	★
S75	5 Year Subscription Support Upgrade for Location Awareness Upgrade U34	★
S81	1 Year Subscription Support Upgrade for Location Awareness Upgrade U35	★
S83	3 Year Subscription Support Upgrade for Location Awareness Upgrade U35	★
S85	5 Year Subscription Support Upgrade for Location Awareness Upgrade U35	★
S91	1 Year Subscription Support Upgrade for Location Awareness Upgrade U45	★
S93	3 Year Subscription Support Upgrade for Location Awareness Upgrade U45	★
S95	5 Year Subscription Support Upgrade for Location Awareness Upgrade U45	★

Specifications

Communication specifications

HART-IP® client
Plantweb Insight acts as a HART-IP client for polling information from HART-IP sources such as Emerson 1410/1420 Gateways.

*Wireless*HART Output

IEC 62591 (WirelessHART) 2.4 GHz DSSS

System requirements

Host operating system - Virtualization software

VMware® Workstation Pro™ 10 or higher (requirements can be found here). OR

VMware vSphere® 5.5 or higher (requirements can be found here). OR

Microsoft® Hyper-V® 2012 or higher
If needed, contact Emerson customer central.

Guest operating system
Processors = four
Memory = 12 GB RAM

minimum Hard drive = 50 GB of free space

A DVD drive is required for all installations

Application - Browsers (recent versions supported)

Chrome™ browser

Microsoft Internet Explorer™

Physical specifications

Mounting
Personnel Tags: Personnel Tags are shipped with lanyard. Belt clip can be ordered separately as a spare part. Anchor: Pole mount

Dimensions
See Dimensional drawings for detailed drawings. Personnel Tags: 2 in. x 3 in. (5.08 cm x 7.63 cm) Anchor: 5-in. (12.70 cm)

diameter

Weight

Personnel Tags: 0.11 lbs (49.90 g)

Anchor: 1.10 lbs (498.95 g)

Material
Personnel Tags: Engineered polymer Anchor: Engineered polymer

Performance specifications

Temperature limits
Personnel Tags: -4 to 140 °F (-20 to 60 °C)
Anchor: -40 to 185 °F (-40 to 85 °C)

Battery life
Personnel Tags: Six weeks at 10 hours per day operation, on a single charge; rechargeable utilizing a Qi certified charger Anchor: Five years at a 32-second system update rate

Tag position accuracy
System: +/- 32 ft. (+/- 10 m)
Designated areas: +/- 16 ft. (+/- 5 m)

Hazardous rating
Personnel Tags and Anchors: Class 1 Division 1, Zone 0

Enclosure rating
Personnel Tags and Anchors: IP 66/67

System update rate
User configurable from 32 seconds to 60 minutes

Humidity limits
0-100 percent relative humidity

Emerson Location Awareness

with *Wireless*HART® Protocol

Emerson Location Awareness safety messages

Read this Quick Start Guide before working with the product. For personal and system safety and for optimal product performance, understand the contents completely before installing, using, or maintaining this product.

Emerson has two toll-free assistance numbers and one international number.

NOTICE

Customer Central

1 800 999 9307 (7:00 a.m. to 7:00 p.m. CST)

National Response Center (equipment service needs)

1 800 654 7768 (24 hours a day)

International

1 952 906 8888

Nuclear qualification

The products described in this document are NOT designed for nuclear-qualified applications. Using non-nuclear qualified products in applications that require nuclear-qualified hardware or products may cause inaccurate readings. For information on Rosemount™ nuclear-qualified products, contact an Emerson Sales Representative.

Wireless Gateway

The Location Anchor and all other wireless devices should be installed only after the Wireless Gateway has been installed and is functioning properly. Wireless devices should also be powered up in order of proximity from the Wireless Gateway, beginning with the closest. This will result in a simpler and faster network configuration. Use caution when making changes to the TCP/IP network settings. If they are lost or entered incorrectly, the Gateway will require a factory reset. Contact your network administrator for information on the proper TCP/IP network settings.

Hazardous substance

Individuals handling products exposed to hazardous substances can avoid injury if they are informed of and understand the hazard. If the returned product was exposed to a hazardous substance as defined by OSHA, a copy of the Material Safety Data Sheet (MSDS) for each hazardous substance identified must accompany the returned goods.

Shipping considerations

The Location Anchor unit was shipped with the battery installed. Each Location Anchor contains one "D" size primary lithium battery. Primary lithium batteries are regulated in transportation by the U. S. Department of Transportation and are also covered by the International Air Transport Association (IATA), International Civil Aviation Organization (CAO), and European Ground Transportation of Dangerous Goods (ARD). It is the shipper's responsibility to ensure compliance with these or any other local requirements. Consult current regulations and requirements before shipping. The polymer enclosure has surface resistivity greater than one giga-ohm. Take care during transportation to and from the configuration point to prevent a potential electrostatic charging hazard.

Battery considerations

Battery hazards remain when cells are discharged. Electrostatic discharge can damage electronics. Batteries should be stored in a clean dry area. For maximum battery life, storage temperature should not exceed 30 °C (86 °F). The Location Anchor battery shall only be replaced in a non-hazardous area. The Personnel Tag battery is rechargeable and shall only be charged in a non-hazardous area using a Qi certified charger.

NOTICE

Installation considerations

Only qualified personnel should perform the installation. Verify the operating atmosphere of the transmitter is consistent with applicable hazardous area certifications. Reference the Product Certifications section of this manual for information regarding hazardous certification. This Location Anchor Model GEO20 must be installed to ensure a minimum antenna separation distance of 20 cm (8 in.) from all persons.

⚠ WARNING

Failure to follow these installation guidelines could result in death or serious injury.

Ensure only qualified personnel perform installation or service.

Explosions could result in death or serious injury.

Before connecting a handheld communicator in an explosive atmosphere, ensure the instruments are installed in accordance with intrinsically safe or non-incendive field wiring practices.

Verify that the operating atmosphere of the transmitter is consistent with the appropriate hazardous locations certifications.

Electrical shock could cause death or serious injury.

This Location Anchor complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This Location Anchor may not cause harmful interference. This Location Anchor must accept any interference received, including interference that may cause undesired operation.

This Location Anchor Model GEO20 must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

Physical access

Unauthorized personnel may potentially cause significant damage to and/or misconfiguration of end users' equipment. This could be intentional or unintentional and needs to be protected against.

Physical security is an important part of any security program and fundamental to protecting your system. Restrict physical access by unauthorized personnel to protect end user's assets. This is true for all systems used within the facility.

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Location Anchor configuration 8
Installation Location Anchor 11
Location Anchor commissioning 14
Operation and maintenance 17
Personnel Tag configuration 19
Personnel Tag mounting considerations 21
Personnel Tag operation and maintenance 22
Product certifications 24
Declaration of Conformity 29

1 Overview

1.1 Location Awareness solution components

Location Anchor

Location Personnel Tag

Plantweb™ Insight Location application

1.2 Product recycling/disposal

Recycling of equipment and packaging should be taken into consideration. The product and packaging should be disposed of in accordance with local and national legislation.

2 Installation Plantweb Insight and Plantweb Insight Location application

2.1 Install Plantweb Insight and Plantweb Insight Location application

Follow instructions in the Plantweb Insight Quick Start Guide.

3 Location Anchor configuration

3.1 Safety messages

⚠ WARNING

Failure to follow these installation guidelines could result in death or serious injury.

Ensure only qualified personnel perform the installation.

Explosions could result in death or serious injury.

Before connecting a handheld communicator in an explosive atmosphere, ensure the instruments are installed in accordance with intrinsically safe or non-incendive field wiring practices.

Verify that the operating atmosphere of the transmitter is consistent with the appropriate hazardous locations certifications.

Electrical shock could cause death or serious injury.

Use extreme caution when making contact with the leads and terminals.

This Location Anchor complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This Location Anchor may not cause harmful interference. This Location Anchor must accept any interference received, including interference that may cause undesired operation.

This Location Anchor Model GEO20 must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

3.2 Location Anchor configuration

Remove the Location Anchor electronics cover and connect to the HART® Communication terminals for configuration.

The Emerson Location Anchor will receive HART Communication from any HART handheld Field Communicator or AMS Device Manager.

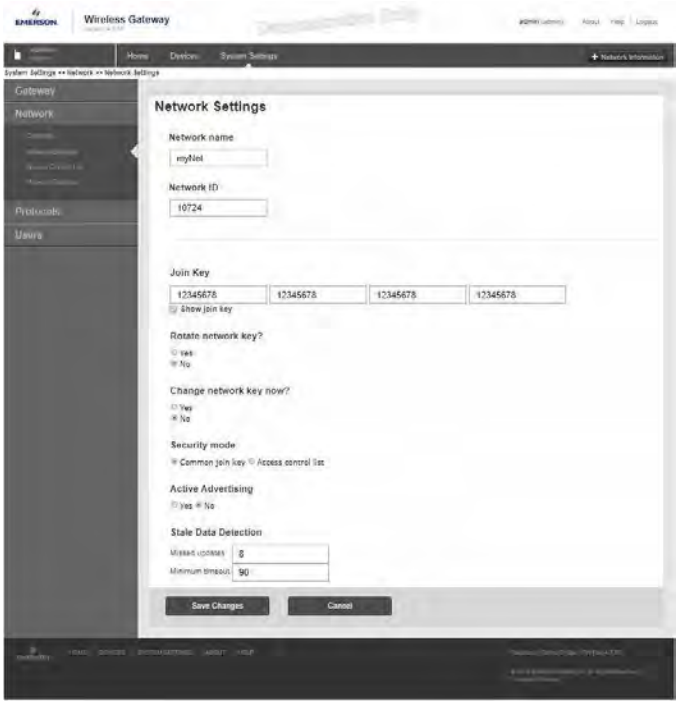
AMS Device Manager

AMS Device Manager can connect to devices directly, using a HART modem, or remotely using the Gateway. To configure the Emerson Location Anchor, double click (or right click and select Configure/Setup) on the device icon that will appear below either the HART modem or Gateway connection tree.

3.3 Device network configuration

To communicate with the Gateway (and ultimately the host system), the Location Anchor must be configured to communicate with the wireless network. Using a Field Communicator or AMS Device Manager, enter the network ID and join key so they match the network ID and join key of the Gateway and other devices in the network. If they do not match, the Location Anchor will not communicate with the network. The network ID and join key may be obtained from the Gateway on the *Systems Settings>Network>Network Settings* page on the web server, shown in Figure 3-1.

Figure 3-1: Gateway Network Settings



AMS Device Manager

Right click on the Location Anchor and select Configure. When the menu opens, select Join Device to Network and follow the method to enter the network ID and join key. See Table 3-1 for menu items.

Table 3-1: Device Configuration

Function	Menu items
Join device to network	Network ID, Set Join Key
Device information	Tag, Long Tag, Descriptor, Message, Date
Guided setup	Basic Setup, Join Device to Network, Configure Update Rates
Manual setup	Wireless, Location Network, HART, Security, Device Information, Power
Wireless	Network ID, Join Device to Network, Broadcast Information

3.4 Power down

After the Location Anchor has been configured, turn off power to the electronics by moving the power switch to off and reinstall the cover. Power should only be turned back on when the anchor is ready for commissioning.

4 Installation Location Anchor

4.1 Safety messages

⚠ WARNING

Failure to follow these installation guidelines could result in death or serious injury.

Ensure only qualified personnel perform the installation.

Explosions could result in death or serious injury.

Before connecting a handheld communicator in an explosive atmosphere, ensure the instruments are installed in accordance with intrinsically safe or non-incendive field wiring practices.

Verify that the operating atmosphere of the transmitter is consistent with the appropriate hazardous locations certifications.

Electrical shock could cause death or serious injury.

Use extreme caution when making contact with the leads and terminals.

This Location Anchor complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This Location Anchor may not cause harmful interference. This Location Anchor must accept any interference received, including interference that may cause undesired operation.

This Location Anchor Model GEO20 must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

4.2 Considerations

General

The Emerson Location Awareness solution is comprised of the Emerson Location Tag, Emerson Location Anchor, Emerson Wireless Gateways, and Plantweb Insight Location application. Emerson Location Awareness provides the user with safety-focused monitoring of their most valued resource - their people. Rechargeable, battery-operated Personnel Tags communicate with *Wireless*HART Anchors, creating visibility in the most remote and hazardous areas of the facility for better personnel safety and security. The Plantweb Insight Location application provides a streamlined user interface that manages geofencing, safety mustering, and safety alerts, helping the user digitally transform their facility's safety.

4.3 Wireless considerations

Power-up sequence

The Wireless Gateway should be installed and functioning properly before any wireless devices are powered. Battery is already installed in the Location Anchor. Move power switch to "ON" position to power up. This results in a simpler and faster network configuration. Enabling Active Advertising on the Gateway ensures new devices are able to join the network faster. For more information, see the Wireless Gateway Reference Manual.

Antenna position

The antenna is internal to the Location Anchor. To achieve optimal range and performance, position the Location Anchor with the stem in a horizontal position as shown in Figure 4-1. Good connectivity can also be achieved in other orientations. The antenna should also be approximately 1 m (3 ft.) from any large structure, building, or conductive surface, and a minimum of 2 m (6 ft.) and maximum of 4 m (13 ft.) from the ground to allow for clear communication to other devices. Refer to best practices for additional information on optimal mounting locations of the Location Anchor.

4.4 Electrical

Battery

The Emerson Location Anchor is self-powered. The battery is a single “D” size primary lithium/thionyl chloride battery. Each battery contains approximately 5.0 grams of lithium. Under normal conditions, the battery materials are self-contained and are not reactive as long as the battery is maintained. Care should be taken to prevent thermal, electrical, or mechanical damage. Contacts should be protected to prevent premature discharge. Battery cannot be changed in a hazardous location.

4.5 Installation considerations

Procedure

1. Inspect mounting bands periodically and re-tighten if necessary. Some loosening may occur after initial installation due to thermal expansion/contraction.
2. The stainless steel mounting bands could be affected by stress corrosion and potentially fail when in the presence of chlorides.
3. The Location Anchor should be installed such that steam or other high temperature fluids do not directly impinge the housing of the Location Anchor.
4. Good connectivity can also be achieved in other orientations. The antenna should also be approximately 1 m (3 ft.) from any large structure, building, or conductive surface, and a minimum of 2m (6 ft.) and a max of 4m (13 ft.) from the ground to allow for clear communication to other devices.

4.6 Mounting

Procedure

1. Locate the Location Anchor on a vertical or horizontal structure. Align the Location Anchor as shown in Figure 4-1.
2. Tighten clamp to 10.2 N-m (90 in-lb).
3. If commissioning the Location Anchor, remove the electronics cover, move the power switch to the on position.
4. Ensure the cover is fully tightened to prevent moisture ingress. The lip of the polymer electronics cover should be in contact with the surface of the polymer enclosure to ensure a proper seal. Do not overtighten.

Figure 4-1: Location Anchor Mounting

5 Location Anchor commissioning

5.1 Instructions and procedure safety

Instructions and procedures in this section may require special precautions to ensure the safety of the personnel performing the operations.
Information that potentially raises safety issues is indicated by a warning symbol ( ). Refer to the following safety messages before performing an operation preceded by this symbol.

5.2 Safety messages

⚠ WARNING

Failure to follow these installation guidelines could result in death or serious injury.

Ensure only qualified personnel perform the installation.

Explosions could result in death or serious injury.

Before connecting a handheld communicator in an explosive atmosphere, ensure the instruments are installed in accordance with intrinsically safe or non-incendive field wiring practices.

Verify that the operating atmosphere of the transmitter is consistent with the appropriate hazardous locations certifications.

Electrical shock could cause death or serious injury.

Use extreme caution when making contact with the leads and terminals.

This Location Anchor complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This Location Anchor may not cause harmful interference. This Location Anchor must accept any interference received, including interference that may cause undesired operation.

This Location Anchor Model GEO20 must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

5.3 Verify operation

There are three methods available to verify operation:

- Field Communicator
- Gateway's integrated web interface
- AMS Suite Wireless Configurator or AMS Device Manager

If the Emerson Location Anchor was configured with the network ID and join key, and sufficient time has passed, the Anchor will be connected to the network. If network ID and join key were not configured, reference "Troubleshooting".

Note
It may take several minutes for the Location Anchor to join the network.

Field Communicator

For *Wireless*HART communication, an Emerson Location Anchor Device Driver (DD) is required. To obtain the latest DD, visit the Emerson Easy Upgrade site at: Emerson.com/Rosemount/Device-Install-Kits.

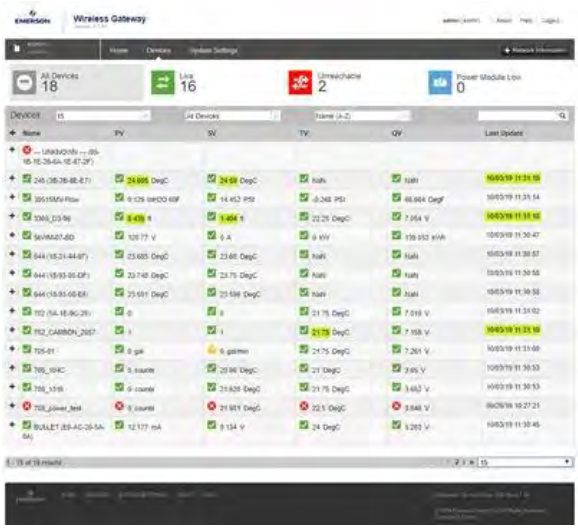
The communication status may be verified in the wireless device using the following the menu items.

Function	Menu items
Communications	Join Status, Wireless Mode, Join Mode, Number of Available Neighbors, Number of Advertisements Heard, Number of Join Attempts

Wireless Gateway

Using the Gateway's web interface, navigate to the Devices page as shown in Figure 5-1. Locate the device in question and verify all status indicators are good (green).

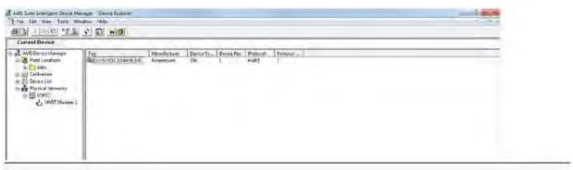
Figure 5-1: Wireless Gateway Explorer page



AMS Device Manager

When the Location Anchor has joined the network, it will appear in the AMS Device Manager as illustrated in Figure 5-2. For *Wireless*HART communication, a Location Anchor DD is required. To obtain the latest DD, visit the Emerson Easy Upgrade site at: Emerson.com/Rosemount/Device- Install-Kits.

Figure 5-2: AMS Device Manager



Note
Plantweb Insight Location application is provided for viewing Location Anchor status.

Field Communicator

Note

In order to establish communication with a Field Communicator, power the Location Anchor by switching the power switch to the “ON” position.

Function	Menu items
Guided setup	Basic Setup, Join Device to Network, Configure Update Rates
Wireless	Network ID, Join Device to Network, Broadcast Information

6 Operation and maintenance

6.1 Overview

This section contains information on commissioning and operating Location Anchors.

Field Communicator and AMS Device Manager instructions are provided for convenience.

6.2 Instructions and procedure safety

Instructions and procedures in this section may require special precautions to ensure the safety of the personnel performing the operations.
Information that potentially raises safety issues is indicated by a warning symbol ( ). Refer to the following safety messages before performing an operation preceded by this symbol.

6.3 Battery replacement

⚠ WARNING

The Emerson Location Anchor shall be used only with the battery (00G45-9000-0001) supplied by Rosemount. This battery has been officially tested with the Location Anchor as required by the I.S. standards during the assessment of the Emerson Location Anchor. The battery is not replaceable in a hazardous location. Dispose of battery in accordance with local and national requirements.

Procedure

1. To replace the battery, remove devices from hazardous area.
2. Remove enclosure cover.
3. Switch the Location Anchor to "OFF".
4. Loosen the screw holding the electronics assembly to the enclosure.
5. Release battery connection from electronics board.
6. Loosen the two screws on the battery holder and slide the battery holder to the left.

Note
The screws holding down the electronics board do not need to be removed, just loosened. Take care not to let the battery fall out of enclosure.

7. Remove battery from enclosure.
8. Installation of new battery is the reverse of the removal.

6.4 Location Anchor status and notifications

The flashing LED indicates Location Anchor status using the colors described in Table 6-1. To see the LED, remove the enclosure cover.

Table 6-1: Anchor LED Status Descriptions

LED color		Device status
	Green	Functioning properly
	Amber	Battery is low, battery replacement recommended
	Red	Battery replacement required OR Device is malfunctioning
	No color	No power, verify ON/OFF switch is in "ON" position

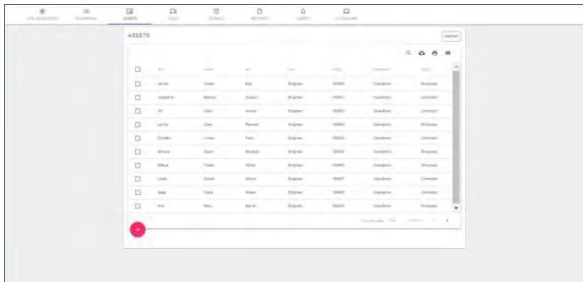
7 Personnel Tag configuration

7.1 Configuring Personnel Tags

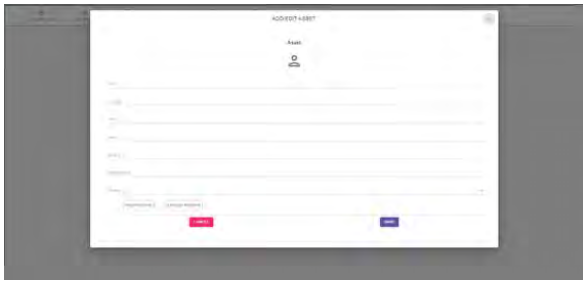
Personnel Tag configuration is completed within Plantweb Insight Location application. First, all personnel must be identified as Assets within the Asset page. Once personnel are identified as assets, they can be assigned to a specific tag. Configure Personnel Tags into Plantweb Insight Location application by following the steps below

Procedure

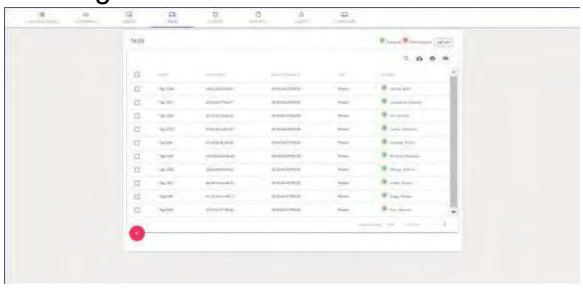
1. Add assests.



2. Define assets.



3. Add Tags.



4. NameTag.

8 Personnel Tag mounting considerations

8.1 Tag mount

The Personnel Tag has flexible wearing options to accommodate a variety of PPE. It can be worn with a lanyard or belt clip. Lanyards are shipped with the Personnel Tags. Belt clips can be ordered separately.

9 Personnel Tag operation and maintenance

9.1 Personnel Tag status and notifications

The flashing LED indicates Location Tag status using the colors described in Table 9-1. To see the LED, remove the enclosure cover.

Table 9-1: Personnel Tag LED Status Descriptions

LED color		Blink rate	Device status
	Green	1 blink per second	Normal operation
	Green / Red	Toggle blink	Safety Alert button has been activated
	Amber	1 blink per 0.5 seconds	Aggressive network search
	Amber	1 blink per second	Moderate network search
	Amber	1 blink per 2.5 seconds	Slow network search, conserving power
	Red	1 blink per second	Critical low battery AND Battery charge required
	No color	N/A	No power OR Shipping mode

9.2 Personnel Tag safety alert

The Personnel Tag has a Safety Alert button than can be exposed by sliding the grey cover downward. The red button, once pressed, sends an alert to

the Plantweb Insight Location application to inform that the personnel may need help.

9.3 Personnel Tag charging

The Personnel Tag has a rechargeable battery and is charged using a certified Qi charger. Emerson offers both a single charging pad and a bulk charging station (charges 28 tags). See Product Data Sheet for ordering details.

⚠ WARNING

The Personnel Tag should only be charged when the tag is at room temperature. If the tag has been in a cold environment, make sure to allow it to warm to room temperature before charging.

10 Product certifications

10.1 European Directive information

A copy of the EU Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at Emerson.com/Rosemount.

10.2 Telecommunications Compliance

All wireless devices require certification to ensure they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

10.3 Anchor Model GEO20 FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This devices may not cause harmful interference, this devices must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

This device complies with Industry Canada license-exempt RSS-247. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Changes or modification to the equipment not expressly approved by Rosemount Inc. could void the user's authority to operate the equipment.

Cet appareil est conforme à la Partie 15 de la réglementation FCC. Son fonctionnement est soumis aux conditions suivantes: Cet appareil ne doit pas causer d'interférences nuisibles. Cet appareil doit accepter toute interférence reçue, incluant toute interférence pouvant causer un fonctionnement indésirable. Cet appareil doit être installé pour assurer une distance minimum de l'antenne de séparation de 20 cm de toute personne.

Cet appareil est conforme à la norme RSS-247 Industrie Canada exempt de licence. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant causer un mauvais fonctionnement du dispositif.

Les changements ou les modifications apportés à l'équipement qui n'est pas expressément approuvé par Rosemount Inc pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement.

10.4 TAG Model GEO10 FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This devices may not cause harmful interference, this devices must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada license-exempt RSS-247. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Changes or modification to the equipment not expressly approved by Rosemount Inc. could void the user's authority to operate the equipment.

Cet appareil est conforme à la Partie 15 de la réglementation FCC. Son fonctionnement est soumis aux conditions suivantes: Cet appareil ne doit pas causer d'interférences nuisibles. Cet appareil doit accepter toute interférence reçue, incluant toute interférence pouvant causer un fonctionnement indésirable.

Cet appareil est conforme à la norme RSS-247 Industrie Canada exempt de licence. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant causer un mauvais fonctionnement du dispositif.

Les changements ou les modifications apportés à l'équipement qui n'est pas expressément approuvé par Rosemount Inc pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement.

10.5 Ordinary certification location from CSA

The product has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by CSA, a nationally recognized test laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

10.6 Installing in North America

The US National Electrical Code® (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

10.7 USA

I5 Intrinsically Safe (IS) **Certificate** [CSA] 80004152

Standards	ANSI/UL 60079-0-2013 (r2017), ANSI/UL 60079-11Ed. 6 (March 28, 2014), ANSI/UL 61010-1-2016 Ed. 3, ANSI/UL 50E-15 Ed. 2
Geo 10 Markings	Intrinsically safe for: Class I, Division 1, Groups A, B, C, D T4; Class I Zone 0, AEx ia IIC T4 Ga Ex ia IIC T4 Ga T4 (-20°C ≤ Ta ≤ +60°C) when installed per Rosemount drawing 00GEO-1106; IP66/67;
Geo 20 Markings	Intrinsically safe for: Class I, Division 1, Groups A, B, C, D T4; Class I Zone 0, AEx ia IIC T4 Ga Ex ia IIC T4 Ga T4 (-40°C ≤ Ta ≤ +70°C) when installed per Rosemount drawing 00GEO-1006; IP66/67, Type 4X;

Special Conditions for Safe Use (X):

1. Do not replace battery when explosive atmosphere is present.
2. Use only 00G45-9000-0001 batteries.

3. The surface resistivity of the housing is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

Note
Conditions 1, 2, 3 do not apply to the GEO10.

4. Substitution of components may impair intrinsic safety.

10.8 Canada

I6 Canada Intrinsically Safe (IS) **Certificate** [CSA] 80004152

Standards	CAN/CSA-C22.2 No. 60079-0:19, CAN/CSA-C22.2 No. 60079-11:14, CAN/CSA- C22.2 No. 61010-1-12 (r 2017), CSA C22.2 No. 94.1-15, CSA C22.2 No. 94.2-15
Geo 10 Markings	Intrinsically safe for: Class I, Division 1, Groups A, B, C, D T4; Class I Zone 0, AEx ia IIC T4 Ga Ex ia IIC T4 Ga T4 (-20°C ≤ Ta ≤ +60°C) when installed per Rosemount drawing 00GEO-1006; IP66/67;
Geo 20 Markings	Intrinsically safe for: Class I, Division 1, Groups A, B, C, D T4; Class I Zone 0, AEx ia IIC T4 Ga Ex ia IIC T4 Ga T4 (-40°C ≤ Ta ≤ +70°C) when installed per Rosemount drawing 00GEO-1106; IP66/67, Type 4X;

Special Conditions for Safe Use (X):

1. Do not replace battery when explosive atmosphere is present.
   Ne pas remplacer les accumulateurs si une atmosphère explosive peut être présente.
2. Use only 00G45-9000-0001 batteries.
   Utiliser uniquement des accumulateurs 00G45-9000-0001.

3. The surface resistivity of the housing is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
   La résistivité de surface du boÎtier est supérieure à un gigaohm. Pour éviter l'accumulation de charge électrostatique, ne pas frotter ou nettoyer avec des produits solvants ou un chiffon sec.

Note
Conditions 1, 2, 3 do not apply to the GEO10.

4. Substitution of components may impair intrinsic safety.
   La substitution de composants peut compromettre la sécurité intrinsèque.

10.9 Europe

I1 ATEX Intrinsic Safety

Certificate	SGS19ATEX0091X
Standards	EN IEC 60079-0: 2018, EN 60079-11: 2012
Geo 10 Markings	II 1 G Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ +60°C), IP66/67;
Geo 20 Markings	II 1 G Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +70°C), IP66/67, Type 4X

Special Conditions for Safe Use (X):

1. The plastic enclosure of the GEO20 Anchor may constitute a potential electrostatic ignition risk and must not be rubbed or cleaned with a dry cloth.
2. Do not change the battery when an explosive atmosphere is present.
3. Only replace battery with Rosemount Part No. 00G45-9000-0001.

Note
Conditions 1, 2, 3 do not apply to the GEO10.

10.10 International

I7 IECEx Intrinsic Safety

Certificate	IECEx BAS 19.0080X
Standards	IEC 60079-0: 2017, IEC 60079-11: 2011
Geo 10 Markings	Ex ia IIC T4 Ga (-20°C ≤ Ta ≤ +60°C), IP66/67;
Geo 20 Markings	Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +70°C), IP66/67, Type 4X.

Special Conditions for Safe Use (X):

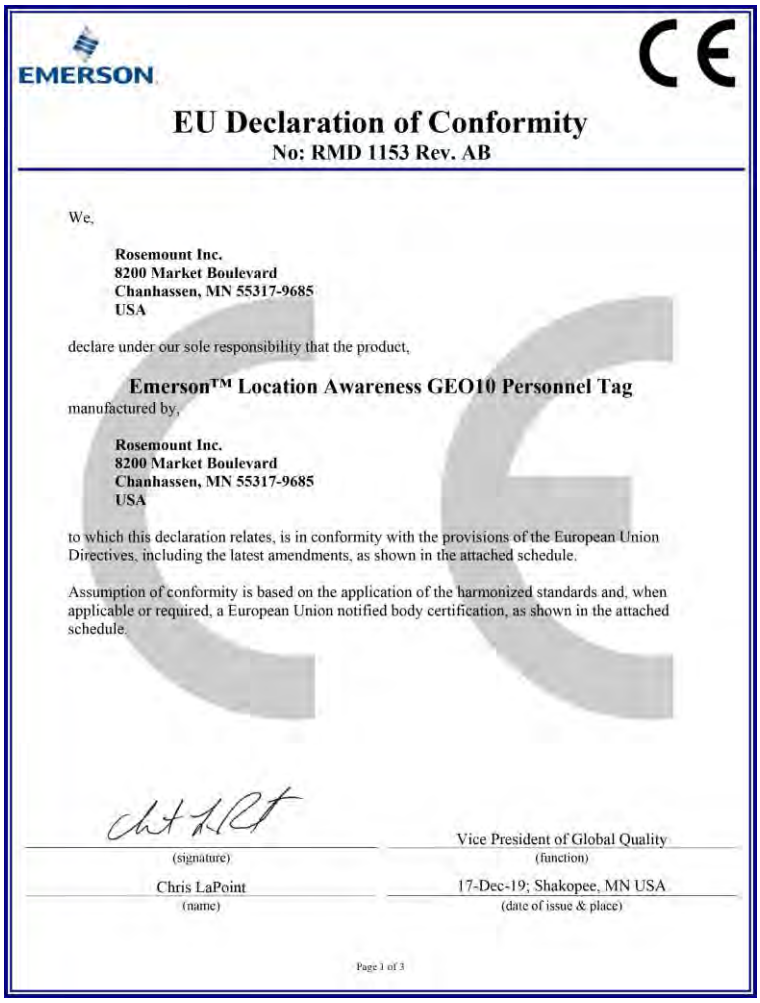
1. The plastic enclosure of the GEO20 Anchor may constitute a potential electrostatic ignition risk and must not be rubbed or cleaned with a dry cloth.
2. Do not change the battery when an explosive atmosphere is present.
3. Only replace battery with Rosemount Part No. 00G45-9000-0001.

Note

Conditions 1, 2, 3 do not apply to the GEO10.

11 Declaration of Conformity

11.1 Location Awareness Personnel Tag



EMERSON

CE

EU Declaration of Conformity
No: RMD 1153 Rev. AB

We,

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

declare under our sole responsibility that the product,

Emerson™ Location Awareness GEO10 Personnel Tag

manufactured by,

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

to which this declaration relates, is in conformity with the provisions of the European Union Directives, including the latest amendments, as shown in the attached schedule.

Assumption of conformity is based on the application of the harmonized standards and, when applicable or required, a European Union notified body certification, as shown in the attached schedule.

(signature)	Vice President of Global Quality (function)
Chris LaPoint (name)	17-Dec-19; Shakopee, MN USA (date of issue & place)

Page 1 of 3

EMERSON.

CE

EU Declaration of Conformity

No: RMD 1153 Rev. AB

EMC Directive (2014/30/EU)

Emerson Location Awareness GEOlO Personnel Tag

Hanll0nized Standards:

EN 61000-6-4:2007 +Al:2011 Class A+ EN 61000-6-2:2005/AC:2005

RED Directive 53/EU)

Emerson Location Awareness GE010 Personnel Tag

Harmonized Staooards:

EC 61010-1:201O, *AMD* 1:2016

EN 300 328 V2.1.1:2016

EN 303 417 VI.l.1 :2017

EN 301 489-17 V3.l.1:2017

EN 301 489-3 V2.l.1:2019

ATEX Directive (2014/34/EU)

Emerson Location Awareness GE010 Personnel Tag

SGS19ATEX0091X -Intrinsic Safety Equipment Group II Category 1G

Ex ia ITC T4 Ga (-20°C <c T,<c +60°C) (GEOlO Personnel Tag)

Harmonized Standards:

EN EC 60079-0:2018 EN 60079-11:2012

EMERSON.

CE

EU Declaration of Conformity

No: **RMD** 1153 Rev. AB

ATEX otified Body

SGS FIMKO *OY* (Notified Body Number: 0598]
P.O.Box 30 (Sarkiniementie 3)
00211 HELSINKI
Finland

ATEX Notified Body for Quality Assurance

SGS FIMKO OY (Notified Body Number: 0598)
P.O.Box 30 (Sarkiniemencie 3)
00211 HELSTNKT
Finland

11.2 Location Awareness Anchor

EMERSON.

CE

EU Declaration of Conformity

No: RMD 1154 Rev. AA

We,

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

declare under our sole responsibility that the product,

Emerson™ Location Awareness GE020 Anchor

manufactured by,

Rosemount Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

to which this declaration relates, is in conformity with the provisions of the..European Union Directives, including the latest amendments, as shown in the attached schedule.

Assumption of conformity is based on the application of the harmonized standards and, when applicable or required, a European Union notified body certification, as shown in the attached schedule.

(signan1re)	Vice President of Global Quality (function)
Chris LaPoint (name)	17-Dec-19;Shakopee, MN USA (date of issue & place)

rage 1 of 3

EMERSON.

CE

EU Declaration of Conformity

No: RMD 1154 Rev. AA

EMC Directive (2014130/EU)

Emerson Location Awareness GE020 Anchor
Hannonized Standards:
EN 61000-6-4:2007 +A1:201 I Class A+
EN 61000-6-2:2005/AC:2005

RED Directive (2014153/EU

Emerson Location Awareness GE020 Anchor
EC 61010-1:2010, AMDl:2016
EN 300 328 V2.l.1:2016
EN 301 489-17 V3.1.I :2017

Annex Directive (2014134/EU)
Emerson Location Awareness GE020 Anchor

SGS19ATEX0091X - Intrinsic Safety

Equipment Group II Category 1 G
Ex ia TIC T4 Ga (-40°C ST, S+70°C) (GE020 Anchor)

Harmonized Standards:
EN IEC 60079-0:2018
EN 60079-11:201 2

EMERSON.

CE

EU Declaration of Conformity

No: **RMD 1154** Rev. AA

ATEX Notified Body

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ATEX Notified Body for Quality Assurance

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00825-0100-4542

Quick Start Guide 00825-0100-4542, Rev. AA
February 2020

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Youtube.com/user/RosemountMeasurement

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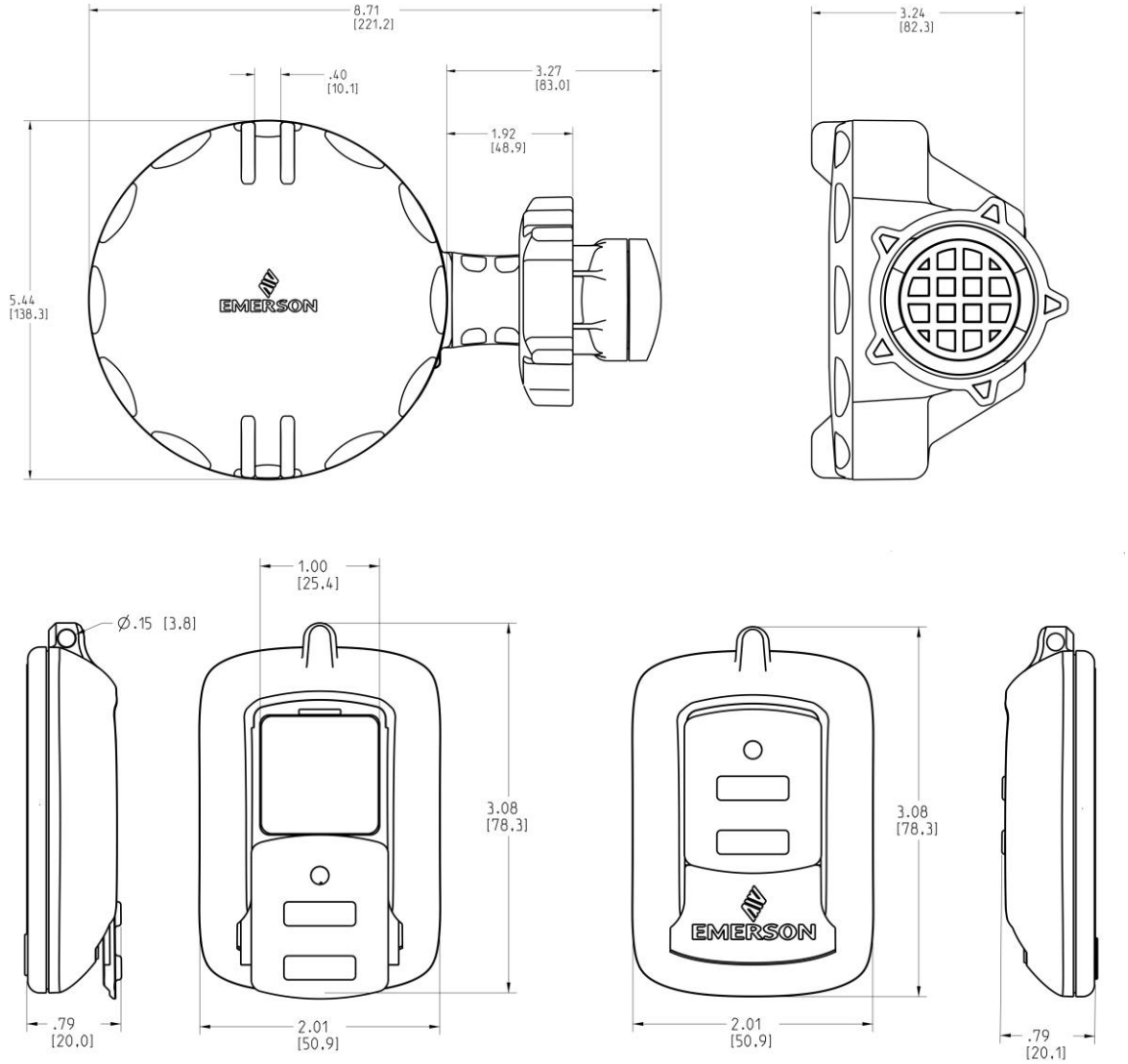
Dimensional drawings



Dimensions are in inches (mm).

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Rev. AA
May 2020

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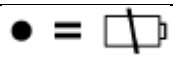
A.1 Accessories and Spare Parts

PART NUMBER	DESCRIPTION
00GEO-9001-0001	KIT, WIRELESS CHARGING PAD; CHOETECH T511-S
00GEO-9002-0001	KIT, LOCATION AWARENESS, TAG, LANYARDS
00GEO-9002-0002	KIT, LOCATON AWARENESS, TAG, PERSONNEL, BELT HOLSTERS
00GEO-9003-0001	KIT, LOCATION AWARENESS, ANCHOR, STAINLESS STEEL MOUNTING BAND
00GEO-9003-0002	KIT, LOCATION AWARENESS, ANCHOR, POLE MOUNT
00GEO-9003-0003	KIT, LOCATION AWARENESS, ANCHOR, COVER ASSEMBLY
00G45-9000-0001	BATTERY ASSEMBLY
00G45-9000-0002	BATTERY RETAINER ASSEMBLY
00G45-9000-0003	SCREWS FOR RETAINER AND SHROUD
00G45-9001-0002	COVER O-RING

Appendix B: Tools

B.1 Personnel Tag LED Status

LED Color		Blink rate	Device status
	Green	1 blink per second	Normal operation
	Green/Red	Toggle blink	User assistance button has been activated
	Amber	1 blink per 0.5 seconds	Aggressive network search
	Amber	1 blink per second	Moderate network search
	Amber	1 blink per 2.5 seconds	Slow network search, conserving power
	Red	1 blink per second	Critical low battery AND Battery charge required
	No Color	N/A	No power OR Shipping mode

Appendix C: Recommended Practices

C.1 Anchor to Anchor Grid Spacing

Heavy Obstruction: 100 ft. (30 m)–Typical heavy density plant environment; a truck or equipment cannot be driven through this.

Medium Obstruction: 150 ft. (45 m)–Typical light process areas; lots of space between equipment and infrastructure.

Light Obstruction: 200 ft. (60 m)–Typical of tank farms; despite tanks being big obstructions themselves, lots of space between and above makes for good RF propagation.

For examples and complete explanations, refer to the IEC62591 *Wireless*HART System Engineering Guide.

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