Triton ULTRA Administrator Manual

Covering the Triton ULTRA Smart Sensor. Overview of Device Features, Settings, Setup, Configuration, Support, and More.

Mission-Driven
Safety Technology

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Intro to Triton ULTRA

Important Considerations

About This Document

This is an administrator manual for the Triton ULTRA series of smart sensors. Triton ULTRA is intended for commercial use only and should never be installed in a residential setting. Triton ULTRA should always be installed by an experienced low voltage installer with knowledge of the product. Please consult Triton Sensors for any questions regarding the product or installation.

Legal Considerations

WARNING

Triton ULTRA and all other Triton Sensors products ARE NOT LIFE SAFETY PRODUCTS. Triton ULTRA and other Triton Sensors products do not replace smoke detectors, carbon monoxide sensors, or other similar products.

ATENCIÓN

Triton ULTRA y todos los demás productos de Triton Sensors NO SON PRODUCTOS DE SEGURIDAD. Triton ULTRA y otros productos de Triton Sensors no reemplazan a los detectores de humo, sensores de monóxido de carbono u otros productos similares.

ATTENTION

Triton ULTRA et tous les autres produits Triton Sensors NE SONT PAS DES PRODUITS DE SÉCURITÉ DES PERSONNES. Triton ULTRA et les autres produits Triton Sensors ne remplacent pas les détecteurs de fumée, les capteurs de monoxyde de carbone ou d'autres produits similaires.

Overview

Triton ULTRA is a next-generation smart sensor for advanced situational awareness and business intelligence. Triton is used by hundreds of organizations including schools, healthcare, retail, higher education, and more for a range of uses. Over 90% of Triton devices are installed in private spaces such as bathrooms, locker rooms, healthcare bedrooms, and more. However,

many organizations also rely on Triton to monitor public areas for metrics such as air quality, occupancy information, sound level trends, and more.

Triton ULTRA is a network IoT device and customers have the option between interacting with Triton through on-premise or cloud software. Triton also integrates with dozens of third party software programs such as video management systems and alert systems. The device alerts natively through email, SMS, HTTP, TCP, and MQTT. Additionally, there is a mobile app available for the Triton Cloud software option and customers can configure the on-device speaker and light and relays to react to different event types.

The device installs on virtually any ceiling type as well as walls with a decreased range and functionality. Triton can be powered by Power over Ethernet (PoE) or 12V DC input. Triton can connect to its network through Ethernet or WiFi connection and can be run air-gapped if necessary (with limited functionality).

Triton ULTRA comes pre-configured with a range of different alerts called “events” including vaping, THC, smoking, motion, people count, loitering, aggression, and more. However, Triton ULTRA can be configured with custom events based on sensor input, timing, and a profile of multiple sensors. Some event types rely on more than a simple sensor input and instead are the result of extensive AI training to accurately predict certain events. For example, Triton ULTRA’s drug classification is based on an advanced neural network and hundreds of hours of training data culminating in advanced distinction between vape, THC, masking, and smoking.

Features

Drug Detection:

- Vape Detection
- Smoking Detection
- THC Detection
- Masking Detection

Environmental Data:

- Temperature
- Relative Humidity
- TVOC
- Carbon Monoxide (CO)
- Carbon Dioxide (CO2)
- Nitrogen Dioxide (NO2)
- PM 1.0
- PM 2.5
- PM 10
- Formaldehyde (HCHO)
- Ethanol (C2H6O) Index
- Air Quality Index
- Health Index
- Risk Level

- Noise Level

Occupancy Data:

- Motion
- Occupancy
- People Count
- CrowdCount
- Loitering

AI Audio Detection

- Gunshot Detection
- Screaming and Shouting Detection
- Glass Break Detection
- Coughing Detection

Other Detection

- General Aggression (elevated noise level) Detection
- Tamper Detection
- Sensor Cover Detection

Software

Triton Enterprise Device Manager

Triton Enterprise Device Manager (TEDM) is the official on-premise management platform for Triton ULTRA devices. Use TEDM to view all devices on your network, and change settings such as IP Address configuration, ports, and firmware version. In a forthcoming release, TEDM will enable bulk configuration of Triton devices. Read the Setup section of this manual to learn how to use TEDM to discover new devices on the network.

Also use TEDM to log into the Triton Device Software for each individual device which is where the majority of device settings, integrations, and controls are managed. Clicking the “web” icon next to a device in TEDM opens the respective device’s software.

Triton Device Software

The Triton Device Software is a combination dashboard and management platform for the individual sensor. It is accessible through Triton Enterprise Device Manager or by typing the device’s IP address directly into a web browser. When logging in for the first time, the default username is **admin** and the default password is **Triton0520!** (previously **111111).** You may be prompted to change the default password upon logging in for the first time. Both the username and password are case sensitive. There is a deeper explanation of the Triton Device Software later in this document.

Triton Cloud

Triton Cloud is Triton’s cloud management, alerting, and reporting platform. The primary benefit of Triton Cloud comes from its multi-site organization of all sensors, advanced reporting and data retention across sensors, fast alerts through email, SMS, and mobile app, and Single Sign

On capabilities through Clever. If you do not currently have Triton Cloud but would like to explore upgrading, reach out to your sales representative to discuss upgrading.

Warranty

Triton ULTRA comes with a standard 10 year warranty against factory defects. To qualify for the warranty, your Triton ULTRA sensor must have been procured through an authorized Triton Sensors sales partner. You must also keep your Triton ULTRA installed in a location in accordance with its authorized operating environmental conditions and in an indoor environment. Triton's warranty covers factory defects but does not cover physical damage.

Support

Triton prides itself on fast and free support for all of its customers. Triton Sensors authorized sales partners are the primary support contact for customers. However, Triton offers a toll free support line for North American customers at (800) 305-1617 and a support email address at support@tritonsensors.com. Additionally, visit tritonsensors.com/support for a support form and documentation.

Hardware

Triton ULTRA is a multi-function network device. The device is recommended to be installed in ceilings but may also be installed wall mounted.

Power

Power over Ethernet (PoE)

Single PoE Power: ULTRA supports a single PoE input for power and data, or standalone power while using WiFi for connectivity.
PoE Daisy-Chain: ULTRA supports a PoE output to connect up to four sensors in a sequence to a single “home run” to a PoE Switch.

12V DC Power

ULTRA may be powered using its 12V DC power input.

Important Installation Considerations

Ceiling Height

For optimal performance of all features, it is recommended to install ULTRA at a ceiling height of 8.5 to 9.5 feet (2.59 to 2.9 meters). Higher ceiling heights may results in some detection features not working properly or at all. Lower ceilings can affect performance of the people counting, loitering detection, and occupancy visualization, in addition to other features.

Room Area

Triton recommends installing a Triton ULTRA unit every 160sqft (14.86sqm) to ensure all features work optimally.

Air Flow

Air flow from ventilation such as AC vents, open windows, etc. can disrupt the path of vape smoke from reaching the sensor. Ensure each sensor is installed away from sources of ventilation and close windows where possible for the best results in detecting vape, cigarette smoke, and other drug use.

Setup [Video Instructions]

Hardware Setup

- Sensors come with a DHCP IP, previous sensors were shipped with a default Static IP of 192.168.0.100.
- To quickly enable DHCP or change the static IP on the device, plug the Ethernet port marked “IN” into the PoE Switch and the port marked “OUT” into the computer. This will avoid the need to change your computer’s subnet to find the device on your network.
- When the device is at its desired IP, you can program it further through the device manager and web software.
- If you plan to communicate through dry contact, insert the green relay adapter into the device.
- Avoid installing the device in the ceiling until you have it fully configured.

Network Setup

Adding Devices

- Open the Triton Enterprise Device Manager and navigate to **Device Management** > **Auto Scan**
- **Auto Scan** will discover the device(s) on your network
- Go back to **Overview** and click **Automatic** to add these devices permanently
- Edit networking and login information directly from the device manager or click the “browser” icon to manage in the device software.

Device Programming

Changing Network Settings [Video Instructions]

In Triton Device Software:

- Navigate to **Network Config** > **IP Address**
- Enable or disable DHCP depending on your needs
- If DHCP is disabled, a static IP and other information must be set

Connect to WiFi

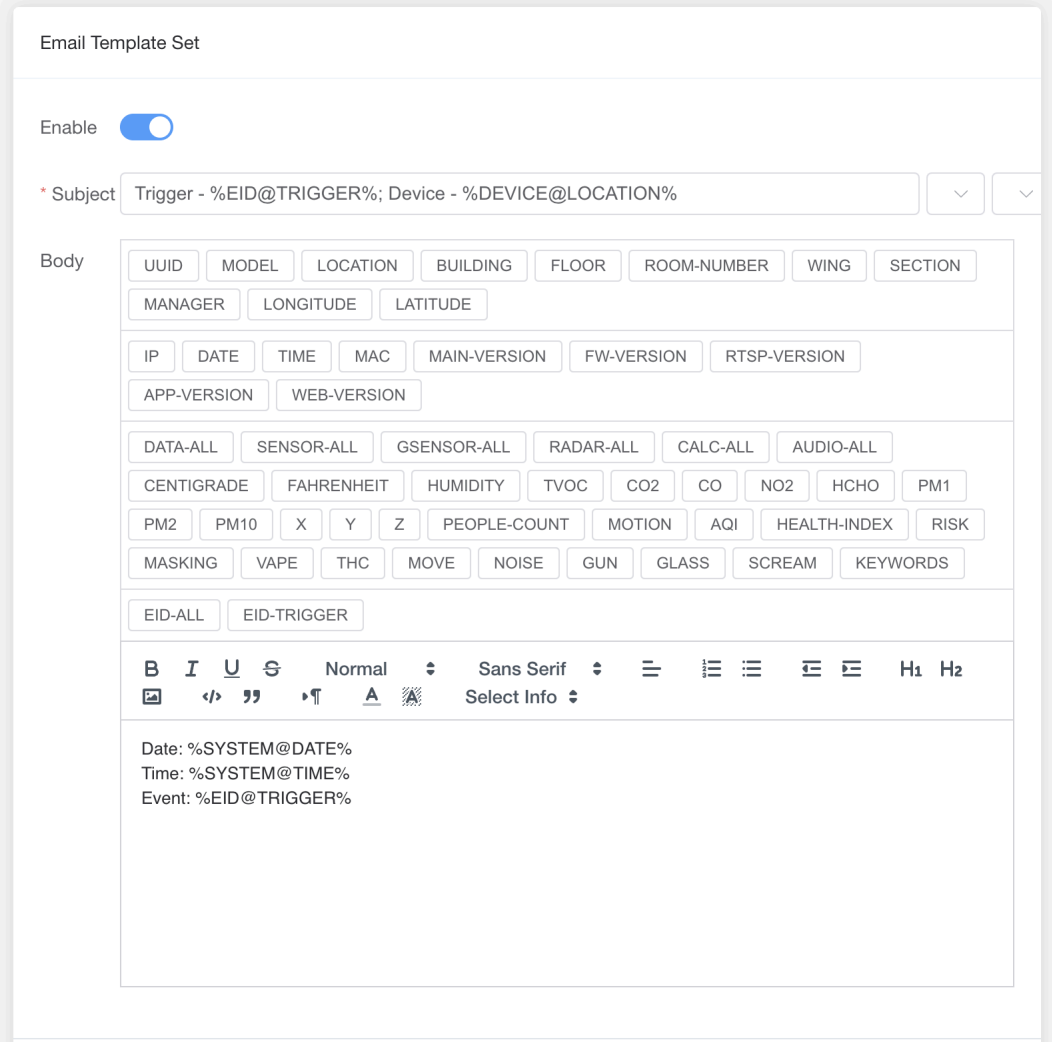
- Navigate to **Network Config** > **WIFI Config**
- Click **Enable**
- Enter the wireless network information
- Click **Save and Connect**

Email Alerts Configuration [Video Instructions]

Email Template Page:

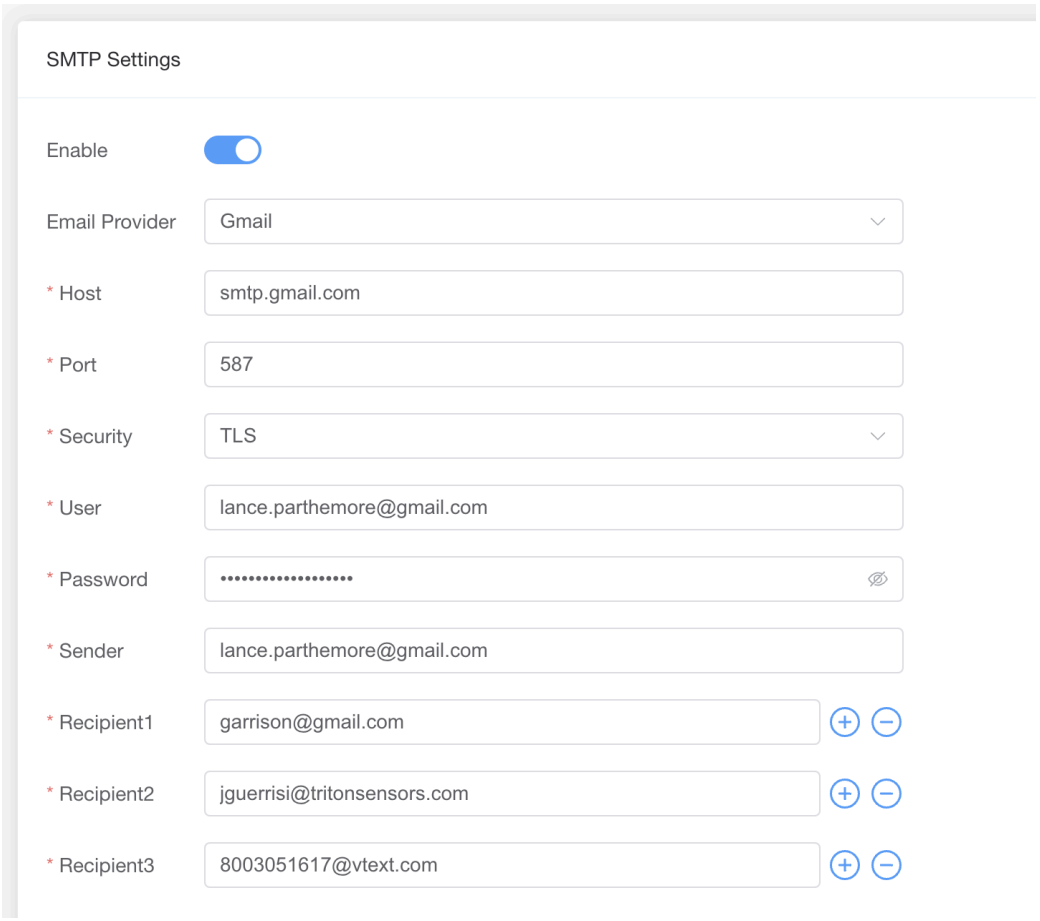
- Navigate to **Resource** > **Email Template**

- Enable if necessary. Change the default subject and body, using the wildcards as necessary



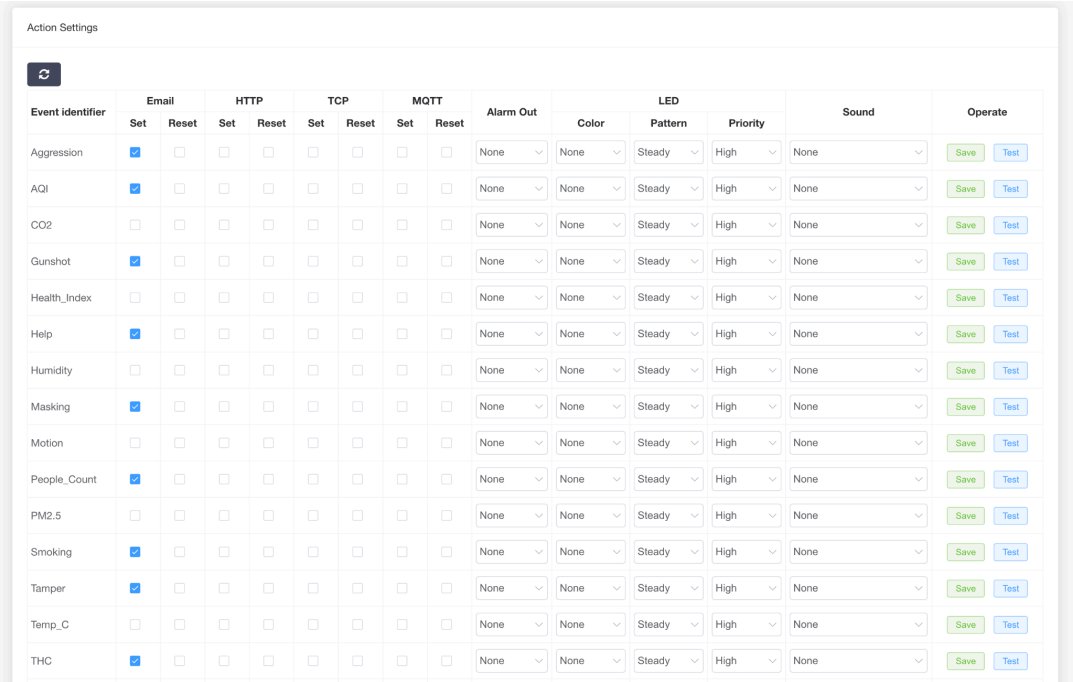
SMTP Settings Page:

- Enter your provider's SMTP information in accordance with the required fields (use the **Email Provider** field to apply default settings for Gmail or Outlook)
- Add one or multiple recipients by email or phone number for SMS
- Note that SMS texts are sent through SMTP to SMS. Not all carriers support this standard. The most common carriers are listed below and their numbers can be formatted in accordance with the below template.
    - Verizon: *number@vzwpix.com* or *number@vtext.com*
    - AT&T: *number@txt.att.net*
    - T-mobile: *number@tmomail.net*



Enabling Action Settings [Video Instructions]

Action Settings are where you choose what happens once an event is triggered. By default, there are no actions enabled on the device. Click the checkmark under an action to turn it on for a particular setting. For example, check “Email Set” for the vape event to get emails when vape is detected. Advanced protocols such as TCP, HTTP, and MQTT are for integrating the events with other systems. You may also choose to have the alarm relay, light, and speaker react to specific event types.



Upgrading Firmware

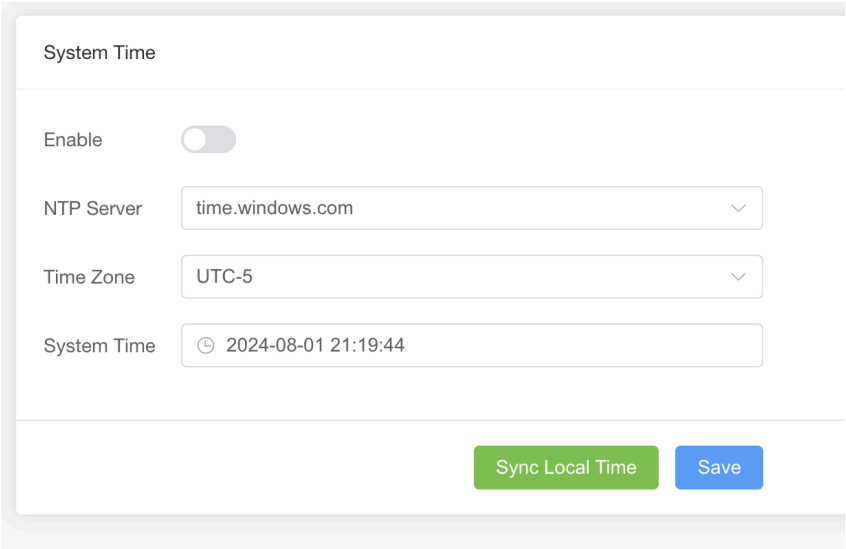
Note: Only use this setting if you have received a new software .bin file directly from Triton and its version number is later than the one listed in *Device Info.*
Note: This guide is for upgrading firmware through the individual device software. You can also upgrade multiple devices at a time from within the Triton Enterprise Device Manager.

- Navigate to **Device Settings** > **Upgrade**
- Click Upload
- Upload your .bin file
- Ensure the status says “Not Upgraded” and click the blue “Send” paper airplane icon
- Wait for the update to complete
- Do not restart the device or exit the page until the update is complete

Adjusting Common Device Settings

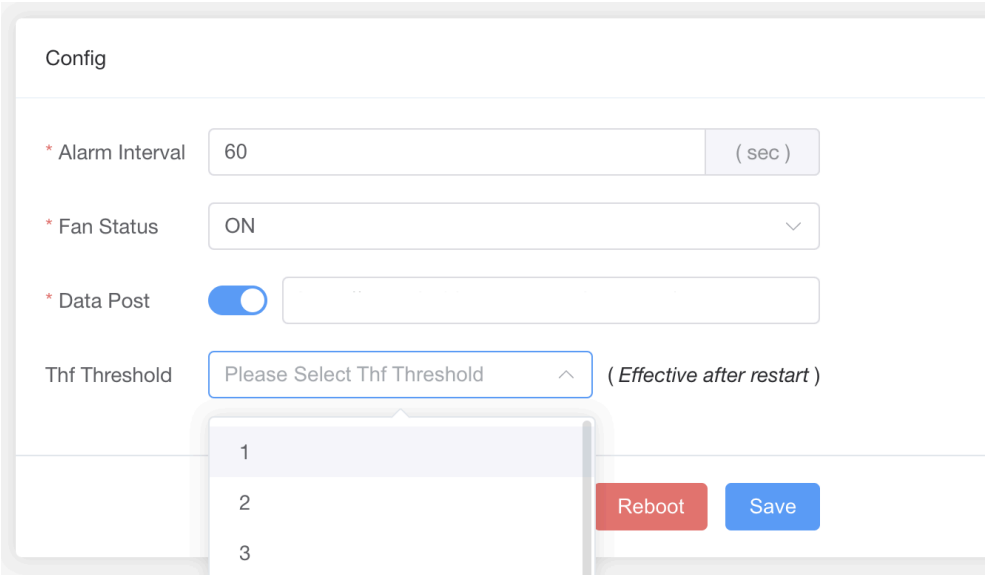
System Time:

- You may either sync the system time to a NTP server or with your computer’s time
- To sync with an NTP server, Click **Enable**, select an appropriate server and time zone, and click **Save**
- To sync with your time zone, unclick **Enable**, and click **Sync Local Time**. Finally click **Save**.



Emergency Keyword Sensitivity

- No adjust keyword detection sensitivity, navigate to **Device Settings** > **Config**
- Select THF Threshold and select an appropriate value
- 1 is the least sensitive, 10 is the most sensitive
- You will need to reboot the sensor for the settings to take effect



Custom Keywords and Multi-Language Support

- Coming soon

Triton Enterprise Device Manager Deep Dive

Overview Page

- Where devices are added, either automatically or manually
- **Automatic** searches the LAN for eligible devices
- **Manual** supports adding devices either through IP Address manually or by UUID
- **Note**: if devices are not new, you must input the device's current password. Otherwise, it will use the default password.
- Each device in the list will display important information by default such as UUID, MAC Address, Location, IP Address, and last time online.
- Click the blue "browser" icon to the right on the list to open the device's dashboard page

Device Management Page

- **Auto Scan** will search the LAN for devices connected to the network
- **Save List** allows you to download the current device information as a CSV file
- **Load List** allows you to upload a CSV file to the Device Manager. This should be a past file that was downloaded using the **Save List** function.
- **Save config** allows you to save the current configuration of the devices as a CSV file
- **Load Config** allows you to load a configuration CSV file. This should be formatted as a file that was downloaded from the **Save Config** function.
- **Clean List** clears the current device list on the Device Management tab.

Firmware Management Page

- Manage firmware files and update multiple devices at once in the firmware management page..
- Click **Upload** at the top to upload new firmware to the list
- Select one or multiple devices and click **Upgrade** to update the firmware on the selected device(s).
- Patiently wait for the update to take place. Do not close the program or disconnect the devices or computer from power or network access.

Triton Device Software Dashboard Deep Dive

Notification Icons Explanation

The blue icons on the right side of the screen on the dashboard page turn orange when a respective event is detected

Sensor Overview Dashboard

Sensor Data and Air Indexes

Multiple chemical and environmental measurements taken directly from the device's on-board sensor suite.
Temperature: ultra-accurate measurement from a thermopile temperature sensor
Humidity: relative humidity around the sensor
Total Volitile Organic Compounds (TVOC): this is a common benchmark measurement for air quality and represents VOCs in the air
Carbon Monoxide (CO): CO is a colorless, odorless gas that is highly toxic and can cause symptoms ranging from headaches and dizziness to unconsciousness and death. Early detection is vital for safety, especially in areas with fuel-burning appliances.
Carbon Dioxide (CO2): Elevated CO2 levels can indicate poor ventilation, leading to drowsiness, headaches, and decreased cognitive function. Maintaining optimal CO2 levels ensures a comfortable and productive indoor environment.
Nitrogen Dioxide (NO2): NO2 is a byproduct of the combustion process. High levels of NO2 can cause respiratory issues and increase the risk of infections. Monitoring NO2 helps in identifying and mitigating sources of indoor pollution.
Particulate Matter PM1.0 - PM10.0: High levels of particulate matter can cause respiratory problems, aggravate asthma, and decrease overall lung function. Monitoring these levels helps ensure the air is safe to breathe, especially for vulnerable groups like children and the elderly.
Formaldehyde (HCHO): Formaldehyde is a common indoor pollutant found in building materials and household products. Long-term exposure to formaldehyde can cause respiratory issues and is classified as a human carcinogen. Monitoring formaldehyde levels helps in identifying and reducing exposure sources.
Air Quality Index (AQI): The AQI provides a standardized indication of overall air quality based on multiple pollutant levels. The AQI helps you understand at a glance how clean or polluted the air is, and what associated health effects might be a concern for you and your family. It is a useful tool for making informed decisions about outdoor activities and ventilation needs.
Health Index: This index combines various air quality metrics to give a comprehensive assessment of the potential health impacts of the current air quality and its promotion of the spread of disease.

Risk Level: The Risk Level indicates the immediate risk posed by the current air quality, based on a combination of pollutant levels and health impact assessments.

Daily Comparisons

The device's software will automatically compare AQI and other metrics to the previous few days of data for an easy benchmark comparison.

Occupancy Visualization

Occupancy visualization is a key feature of Triton ULTRA. A web version is available on the dashboard page which displays key information such as people count, loiterer count, location, average time, and more.

Data Graph

The web software graphs the last hour of data to easily visualize and compare when an event takes place. Click hover over a data stream to visualize just that metric. Click on a metric name to exclude it from the list.

Device Settings

Device Info

UUID: a unique identifier similar to a serial number.
Model: the model name, Triton-ULTRA
Location: the name assigned to where the device is located
Latitude and Longitude: the exact location of the sensor for record keeping and servicing purposes
Additional information: also for record keeping and identification purposes
Versions: the respective versions for different device functions

System Time

Supports custom time, system time, and NTP server time sync.

Firmware Upgrade

Easily deploy a firmware update. See the Triton Enterprise Device Manager to bulk-deploy firmware updates.

Function Test

Test various functions of the device including lights, speakers, GPIO, and fan.

Management

Admin vs. Viewer Difference

Admin has full control over the device, settings, alerts, integrations, and recipients.
Viewer has read-only access and is mainly intended for viewing the dashboard and event logs.

Network Config

IP Address Config

Enable DHCP for connection to a DHCP network with automatic assignment. Disable and configure a static IP Address otherwise.

WIFI Config

Allows you to connect the device to the WiFi network for wireless management and when installed over 12V DC Power

Resources

Audio Config

Manage current audio files or upload new ones.

Email Template

This is where the alert email will be sent for events where enabled through Action Settings. Many customers choose to leave the default email template or to create one which fits their needs through the extensive wildcard list.

Event Settings

Event Identifier

The name assigned to the event that is being created

Data Source

The source of data which the event is derived from

Threshold

The level at which an event will alert from when exceeded. Note that some events such as drug detection (vape, THC, cigarette, etc) are AI based and do not need a threshold. For these, threshold acts more as a sensitivity. Additionally, for state change events such as keyword detection and glass break detection, a threshold is also not necessary.

Advanced (coming soon)

Default Event Types

There are multiple pre-configured event types which are meant to cover many of the most popular use cases for Triton ULTRA

Adding New Event Types

Customers can of course add their own event types and choose a custom data source and threshold. Advanced features such as combinations of data sources and custom timing and logic are coming soon.

Action Settings

Trigger Settings

When an event is detected, what follows depends on what is checked in Action Settings. This is usually an email or a platform integration through HTTP, TCP, or MQTT. It can also be an alarm, siren, or light change.

Tie-In With Platform Integrations

When a platform tie-in such as HTTP, TCP, or MQTT is triggered, the message that sends depends on what is defined in the Platform Integrations page.

Alarm Out

Pulls the dry contact on the device to trigger an external relay such as a speaker, door, light, etc.

Light

The multi-color on-device LED can react in a number of ways to different event types such as by having different color or pattern reactions.

Priority

This dictates the priority in which actions are taken if two events are triggered simultaneously. A lower number such as 1 or 2 will be given higher priority than a higher number such as 6 or 7.

Speaker

Play pre-configured or custom audio files when an event is triggered.

Platform Integrations

Wildcard Definitions
%DEVICE@UUID% - Device UUID
%DEVICE@MODEL% - Triton ULTRA
%DEVICE@LOCATION% - Custom Location of the device, configured in device settings
%DEVICE@BUILDING% - Custom Building of the device, configured in device settings
%DEVICE@FLOOR% - Custom Floor of the device, configured in the device settings
%DEVICE@ROOMNUMBER% - Custom Room Number of the device, configured in device settings
%DEVICE@WING% - Custom wing of the device, configured in the device settings
%DEVICE@SECTION% - Custom section of the device, configured in the device settings

%DEVICE@MANAGER% - Custom manager of the device, configured in the device settings
%DEVICE@LONGITUDE% - Longitude of the device, configured in the device settings
%DEVICE@LATITUDE% - Latitude of the device, configured in the device settings
%SYSTEM@IP% - Current IP Address of the device
%SYSTEM@TIME% - Current Time (formatted as HH:MM:SS AM/PM)
%SYSTEM@DATE% - Current date (formatted as MM/DD/YYYY)
%SYSTEM@MAC% - MAC Address of the device
%SYSTEM@MAINVERSION% - Current Version number of the Main application
%SYSTEM@FWVERSION% - Current Version number of the firmware
%SYSTEM@RTSPVERSION% - Current version number of the RTSP Settings
%SYSTEM@APPVERSION% - current version number of the Application Settings
%SYSTEM@WEBVERSION% - Current version number of the Web Application
%DATA@ALL% - All device data, formatted as a .json
%SENSOR@ALL% - All sensor data, formatted as a .json
%GSENSOR@ALL% - All accelerometer sensor data, formatted as a .json
%RADAR@ALL% - All radar data, formatted as a .json
%CALC@ALL% - All radar calculations, formatted as a .json
%AUDIO@ALL% - All audio data, formatted as a .json
%SENSOR@CENTIGRADE% - Current temperature, in Centigrade
%SENSOR@FAHRENHEIT% - Current temperature, in Fahrenheit
%SENSOR@HUMIDITY% - Current humidity, in %rh
%SENSOR@TVOC% - Current TVOC count, in ug/m^3
%SENSOR@CO2% - Current CO2 measurement, in ppm
%SENSOR@CO% - Current CO measurement, in ppm
%SENSOR@NO2% - Current NO2 measurement, in ppb
%SENSOR@HCHO% - Current HCHO measurement, in ug/m^3
%SENSOR@PM1% - Current PM1.0 measurement, in ug/m^3
%SENSOR@PM2% - Current PM2.0 measurement, in ug/m^3
%SENSOR@PM10% - Current PM10.0 measurement, in ug/m^3
%GSENSOR@X% - Current X-axis acceleration, in mm/s^2
%GSENSOR@Y% - Current Y-axis acceleration, in mm/s^2
%GSENSOR@Z% - Current Z-axis acceleration, in mm/s^2
%RADAR@PEOPLECOUNT% - Approximated People Count detected by device
%RADAR@LOITERCOUNT% - Approximated Loiter Count detected by device
%RADAR@MOTION% - Detection value by motion sensor
%CALC@AQI% - Current AQI by device
%CALC@HEALTHINDEX% - Current health index of device
%CALC@RISK% - Current risk level of environment
%CALC@MASKING% - Current extremety of Masking detection, (1, 2, or empty)
%CALC@VAPE% - Current extremity of Vape detection (1,2, or empty)
%CALC@THC% - Current extremity of THC detection (1,2, or empty)
%CALC@MOVE% - Current value of movement of device, by accelerometer, in mm
%AUDIO@NOISE% - Current Audio level of device, in dB
%AUDIO@GLASS% - Current extremity of Glass Break detection (1, 2, or empty)

%AUDIO@SCREAM% - Current extremity of Scream detection (1, 2, or empty)
%AUDIO@KEYWORDS% - Current keyword detected by device
%EID@ALL% - All Event Reports, formatted as .json
%EID@TRIGGER% - Only Event Reports in alarm state, formatted as .json
%EID@TRIGGERNAME% - Name of Event that is currently in alarm state

TCP / HTTP / MQTT Settings

Each of these is a messaging protocol to interact with a third party system. Each system is designed to ingest different data and respond accordingly. Refer to our integration guides for such systems to learn more.

RTSP Settings

RTSP is enabled by default and the settings do not need to be changed on most video management systems.

Heartbeat

Send continuous data at a pre-defined interval through HTTP, TCP, or MQTT. Choose text or JSON format and utilize Triton’s extensive wildcards.

SMTP Settings

This is where to put email sending SMTP credentials. Contact your administrator for your SMTP login information or create a free Gmail account and use the Gmail template with its username and password to act as a dedicated sender.

Data List and Data Log Download

Data List

Extensive log data taken every minute by the sensor. You can download this data for analysis. Data is stored for up to six months.

Event List (coming soon)