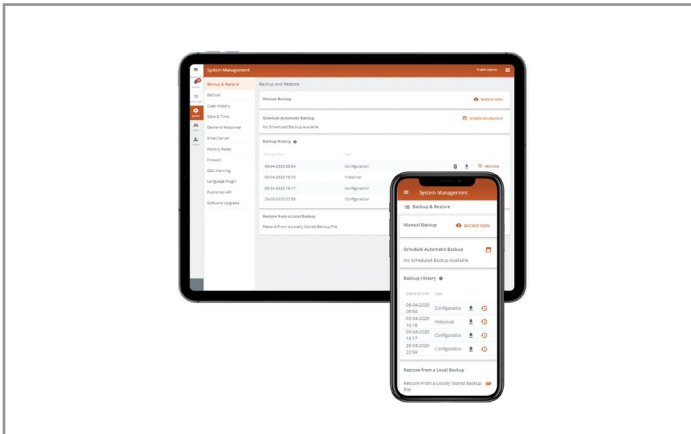


Project		Catalog #		Type	
Prepared by		Notes		Date	



# Trellix

## Trellix 9.0 - Admin

### Enterprise Lighting Management Application

#### Typical Applications

Office • Education • Healthcare • Industrial

#### Interactive Menu

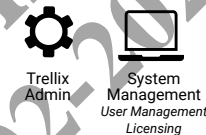
- Order Information page 2
- Additional Resources page 3
- Connected Systems page 5
- Product Warranty

#### Product Certification

Supported HTML 5/Javascript compatible browser:

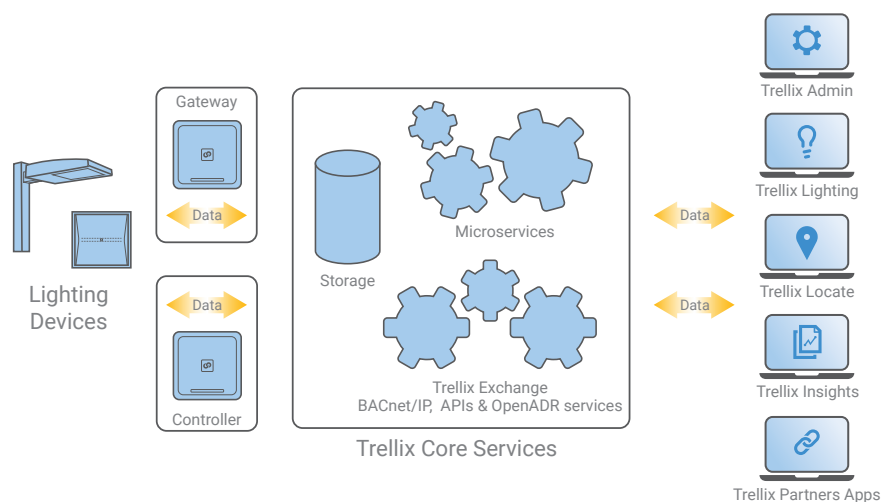
- Microsoft Edge 80+
- Google® Chrome 75+
- Safari 11+

#### Product Features



#### Top Product Features

- **IoT Platform Management** – Easily perform system maintenance tasks such as software updates of the Trellix Core platform or devices connected to Trellix Core, manual or schedule backup of the system configuration file and historical data, language selection, email configuration.
- **Alarm Management** – Monitor alarms generated by the system and applications hosted by the platform. Filter the alarms based on the alarm tags such as source, type, date and time
- **Users and Roles Management** – Provide tenant and function level access to the applications by managing users, user roles and users' areas/department of responsibility.
- **Applications/Features management** – Manage the software licenses that manage the applications and interfaces hosted on the Trellix platform.



## Order Information

There is no catalog number for the Trellix Admin application.

The Trellix Core (Pro, Enterprise, Virtual) platforms are preloaded with the Trellix Admin application at no extra cost.

### Notes

1. All Trellix Core platforms are shipped with a base software license which enables all the Lighting features for 250 devices except for Occupancy dashboard, API, BACnet and OpenADR.
2. Trellix Locate application is not available with the base software license.
3. For a system with more than 250 devices, the users must order software license adders for the applications and interfaces that they are planning to use. Please refer to Trellix Lighting, Trellix Locate, Trellix BACnet, Trellix Public API Trellix OpenADR datasheets to learn more about the software license catalog numbers.
4. Please refer to the Trellix Core datasheet to learn more about the capability of each platform, i.e. Trellix Pro (TRX-TCPR02), Trellix Enterprise (TRX-TCENT2) and Virtual Trellix Enterprise (TRX-TCVRT2).

## Product Specifications

### Key Features

**Manage the Smart Spaces IoT Platform** – Easily manage the Trellix Smart Spaces IoT Platform and its core services. Using the Trellix Admin application you would configure the IoT platform general settings such as time, network address and email server, manage the various interfaces, enable/disable and test Demand Response, perform system upgrades, backups and restore for Trellix system manually or at a specified time.

**Manager users and user roles** – Let you to create, edit, and delete user accounts and associate an account to an application specific role and areas of responsibility. The Trellix Admin allows you to create a custom role for each application (Lighting, Locate) based on pre-defined permissions.

**Manage the Open Standard based Interfaces** – Manage the BACnet/IP and Public (REST) APIs that allows data exchange between your connected lighting system and your other systems such as Building Automation Systems and Smart Building platforms hence unlocking the value of the data gathered by your lighting system.

- Please refer to the Trellix's Published API, BACnet/IP datasheets for more information as well as Trellix BACnet Protocol Implementation Conformance Statement (PICS).
- The OpenADR interface that allows system integrator to easily integrate a networked WaveLinux Pro system with a utility company's OpenADR Demand Response Automation Server (DRAS) and retrieve live power demand information from that company. Please refer to the Trellix's OpenADR Datasheet for more information.

**Designed for Touch and Mobility** – You are no longer tied to your desktop to view and manage your connected lighting system. Our responsive applications are designed for touch. You can interact with the applications from any device with a web browser, i.e. smartphones, tablets and desktop computers.

### Software Specifications

**Supported HTML 5/Javascript compatible browser:**

- Microsoft Edge 80+
- Google® Chrome 75+
- Safari 11+

**Supported Screen Resolution:** 1024 x 768 or higher

### Compatibility

- Please refer to the WaveLinux Pro System Release Notes for firmware compatibility matrix.

### Warranty

- Consult website for warranty information.

## Trellix Smart Spaces IoT Overview

Trellix is an on-premises smart spaces IoT platform that moves real-time monitoring and processing to the edge to allow you gain faster insights of their buildings operations and business processes and drive efficiencies and effective decisions using Trellix apps and partners apps.

The platform manages the trellix of digital sensors embedded in your connected LED lighting, collects the data gathered by the sensors and analyzes the data to provide meaningful insights to users.

This on-premises platform hosts Trellix Core Services, a set of microservices required for fully functional IoT solutions, Trellix Exchange, a set of interfaces to allow data exchange with third party apps and Trellix Apps, a set of Cooper Lighting Solutions developed applications designed to serve the Connected Spaces.

Trellix IoT enterprise platform simplifies day-to-day operations as well as integrations with the other sub-systems operating a building. Once the Trellix Core is connected to the connected lighting system, Trellix platform assumes the roles of the system's supervisory manager, historian, gateway and security.

As a supervisory manager, Trellix allows users to perform high-level lighting supervisory management tasks, i.e. monitoring of the connected lighting system, making changes to the lighting schedule as well as issuing control commands such as changing a room's lighting level. User performs these tasks using the Trellix Lighting application.

As a historian, Trellix aggregates the data received from the connected lighting system and stores it in the time-series database. The data can then be visualized using the Trellix Dashboards.

As a system gateway, Trellix aggregates the data received from the connected lighting system. It then handles the data exchange between the WaveLinX Pro system and third party systems such as Building Automation Systems, A/V systems, Shade control systems through the BACnet/IP and REST API services.

As a security system, Trellix manages and authenticates users and third-party clients that can access the applications and the data using OAuth2, the industry standard for authentication. Once authenticated, users and clients have access to specific features based on their permissions.

## Trellix Core Services Overview

Trellix Core Services consist of:

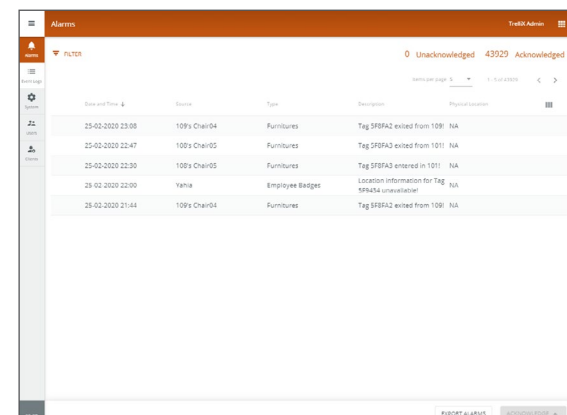
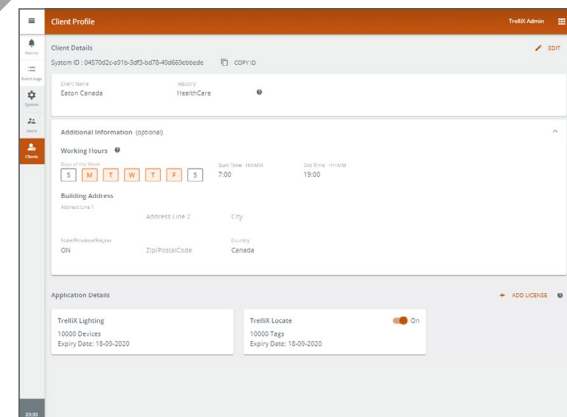
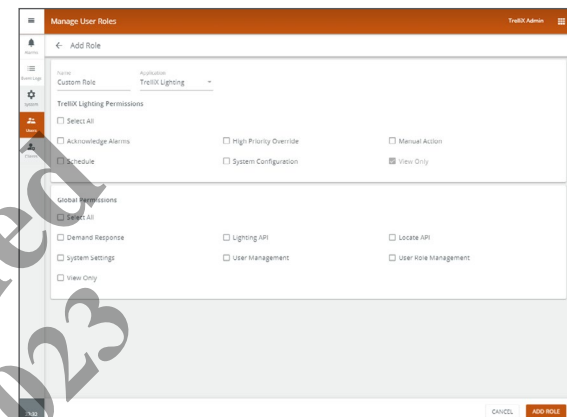
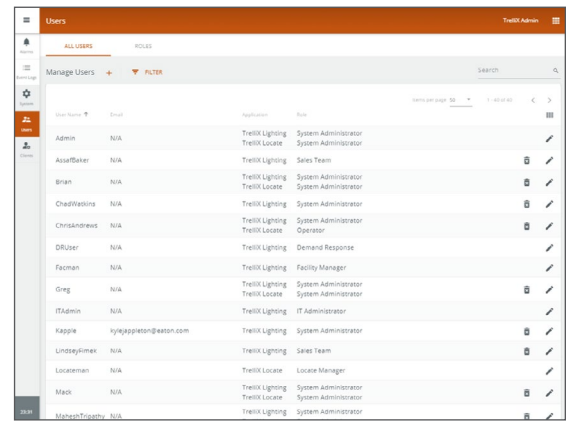
- **Connectivity service** – Manages data exchange with WaveLinX area controllers and gateways using Cooper Lighting Solutions API.
- **Message Routing service** – Manages the routing of the received data to the other Trellix Core microservices.
- **Data Management service** – Manages the real-time data received from the various sources as well as aggregated data for data analytics.
- **Device and Spatial Object Management service** – Manages (add, edit, remove) devices connecting the platform as well as spatial objects, such as clients, buildings, floors and areas, defined within the platform.
- **Event Management service** – Manages the events generated by the devices and spatial objects.
- **Location service** – Computes the location of the assets based on received BLE data.
- **Security service** – Ensure secure data exchanges between the various Core components/microservices.
- **Authentication and Authorization service** – Manages the users that can safely connect to the Trellix platform and applications as well as the roles/permissions/areas of responsibility for each user.
- **OS and Applications Management service** – Manages the operating system and applications hosted on the Trellix platform.
- **Interfaces service** – Manages the various interfaces, REST API and BACnet/IP, OpenADR used for data exchange between the WaveLinX Pro system (energy, occupancy, daylight, location) and building automation systems, smart building and Cloud based IoT platforms.

## Web Based User Interface

Trellix platform offers web-based applications that allow users to configure and manage the connected lighting system from any computing devices with one of the supported web browser (refer to specification section). The user interface has been designed to allow system integrators and facility managers to easily configure the connected lighting system, i.e. discover the area controller, import the real-time control logic data from the area controller, establish data exchange between the area controller and the Trellix Core, and expose the data to third party systems.

The user interface has been carefully divided into four sections: the Trellix bar, Navigation toolbar, the Explorer, the main panel and property panel.

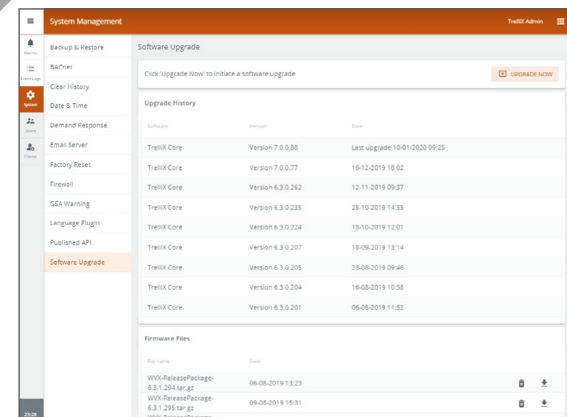
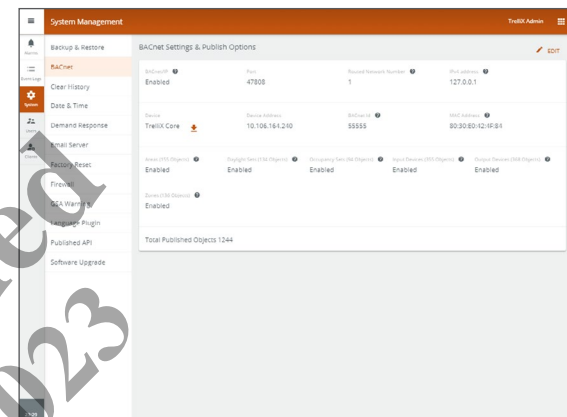
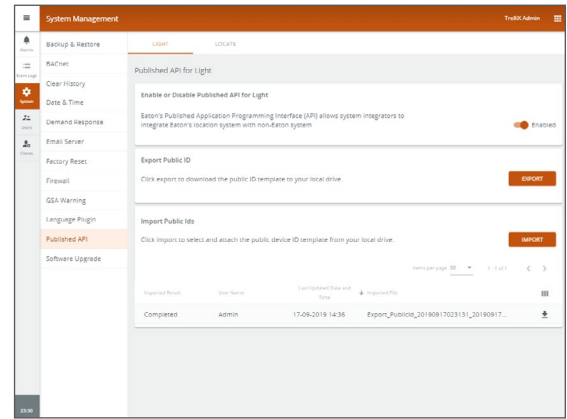
The **Trellix App Selector** is how users switch between applications, i.e. Admin, Lighting and Locate). The **Navigation Toolbar** is how users navigate between the application's key modules. The **Explorer** allows users to navigate through the building's hierarchy (client, building, floor, area, zone) and system hierarchy (area controllers, devices). The **Property** panel allows users to view the properties of the various assets managed by the system such as floors, areas, sensors as well as initiate device specific actions.



## Trellix Admin

Using a toolbar, users can access the various programming and management modules. The toolbar is comprised of the following main modules:

- **Alarms** – View the health of the platform, the devices connected to the platform and any notifications generated by the Trellix applications. All faults are displayed as alarms. Alarms come with troubleshooting tips that allow users to troubleshoot the fault. The alarms can be exported as a pdf report or csv output.
- **Event Logs** – View all system notifications (alarms and notifications) occurred in the past. The notifications can be exported for analysis as csv output.
- **System** – Configure the systems general settings such as time, network address and email server. They can also manage the various interfaces used by third party systems, i.e. BACnet/IP, Public API, OpenADR. They can also enable/disable and test Demand Response. Finally, they can backup/restore the Trellix Core database and upgrade the Trellix Core software and area controllers connected to it manually or at a specified time. The application now supports audit logs. User sessions along with user activity like schedule changes, network changes, manual actions, data sync etc. This information can be downloaded in an excel file format.
- **Users** – Manage users that can access the applications as well as roles with their associated permissions. For Trellix Lighting application, each user will have an area of responsibility, i.e. spaces that they have access to. For Trellix Admin, each user will have a department of responsibility, i.e. assets associated to the department that they have access to. Finally users can also create custom roles based on pre-defined permissions to meet their organization needs.
- **Organizations** – Easily manage your product licenses and get real-time notifications when your system is non-compliant.



## Sample System Topology:

This diagram shows the main components of the WaveLinx wired and Pro wireless connected lighting system.

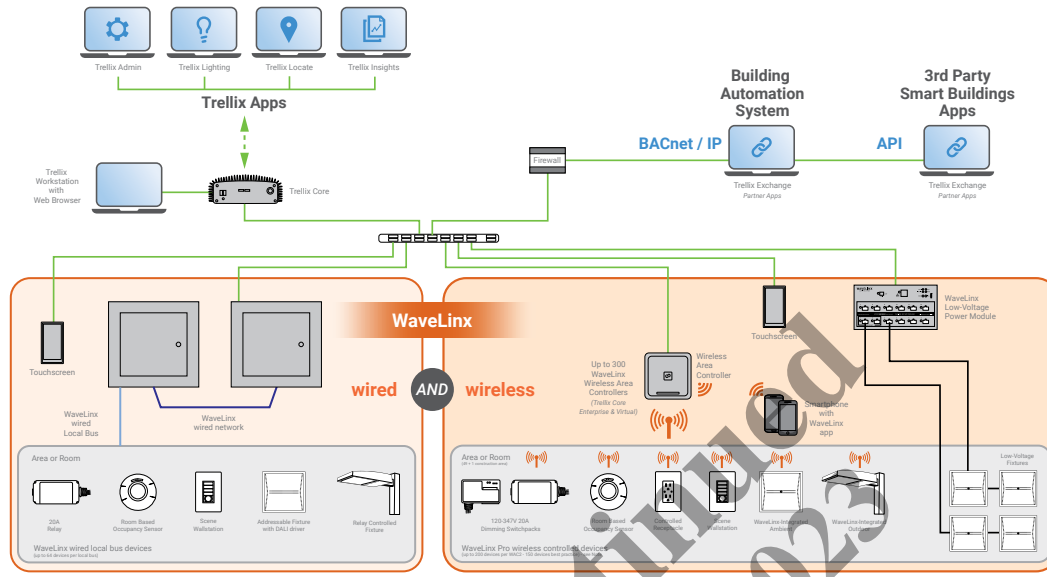
The **WaveLinx Pro wireless system** communicates using wireless mesh technology based on the IEEE 802.15.4 standard.

A PoE LAN connection for each Wireless Area Controller (WAC) is required for power and data access to the building lighting network.

The **WaveLinx wired system** controls the devices using relay, 0-10V, DMX and the WaveLinx wired digital local bus. The WaveLinx wired system connects to the building LAN using EG2-S-NA module, mounted within the WaveLinx Wired Area Controller. Each WaveLinx wired area controller communicates on the WaveLinx wired network.

WaveLinx Pro Wireless Area Controllers (WAC) and WaveLinx Ethernet Gateways (EG2-S-NA) communicate with Trellix over the Ethernet network.

Please refer to the WaveLinx Pro Wireless Network and IT Guidance Technical Guide and WaveLinx Wired Network and IT Guidance Technical Guide for more information.



		WaveLinx wired	WaveLinx Pro wireless
Trellix	Connects to Trellix Core (Pro, Enterprise, Virtual)	●	●
	# of WAC or EG2-S-NA / # of devices per Trellix Core Pro	2 / 3000	20 / 3000
	# of WAC or EG2-S-NA / # of devices per Trellix Core Enterprise	10 / 32,500*	300 / 32,500*
	# of WAC or EG2-S-NA / # of devices per Trellix Core Virtual Enterprise	10 / 32,500*	300 / 32,500*
Trellix Lighting	Connecting device	EG2-S-NA	WAC2-POE
	Alarms	○	●
	Events	●	●
	Operate (floorplan control)	●	●
	Operate - area control	●	●
	Operate - zone control	●	●
	Operate - device control	●	●
	Scheduling	○	●
	Energy Dashboard	●	●
Trellix Exchange	Occupancy Dashboard	●	●
	BACnet/IP	○	10,000 objects with Trellix Pro up to 30,000 with Enterprise/Virtual
	Public (REST) API	○	●
	OpenADR	●	●
Trellix Admin	Demand Response	●	●
	Manage Users	●	●
	Manage roles	●	●
	Manage clients	●	●
	Manage licenses	●	●
Trellix Insights	System settings (backup/restore, network etc)	●	●
	Occupancy Trends and Comparison	●	●
	Average Occupancy	●	●
	Occupancy on Floor Plan	●	●
	Generate and Export Reports to pdf	●	●
	Hierarchical Navigation	●	●
	Quick Search	●	●
	Department Filter	●	●
	Historical View	●	●
	Popular Spaces	●	●

\* For larger number of gateways and devices, please contact Cooper Lighting Solutions Sales representatives. Recommend designing the system at 70-80% of maximum capacity. Specifications based on WAC2-POE. The number of gateways and devices mentioned above are the total for a single system or the combination (Wired + Wireless) that can be used with a server.

● = All features ○ = Subset of features

## Control Systems

- Trellix
- WaveLinx Pro wireless
- WaveLinx wired
- VividTune