ACKSYS
COMMUNICATIONS & SYSTEMS

WaveManager

Version 4.6.0.1

- User Manual-

ACKSYS
COMMUNICATIONS & SYSTEMS

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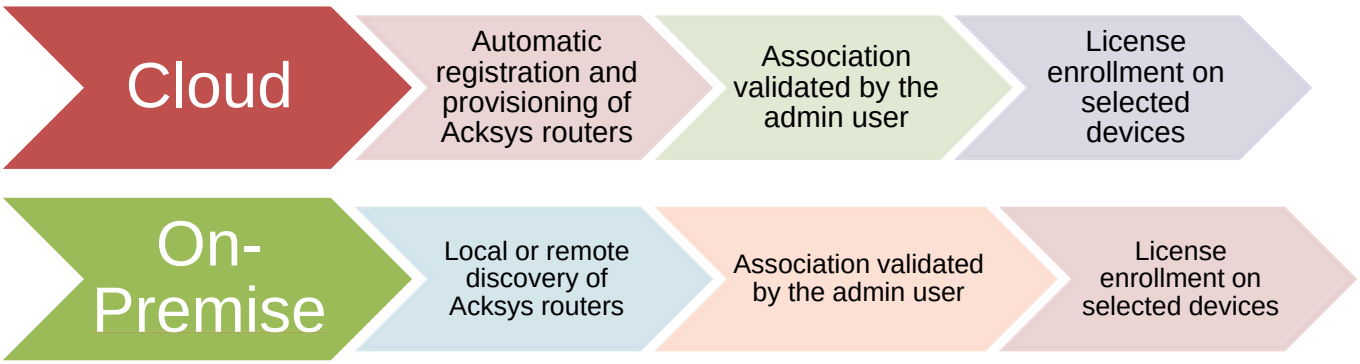
1 DESCRIPTION

WaveManager 4.6.0.1 is a centralized management platform with an integrated MQTT broker, designed to supervise, configure, and maintain **Acksys wireless devices** (WaveOS MQTT client).

It provides **real-time monitoring**, configuration templates, firmware management, and diagnostic tools to simplify network administration across industrial and large fleet environments.



2 TECHNICAL PREREQUISITES

WaveManager On Premise Prerequisites

Before starting the installation, ensure the following are in place:

Hardware Requirements:

- Processor: Minimum quad-core CPU (e.g., Intel Xeon, AMD Ryzen).
- Memory: At least 16 GB RAM (32 GB recommended for large deployments).
- Storage: Minimum 100 GB of free disk space.
- Network: Static IP address for the WaveManager server.

Software Requirements:

For Server :
  - Operating System:
    - Windows 10 or 11,
    - Ubuntu 24.04
- DataBase:
  - In case of using an external Database
    - PostgreSQL 15+ DataBase (Recommended).
    - MSSQL Database
- For Product:
  - Operating System:
    - WaveOs 4.32.0.1 or greater

Firewall listening Ports Requirements:

To ensure proper operation, WaveManager requires the following ports to be opened on the host firewall and allowed through any network firewalls between WaveManager and managed devices:

Default port settings (it can be changed for web server and worker service):

Port	Protocol	Purpose / Role
5000	TCP	Web access to the WaveManager interface
6000	TCP	Worker service communications
443	TCP	Connection to the broker (secure HTTPS)
UDP	Dynamic, starting at 11000	Device discovery and management (UDAP)

Link to download WaveManager On-premise Installer

Visit ACKSYS web portal to download the on-premise installation package: https://www.acksys.fr/

WaveManager Cloud Prerequisites

A Modern Web Browser with web standard Web Assembly:

- Google Chrome : from version 57
- Microsoft Edge : from version 79

- Mozilla Firefox : from version 52
- Safari : from version 11
- Opera : from version 44
- No need to install any additional software or plugins.

A WaveManager Cloud Account:

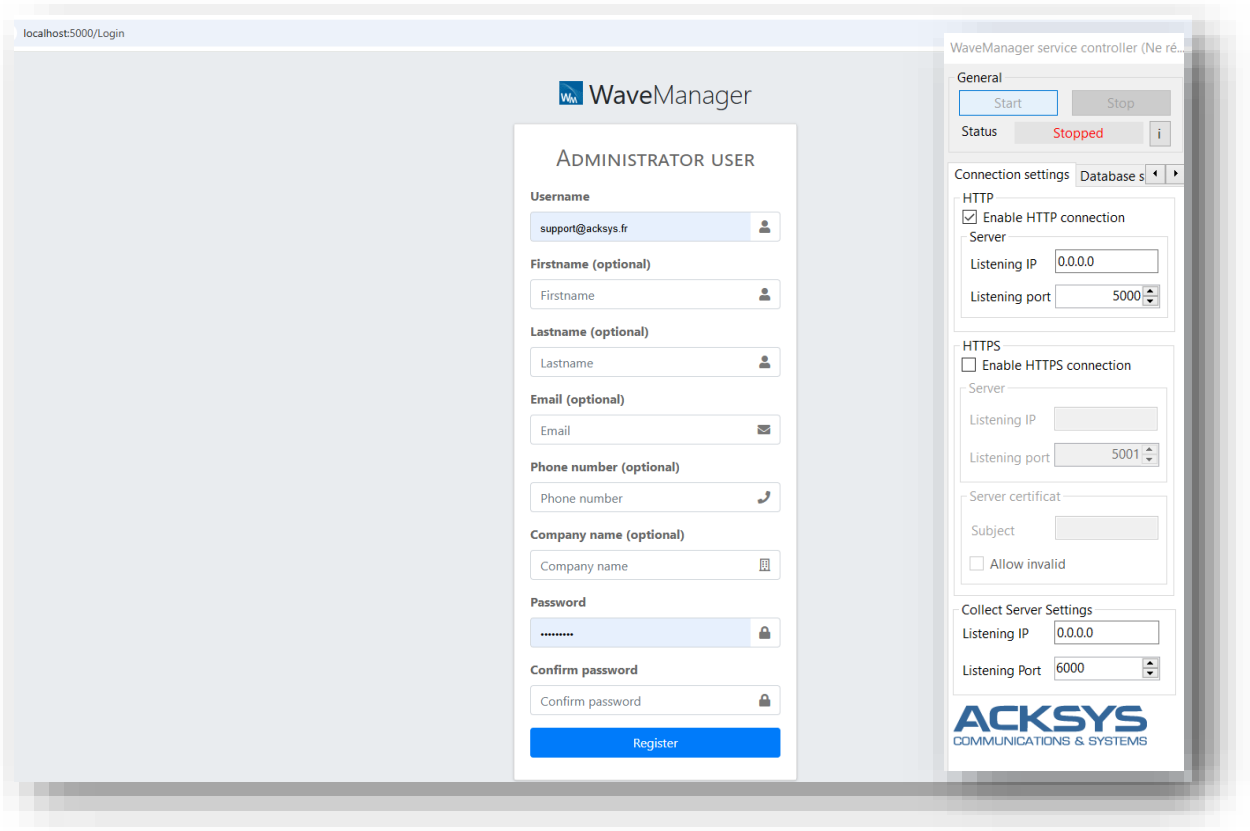
- Sign up and create and admin account
- Create additional user accounts (editor and viewer)
- Log in with your credentials.
- The account gives you access to device management, monitoring, and configuration directly from the cloud (depending on your user rights).
- You need an Internet access from the router to the WaveManager Cloud server.

3 ON PREMISE VERSION

In the **on-premise model**, WaveManager is fully deployed within the customer's infrastructure. The application, database, analytics, and user interface run on local servers (physical or virtual) inside the customer network.

To launch the application, open your browser and go to **localhost:5000 (or the custom configured port).** On the first launch, you will need to register with the server by completing the registration form.

Please note: write your password carefully as it cannot be recovered if forgotten.

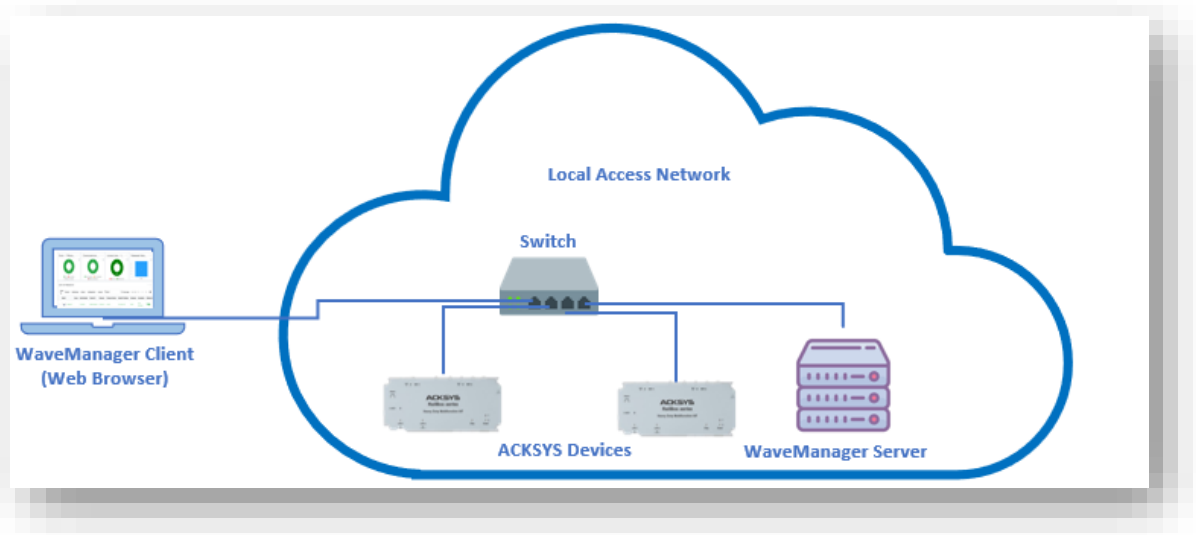


"Access WaveManager via HTTP or HTTPS (certificate required). Default port 5000, changeable. Log in with your email and password for future sessions."

3.1 Typical On-Premise Architecture

User workstations connect directly to the **WaveManager server** via the internal network to access monitoring dashboards, alarms, and reports.

All operational data including measurements, alarms, historical traces, and inventory remains local. This architecture ensures **full control, minimal latency, and strong data isolation**, making it ideal for secured or regulated environments with strict network boundaries.



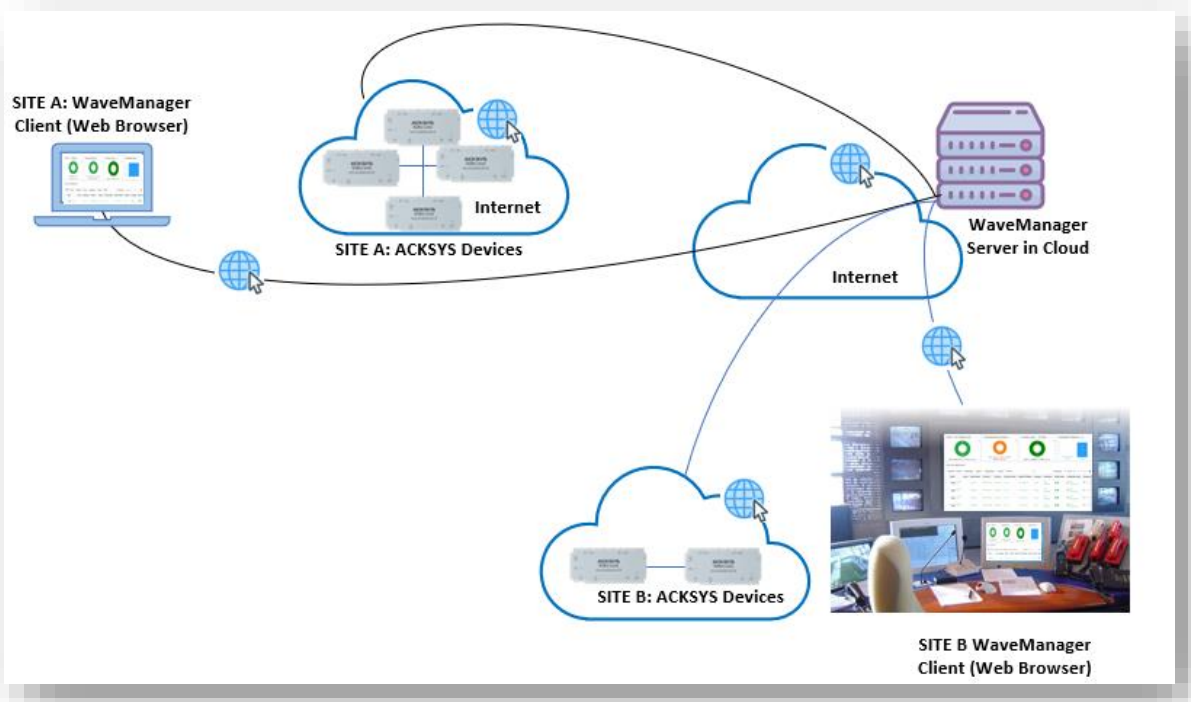
4 CLOUD VERSION

In the **cloud model**, WaveManager is hosted on a centralized cloud platform (**AWS**) and delivered as a service. The core application, analytics, storage, and user interface are no longer installed on customer servers. WaveManager's cloud solution is accessible at: https://acksys-wavemanager.fr/

The following **home page** is displayed upon access:

4.1 Typical Cloud Architecture

Users can access WaveManager through a web portal from any location. The cloud platform offers elastic scalability, high availability, centralized visibility across multiple sites, and simplified maintenance.

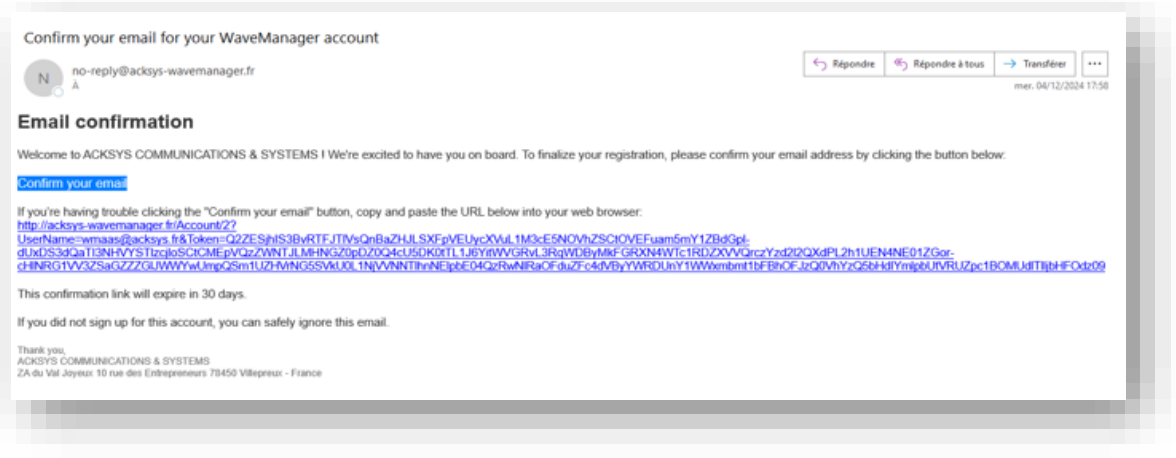


4.2 Registering a new organization

First Login

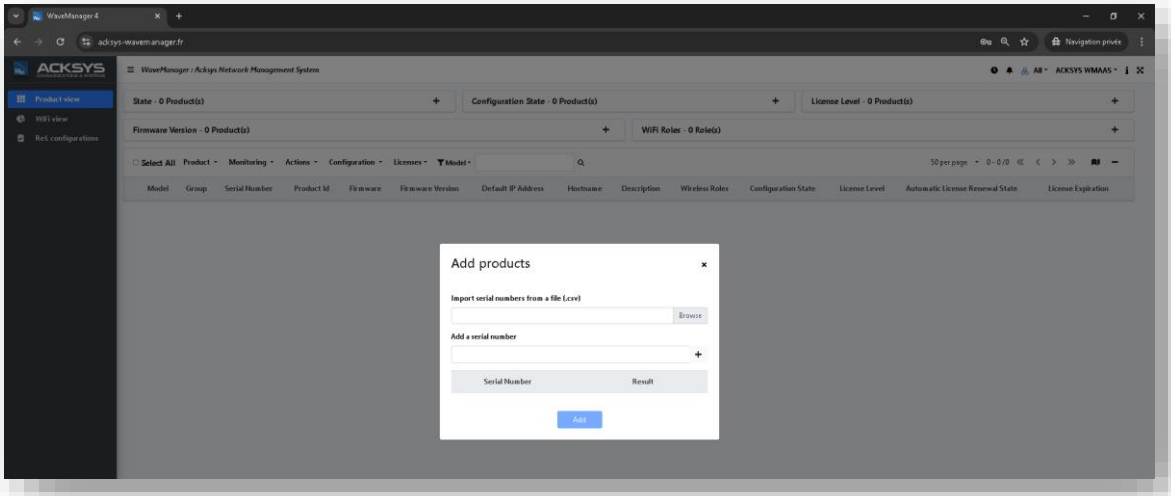
The login page allows you to register a new organization by clicking the “Register?” option. Selecting this option opens a registration form for creating a new organization.

If the entered information is valid, clicking the “Register” button creates the user account and sends a confirmation email to the specified email address.



Login is not allowed until the user’s email address is validated. Clicking the “Confirm your email” button activates the user account.

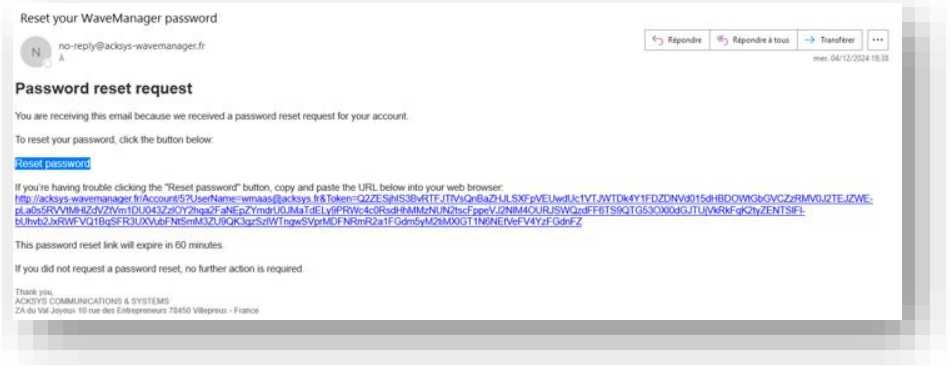
After logging in with the registration credentials, the user is redirected to the main page, where they can associate products.



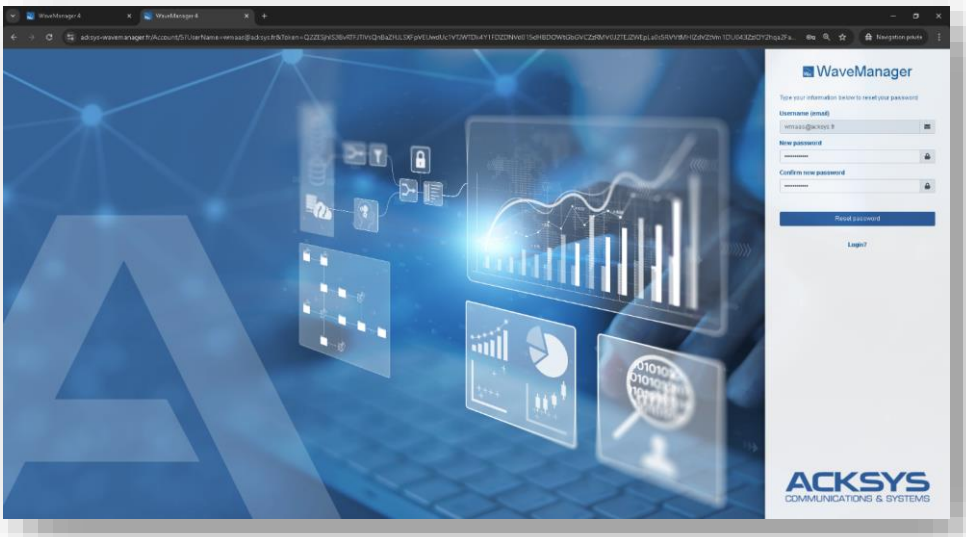
Resetting a User Password

The new login interface includes a **“Forgot Password?”** option, which allows users whether administrators, editors, or viewers to reset their password.

A **password reset email** is sent to the specified email address.



Clicking the **"Reset Password"** button resets the user's password.

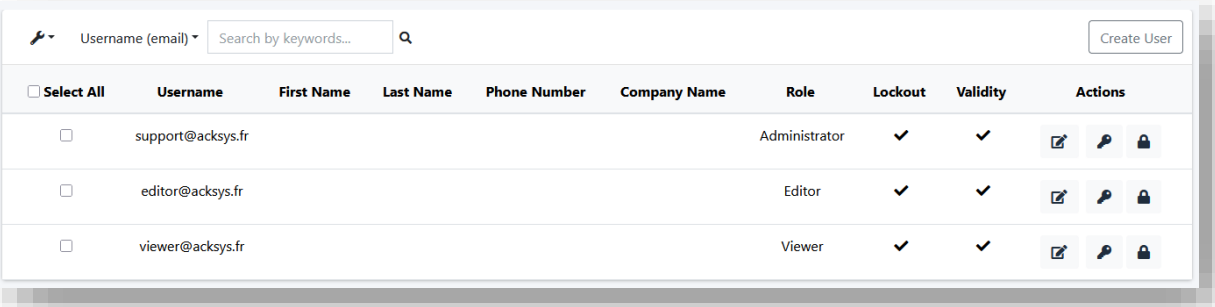


After entering a new password and confirming it, the user can log in using the **new password**.

4.3 User Roles

WaveManager supports multiple user profiles:

- Administrator – full access
- Editor – limited configuration access
- Viewer – read-only access



5 ASSOCIATION AND PRODUCT DELETION

Before performing any action on the product, you need to go through the association step with the WaveManager.

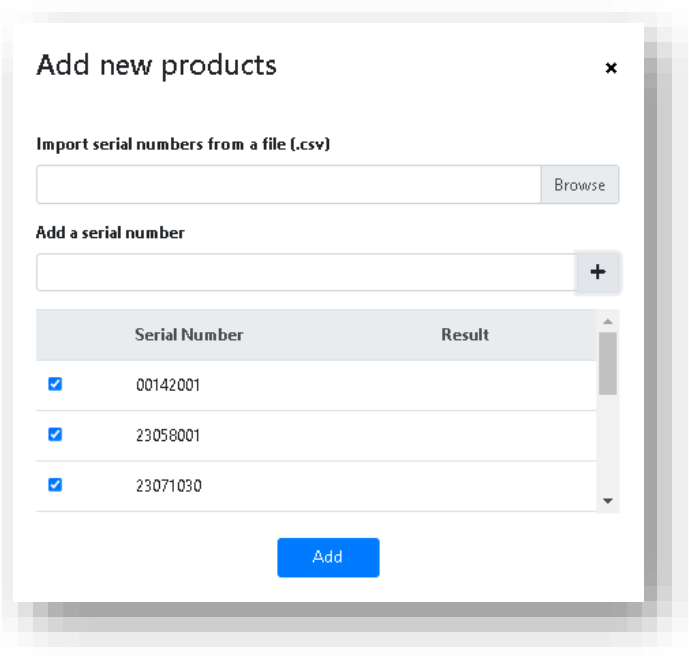
5.1 Cloud

The main interface allows you to associate one or more products with your organization. To do this, click the “Add Products” action in the Products menu.

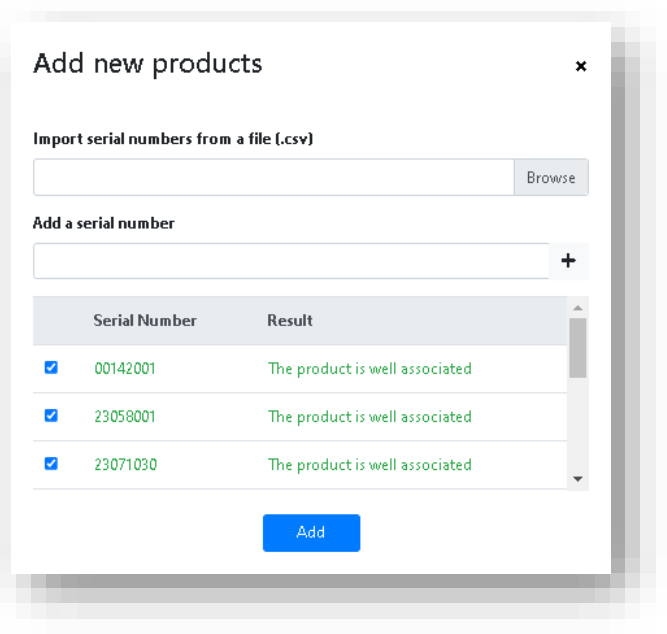
For the “Cloud

You can select products to link by:

- Entering their **serial numbers** manually, or
- **Importing a CSV file** containing the list of serial numbers (Cloud version only).

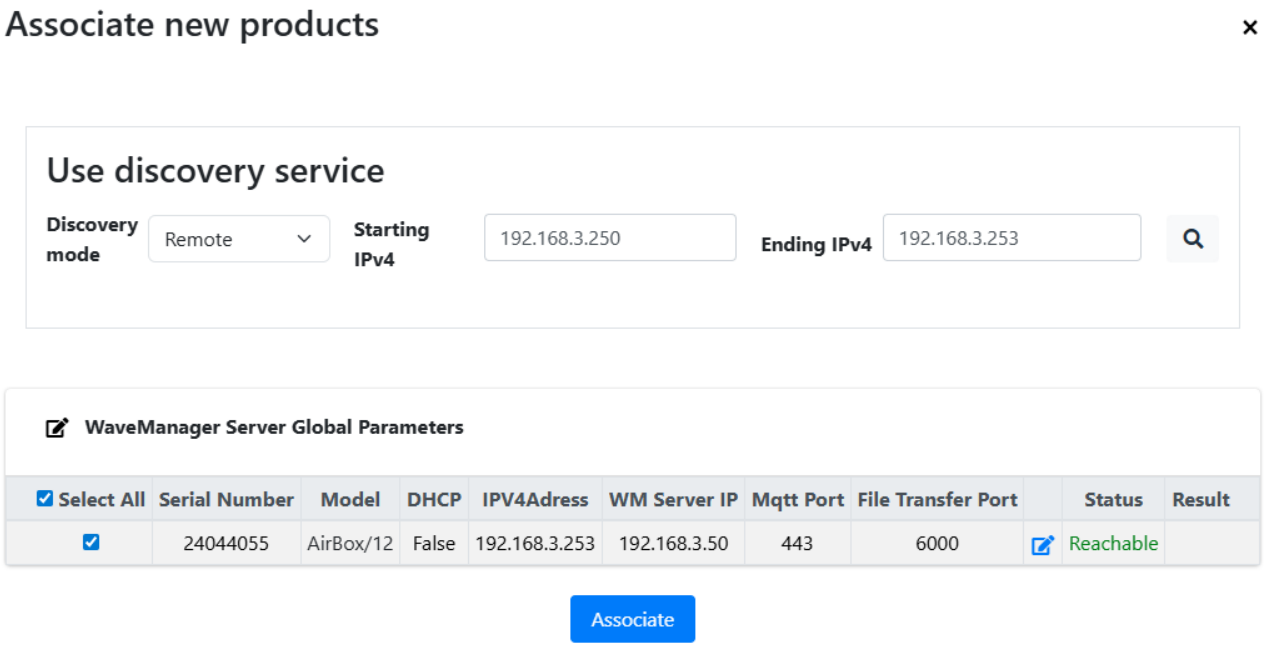


Clicking the “**Add**” button attempts to associate the specified products with the organization. The result of the association for each product is then displayed.



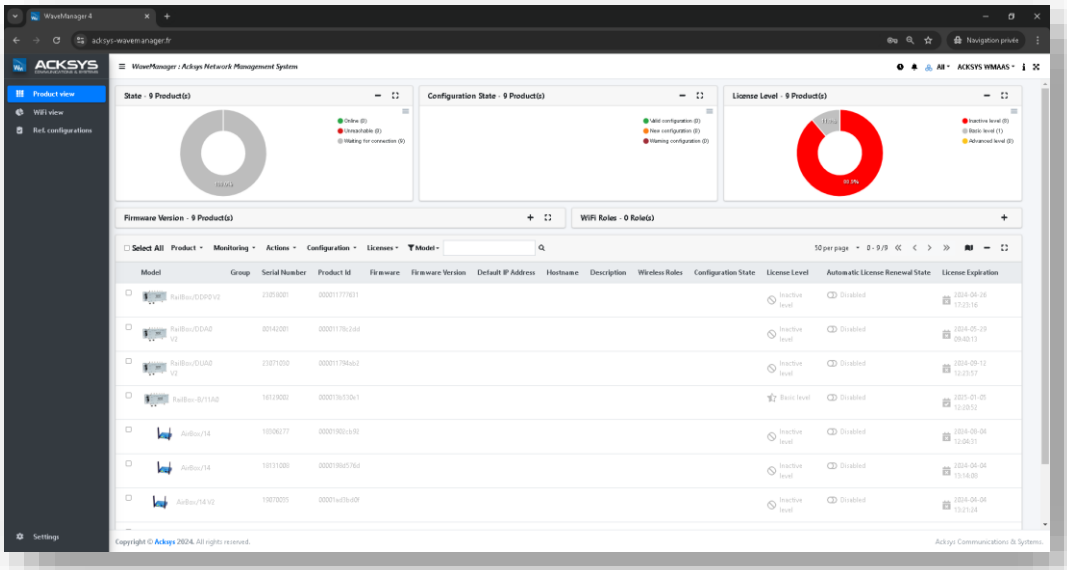
5.2 On-premise

1) Navigate to WaveManager > Products > Associate products
2) Associate products use discovery service (Local or Remote mode)
3) Click on Search button to identify ACKSYS router parks on the LAN:

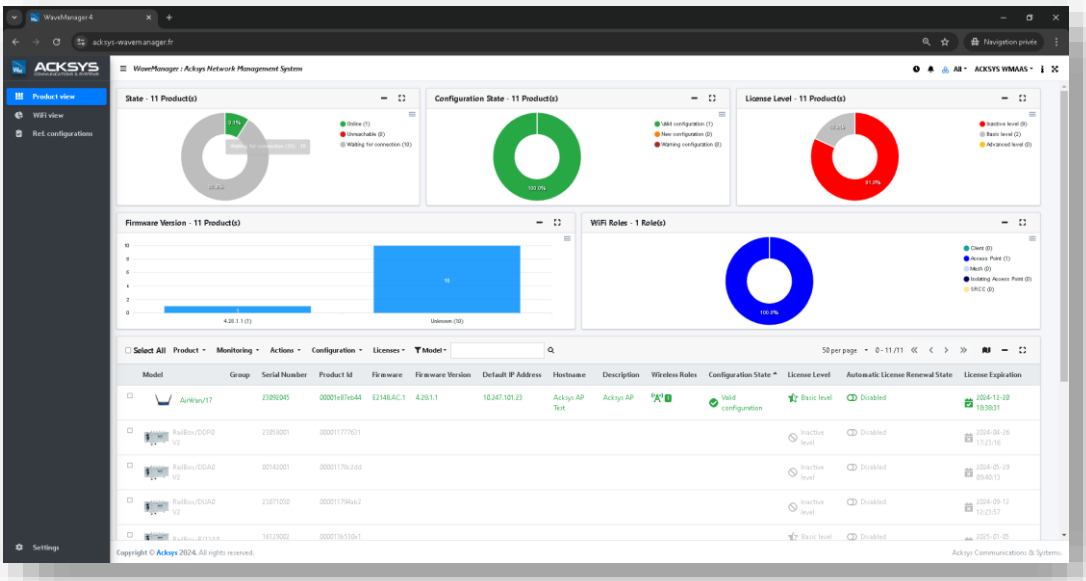


5.3 Association status

After association, the products appear in the main interface with the status **“Waiting for connection.”** This indicates that the products are linked to the organization but **communication with them has not yet started**.



The status of associated products should change to **“Online”** within a few seconds if the product is reachable.



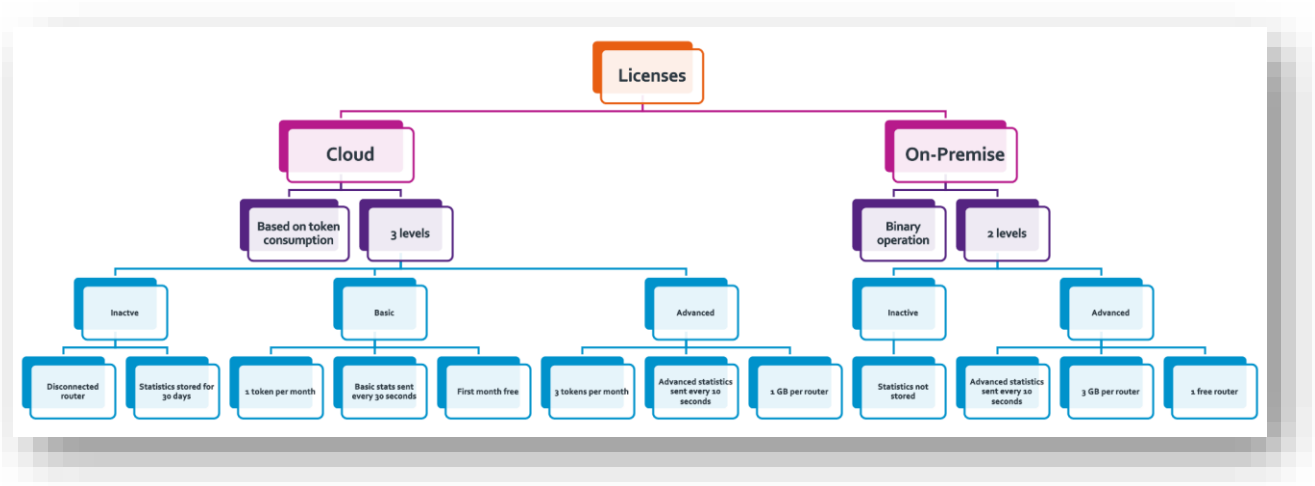
If the **“Waiting for connection”** status persists for an extended period, verify the products’ **Internet connection**.

To **unassociate products** from the organization, select the affected products and click the **“Remove Products”** action in the **Products** menu.

6 LICENSE MANAGEMENT

6.1 Working principle

Both **WaveManager On-Premise** and **Cloud** require a **valid license** before performing any advanced router configuration.



6.2 WaveManager Cloud License

A usage-based model where licensing costs are determined by token consumption.

- **Inactive** – Disables license usage for the product.
  - Statistics are retained for **30 days (if previous basic or advanced license was set)**.
  - Cost: **No token consumption** while inactive.
  - No possible device management/monitoring
- **Basic** – For standard monitoring, provides access to only essential features and requires **1 token per month**.
  - Consumes **1 token per month, per router**.
  - Sends **basic statistics** to the cloud
- **Advanced** – For advanced monitoring, gives access to advanced features and requires **3 tokens per month**
  - **Consumes 3 token per month, per router**.
  - Once the token pool is received, the user can update the license of one or more products by assigning them one of the following license levels:

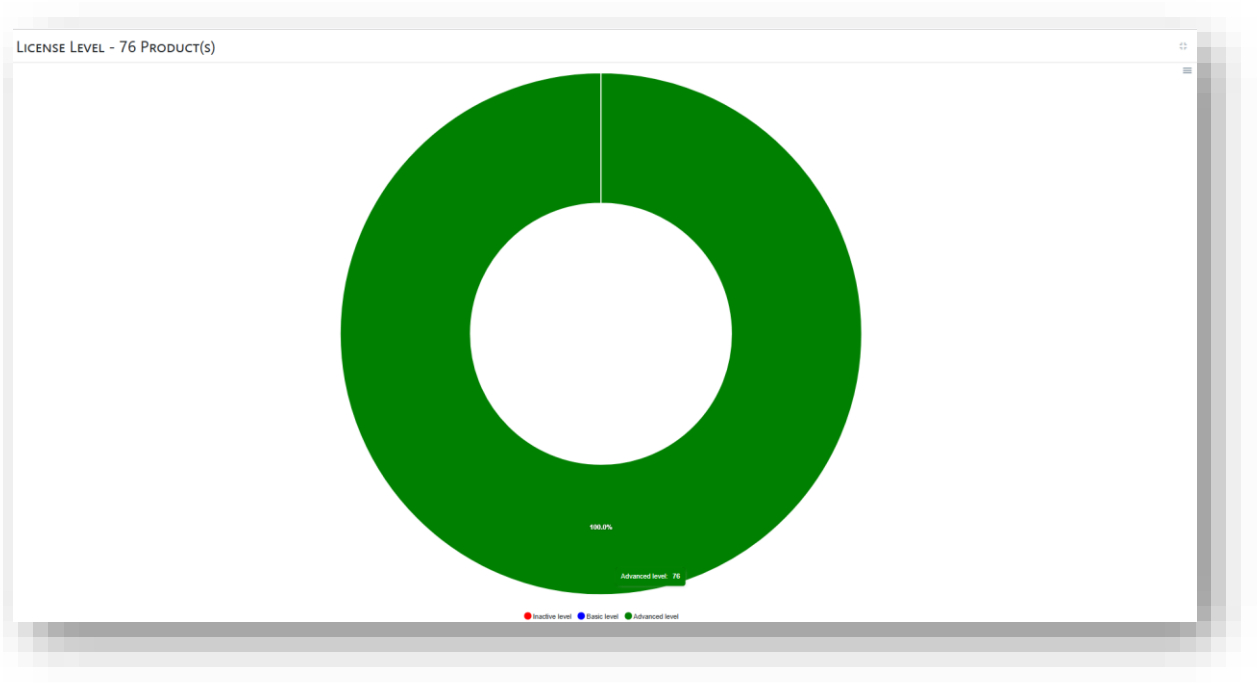
Based on the number of assigned token, the given license will be available for a specific period:

$$Availability\ period = \frac{\text{number of associated token to the device}}{\text{required number of token for the given license level}}$$

All operations related to token purchase, consumption and reservation are recorded and displayed within the solution providing full visibility into the transaction history.

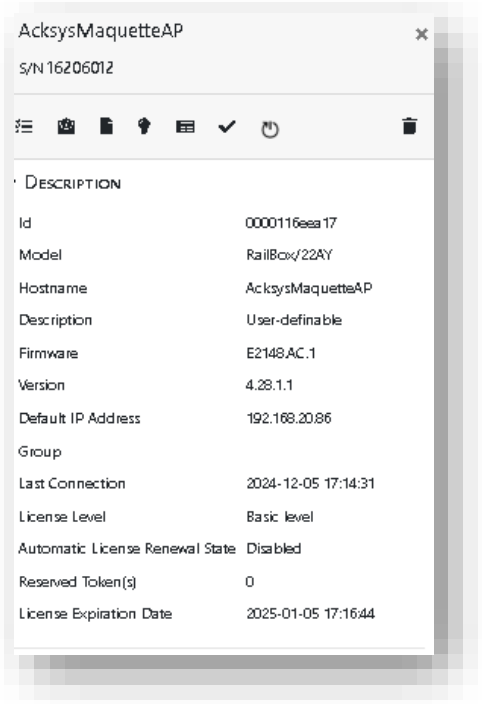
6.2.1 License Status

A **License Status** field has been added for each product.

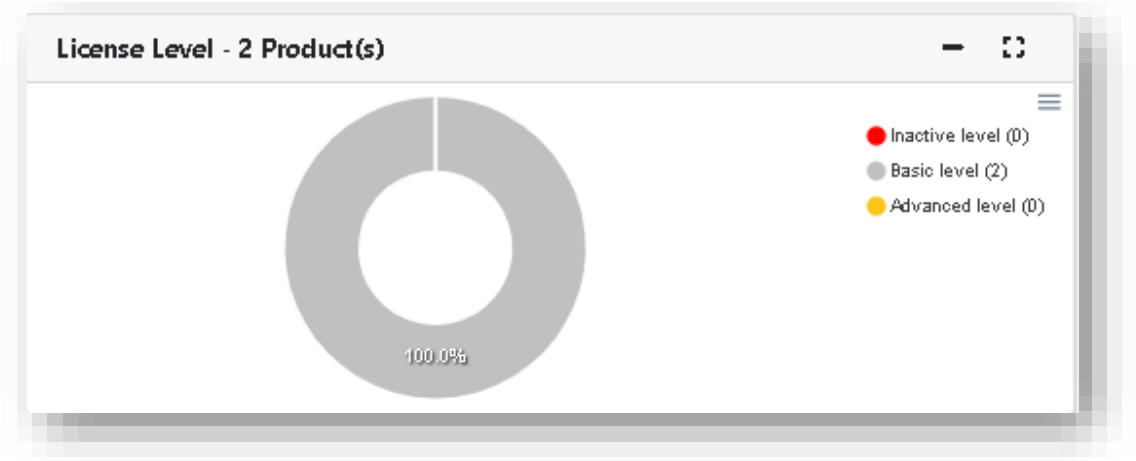


For each product, the **main page** displays the **license level**, **auto-renewal status**, and **license expiration date**.

Additionally, the **number of tokens reserved** for each product is shown in the product's detailed information interface.



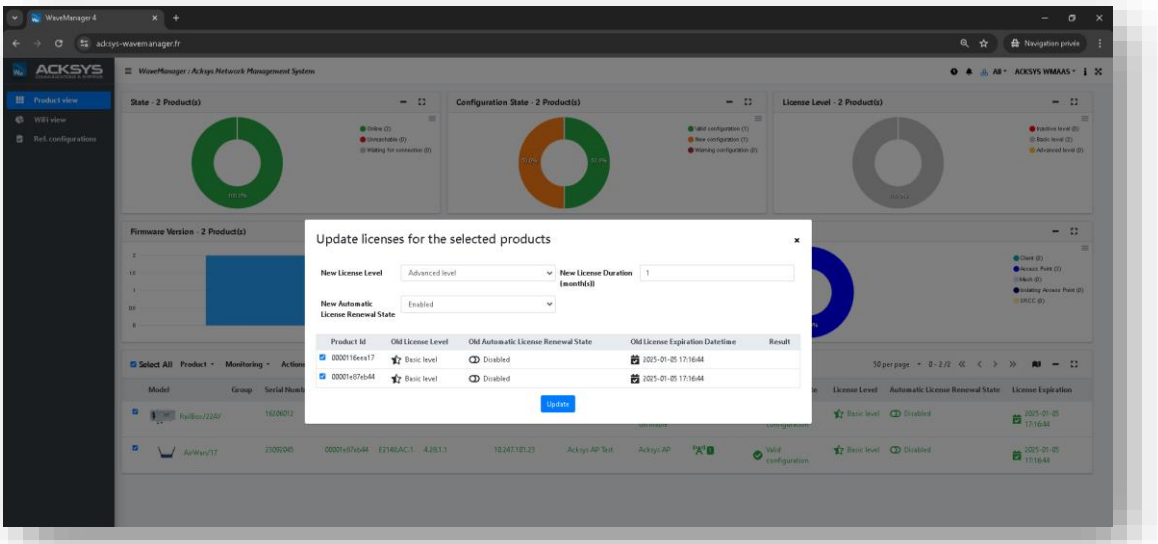
A **"License Level"** dashboard is available on the main page, showing the **distribution of license levels** for all associated products.



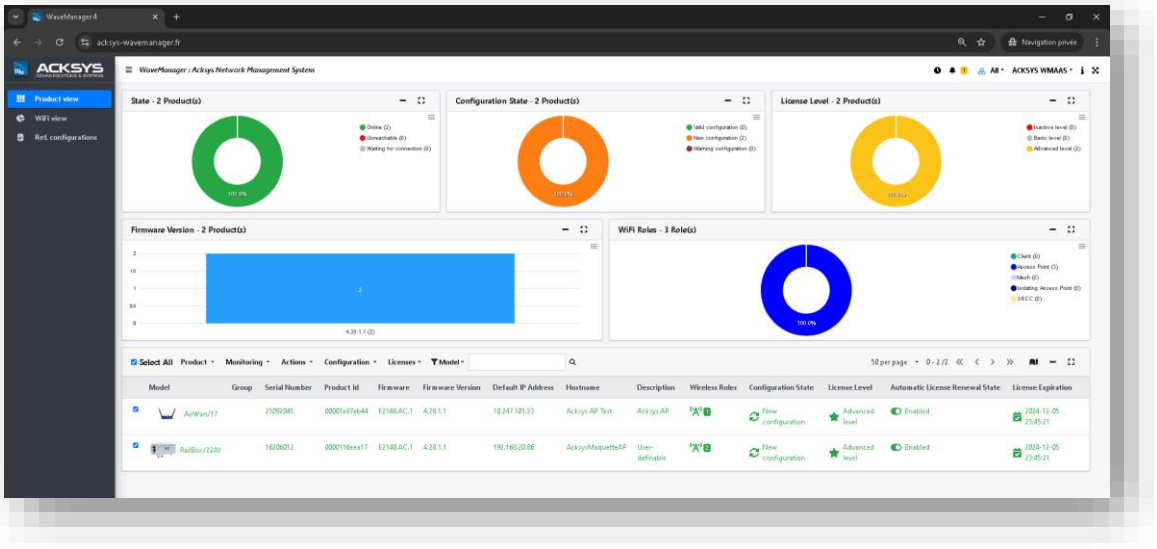
6.2.2 License update

The **"Update Product Licenses"** action in the **Licenses** menu allows you to **activate or update** the license settings of selected products, including:

- **License level**
- **Duration (Number of months)**
- **Auto-renewal status**

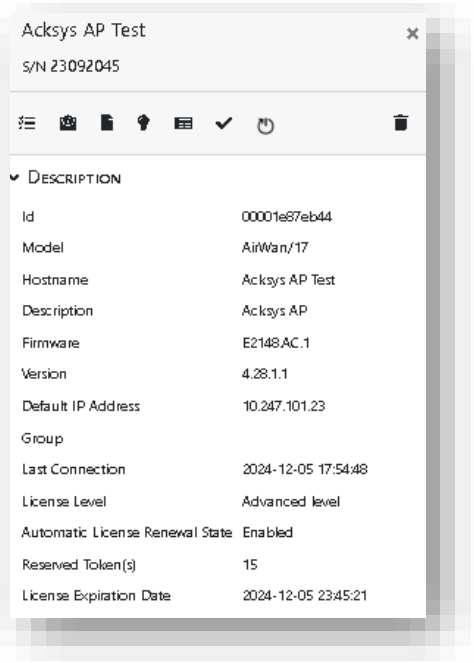


Applying a new license configuration **updates the license information** for each product and refreshes the **dashboard** showing the distribution of license levels.



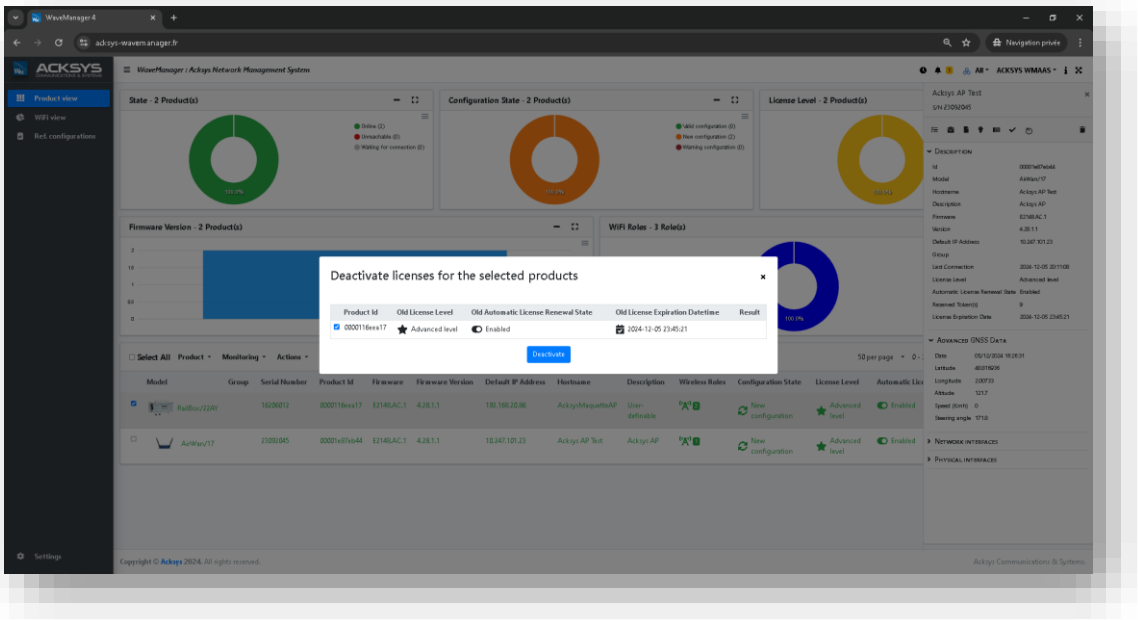
When a product's license is extended for multiple months, a number of **tokens corresponding to the license level** is reserved for that product.

For example, activating an **Advanced license** for 6 months consumes **3 tokens for the current month** and reserves **15 tokens (3 × 5) for the next 5 months**. These reserved token **cannot be used by other products**.



6.2.3 Deactivating product licenses

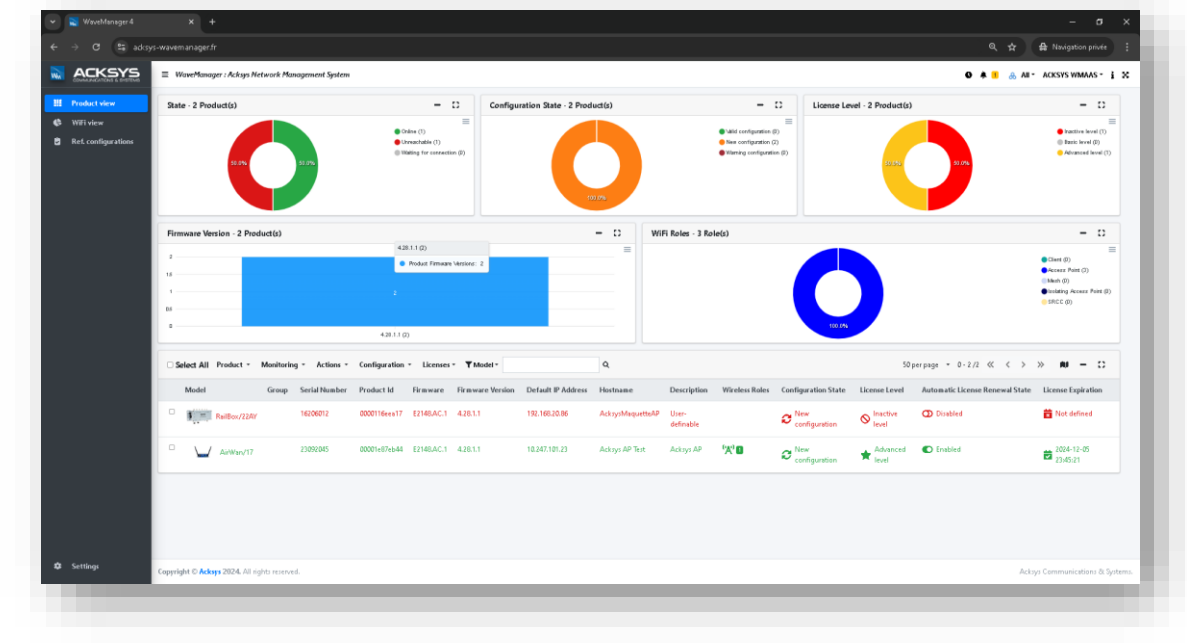
The **“Deactivate Product Licenses”** action in the **Licenses** menu **deactivates the licenses** of the selected products.



Tokens allocated to **deactivated products** are returned to the **global available pool**, except for tokens that have already been **consumed**.

Deleting a product automatically **deactivates its license**, returning the allocated token to the pool (excluding consumed tokens).

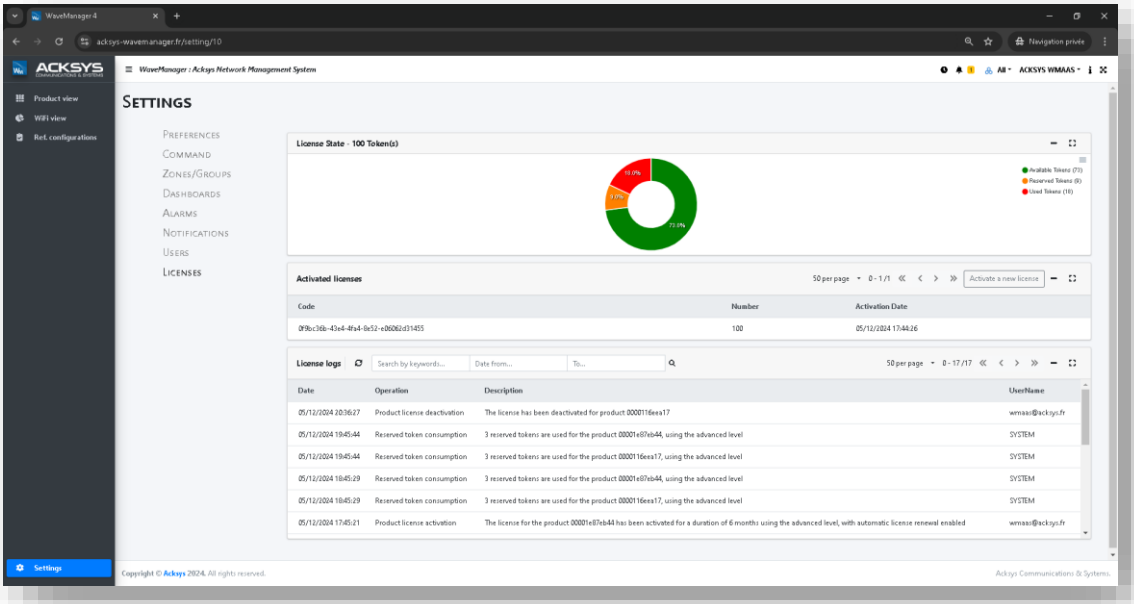
After deactivating one or more licenses, the **license status** and related information for the affected products are updated accordingly.



6.2.4 License dashboard

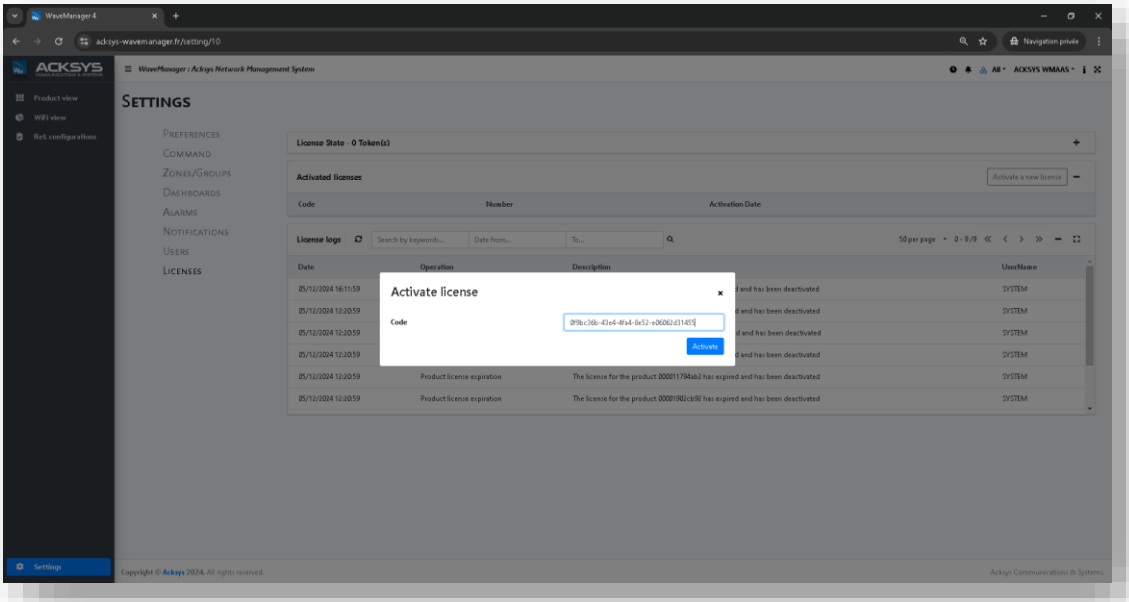
The **“Licenses”** tab on the **Settings** page allows the organization administrator to view license status through a **dashboard**, showing:

- **Number of token available**
- **Number of token reserved**
- **Number of token used**



The **“Licenses”** tab on the **Settings** page displays a **list of all activated licenses**.

The **“Activate New License”** button allows you to **apply a new license** using a license code.



The **“Licenses”** tab on the **Settings** page lets you view the **history of token operations** including purchase, allocation, and consumption whether performed manually by users or automatically by the system.

A **shortcut** to this tab has also been added to the **user’s global menu** for quick access.

6.2.5 License alarm management

Low License Duration

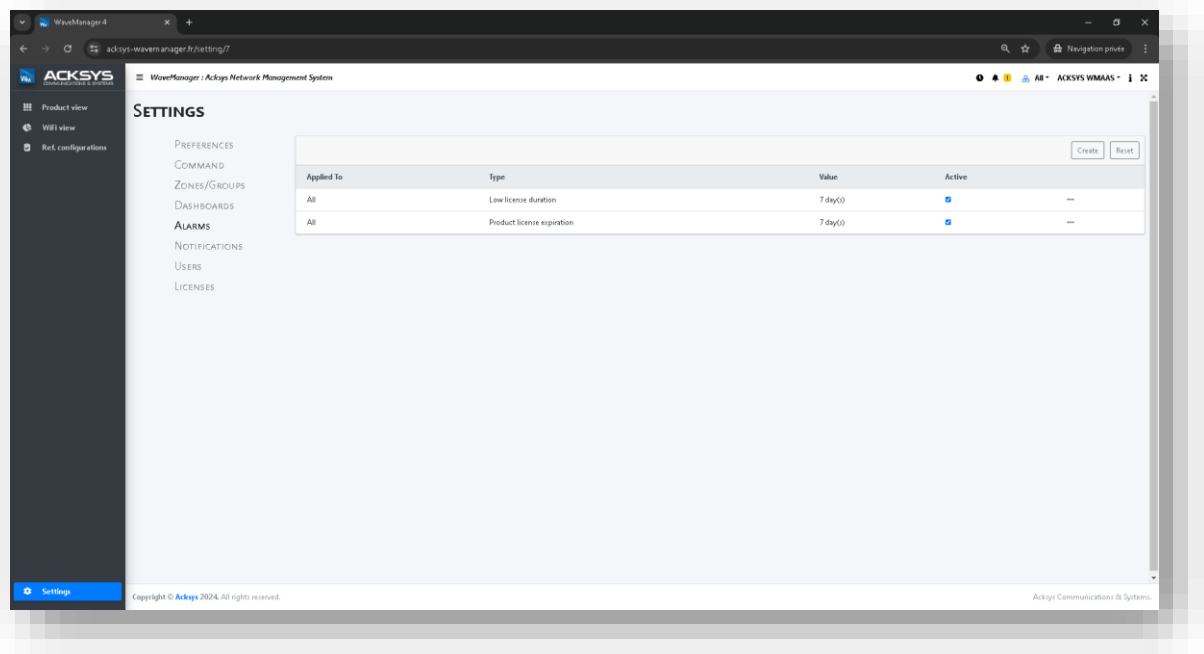
This alarm is triggered when a license's **remaining duration** falls below a defined **critical threshold**, indicating that the license is nearing expiration. It alerts administrators or users that products with **auto-renewal enabled** will soon require action, such as **renewing the license** or **purchasing additional token**.

The alarm activates when the number of days remaining before license expiration falls below a **configured threshold** (e.g., 30 days, 15 days, or any value set by the administrator).

Product License Expiration

This alarm is triggered when the license of a product **without auto-renewal** is approaching its **expiration date**. It alerts the user that **action is required** to maintain the product's functionality.

The alarm activates when the **remaining days** before license expiration fall below a defined threshold, such as **30 days, 15 days, or any value set by the administrator**.



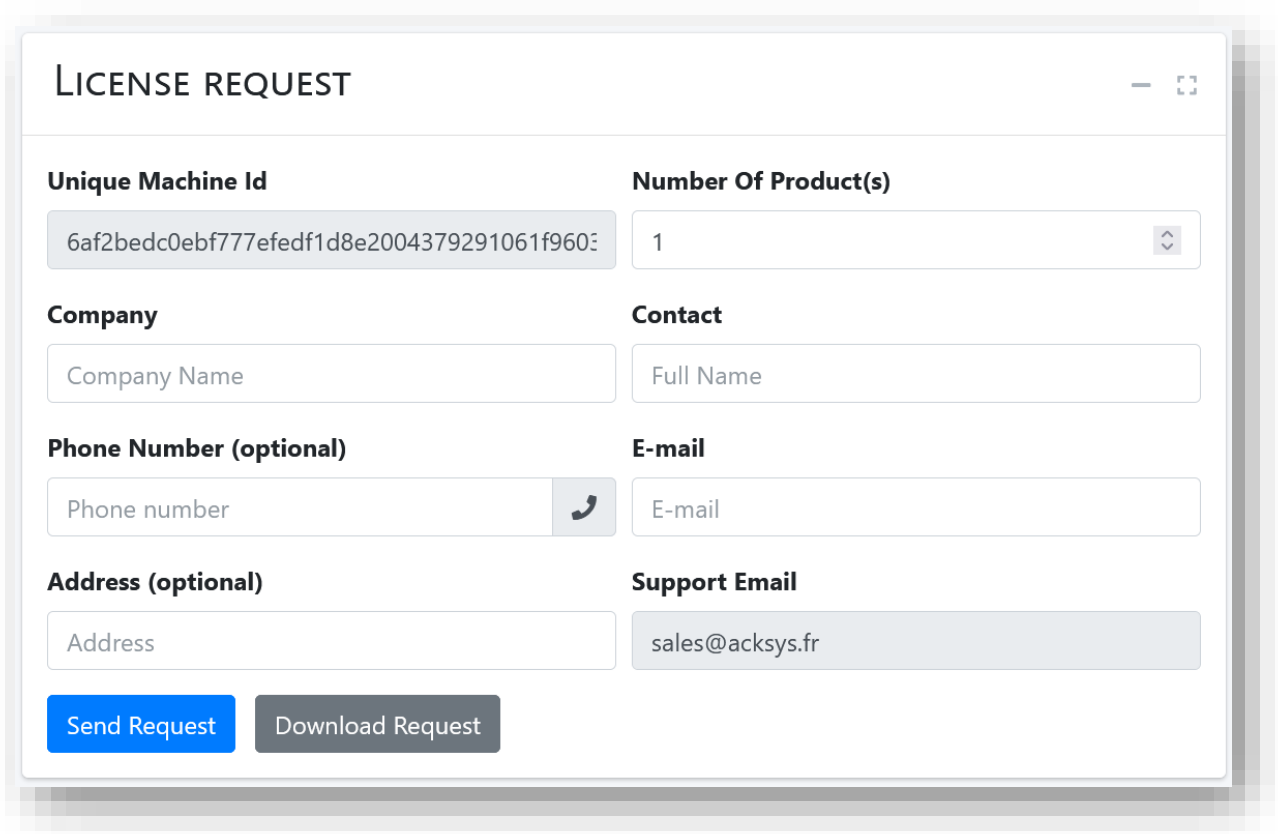
6.3 WaveManager On-Premise License

The On-Premise license is determined by the number of routers managed and is tied to the specific hardware where the WaveManager software is installed.

- **Licensing Metric:** The total number of routers you are authorized to manage.
- **Activation Method:** The license is locked to the unique **Hardware ID** of the server where WaveManager is installed.
- **Model:** This is typically a perpetual license.

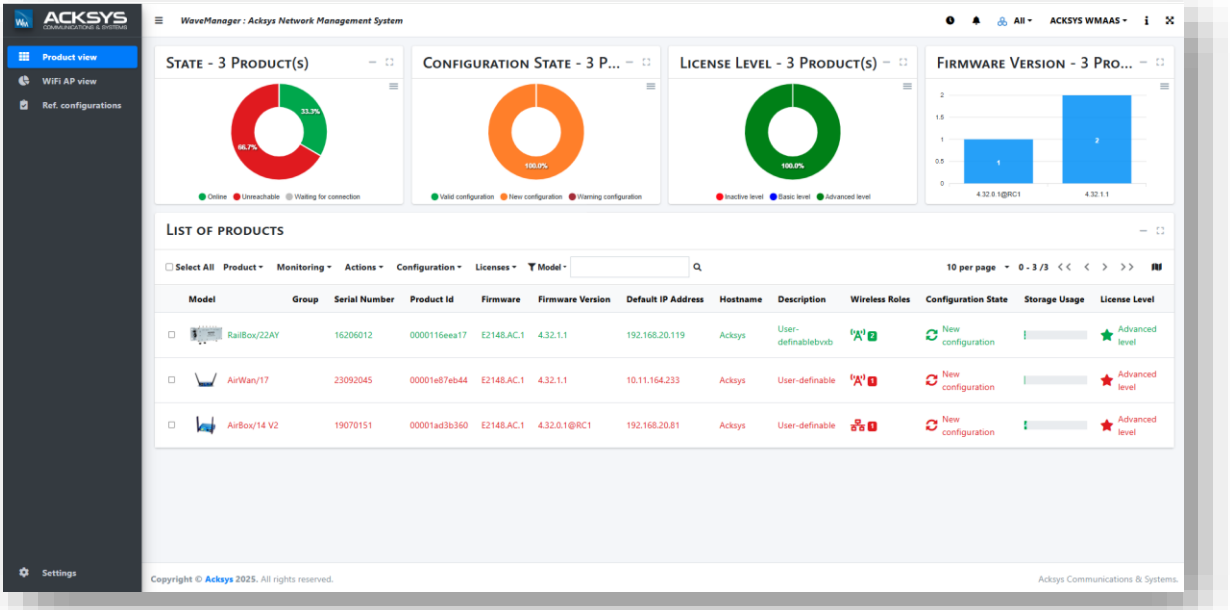
6.3.1 Requesting License

A **License Request** menu has been added to WaveManager to assist customers in completing the license form according to their router fleet requirements. The generated file should then be sent to **ACKSYS Sales**.



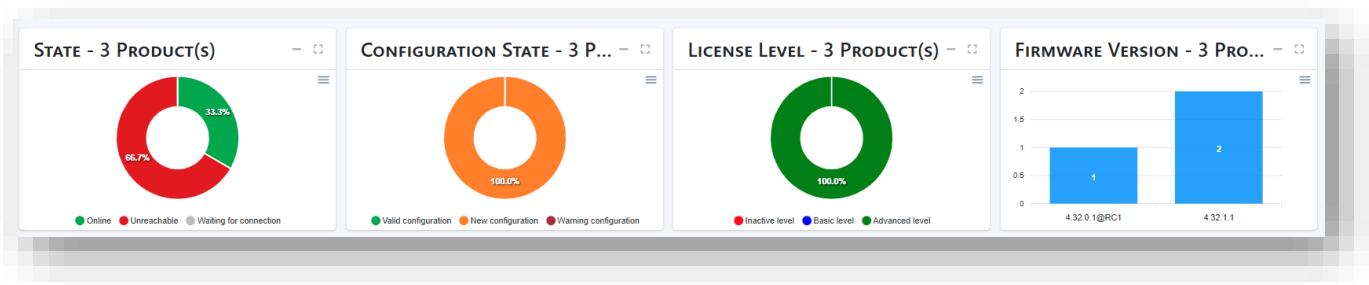
7 PRODUCT VIEW

After authentication, the **Product View** page is displayed. It is the primary interface for viewing and managing all products in a tabular format. It provides real-time status overviews, quick-access actions and detailed product attributes.



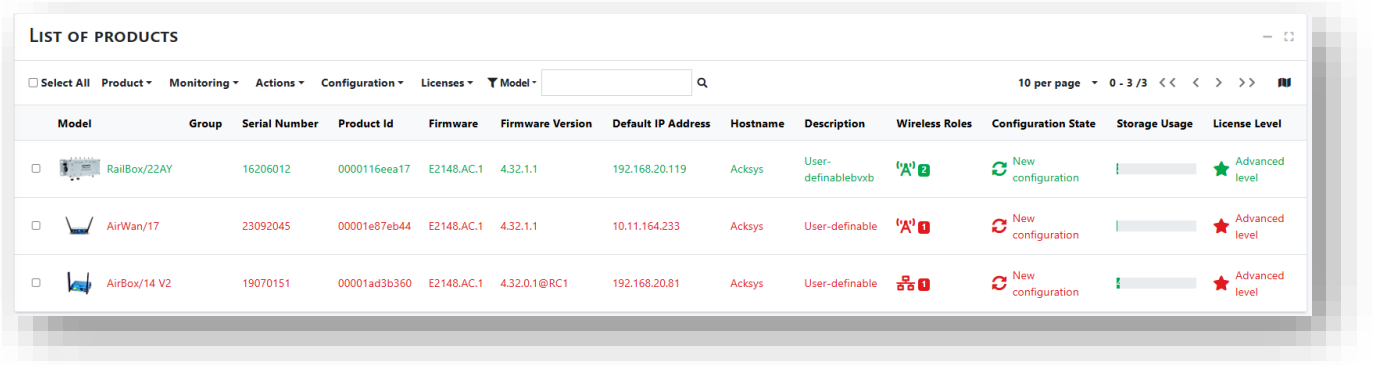
This page list the associated product, so for any new product, you need to go through the discovery process (local or remote discovery).

At the top of the page, the **Inventory Status icon bar** provides a quick overview of device states.



The **dashboard** provides an overview of products across multiple dimensions, including **status, configuration state, license level, and firmware version**.

Below the dashboard is the **list of products**. The **row color corresponds** to the color of its associated status.



We find also:

- The model of the product
- The serial number
- The product ID
- The firmware ID
- The version of WaveOS
- The IP address of the product
- The Description (***Device location*** field of the TOOLS/System page)
- The roles
- Configuration State
- Storage Usage
- License Level

Model : The product reference

Serial : This is the serial number of the unit, also displayed in the *Device Info* Status page from the product WEB server. Please note that the serial number may be missing on some older products.

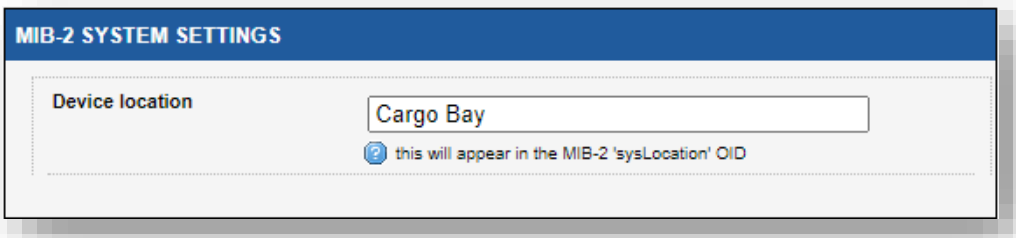
Product ID : The product ID is an identification number that can also be found on the *Device Info* status page of the product WEB server, under the name *Motherboard ID*.

Firmware : The WaveOS identification code (the standard ID is E2148.AC.1).

Version : The version of WaveOS installed on this unit.

IP Address: The IP address of this unit. Please note that if the product is configured as a router, the address that appears here is the one that is visible from the selected network interface.

Description : This is the **Device location** caption, defined in the product WEB server



Tools/SYSTEM/MIB-2 System Settings

Role : here you will find the different roles programmed on the product, represented by icons, the meaning of which is as follows

Role ACCESS POINT or ISOLATED ACCESS POINT

Role CLIENT or TRANSPARENT CLIENT

Role MESH

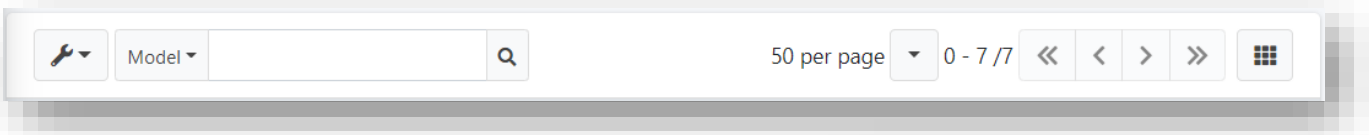
There is no icon for Monitor and SRCC modes

Storage Usage: Storage usage is displayed graphically, with minimal usage shown across all devices.

License level: Type license allocated to the products

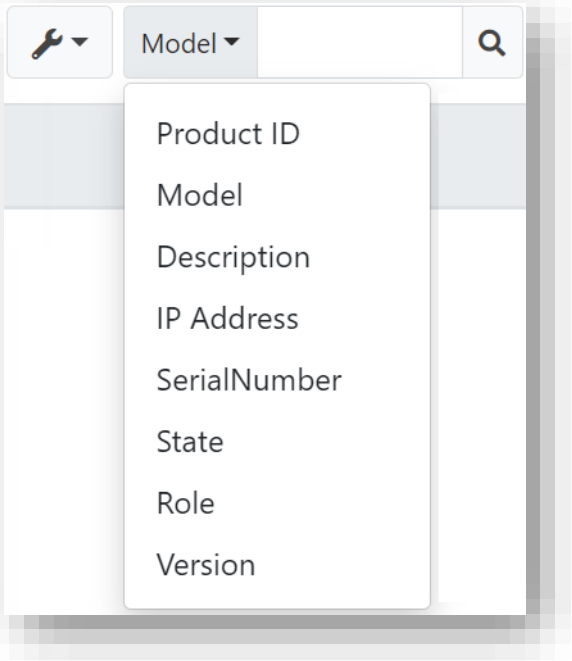
The list can be sorted by any of these criteria, except role: simply click on the column header to update the list sorting order, or toggle between increasing and descending sorting. You can also sort by clicking on one of the **Inventory status** icons

7.1 The menu bar



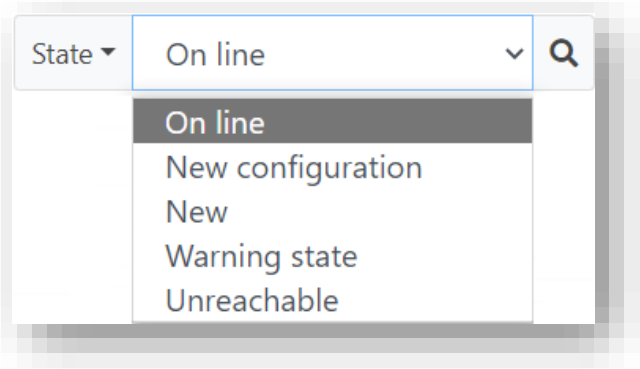
7.1.1.1 Multi-criteria search

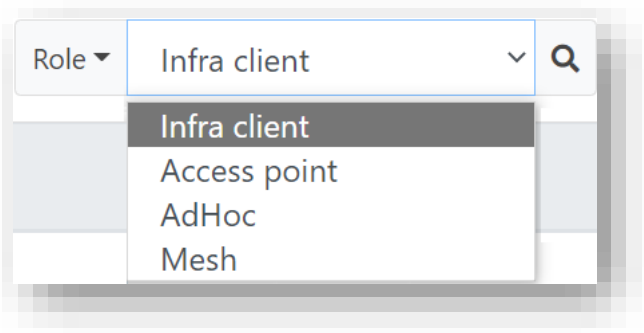
You can search for products according to these criteria:



Please note that the values researched are case sensitive and must correspond exactly to the wording of the lines displayed.

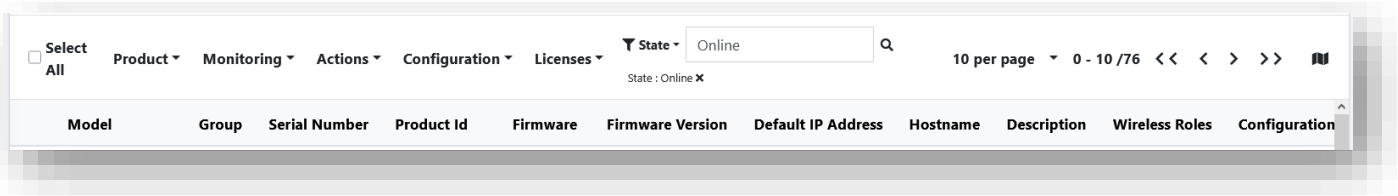
For the status and role criteria, the authorized values are proposed:





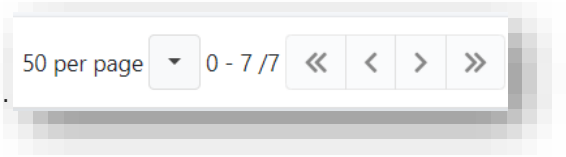
Please note that you can also search via the status icon bar from the top of the page: just click on a Status icon to initiate the search

To remove a search criterion, simply click on the **x**:



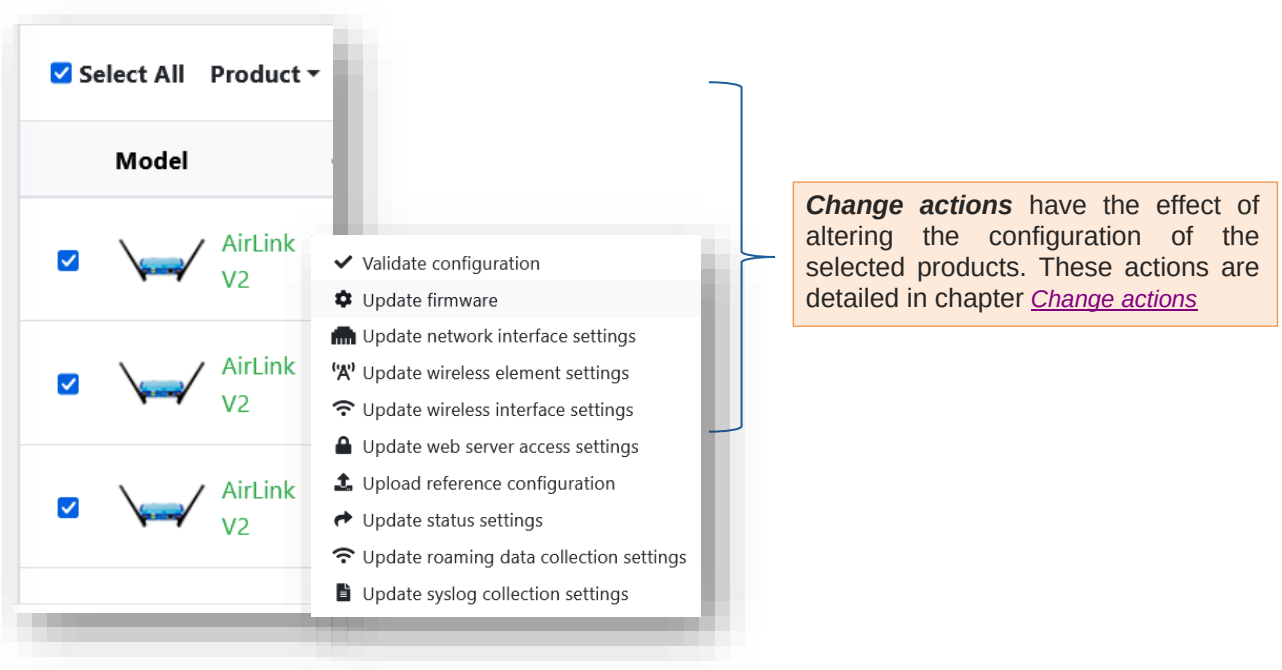
7.1.1.2 Navigation Page

Allows to define the number of lines on each page, and to navigate between pages



Multi-product actions

This icon allows you to perform different actions on the selected products

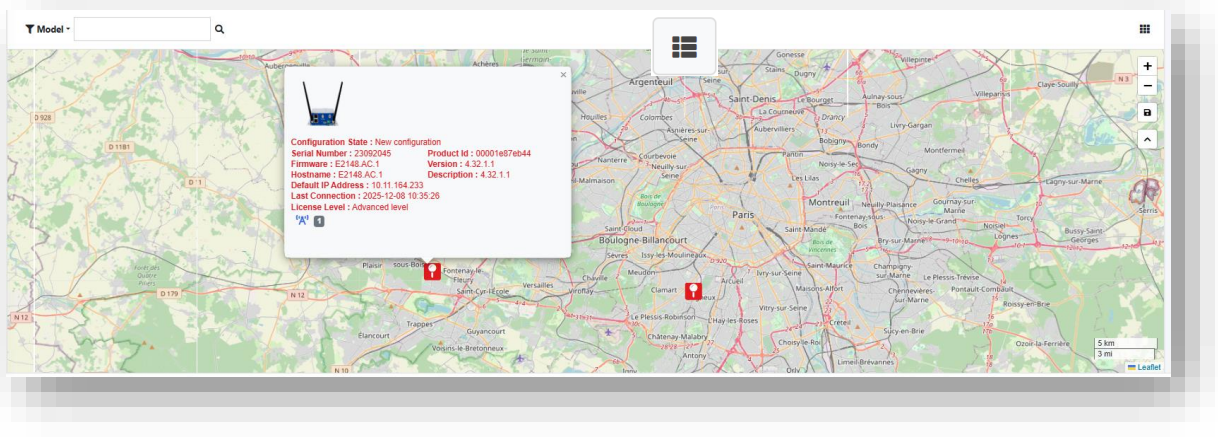


Change actions have the effect of altering the configuration of the selected products. These actions are detailed in chapter *Change actions*

7.1.1.3 Map view

The Map display icon allows to switch from default list display mode to map display mode

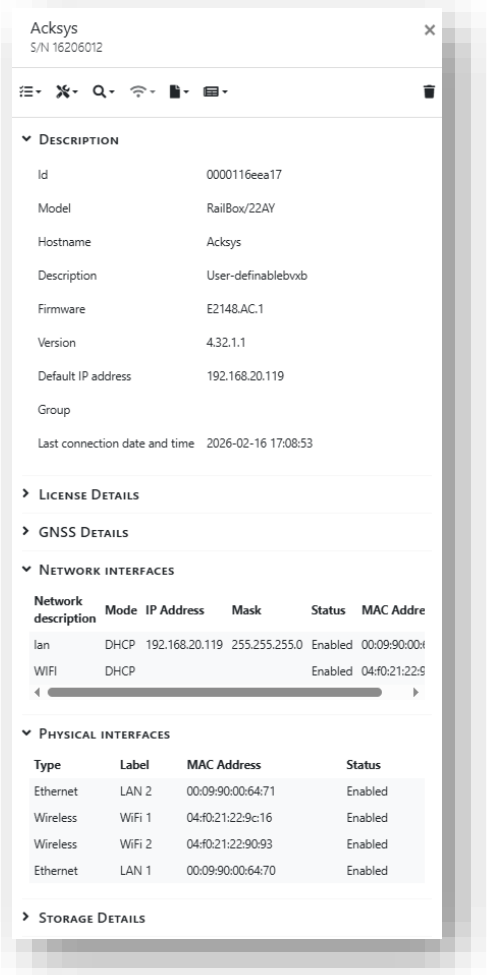
The **Map View** provides a geographical interface to visualize product locations, status, and key data on an interactive world map. It is accessible from **the Product View** navigation and integrates GNSS data for location-aware monitoring with Map Icon.



Administrators can view products on a map, assign static GPS coordinates, and leverage location-based monitoring. You can switch back to list mode by clicking on the list icon

7.2 Product info window

Clicking on one of the displayed product On line brings up a detailed product information window on the right:

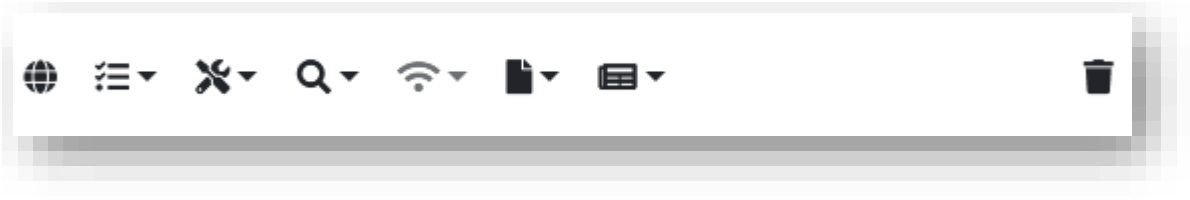


- The product model name
- Serial number
- Menu bar
- Discovery date of the product
- Time of its last appearance
- IP address
- Net Mask
- Gateway
- The product ID
- The Firmware ID
- The firmware revision
- Position latitude (LTE products only)
- Position longitude (LTE products only)
- Description
- List of roles defined on this product

  Please note that for a wireless link, the BSSID is always the MAC address of the Access Point
- List of existing physical interfaces on this product. Very useful to easily find the MAC addresses of the physical interfaces of your product
- List of existing logical interfaces on this product
- Storage Details

When the product is in the **Warning state**, there is an additional entry at the bottom of the table, which gives details of the anomalies justifying the Warning state.

7.2.1.1 Product info menu bar



In this menu bar, when selecting the given icons, you will able for example to perform:

- **Product action**: this icon allows you to perform different actions on the selected product.
- **WEB server:** open the product Web server using your default browser, if the unit is reachable with the HTTP protocol (On-Premise version)
- **WiFi Scan and Roaming:** allows to perform a WiFi scan (Site Survey), or to display the roaming information.
- **Product configuration:** clicking ***Download*** allows to record the product configuration file in the database. Clicking ***Configuration File*** will upload the **configuration** file into the product.
- **LED Tracking**: triggers the product diagnostic LED flash for the selected duration (1, 2, 5 or 10 minutes) to facilitate the localization of the product**.** You can stop flashing at any time by clicking **Stop**
- **Ping:** a click on the Ping icon sends a ping request to the unit. WaveManager indicates whether the product responded to the Ping with a success or failure message:

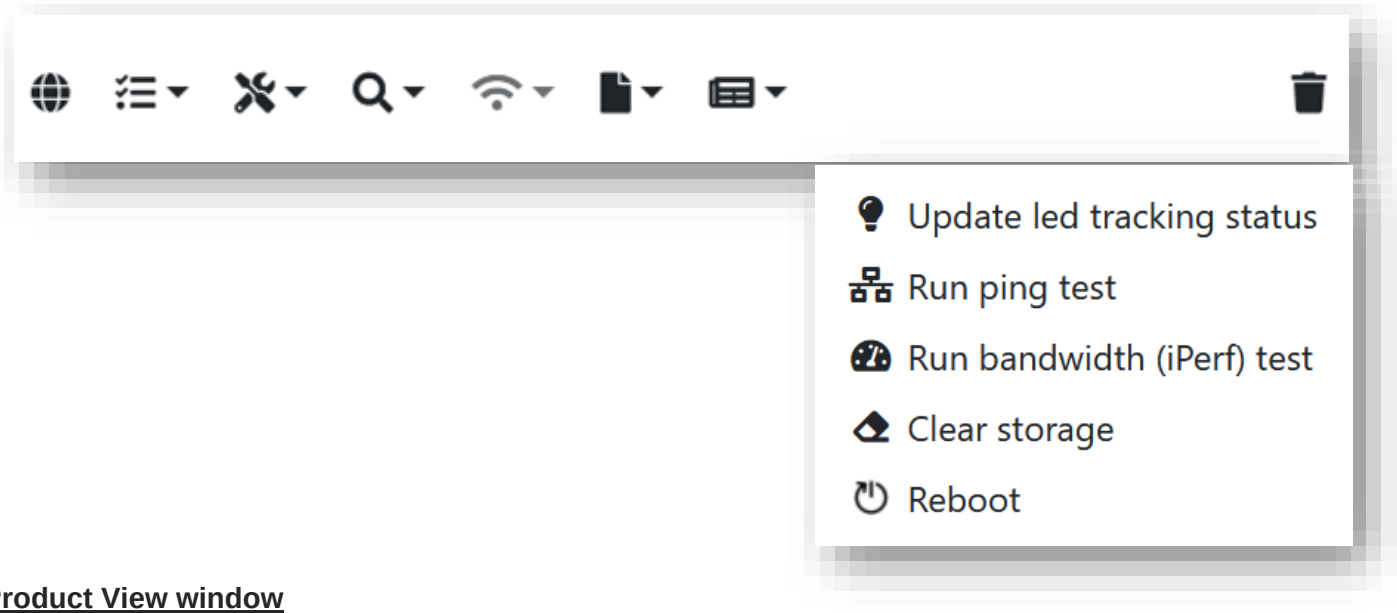
When an online product doesn't respond to the ping, it's usually because it's not on the same subnet as the PC.

8 CONFIGURATION

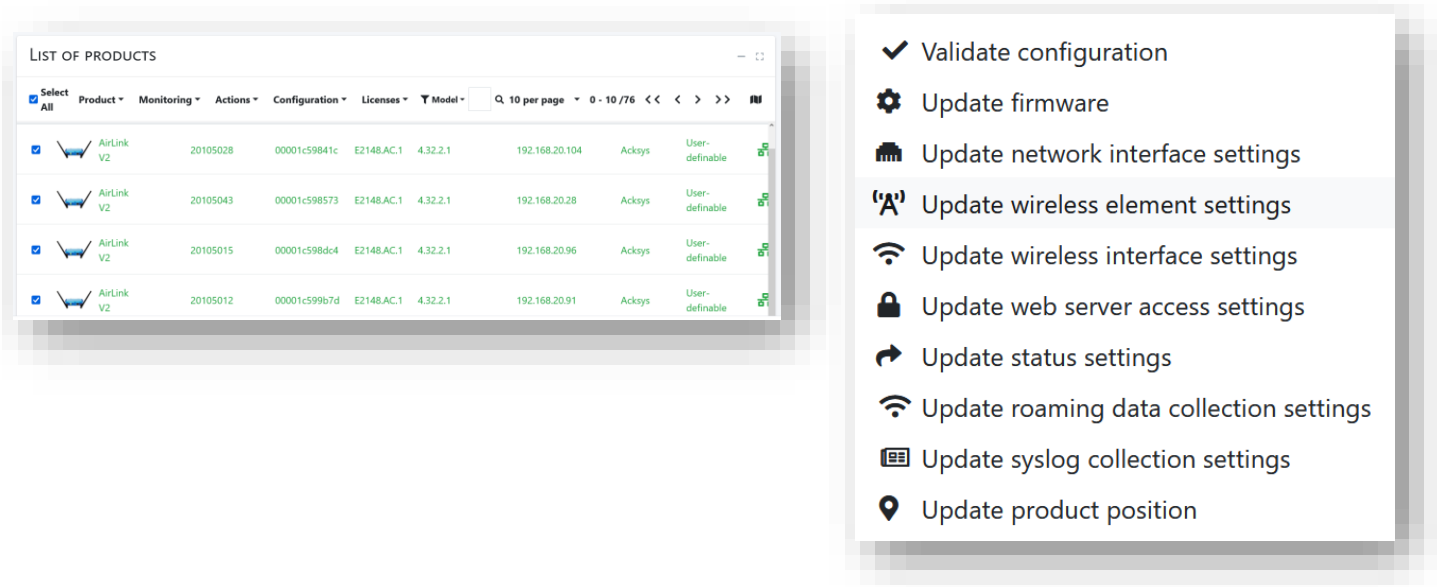
In the Product List View, you can perform configuration changes on a specific product or by selecting a list of product.

To do the configuration change, you can either go through the **multi-products actions** icon of the main **Product View** window or **double click** on a specific product to open the **Product information** tab that will list the actions that you can perform on it.

Product information tab



Product View window



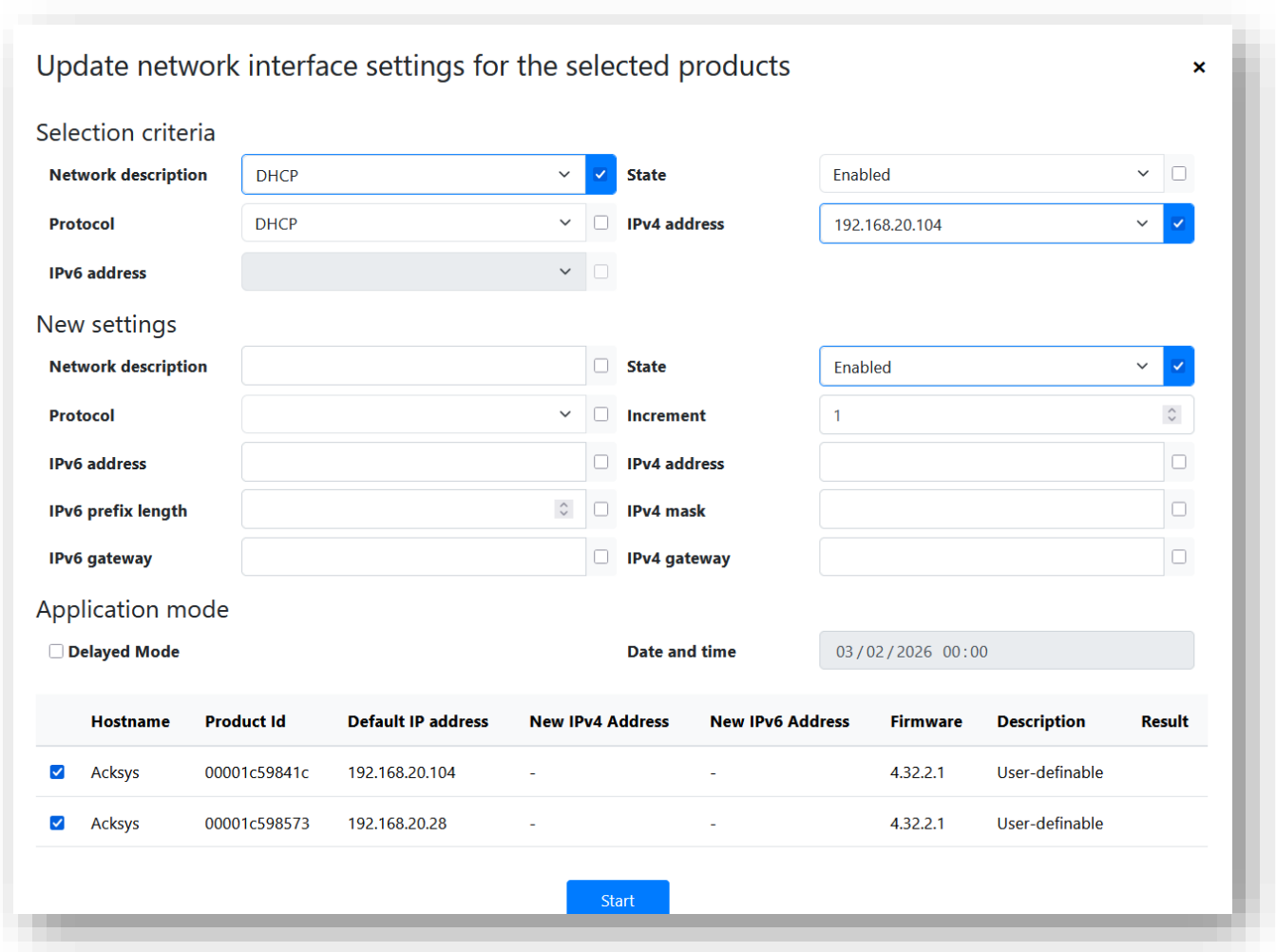
8.1 Changing IPV4 address

To update product IP settings, enter the **New IP address, New Mask, New Gateway**, and **Password** (if required), then click **Start**.

- Once the process begins, the **Result** column shows **"In progress…"**
- After successful completion, it displays **"Success…"**

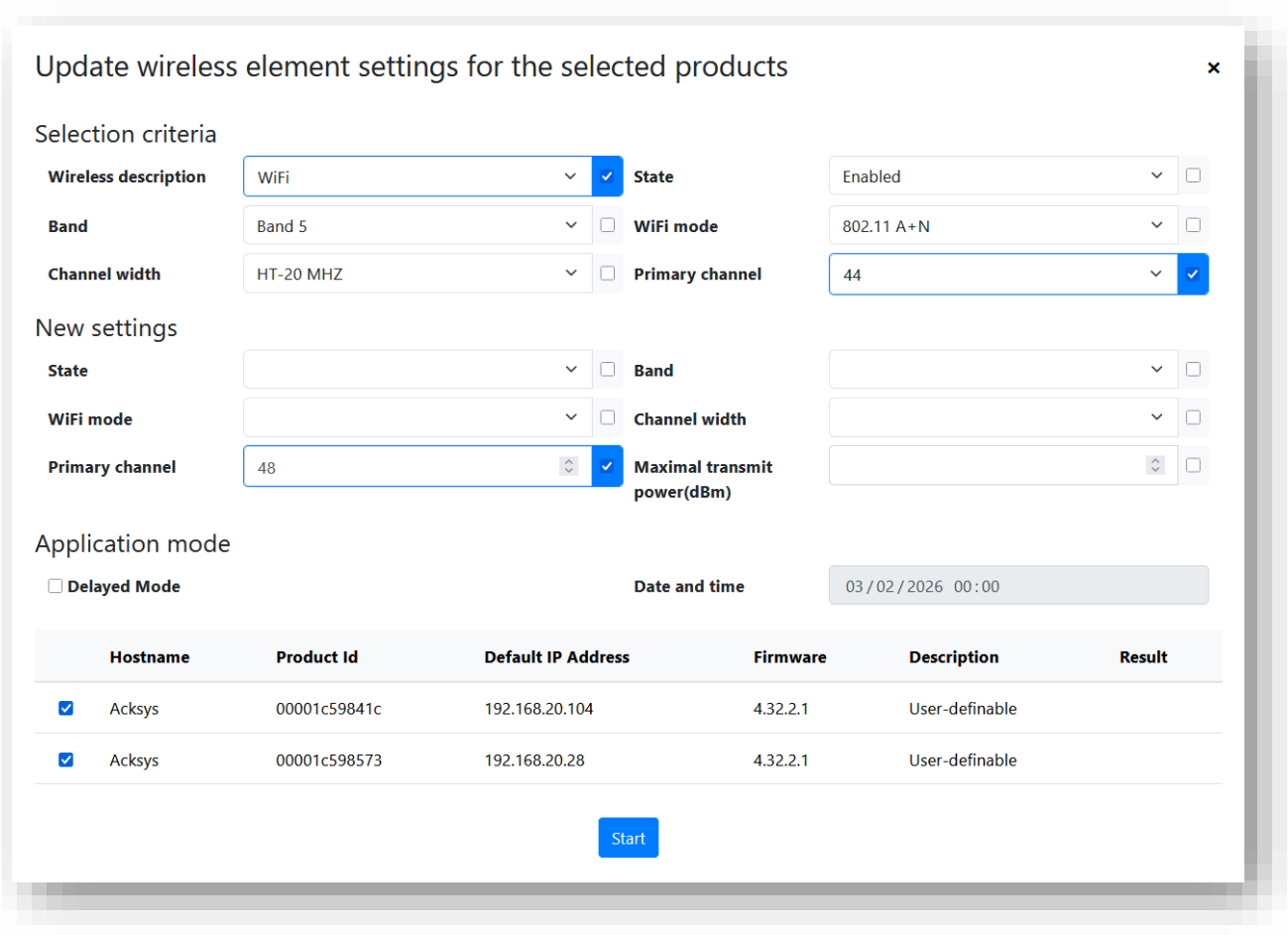
If multiple products are selected, the **Increment** parameter specifies the value to add to the IP address for each subsequent product.
For example, if the first product's address is 192.168.1.100 and the increment is 10, the next products will have addresses 192.168.1.110, 192.168.1.120, etc.

Note: You don't need to wait for the process to finish before closing the window.



8.2 Changing the channel

Please Changing the channel number is only allowed for products **configured with a single channel**. To update the channel, specify both the **current channel number** and the **desired channel number**.

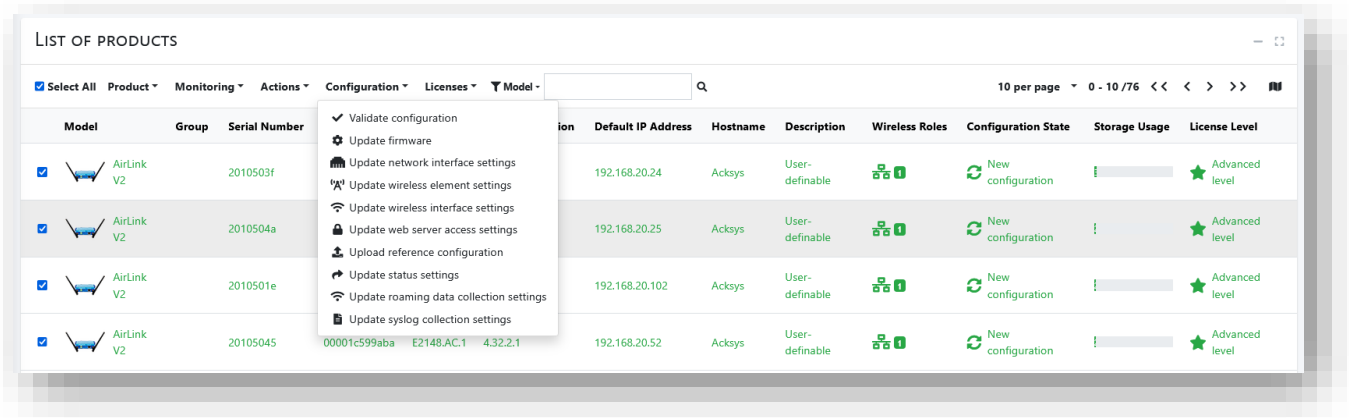


Note: Changing the channel number on a **WiFi client configured for roaming** will have **no effect**, because the channels in use are defined by the roaming configuration.

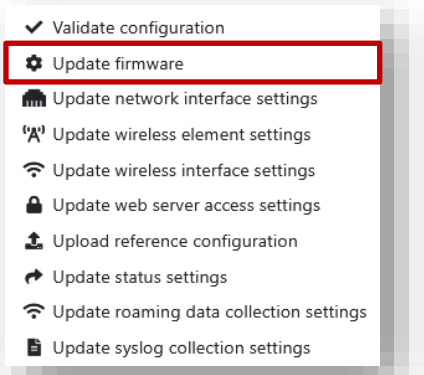
8.3 Firmware Update

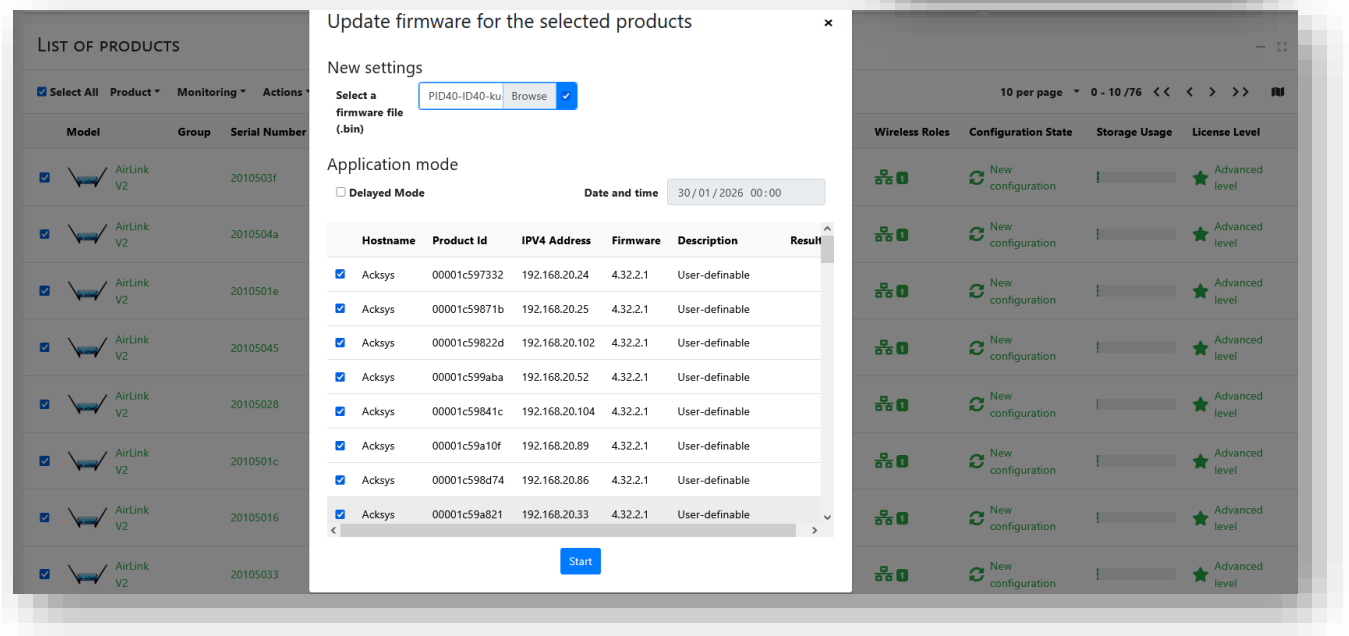
Updates the firmware for the selected products. The latest firmware versions can be downloaded from the Acksys website (*https://www.acksys.fr/WaveManager*)

Select the product(s) to upgrade, and click **Update Firmware**



Warning: All units selected for the upgrade must of course use the same type of firmware.

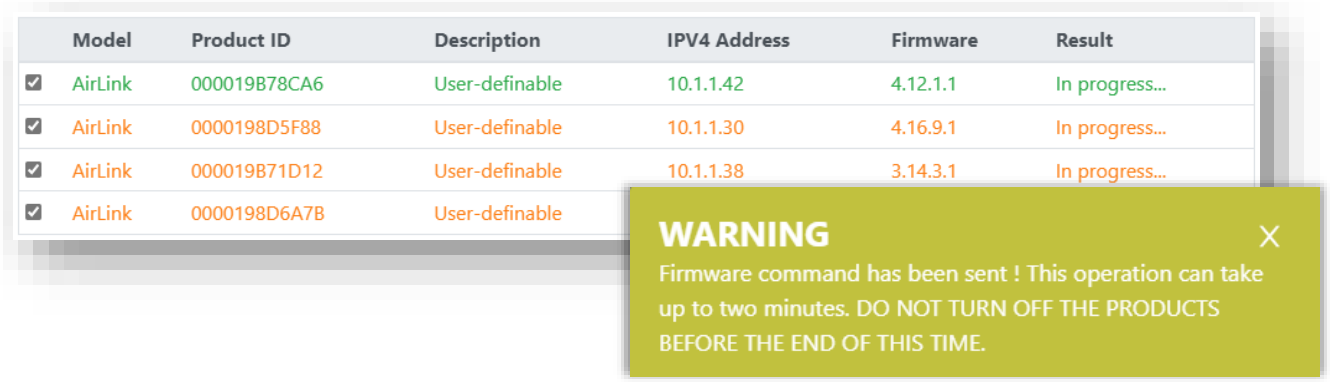




Browse to find the firmware binary file on your disk, enter the **Password** if required.
The password is defined in the product WEB interface (***SETUP/SERVICES/DISCOVER AGENT***). Of course, if a password is defined, it must be common to all the selected products.

Click **Start** to launch the upgrade.

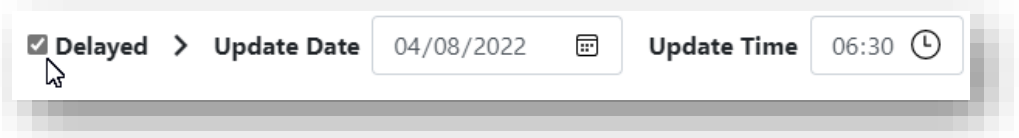
When the update starts, a warning message is displayed and the status of each line changes to ***In progress…*** in the **Result** column. All selected units will be updated simultaneously.



If the programming of the new firmware was successful, the message ***Success...*** is displayed in the Result column. Beware of the fact that at this stage, the product is still in the restart phase and is not immediately accessible. Monitor the DIAG LED to know precisely when the product will be operational**. Never turn off the product's power supply if the DIAG LED is still lit red.**

If an anomaly has prevented the programming of a product, an explicit message is displayed. You will be able to restart the programming of the products concerned after correction of the anomalies indicated.

Please note that since the update procedure can be long, you have the possibility to schedule the update for a later date:



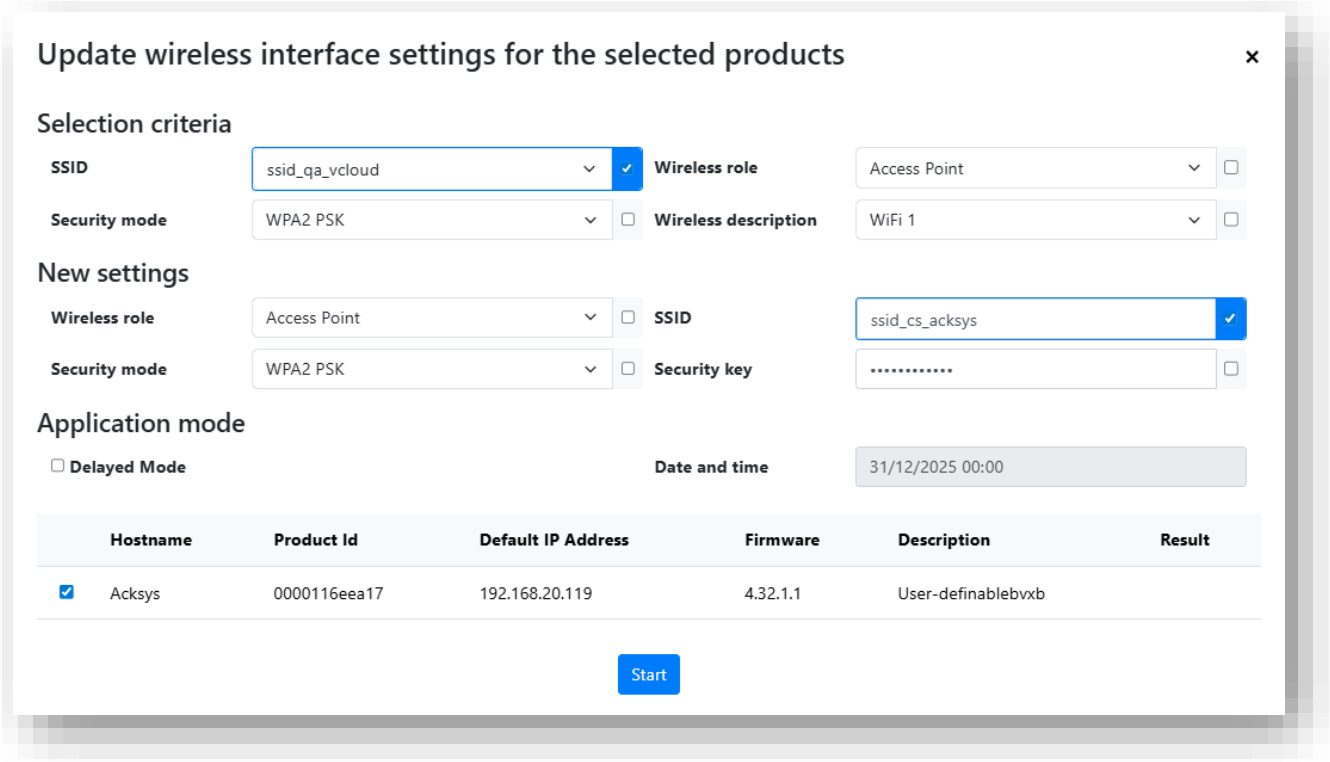
In this case, when you click on **start**, the message ***Scheduled...*** is displayed in the result column, and the **Product Operation Report** icon at the top right indicates that a new element has been added.

You can then close the **Update Firmware** window, the update will start automatically on the date and time set.

You can cancel this operation or view its status by clicking on the **Product Operation Report** icon

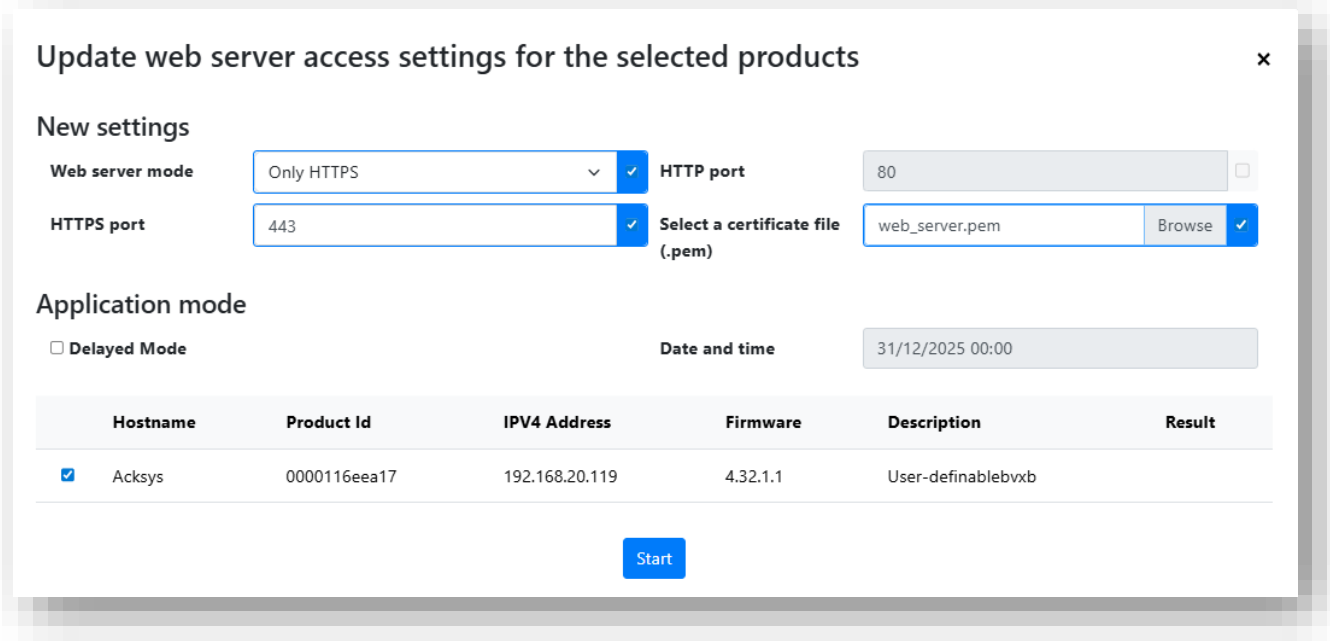
8.4 Changing the SSID

To update the **SSID**, you must first specify the **current SSID**. You can then define a **new SSID**. Optionally, you may also change the **security mode** and **pre-shared key**.



8.5 Changing HTTPS Certificate

This option allows you to **change the HTTPS certificate** used for secure access to the web server. The certificate must be in **PEM format**. You can also change the **port** used by the server.



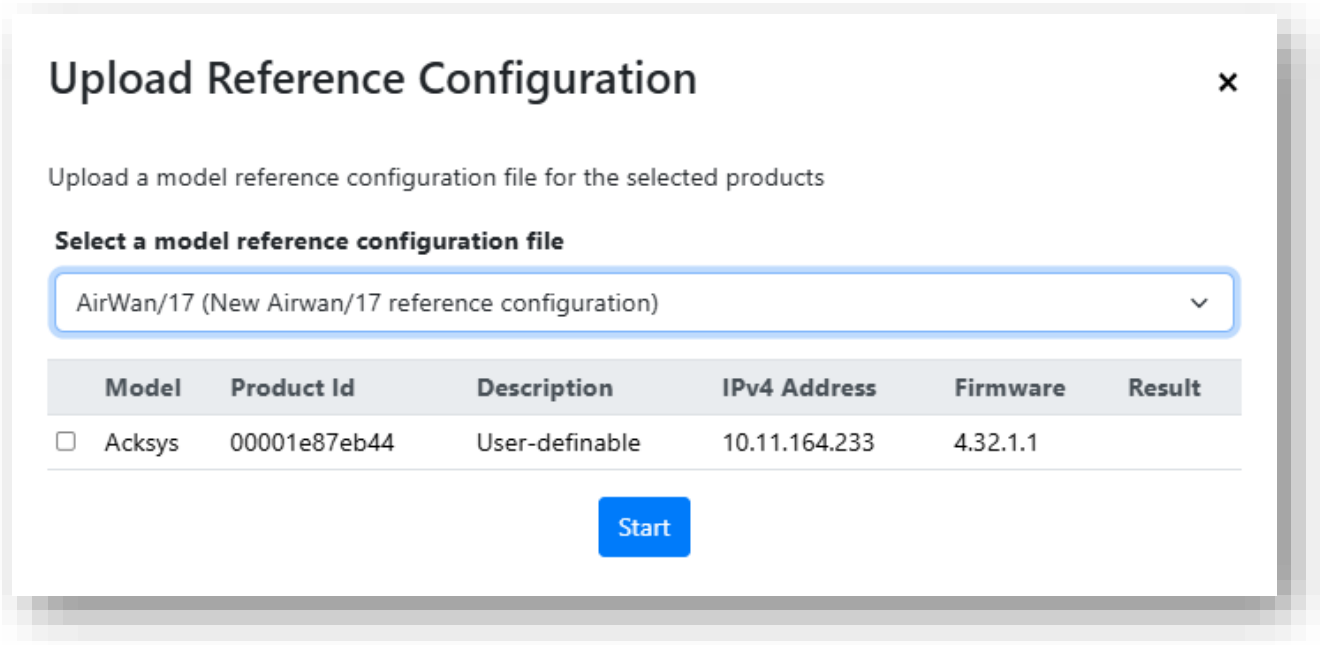
8.6 Upload Configuration

This action allows you to **apply a reference configuration file** to one or more products. For details on creating a reference file, see the chapter *Creating a Reference File*. This function is available only from the **Product View** window menu.

Important notes:

- All products selected for batch programming **must be compatible** with the chosen configuration file.
- The **IP address** recorded in the reference configuration file will be applied to **all programmed products**, causing IP conflicts. After programming, you will need to assign **unique IP addresses** to each product. The **Change SSID** action in WaveManager can be used to perform this operation in bulk.

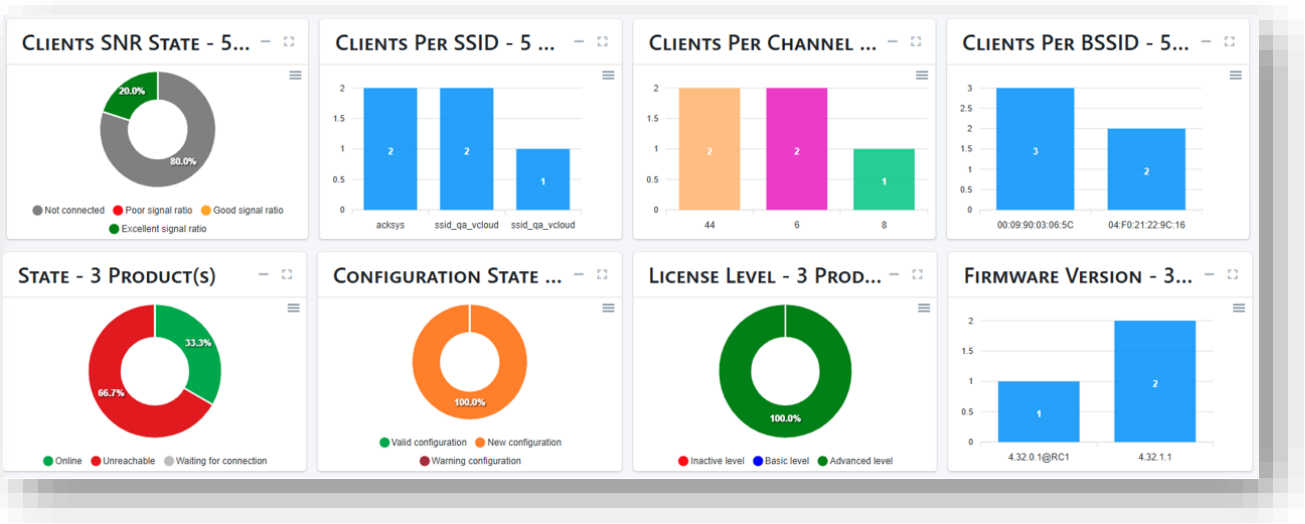
To apply the configuration, **select the reference file** corresponding to the selected products and click **Start**.



If the firmware programming is successful, the result column displays " ***Success...***
If an issue prevents programming, an **explicit error message** is shown. After resolving the indicated issues, you can **restart the programming** for the affected products.

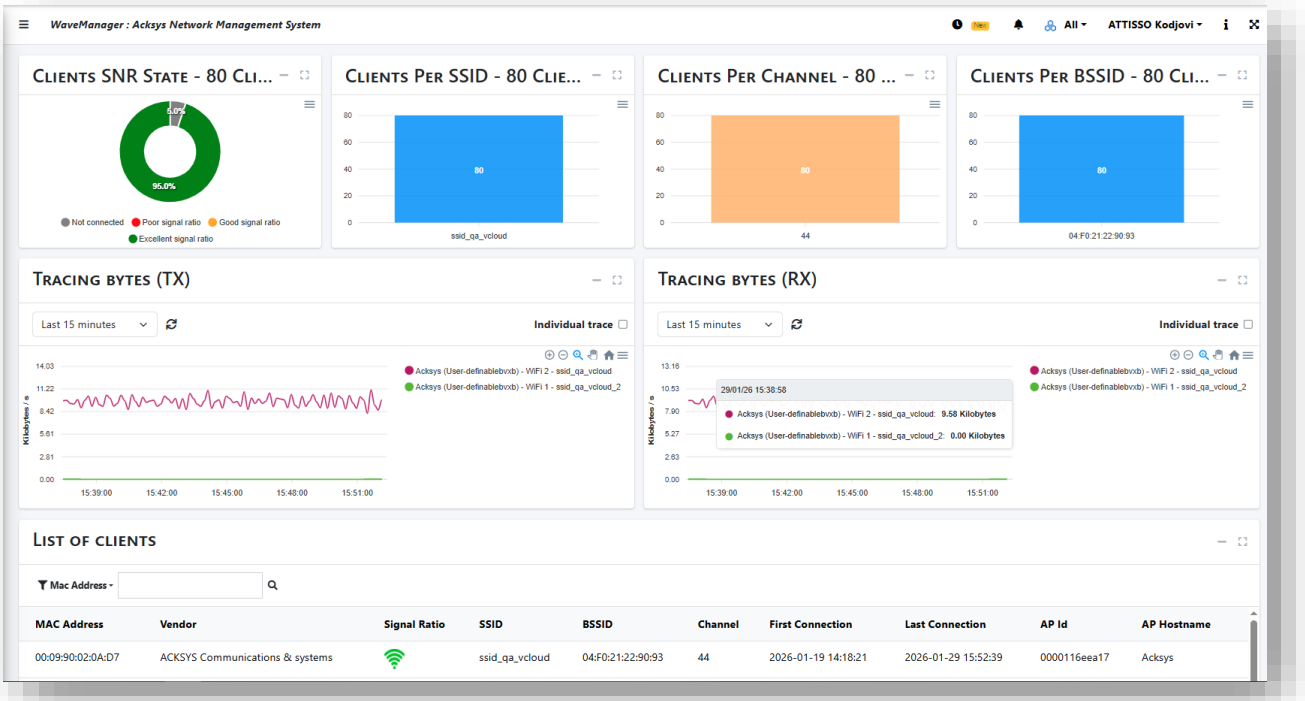
9 DASHBOARD

This page provide customizable Dashboards with synthetic overview of products and functions. This gives immediate visibility on the network status.



10 WIFI AP VIEW

This page provides a comprehensive overview of AP role status and configuration, helping administrators quickly identify firmware differences, configuration readiness, and licensing consistency across the product fleet.
It provides a real-time wireless client activity, signal quality, and traffic statistics for the selected Access Point.



In the list of **WIFI AP view**, you will find:

Clients SNR State
Shows the signal quality distribution of connected clients, indicating whether clients are not connected or have poor, good, or excellent signal ratios.

Clients per SSID
Displays the number of connected clients for each configured SSID.

Client per Channel
Shows how connected clients are distributed across the different Wi-Fi channels.

Client per BSSID
Indicates the number of clients connected to each BSSID (access point radio interface).

Tracing Bytes (TX)
A real-time graph showing the amount of transmitted data over the selected time range, with the option to display individual traces per Wi-Fi interface.

Tracing Bytes (RX)
A real-time graph showing the amount of received data over the selected time range, with the option to display individual traces per Wi-Fi interface.

List of Clients
This table provides detailed information about all connected wireless clients, including:

Columns	Description
MAC Address	The MAC address of the client.
Vendor	Manufacturer of the client device
SSID	Network name to which the client is connected
BSSID	Identifier of the access point interface
Channel	Wi-Fi channel in use
AP Id	Internal identifier of the access point
AP Hostname	Hostname of the access point
First connection	Indicates the first time the client was seen on the network
Last connection	Indicates the last time the client was seen on the network
Signal Ratio	The customer's signal quality is reported as follows based on the customer's signal-to-noise ratio (SNR):  — Excellent: 25 dB signal or higher.  — Medium: 16 to 25 dB signal.  — Poor: Signal of 15 dB or less.  — Disconnected: A client is considered disconnected when no access points (APs) have reported seeing that client for 60 seconds.

11 MONITORING AND CHART

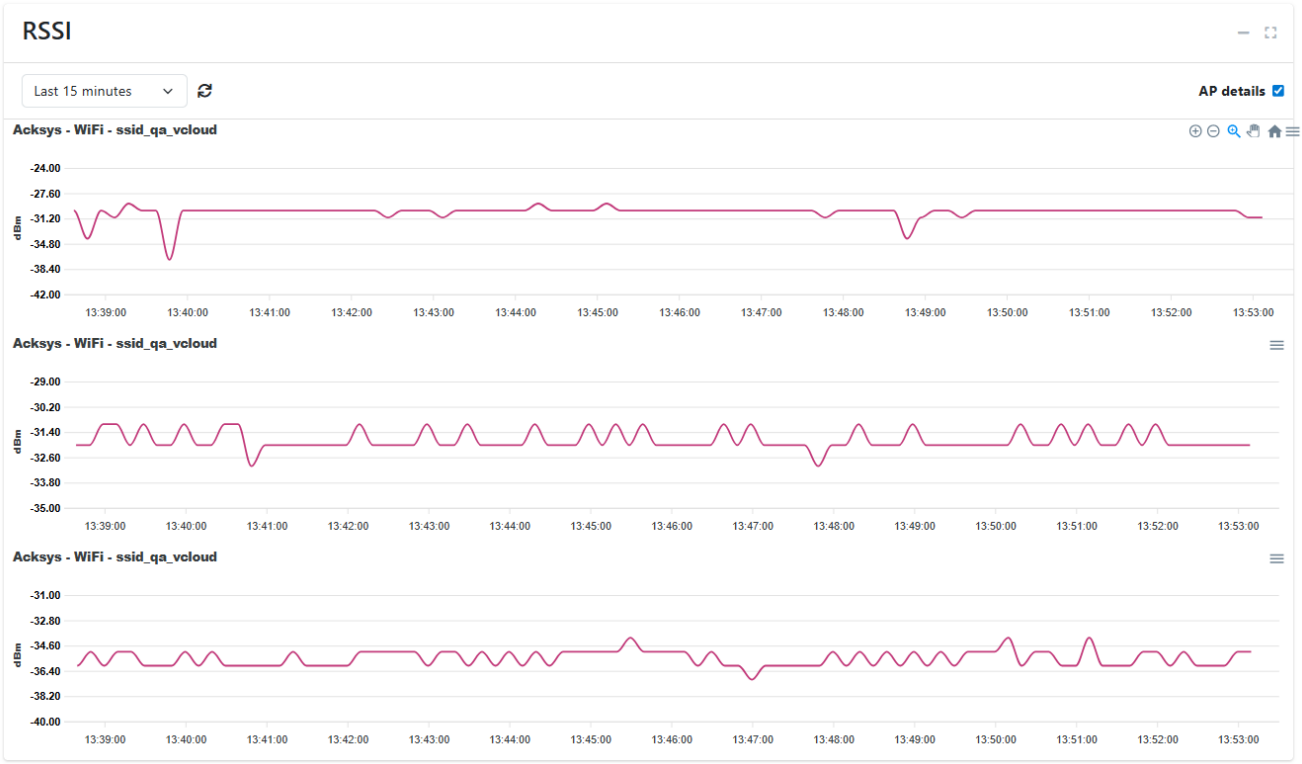
This section is available from the **Product list view** when selecting the **Monitoring/Data charts** submenu.

The **Charts** section provides real-time and historical graphical data for key product metrics, organized into three main categories: **WiFi**, **Cellular**, and **Bandwidth**. This Dashboard is essential for performance monitoring and troubleshooting

11.1 WIFI

The **WiFi Menu** provides focused monitoring tools for wireless network performance, client associations, and detailed connection analytics. It is a subset of the **Charts** dashboard, dedicated to WiFi-specific metrics.

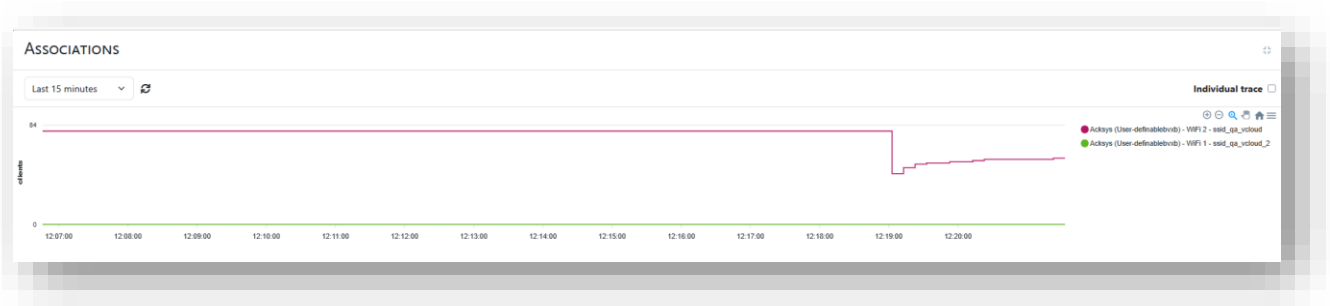
RSSI (Received Signal Strength Indicator)



- **Time Range**: Last 15 minutes (adjustable)
- **AP details** – Checkbox to show/hide per-access-point signal details.
- **Status**: *No data to display — Please enable wireless statistics*
    - **Action Required**: Wireless statistics must be enabled in the product's telemetry or status settings.

11.2 Associations

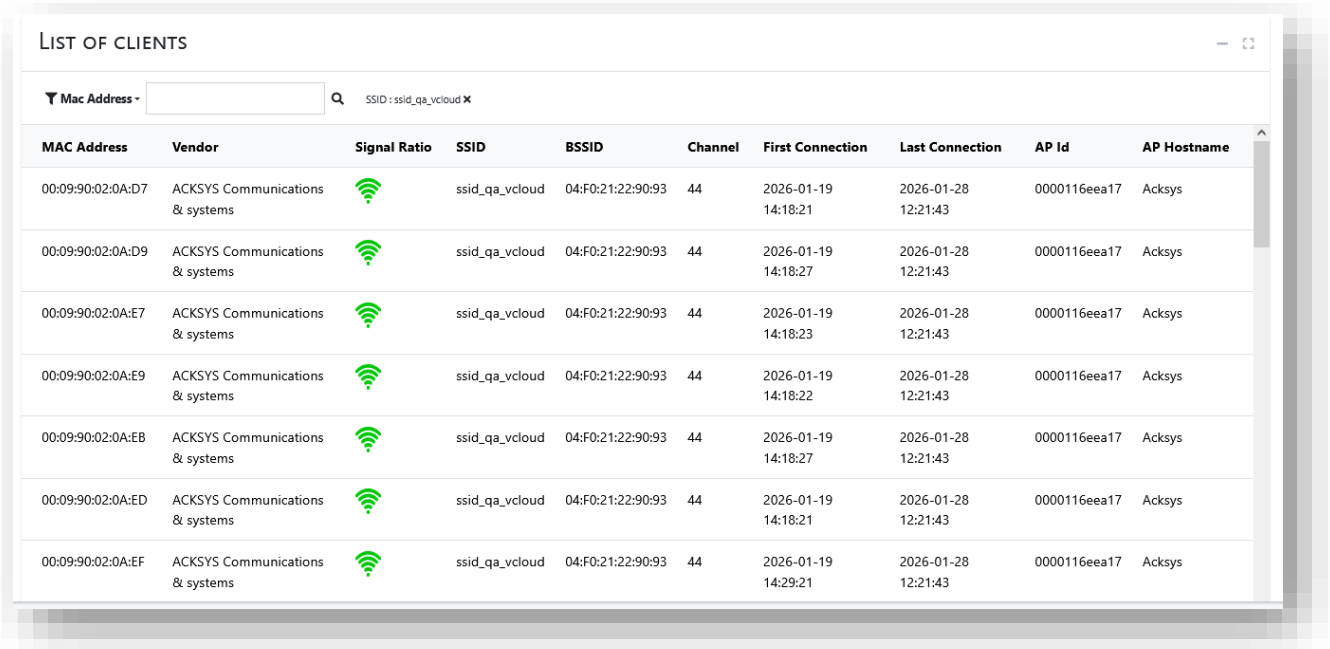
Association count graph per AP/SSID.



- **Time Range**: Last 15 minutes (adjustable)
- **Individual trace** – Checkbox to isolate data for a single client or AP.
- **Status**: *No data to display — Please enable wireless statistics*
    - **Action Required**: Enable wireless statistics to view connection trends.

11.3 List of Clients

A real-time table showing active and recently connected wireless clients.



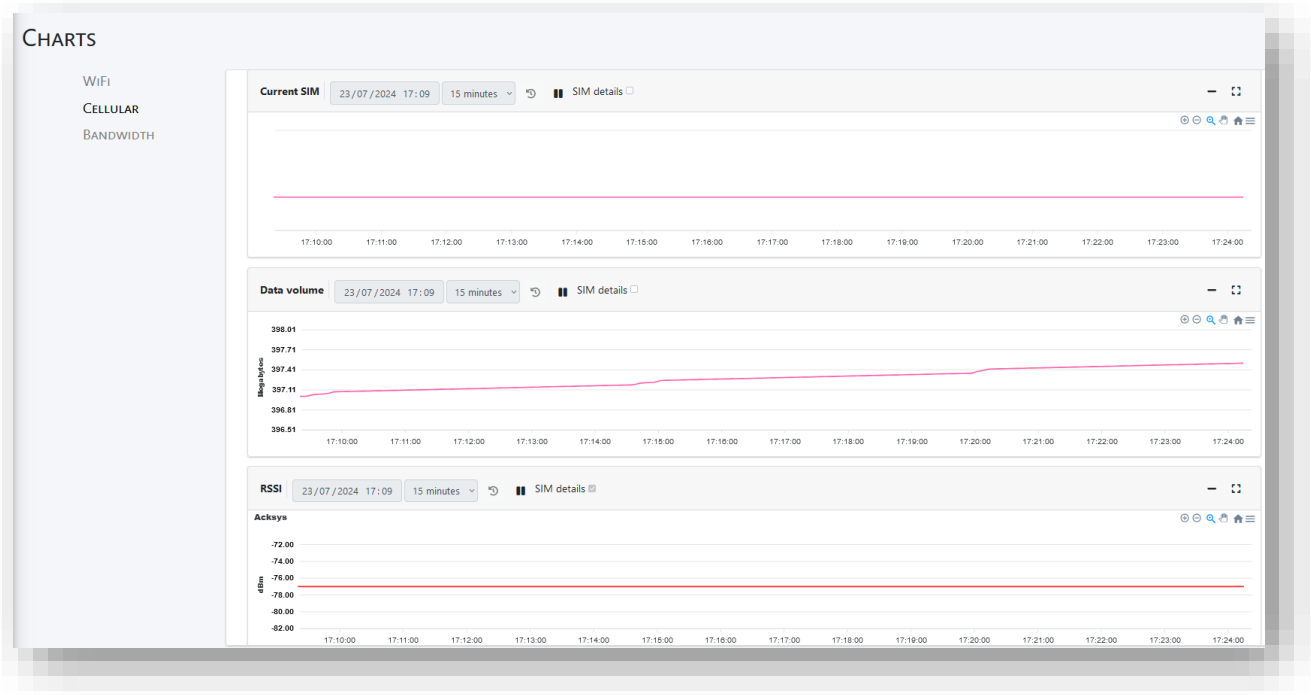
MAC Address	Vendor	Signal Ratio	SSID	BSSID	Channel	First Connection	Last Connection	AP Id	AP Hostname
00:09:90:02:0A:D7	ACKSYS Communications & systems		ssid_qa_vcloud	04:F0:21:22:90:93	44	2026-01-19 14:18:21	2026-01-28 12:21:43	0000116eea17	Acksys
00:09:90:02:0A:D9	ACKSYS Communications & systems		ssid_qa_vcloud	04:F0:21:22:90:93	44	2026-01-19 14:18:27	2026-01-28 12:21:43	0000116eea17	Acksys
00:09:90:02:0A:E7	ACKSYS Communications & systems		ssid_qa_vcloud	04:F0:21:22:90:93	44	2026-01-19 14:18:23	2026-01-28 12:21:43	0000116eea17	Acksys
00:09:90:02:0A:E9	ACKSYS Communications & systems		ssid_qa_vcloud	04:F0:21:22:90:93	44	2026-01-19 14:18:22	2026-01-28 12:21:43	0000116eea17	Acksys
00:09:90:02:0A:EB	ACKSYS Communications & systems		ssid_qa_vcloud	04:F0:21:22:90:93	44	2026-01-19 14:18:27	2026-01-28 12:21:43	0000116eea17	Acksys
00:09:90:02:0A:ED	ACKSYS Communications & systems		ssid_qa_vcloud	04:F0:21:22:90:93	44	2026-01-19 14:18:21	2026-01-28 12:21:43	0000116eea17	Acksys
00:09:90:02:0A:EF	ACKSYS Communications & systems		ssid_qa_vcloud	04:F0:21:22:90:93	44	2026-01-19 14:29:21	2026-01-28 12:21:43	0000116eea17	Acksys

11.4 Bandwidth

The **BANWIDTH Menu** provides focused monitoring tools for wireless network performance, client associations, and detailed

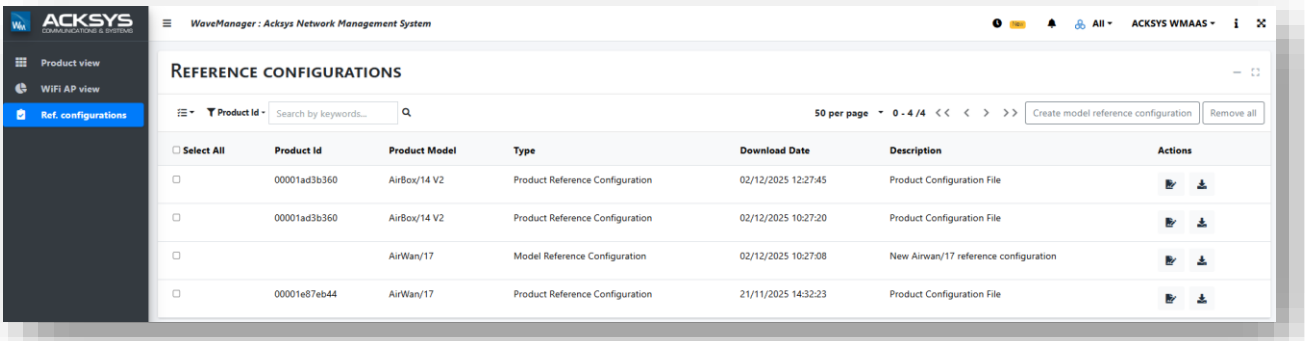
11.5 Cellular

The **CELLULAR Menu** provides real-time monitoring of cellular SIM card performance, including **signal strength (RSSI)**, **data usage**, and **current SIM status**. It is a subset of the **Charts** dashboard, dedicated to Cellular specific metrics.



12 REFERENCE CONFIGURATION

This page allows to manage the configuration files. You can list the configuration files saved in the database from the Product Info window, and you can save and maintain the reference configuration files by product



In the list of **configurations per product**, you will find:

Product ID

This is the product identification number that you find in the Product view page of WaveManager, or in the Status/Device info page of the product's WEB server.

download date

The date this configuration file was saved in the database

Description

The summary description given at the time of registration in the database

Possible actions are:

 Delete a configuration

 Change the name of the configuration

 Save the configuration on your disk as a binary file (.bin)

Configurations by product are closely linked to the product from which they come. They can only be uploaded in this very unit, through the **Product info** window, in the same way as they were saved. If a product is deleted from the database, either by an individual deletion, or following a reset of the database, the record of its configuration also disappears.

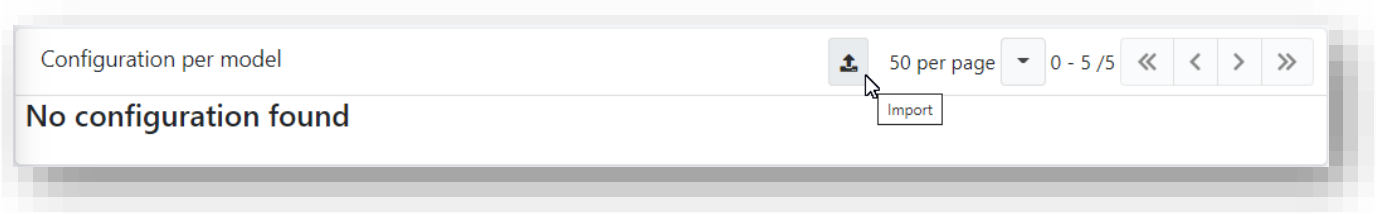
To upload a configuration to one or more products of the same model, it is necessary to create a reference configuration.

12.1 Creating a reference file

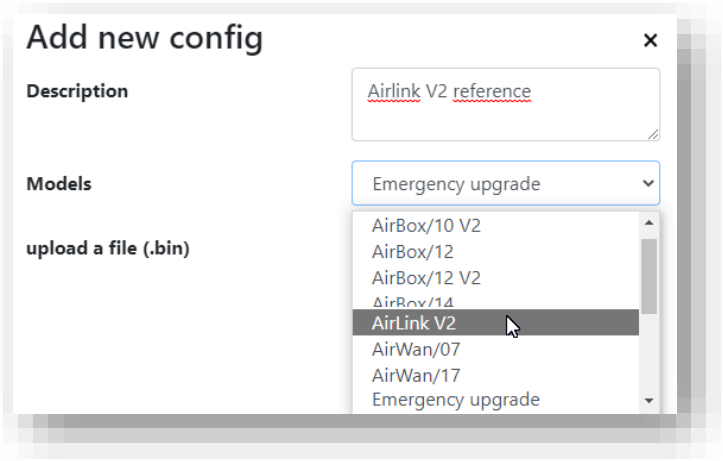
To create a reference configuration, you must have the binary file of this configuration. This file can be created directly from the WEB interface of the reference product (page TOOLS/Save config), or it can be saved from the list of configurations by product, as indicated above.

A reference configuration file is a file listing all the parameters of the reference product (of a given model).

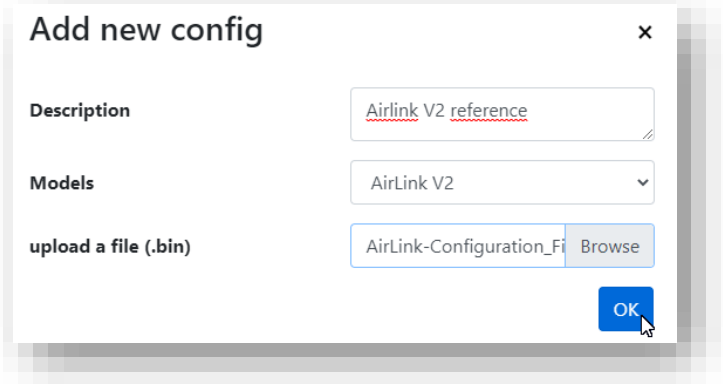
All you have to do is click on the Import icon in the list of Configurations per model:



You can then give a description of your reference configuration, and choose the product to which it corresponds from the drop-down list. Attention, in case of error on the model, the configuration will be saved but it cannot be uploaded in a product of this model.

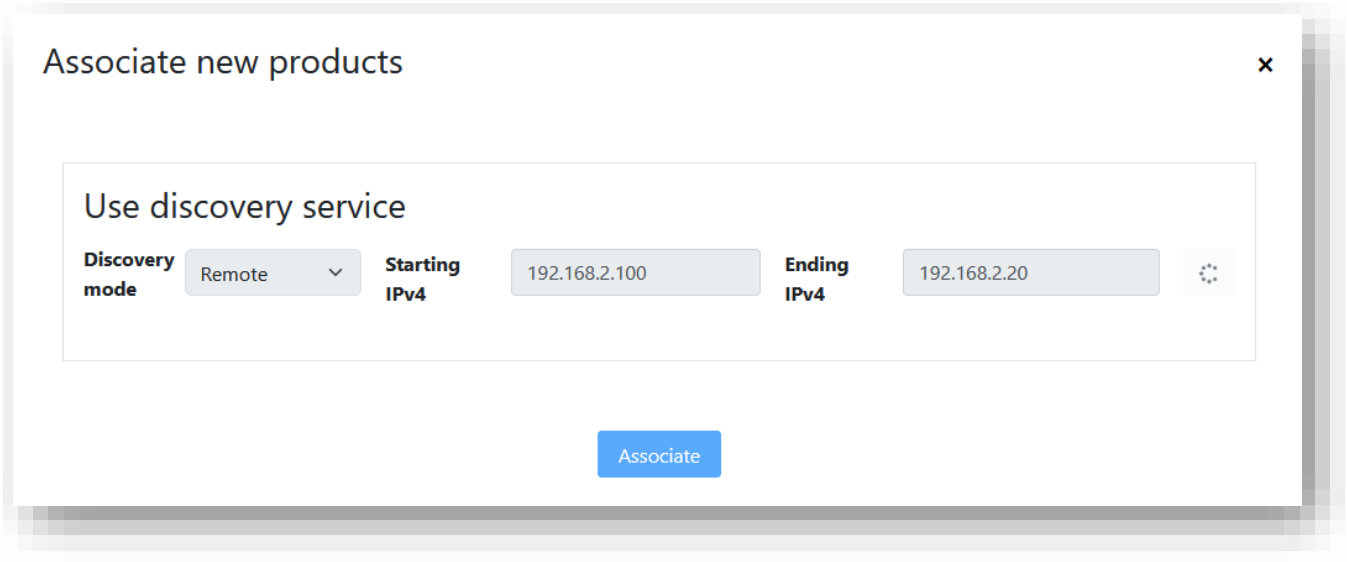


Now indicate the path to the binary file and click **OK** to finish



13 REMOTE DISCOVERY

This function allows you to manually detect remote products. It should be used to discover devices located outside the local network.
To use this feature, you must specify the range of IP addresses to scan.

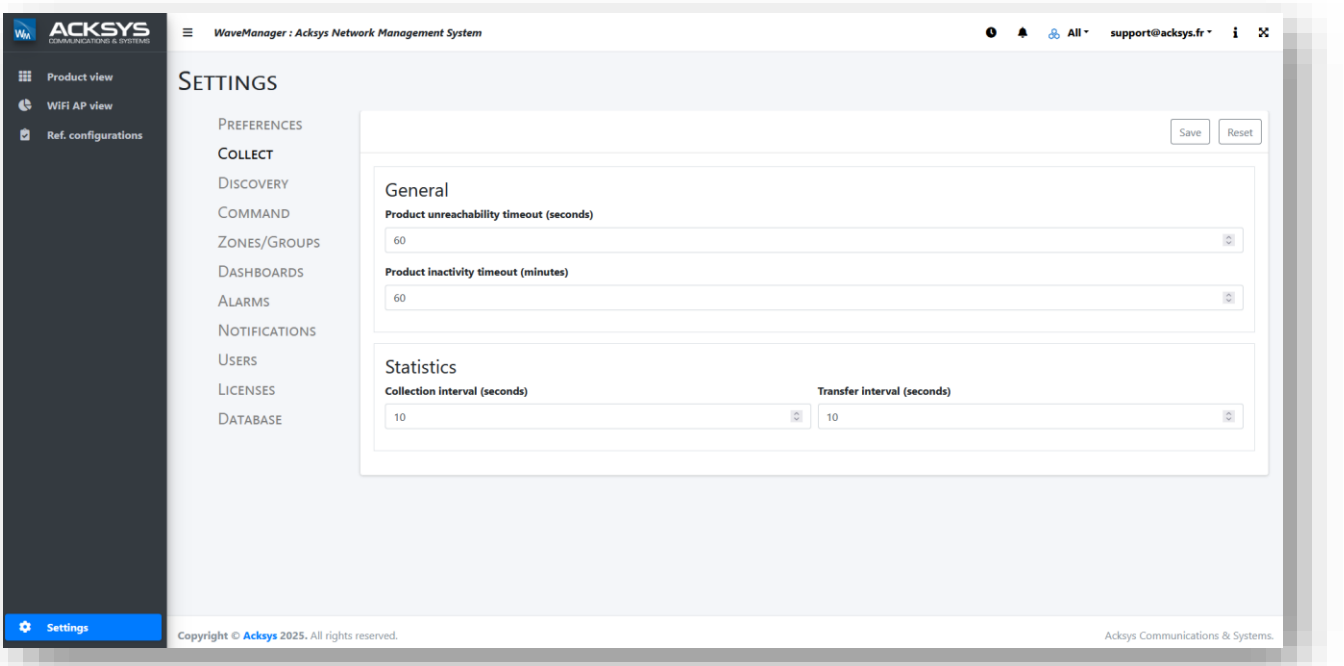


WaveManager displays all detected products, excluding those that are already registered.
The search duration depends on the size of the address range and the network topology.
At the end of the search, the **"Number of New Products"** counter shows how many products were discovered within the specified address range.

14 WAVEMANAGER SETTINGS

The **Settings** menu provides access to WaveManager global configuration options that control system behavior, device management, user access, and data handling.

14.1 List of settings



Preferences

Configures global application preferences that affect the overall behavior and display of WaveManager. These settings apply system-wide and impact all users

Collect

Defines how WaveManager monitors products and collects statistical data.

Discovery

Defines how WaveManager monitors products and collects statistical data.

Zones and Groups

Enables group management. The **Groups/Zones** tab only appears in the menu when this option is checked

Dashboards

Configures dashboard availability and behavior. Dashboards provide graphical visualization of system status, statistics, and alarms.

Alarms

Defines alarm conditions and thresholds used to detect abnormal events. Alarms are generated based on product status, performance metrics, or inactivity.

Notifications

Configures how system events and alarms are communicated to users. Notification rules determine when and how users are alerted.

Users

Manages user accounts and access permissions. This section allows administrators to create users, assign roles, and control access rights.

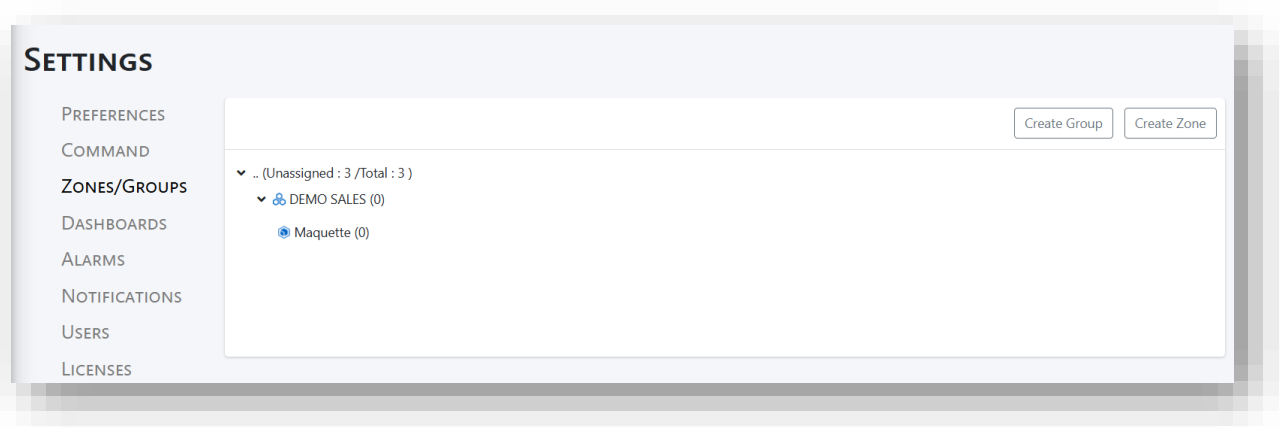
Licenses

Displays and manages WaveManager licenses. This section provides information about license status and enabled features.

Database

Configures database-related settings. This section controls data storage, retention policies, and maintenance options.

14.2 Groups/Zones tab

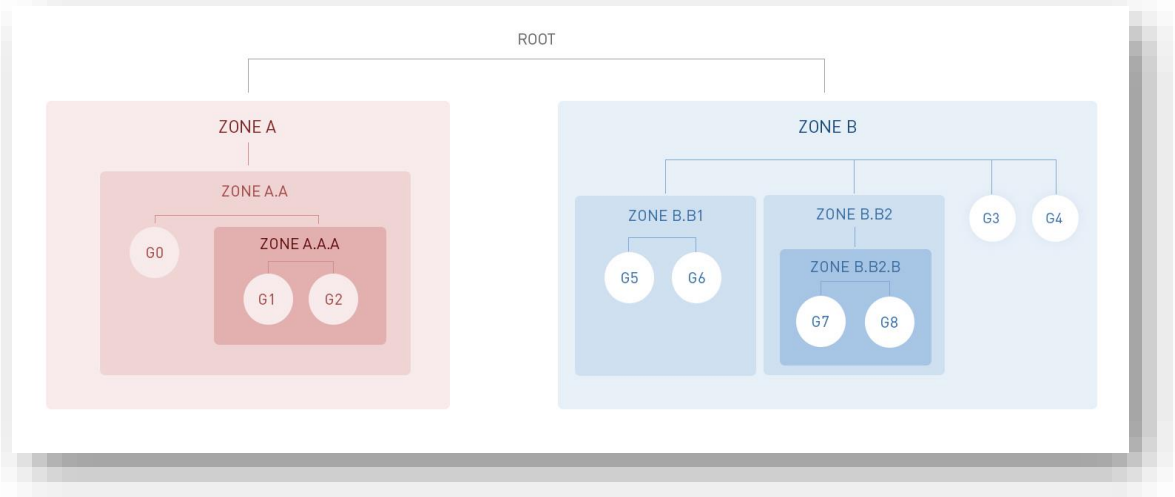


This page gives access to group management, to classify and sort products in parent groups called “zones”. As a result, products are easily findable and referenced in the infrastructure and their display in the inventories is simplified.

> This tab **is not available by default**. The group management has to be enabled in the **General Settings** tab

Use of group/zone

Considering two zones named A and B, at the root of the tree structure. Each of these zones may contain an unlimited number of subzones and groups:



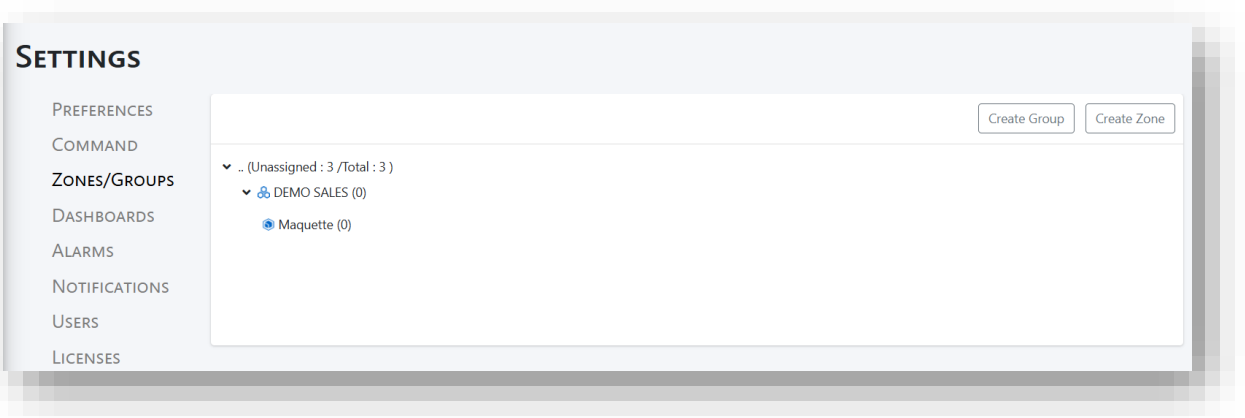
The product groups (here named G0 to G8) are assignable to any level of the tree structure.

A zone may content an unlimited number of subzones and groups while a group can only contain products.

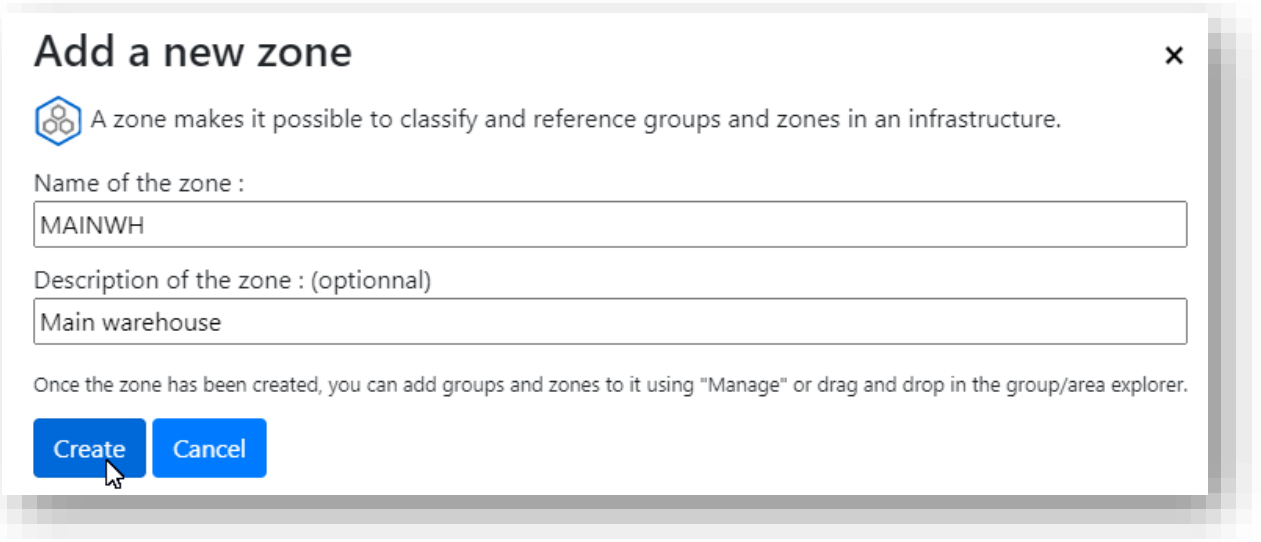
Creating new zones and groups

To create a new zone, simply click on the **Create a zone** ico

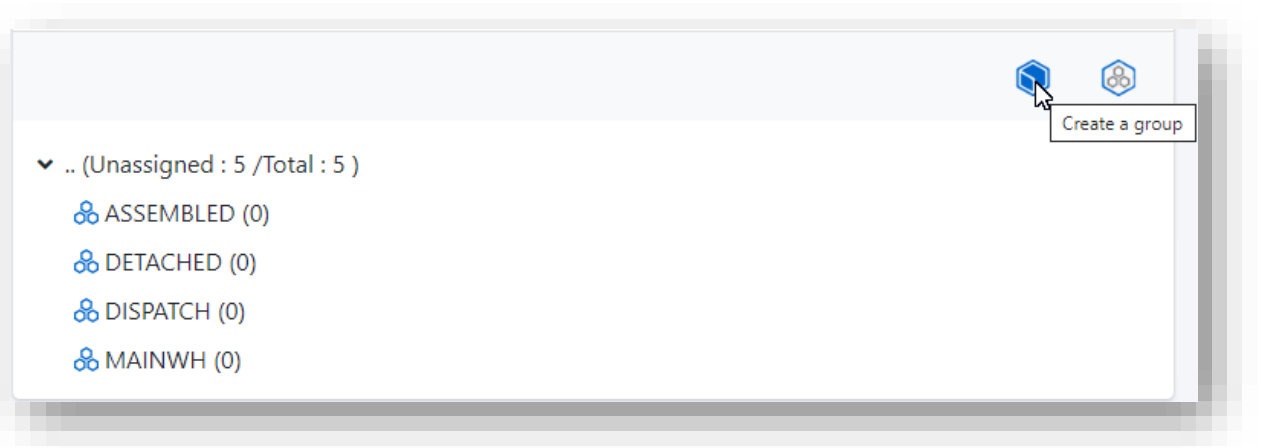
Please note that if you don't need any zones, this is optional



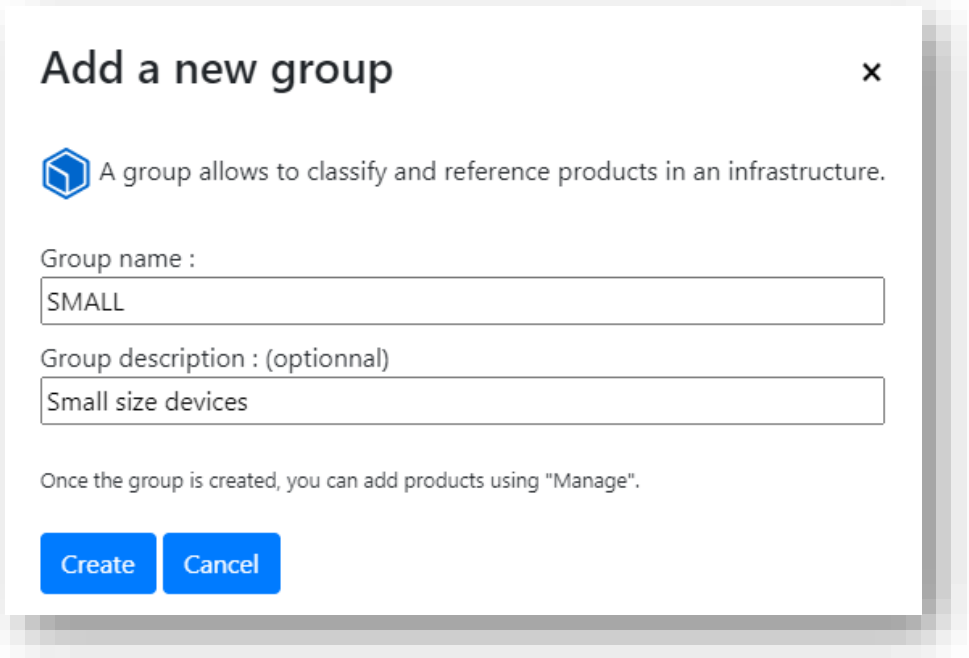
Enter the name of the zone, zone description and click **Create** to confirm:



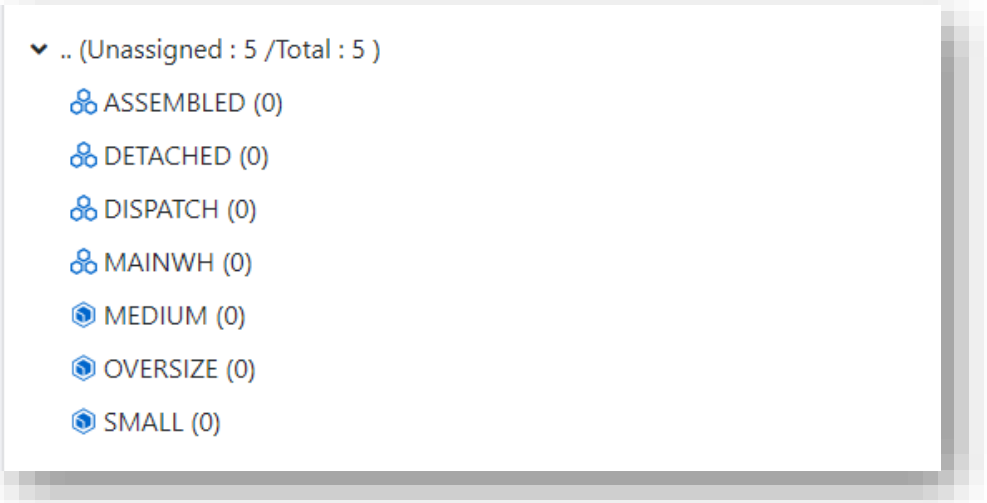
After creating all required zones, click the **Create a group** to add the required groups:



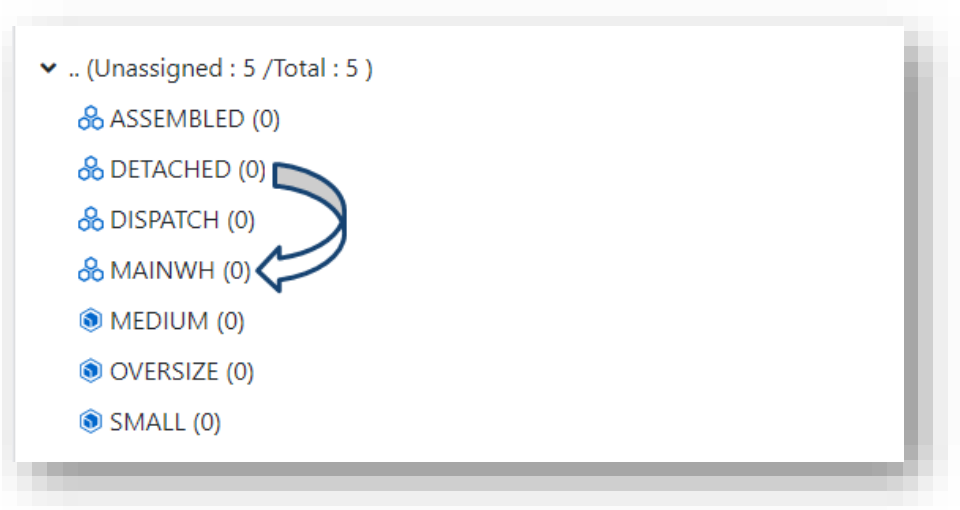
Enter the name of the group, group description and click **Create** to confirm:



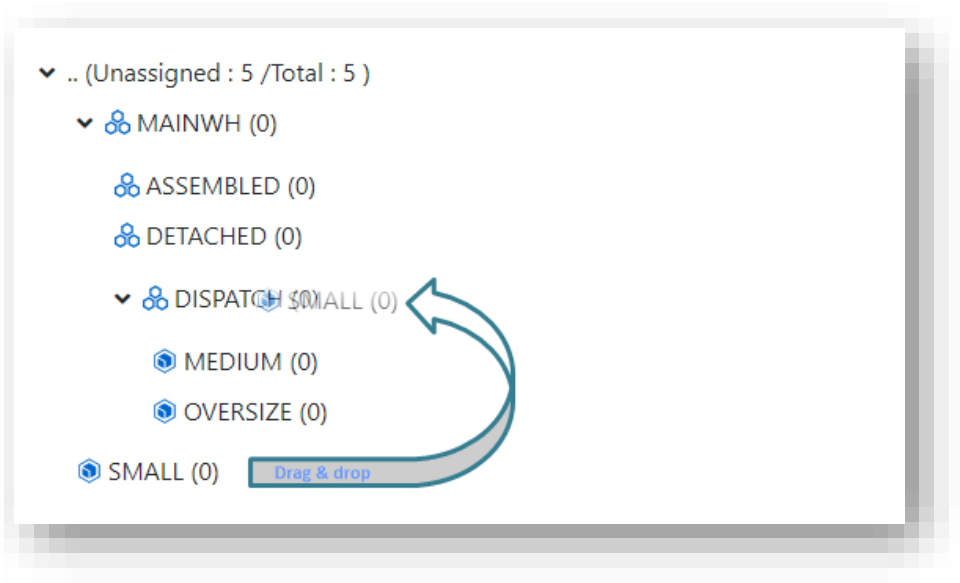
Repeat this operation for all required groups



You can create a tree structure by dragging and dropping sub-zones into their corresponding primary zones.

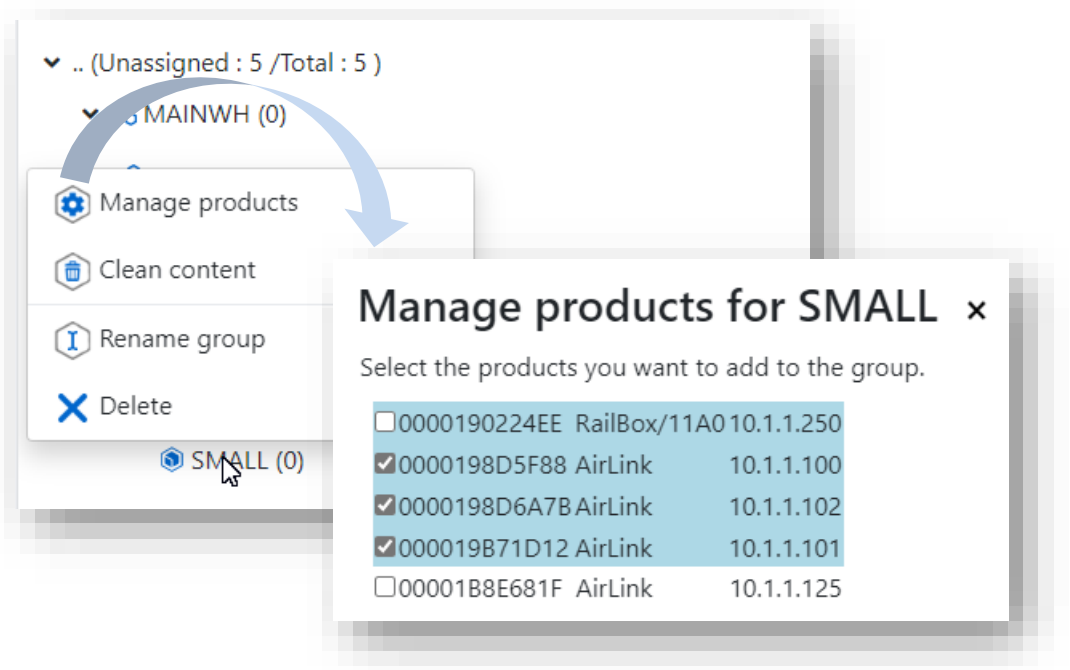


Similarly, you can move groups to the desired areas if needed. Please note that a group can contain only products; it cannot contain another group.



You can now populate groups with the products displayed in the **Products View** window: right-click on a host group and select **Manage Products**.

Please note that you can also **Clean** the group (remove all associated products), **Rename** or **Delete** the group.

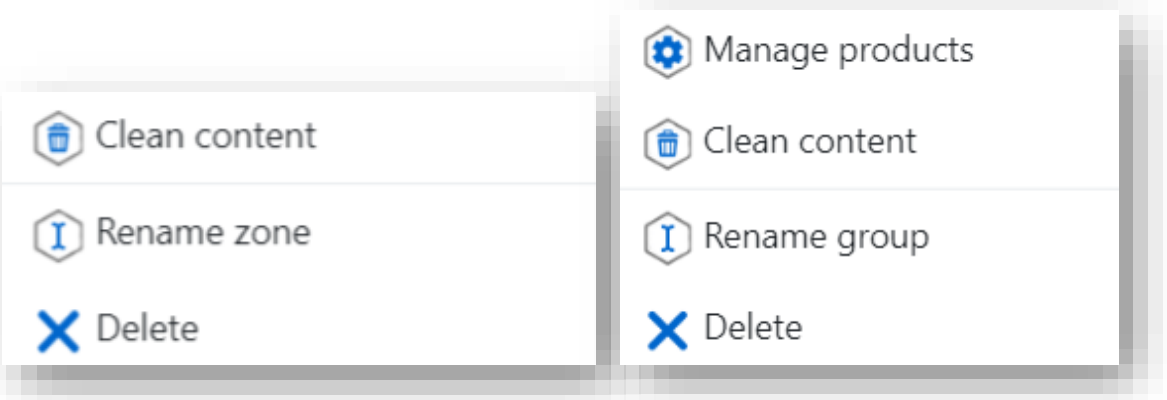


Check all the products you want to include in this group, then click **Save.**

- Products with a **white background** are already assigned to another group. Selecting one of these for this new group will automatically remove it from the previous group.
- Products with a **blue background** are not yet assigned to any group.

Clean, delete or rename a zone or group

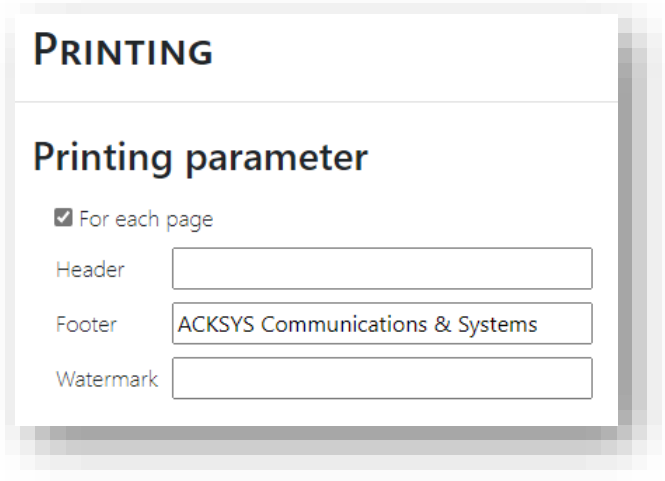
Click on a zone or group to open the menu of available actions.



Deleting a zone will move its assigned items to the root.

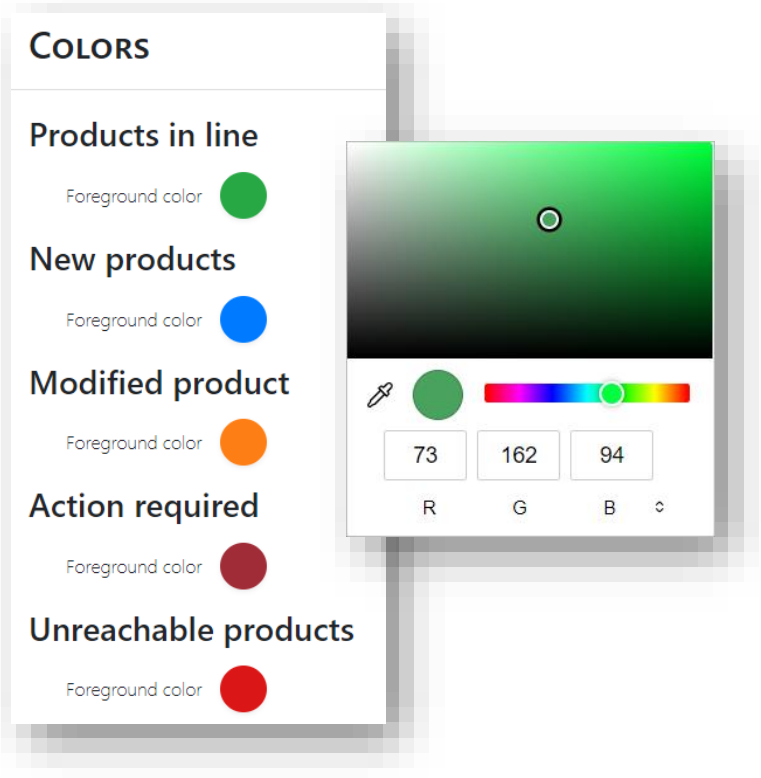
Deleting a group will move the products it contains into the "*Unassigned Products*" list.

14.3 Printing



This section allows you to customize the database report by adding a **header**, **footer**, and **watermark**

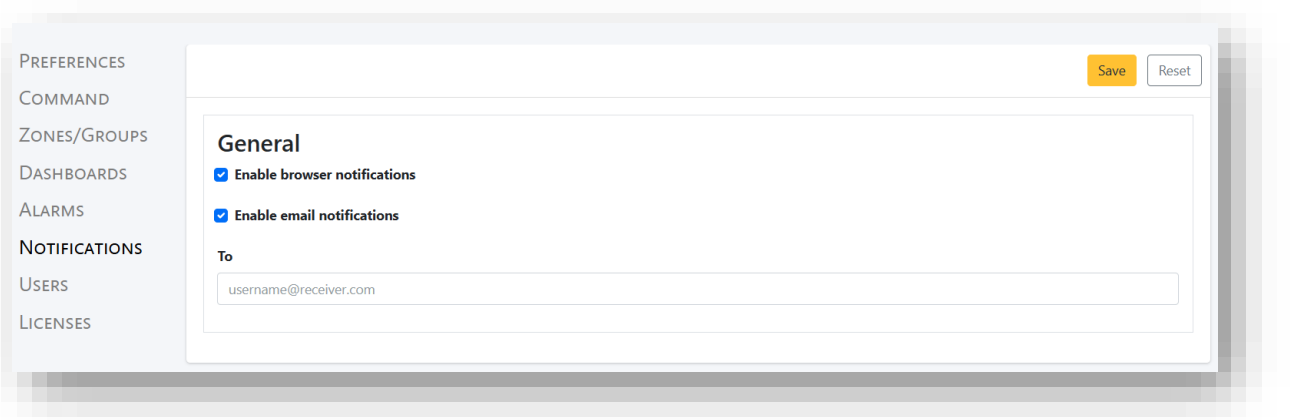
14.4 Colors



This tab allows you to customize the status colors of products displayed in the inventory.

You can select a color using the palette or dropper, or manually enter the **RGB values** (Red, Green, Blue) of the desired color.

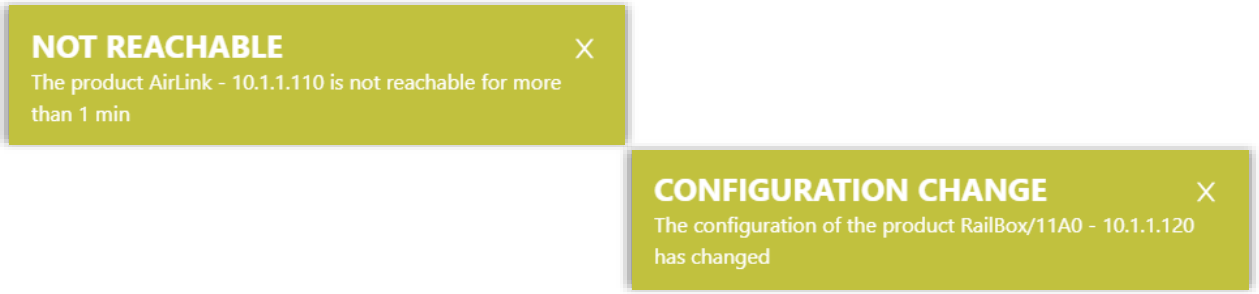
14.5 Notifications



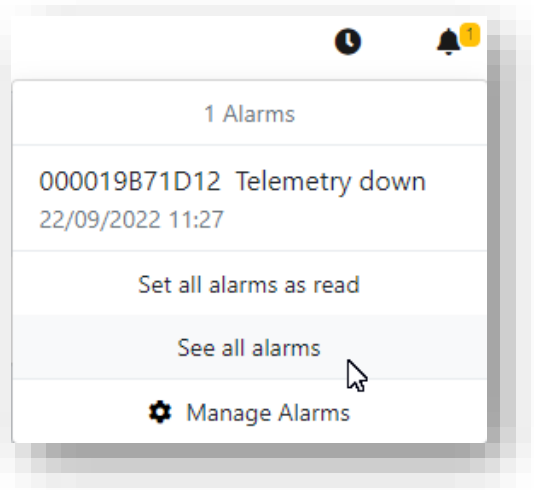
This feature enables WaveManager to display notifications when specific events, defined in the Alarms tab (see chapter *Alarms*), occur. Notifications can appear as on-screen pop-ups and/or be sent via email.

To receive email notifications, you will need to configure an SMTP server and an SMTP port (you can refer to your IT department to fill in the fields).

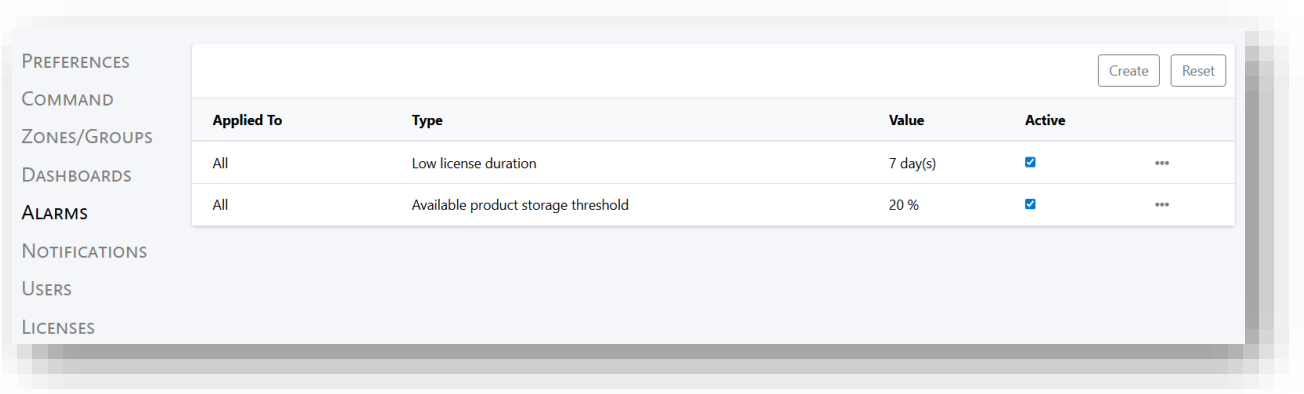
When an event is triggered, WaveManager generates a notification and logs a report with the date and time which can be viewed by the user. Detailed information is displayed in a pop-up message window.



You can consult and manage the past notifications by clicking on the Alarm icon at the top right and select **See all alarms**



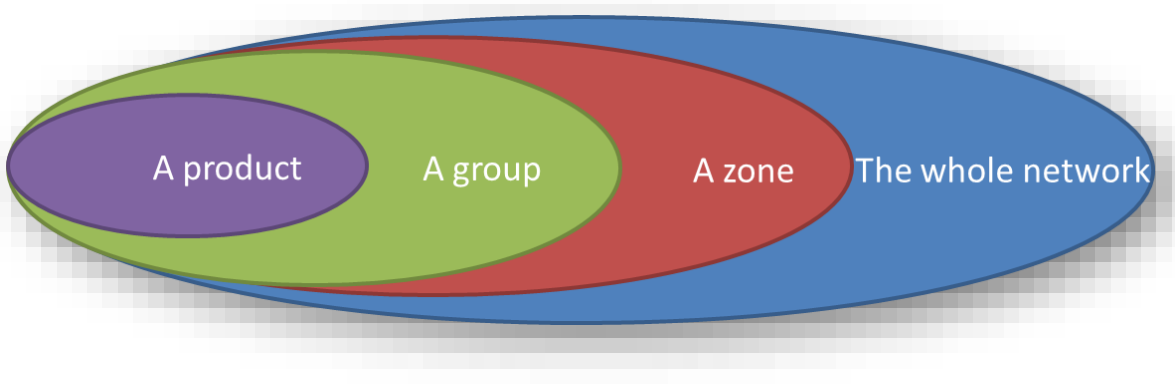
And then you can **Set as read** or **Delete** all or each alert



14.6 Alert hierarchy

Alerts can be configured for a single product, a group, a zone, or all products. Only alerts with the highest priority level will be triggered.

- The hierarchy of alert parameters -



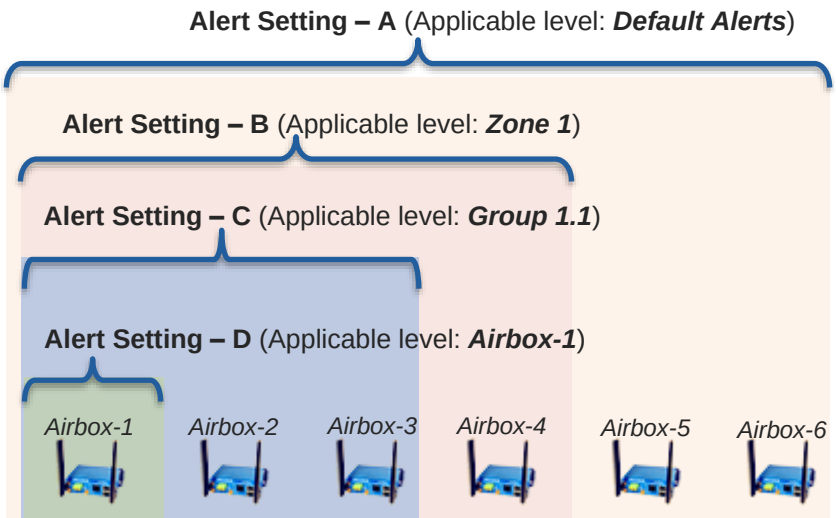
For example, there is a network including 6 Airboxs. 4 alert settings are configured in the network.

Group 1.1 which contains *Airbox-1*, *Airbox-2* and *Airbox-3* can trigger the alert setting **- C**, except *Airbox-1*

Airbox-1 can only trigger **alert setting - D**

Airbox-4 can trigger **alert setting - B**

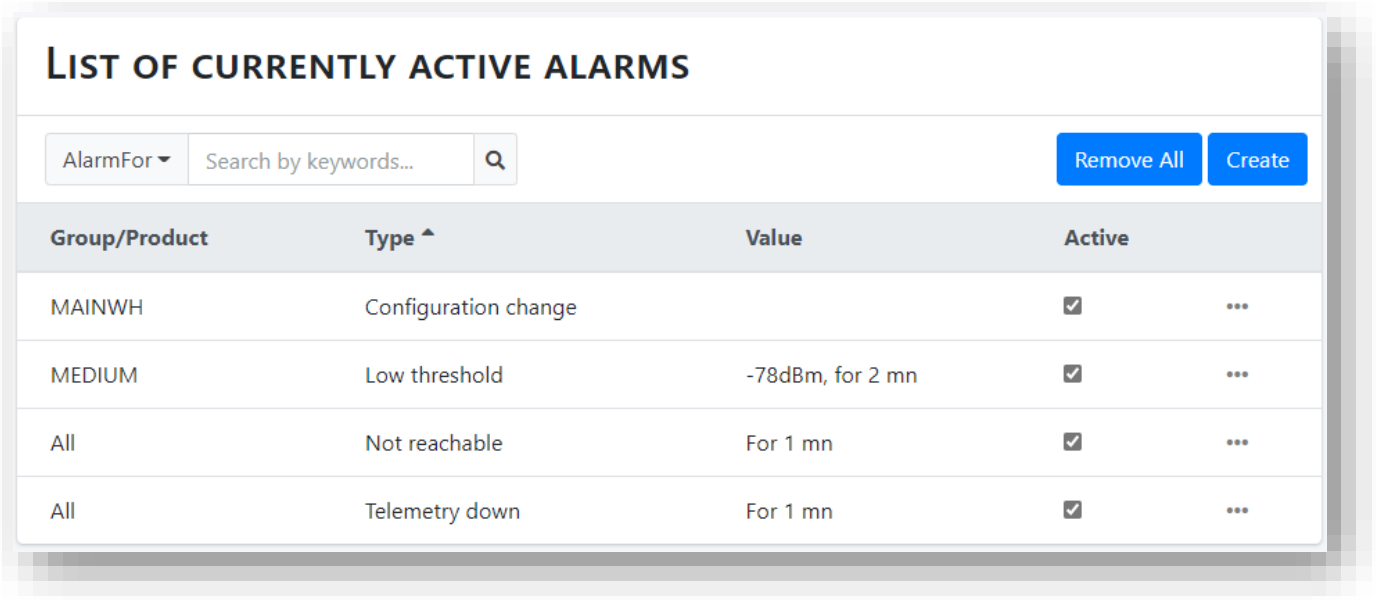
Airbox-5 and *Airbox-6* can trigger **alert setting - A**



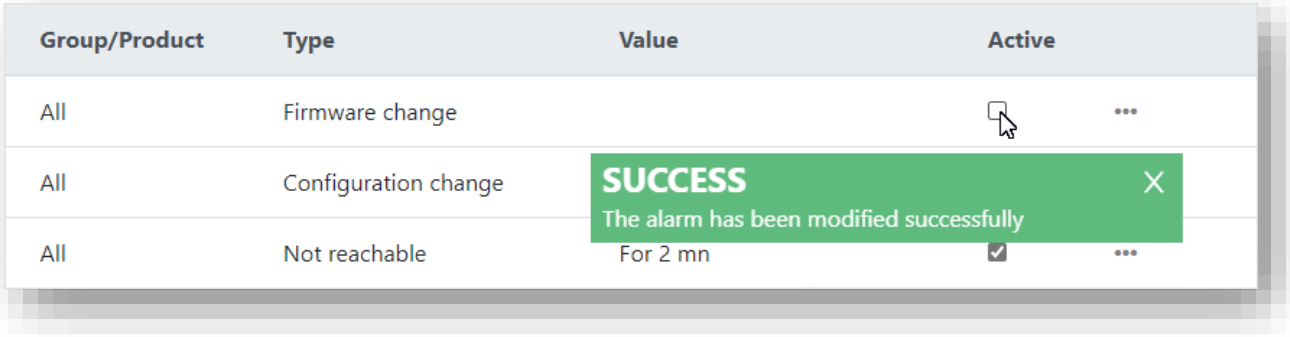
14.7 Alarms

This page allows you to manage alarms. You can view, modify or delete existing alarms, or create new ones.

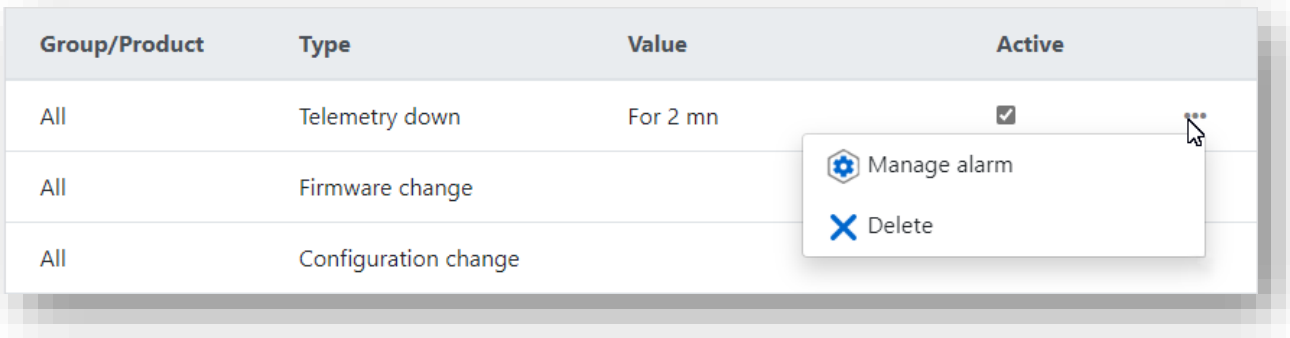
You can also open this page by clicking on the Alarm icon on the main **Products view**



The **Active** checkbox allows to temporarily deactivate an alarm, without deleting it from the list

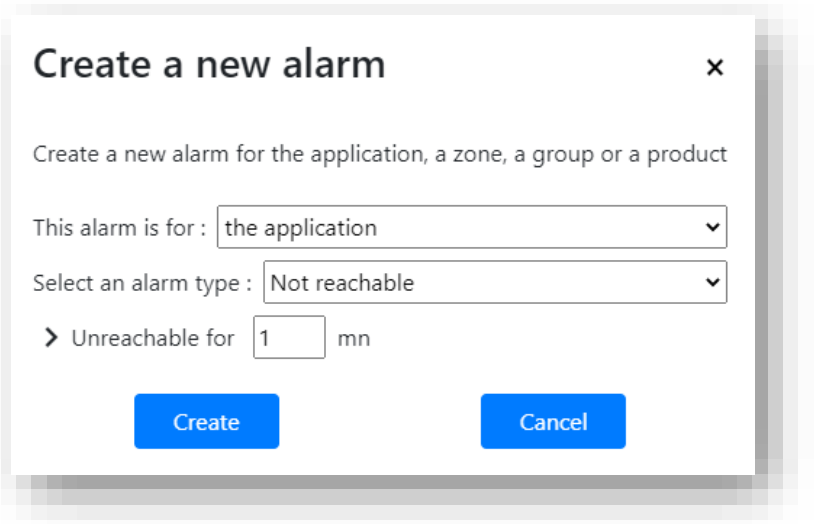


Click the three dots on the line of a specific alarm to delete it or edit its settings

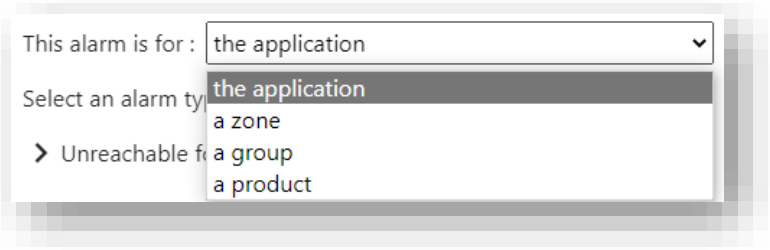


Create a new alarm

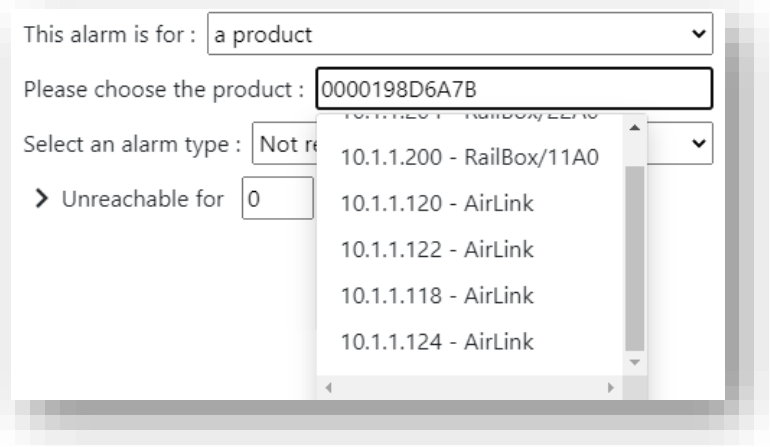
- Click **Create** to open the dialog box



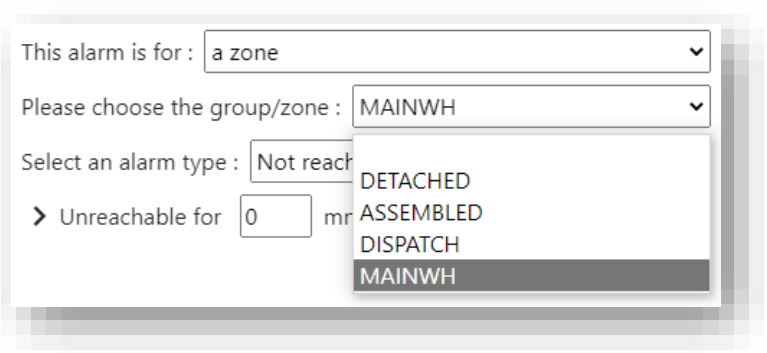
- The first field specifies whether the alarm applies to the **application** (all connected products), a **zone**, a **group**, or a **specific product**.



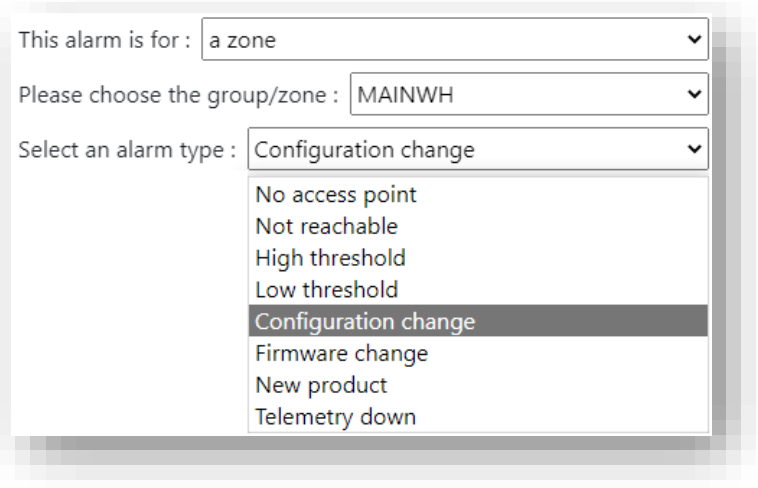
- Depending on your selection, an additional field appears, allowing you to choose the relevant zone, group, or product. For a specific product, only the products visible in the **Products View** window—i.e., those connected or saved in the database can be selected.



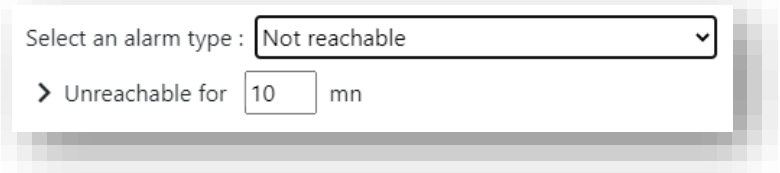
- Similarly, for zones and groups, you can select from the predefined labels.



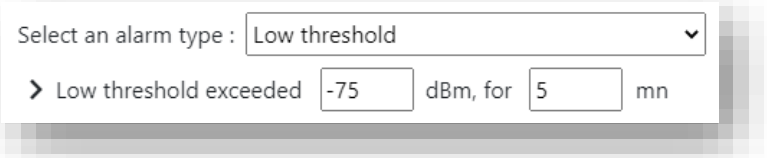
- Finally, choose the type of alarm you need



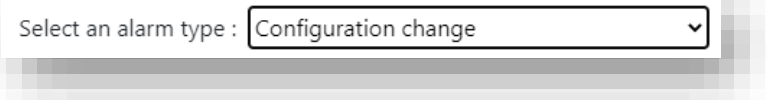
Not reachable: the alarm will be triggered when a product is no longer accessible for a time greater than the defined value



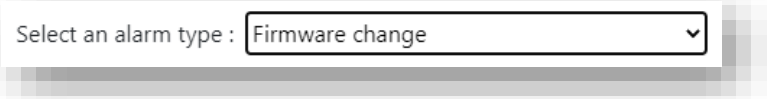
High or Low threshold: This alarm is only applicable to devices in **client** mode, and is triggered when the signal level goes above or below the predefined threshold.



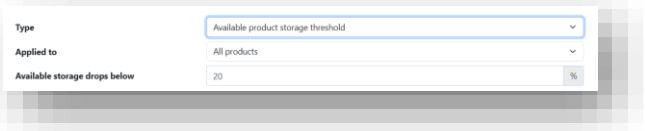
Low license duration: this alarm is triggered when the limit of license will be reached



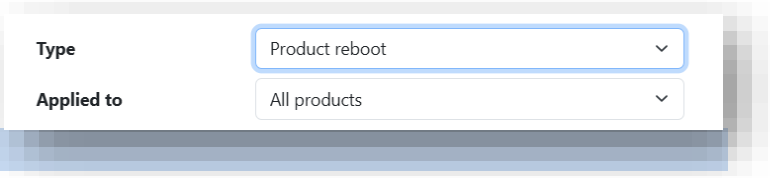
Product license expiration: this alarm is triggered when the limit of license will be reached



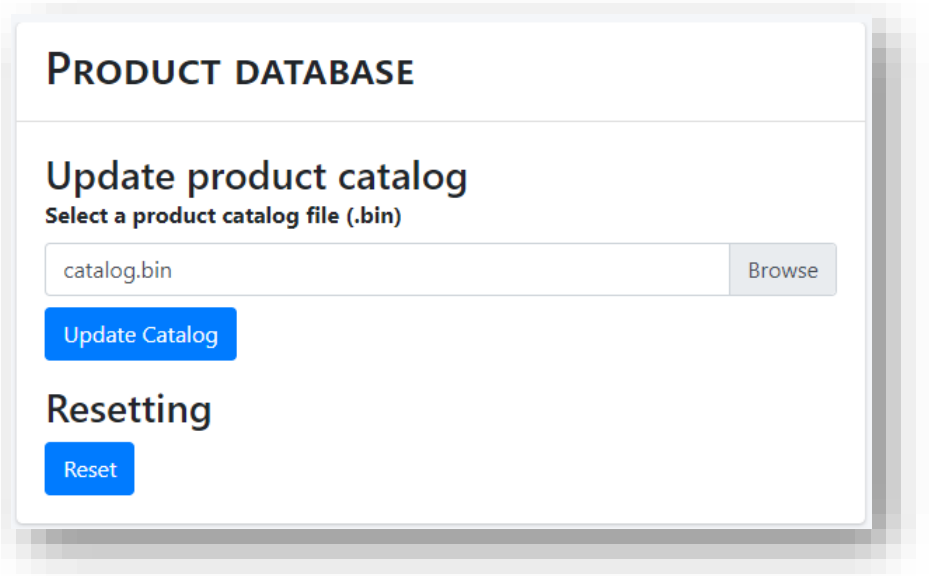
Available product storage threshold: this alarm is triggered when the limit of storage is reached



Product reboot: this alarm is triggered when a product has rebooted



14.8 Database



Update product catalog: The product catalog contains a complete list of Acksys products and the information WaveManager requires to identify them. This file should be updated whenever new products are released or when existing products have new variations. Please contact Acksys to obtain the latest version of the catalog.

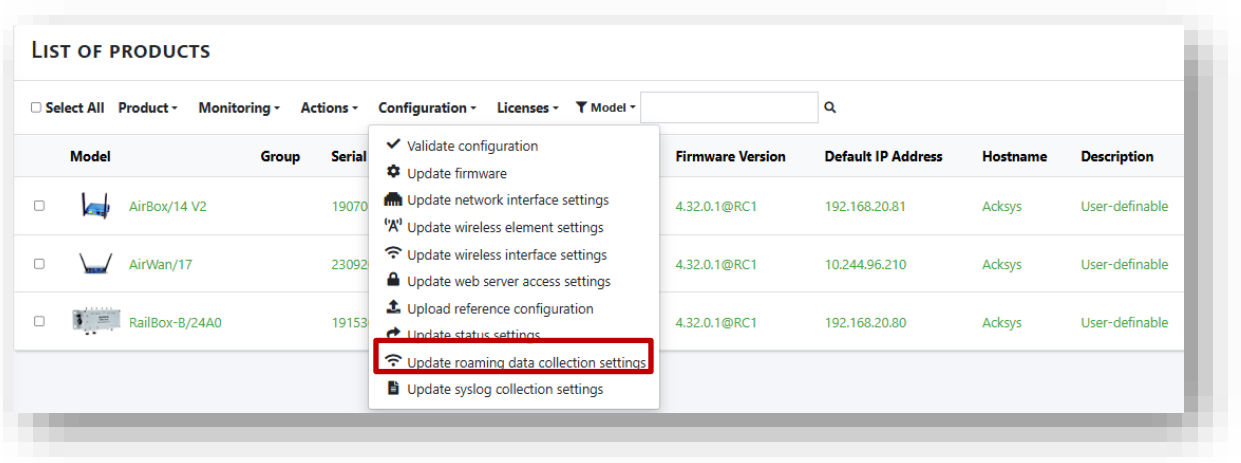
Reset: This operation deletes all products stored in the database, along with all related information, including group and zone associations, alarms and notifications, logs, and recordings of RSSI and roaming curves.

15 DATA COLLECTION, MANAGEMENT AND VIEW

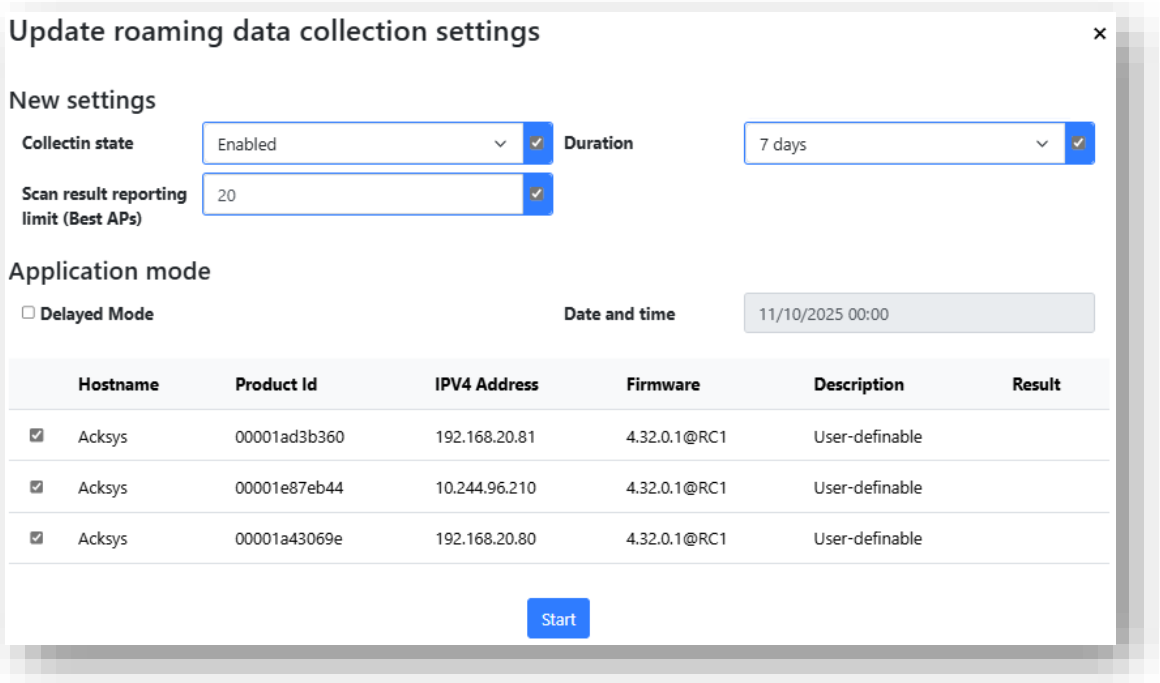
To reduce transfer and storage costs, routers do not send large data, such as roaming records and syslogs, by default. Collecting this data must be initiated manually by the user.

15.1 Enabling and disabling Roaming data collection

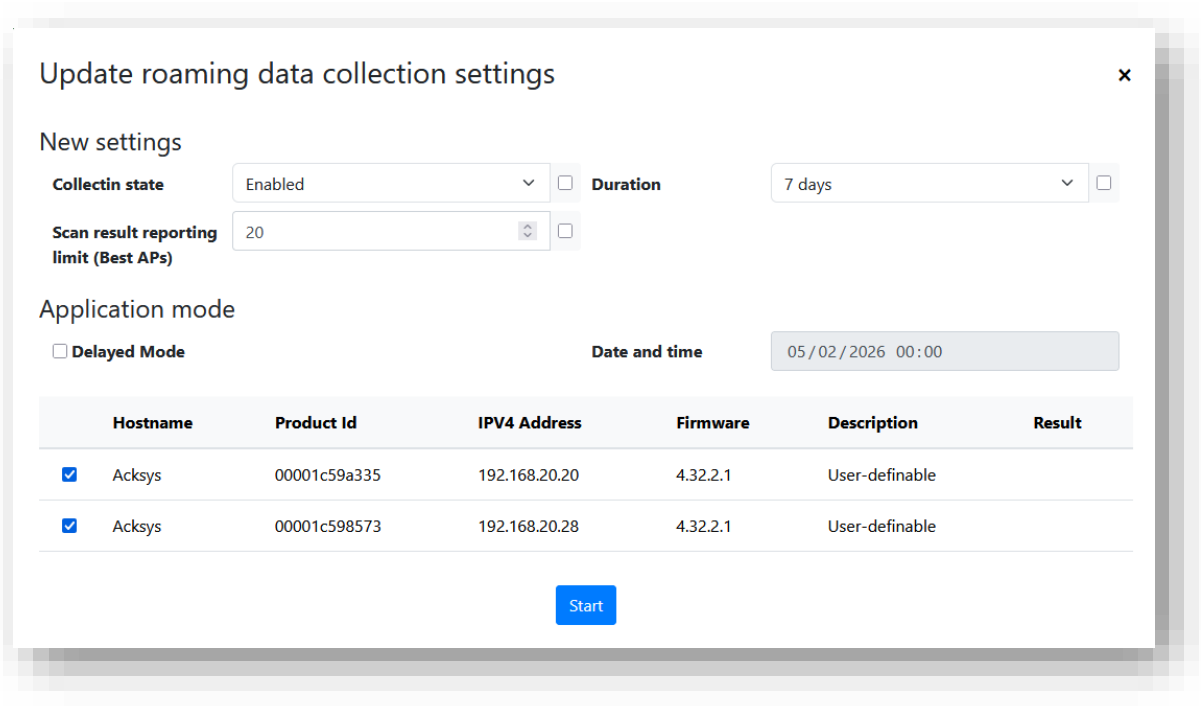
A new configuration action, **"Update Roaming Data Collection Settings"**, has been added to the **Configuration** menu.



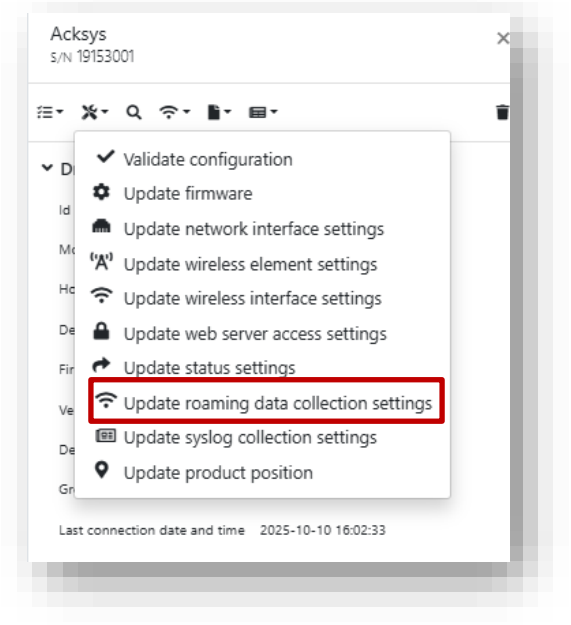
This action enables the collection and transfer of roaming data for a specified duration (in hours) and up to a maximum number of access points (APs), which is set to 20 by default, for the selected radio client.



This action also stops the collection and transfer of roaming data for the selected routers.



A new individual action, **"Update Roaming Data Collection Status"**, has been added to the **Actions** menu in the details interface of the selected router.



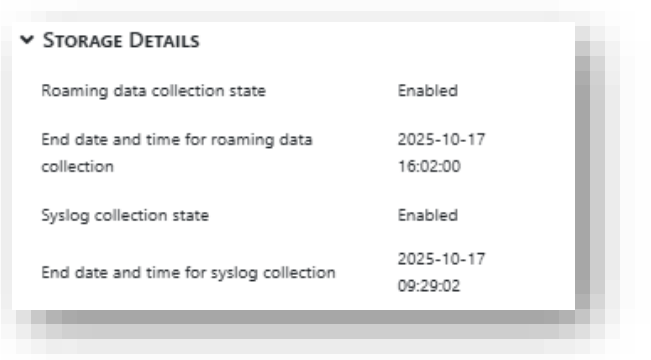
This action allows you to enable or disable the collection and transfer of roaming data.

When roaming data collection is enabled, the selected radio client gathers this data and transmits it to the WaveManager service. The data collected is limited to the configured number of top access points (e.g., 20).

After the specified duration, WaveManager automatically applies a new configuration to disable roaming data collection.

Access to these actions is restricted to authorized users with the **Admin** or **Editor** role.

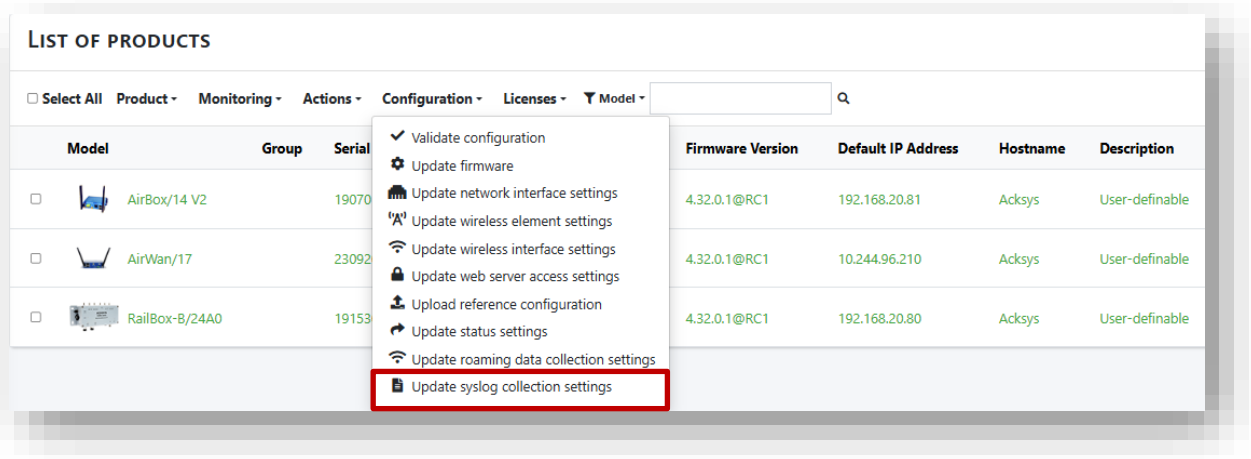
The status of roaming data collection and transfer is displayed in a new **"Storage Details"** tab within the details interface of the selected router.



WaveManager logs all actions related to the activation or deactivation of roaming data transfer, ensuring full traceability.

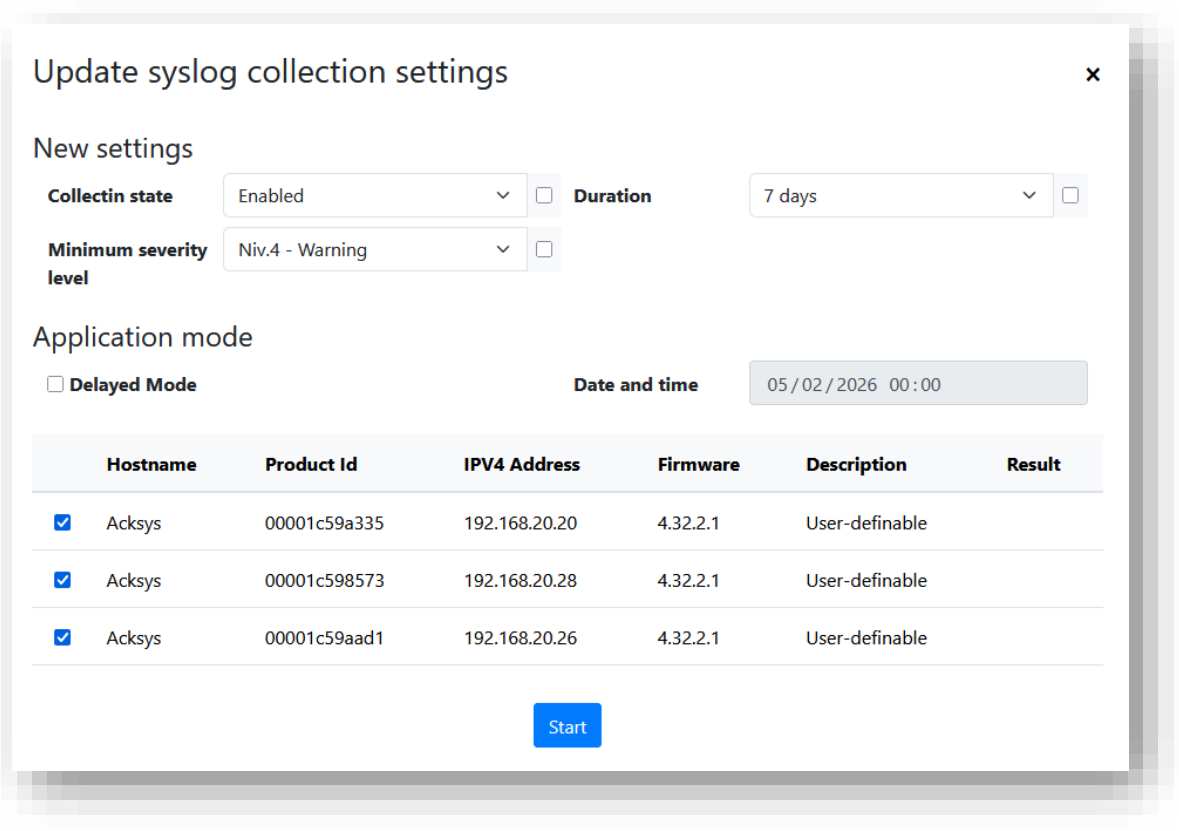
15.2 Enabling and disabling syslog collection

A new configuration action, **"Update Syslog Collection Settings"**, has been added to the **Configuration** menu.

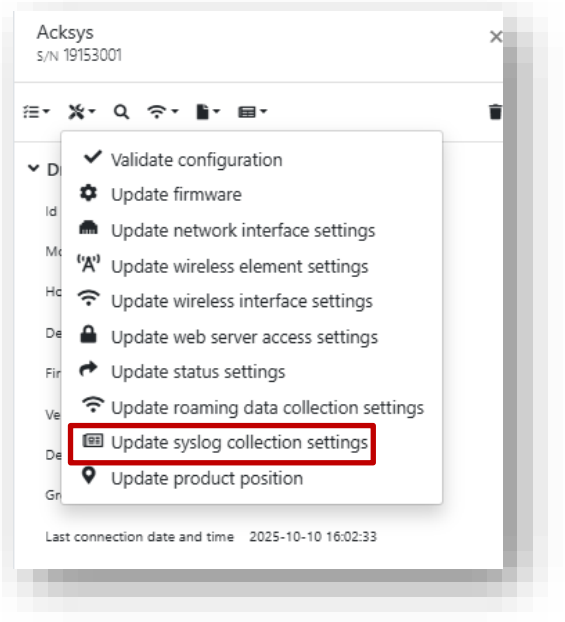


This action allows you to enable or disable the collection and forwarding of syslogs for the selected routers.

When enabled, syslogs are collected and forwarded for a specified duration (in hours) and filtered by a minimum severity level, which is set to **"Warning"** by default.



A new individual action, **"Update Syslog Collection Settings"**, has been added to the **Actions** menu in the details interface of the selected router.



This action allows you to enable or disable the collection and forwarding of syslogs.

When syslog collection is enabled, the selected routers gather syslogs and transmit them to the WaveManager service, according to the specified severity level.

After the specified duration, WaveManager automatically applies a new configuration to disable syslog collection.

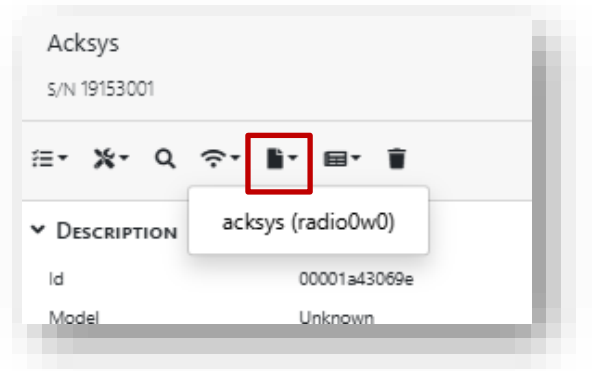
Access to these actions is restricted to authorized users with the **Admin** or **Editor** role.

The status of syslog collection and forwarding is displayed in a new **"Storage Details"** tab within the details interface of the selected router.

All actions related to the activation or deactivation of syslog collection are logged in WaveManager for complete traceability.

15.3 Viewing Roaming Data

A **"Roaming"** menu has been added to the router details interface. This menu lists all wireless interfaces with the **Client** role. Clicking on an interface name displays the roaming data for that interface.



Display of Current time Roaming Data

The first interface on the **"Roaming"** page displays the roaming data collected during the current hour.

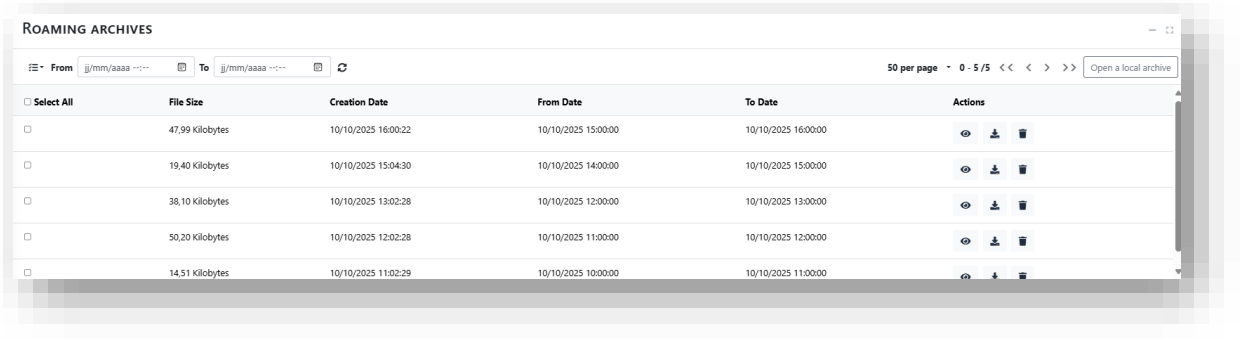
The display of roaming data remains the same as in version 3.6. However, the **"Live"** mode has been replaced with a manual refresh triggered by the user.

For better visibility of roaming curves, the maximum number of points that can be displayed simultaneously is limited to **1,000**. If the number of points exceeds this limit, the user must specify a **start date** to display the data.

The user can directly set the start time, adjust it using the navigation bar, or use the forward and backward buttons to incrementally change the display period.

Viewing archived roaming data

The second interface on the **“Roaming”** page displays the list of roaming archives for the selected wireless interface.



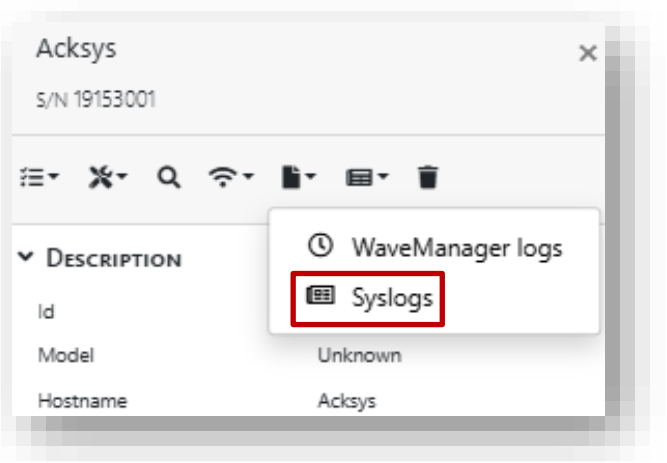
This interface allows you to view the data of each roaming archive using the **“View”** action associated with the selected archive. The archived data is displayed above, in the same format as the most recent hour’s data (live view).

Several actions are available for roaming archives:

- **Download:** Download one or more archives using **“Download archives”** for bulk downloads or **“Download”** for individual archives.
- **Deletion:** Delete one or more archives using **“Remove archives”** for bulk deletion or **“Remove”** for individual archives.
- **Open a local archive:** Use **“Open a local archive”** to open a roaming archive stored locally (ex: on your PC). The data is then displayed above in the same format as the last hour’s data.

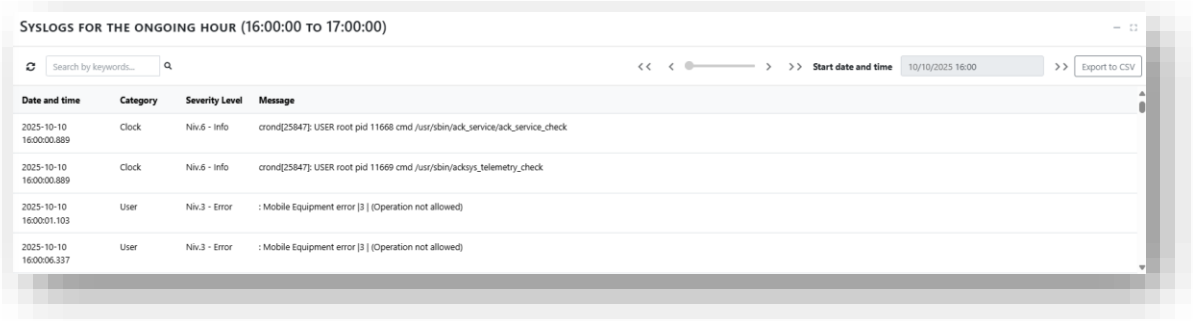
15.4 Viewing Syslog

A **“Syslog”** action has been added to the **Logs** menu in the router details interface. This action displays the syslog collected from the selected router.



Viewing Current Time Syslog

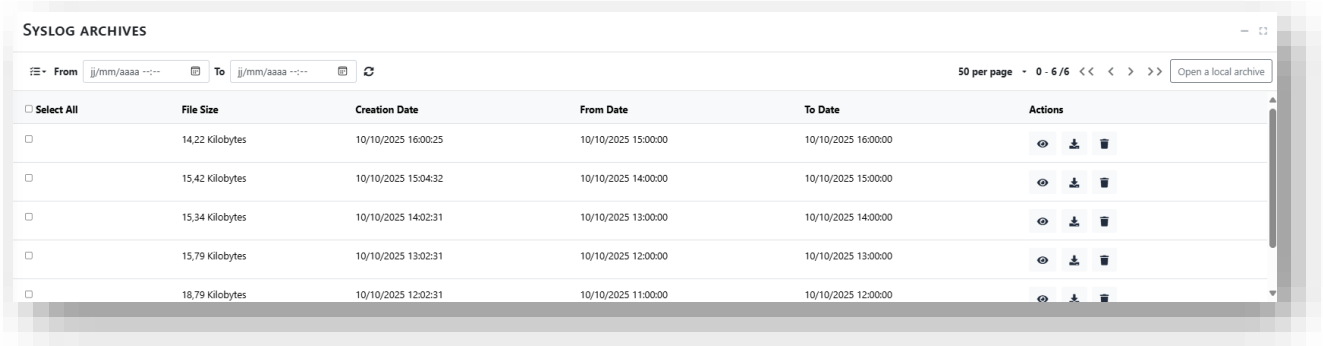
The first interface on the **“Syslog”** page displays the syslog collected during the current hour.



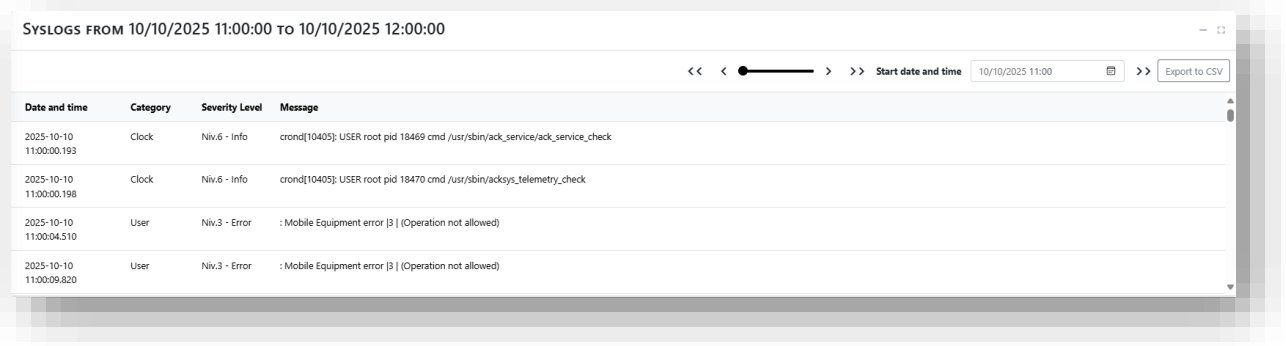
The display of syslogs remains the same as in version 3.6. However, a new **CSV export** action has been added, allowing you to export the displayed syslogs.

Viewing archived Syslog

The second interface on the **“Syslog”** page displays the list of syslog archives for the selected router.



This interface allows you to view the data from each syslog archive using the **“View”** action associated with the selected archive. The archived data is displayed above, in the same format as the most recent hour’s syslogs.



This interface also provides several actions for managing syslog archives:

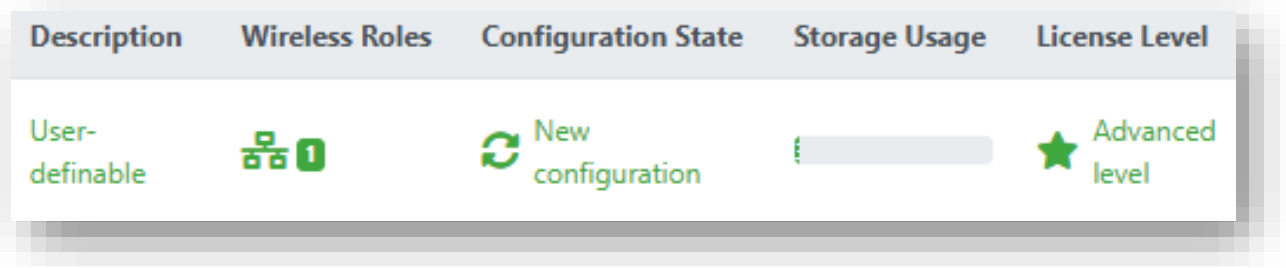
- **Download:** Download one or more syslog archives using **“Download archives”** for bulk downloads or **“Download”** for individual archives.
- **Deletion:** Delete one or more archives using **“Remove archives”** for bulk deletion or **“Remove”** for individual archives.
- **Open a local archive:** Open a locally stored syslog archive using **“Open a local archive”**. The data is then displayed above in the same format as the most recent hour’s syslogs.

15.5 Storage limit management

Viewing Storage Details

The WaveManager service periodically monitors the size of historical data stored in the database and archives for each router. This data includes cellular data, bandwidth, GNSS data, WaveManager logs, syslogs, and roaming data.

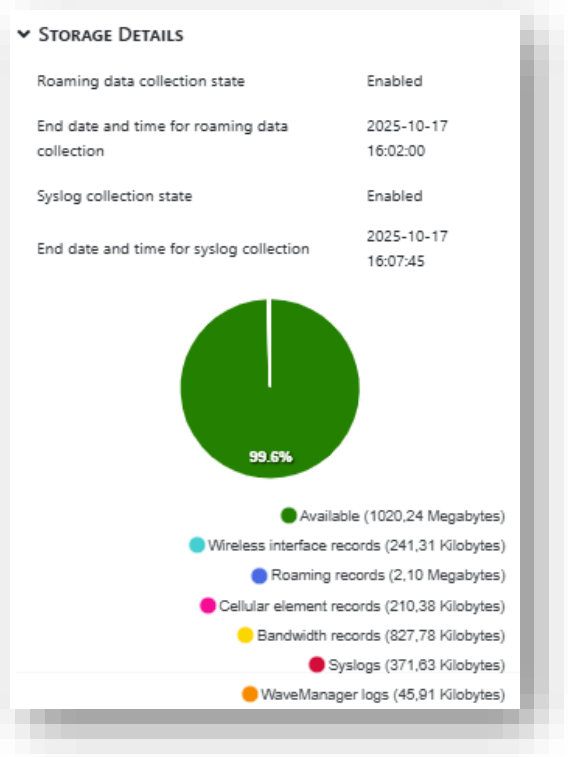
The storage usage information is displayed in the main interface in a new column labeled **“Storage Usage.”**



The column “Storage Usage” shows the **percentage of storage usage** relative to a predefined threshold:

- **1 GB** per product for the Cloud version
- **3 GB** per product for the On-Premise version

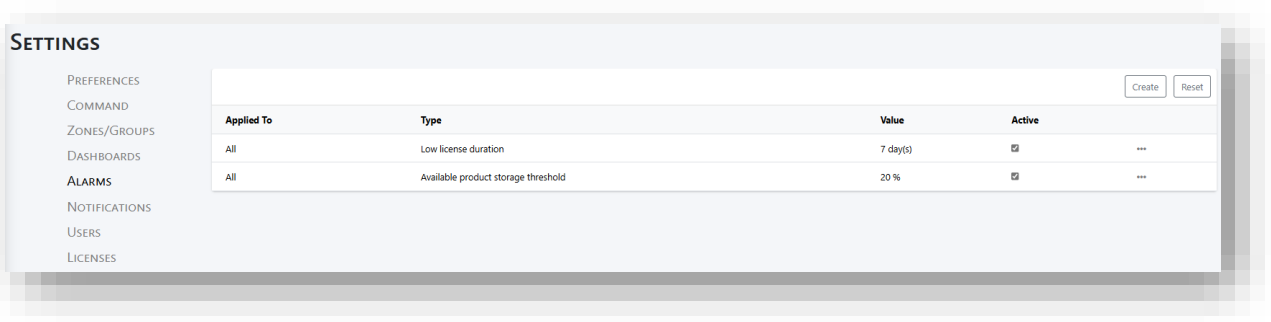
A new tab, **“Storage Details,”** has also been added to the router details interface. It allows you to view detailed storage usage information for each type of data collected.



If the data storage limit is reached:

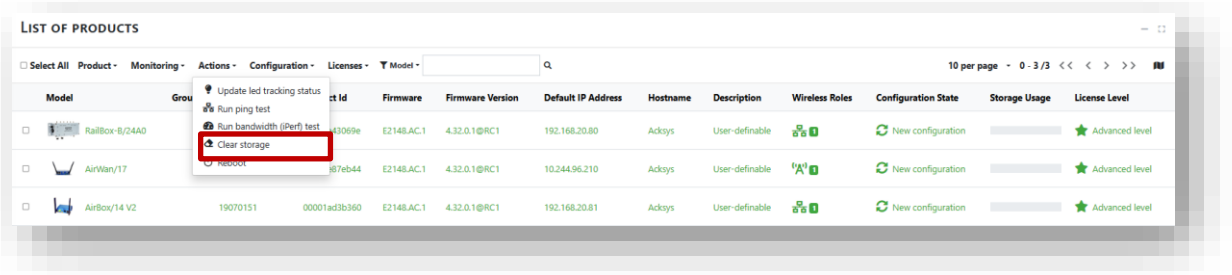
- New data storage is paused until space becomes available.
- Active roaming and syslog transfers are automatically disabled.

A new configurable alarm has been added to notify the user when a router’s available storage falls below a certain threshold (default: 20%). This alarm is enabled by default.

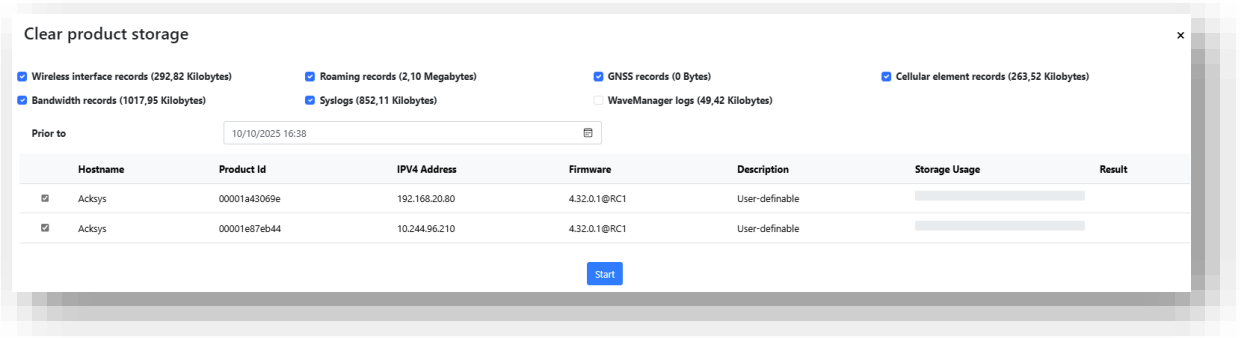


Storage Management

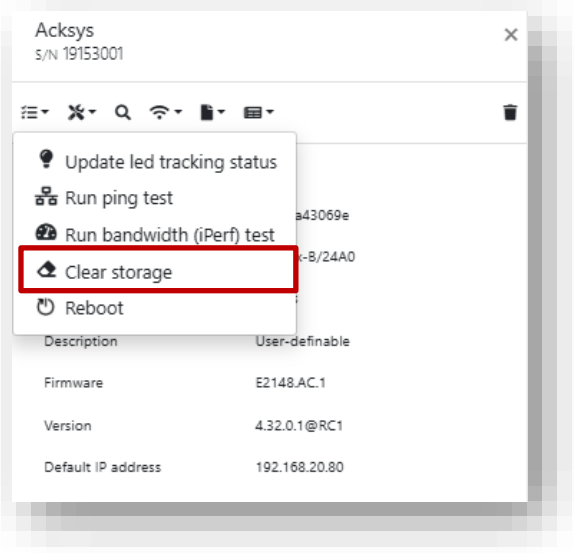
A new action, **“Clear Big Data,”** has been added to the **Actions** menu



It allows you to delete data from one or more types of historical data collected **before a user-specified date** for selected routers.



An individual version of this action is also available in the **product information tab (Actions menu)**, allowing you to release historical data for a single router prior to a specified date.



Access to these actions is restricted to authorized users with the **Admin** or **Editor** role.

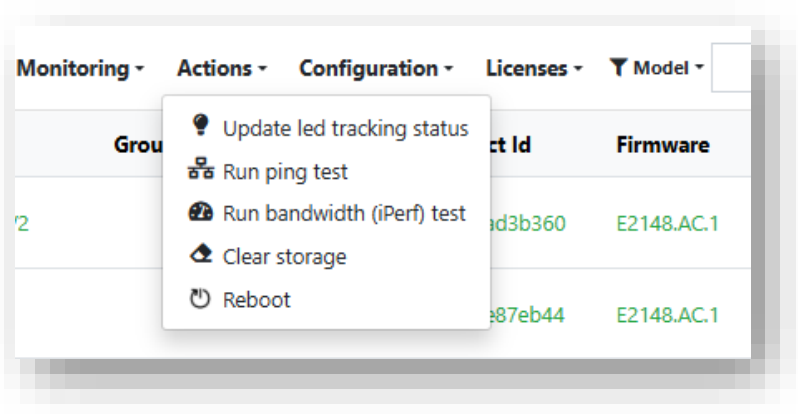
16 DIAGNOSTIC AND CONTROL ACTIONS

Diagnostic Tests

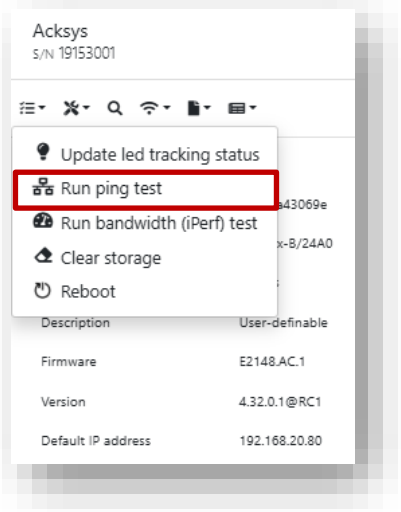
WaveManager version 4.6.0.1 introduces two new diagnostic tests: **Ping** and **Iperf**.

16.1 Ping Test

"Run Ping Test" is now available in the **Actions** menu.



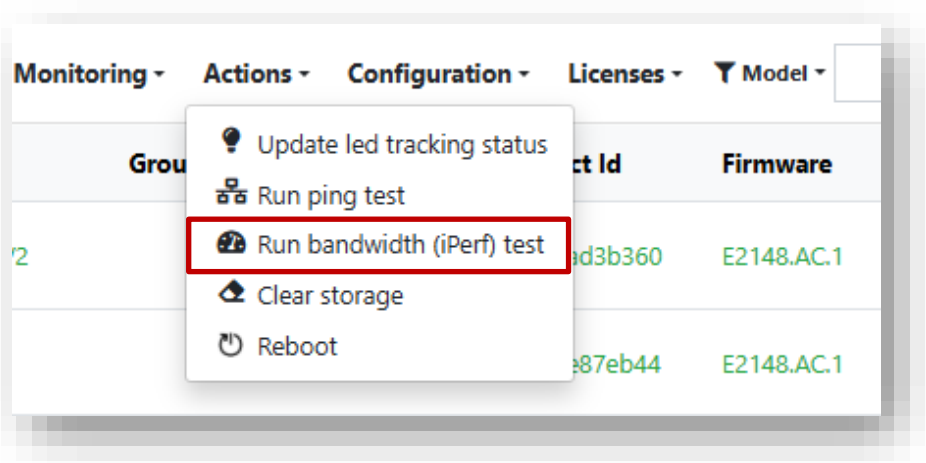
An individual action, **"Run Ping Test,"** has been added to the **Actions** menu in the details interface of the selected router.



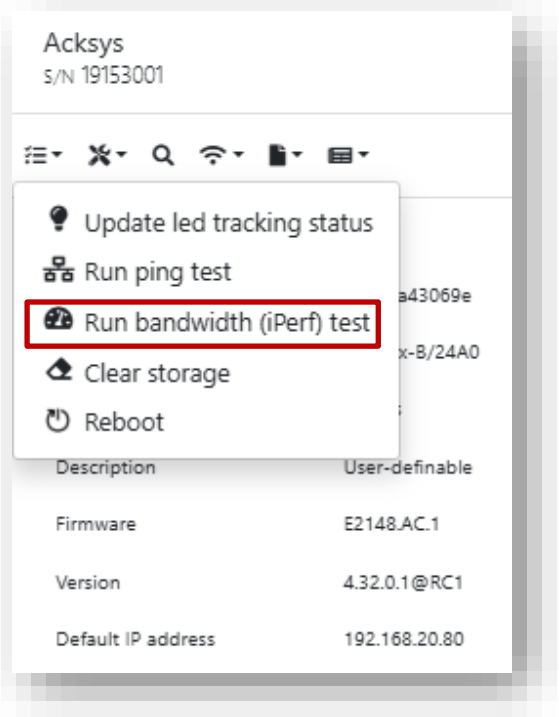
This action allows you to ping a destination IP address using the selected router as the source.

16.2 IPerf test

A new action, **“Run Bandwidth (iPerf) Test,”** has been added to the **Actions** menu.



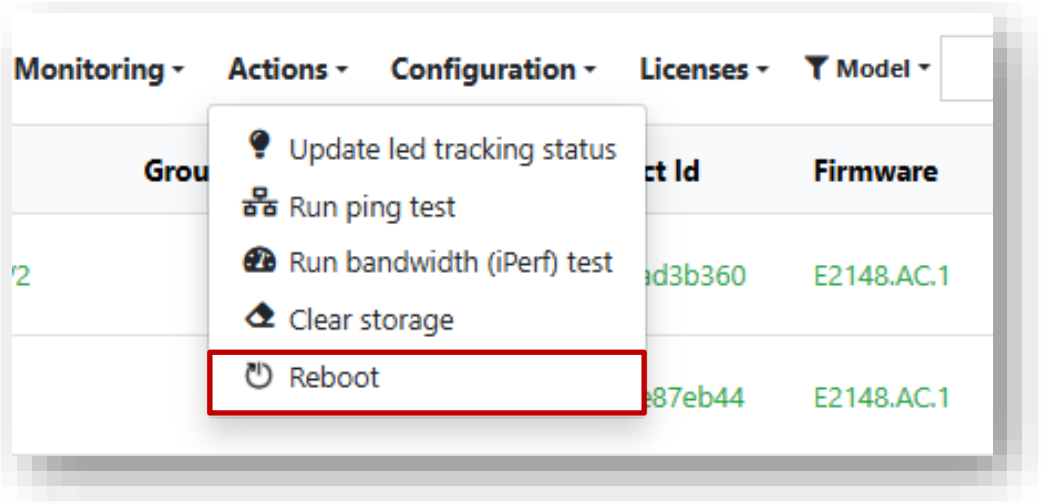
An individual action, **“Run Bandwidth (iPerf) Test,”** has been added to the **Actions** menu in the selected router’s details interface.



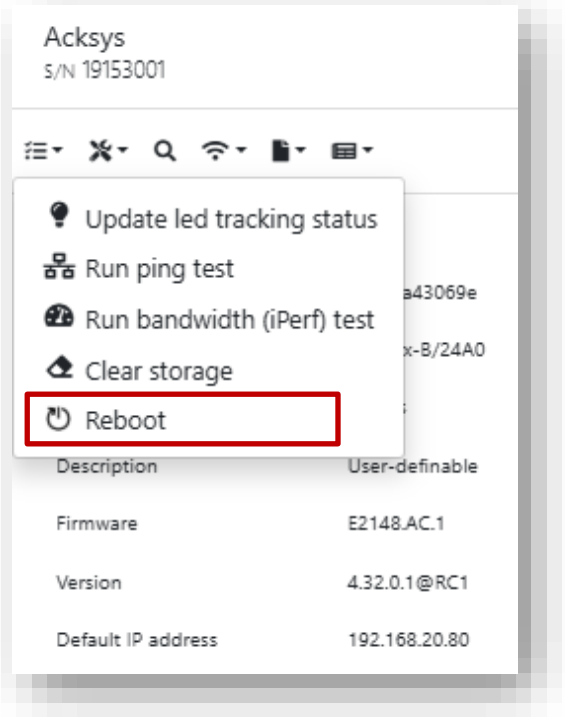
This action allows you to run an iPerf test to an iPerf server using the selected router as the source.

16.3 Reboot routers

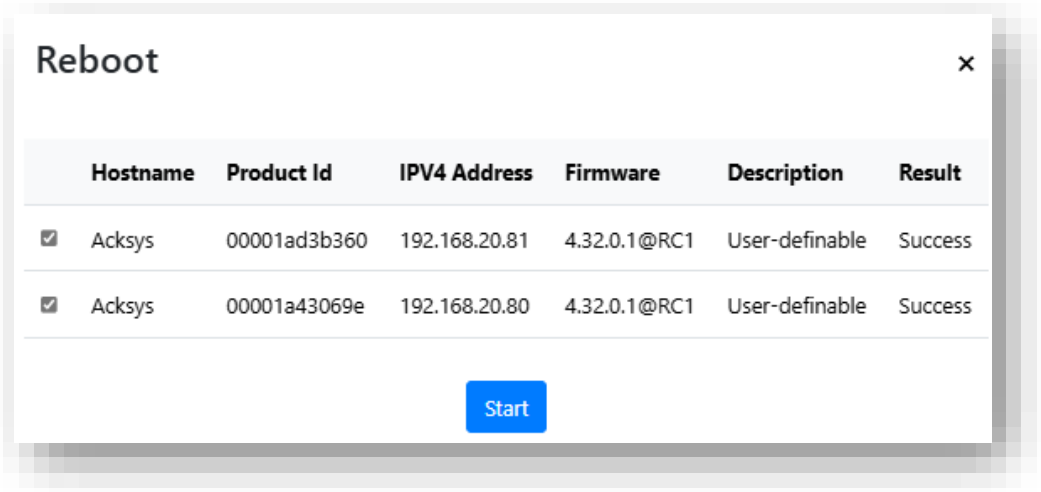
An action, **“Reboot,”** has been added to the **Actions** menu



An individual version of this action is also available in the **Actions** menu of the selected router’s details interface.



This action restarts the selected router(s)



Product reboots are detected starting from firmware version **4.32.0.1** or higher. All router restarts are recorded in the **WaveManager logs**.