ACKSYS
COMMUNICATIONS & SYSTEMS

APPLICATION NOTE

APNUS046 How To Manage License on WaveManager On Premise and In Cloud

April 2025

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Introduction

The Acksys WaveManager designed to be use in On Premise and Cloud is a comprehensive wireless network management tool with a licensing system. The both version are dedicated specifically for industrial and transportation environments. This RMS solution enables real-time monitoring, configuration, and optimization of wireless devices, ensuring seamless communication and reliability in mission-critical applications.

This application note serves as a comprehensive overview on how to use WaveManager On-Premise and the Cloud version with the different level of license (Basic and Advanced) for any ACKSYS Router

Technical characteristics OverView

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:
  - Ubuntu Server 24.04 or 24.04 LTS (recommended)
  - Windows 10 or 11, Windows Server 2019.
- DataBase:
  - In case of using an external Database
    - PostgreSQL 15+ DataBase (Recommended).
    - MSSQL Database

For Product:

- Operating System:
  - WaveOs 4.28.1.1 or greater

Download WaveManager Installer

Visit the WaveManager official portal and download the appropriate on-premise installation package:

- For Linux: .deb file.
- For Windows: .exe file.

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:

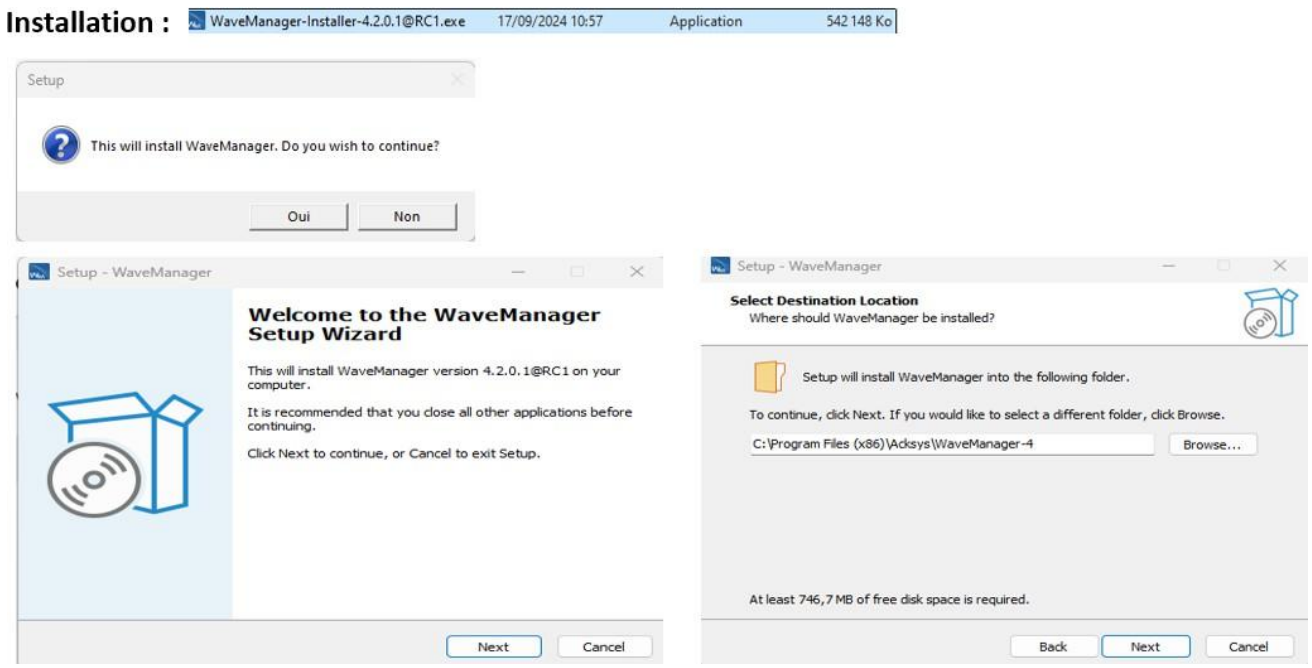
Sign up or log in with your credentials.
The account gives you access to device management, monitoring, and configuration directly from the cloud.
Internet access to the router to contact WaveManager in the Cloud

An Overview of On Premise Installation Step

Let saying finally, the downloading part of our WaveManager installation process is done.

For Windows Server

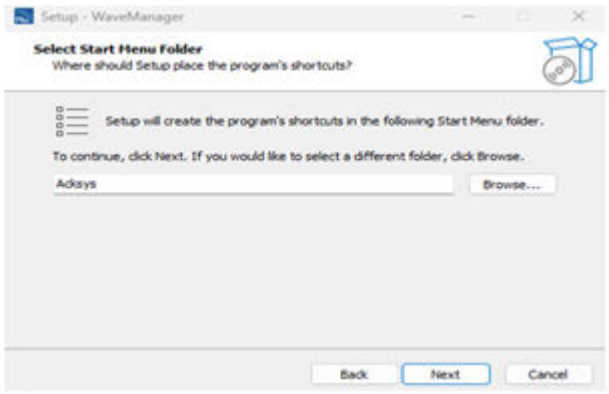
So, we can now begin WaveManager installation from the setup Wizard. Click next to continue

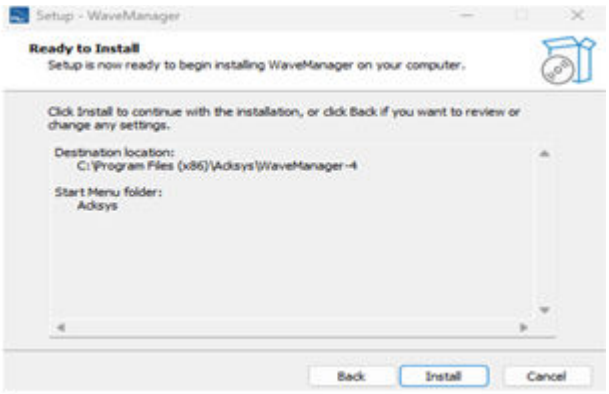


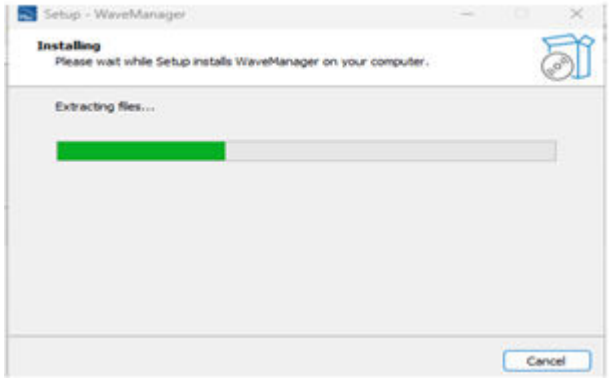
NOTE: If you have already installed another WaveManager instance, please we recommended you to close all other applications before continuing.

If the old install was an old version of WaveManager with no licensing system, please create a new database with a different name.

As a result of everything we have done, you will find the install process is going on just like the following image.



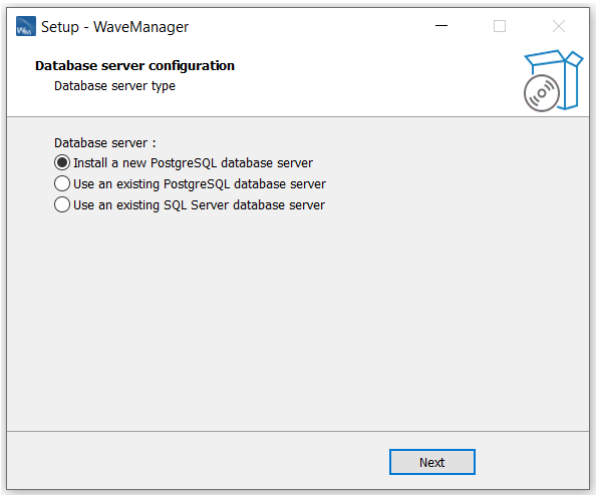




On the next step, you will choose the type of database you want to install in the provided option.

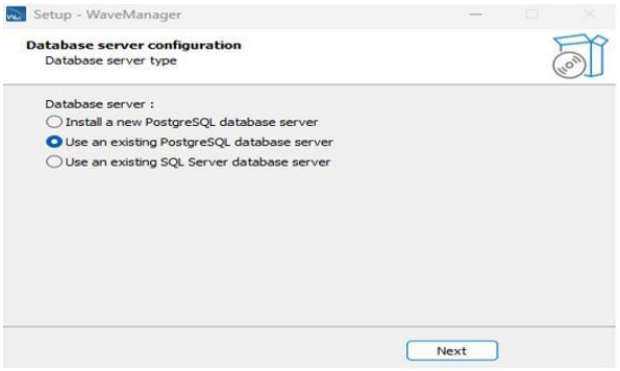
Local DataBase Installation

- Description: The database is installed on the same server or within the local network of the partner.



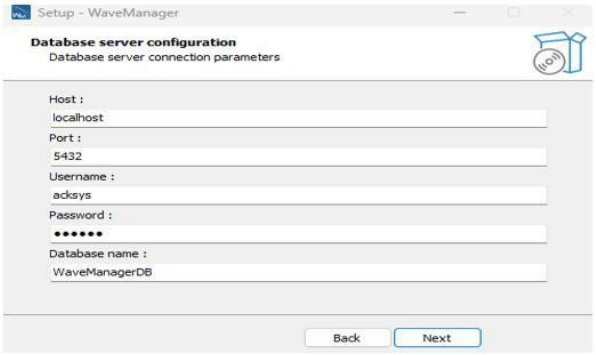
External DataBase Installation

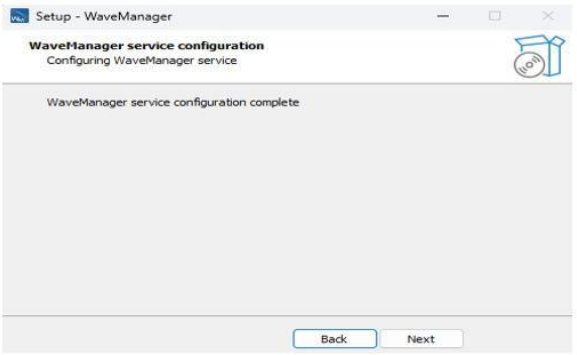
- Description: The database can be hosted on a remote server or an external database server managed by a third party PostgreSQL or MSsql).

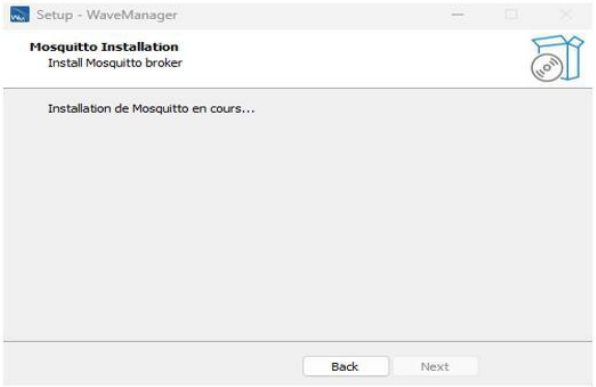


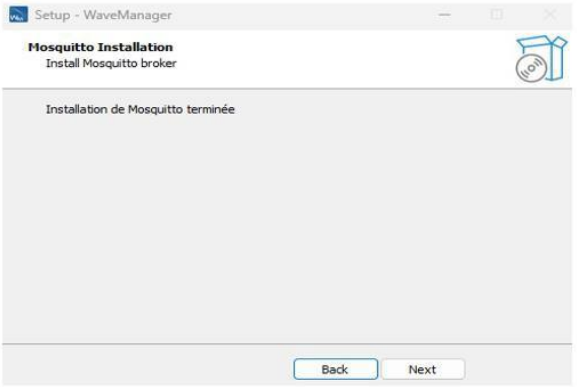
NOTE: Both options are viable, and the choice depends on the partner's specific needs. It is crucial to perform a requirements analysis and collaborate closely with the partner to decide on the best deployment approach.

Click on the type of database install , You will find a form to fill up the database information. Enter the Database name, username, password and the IP address of your database server in the form. For this example, the correct database configuration should look like the following image.

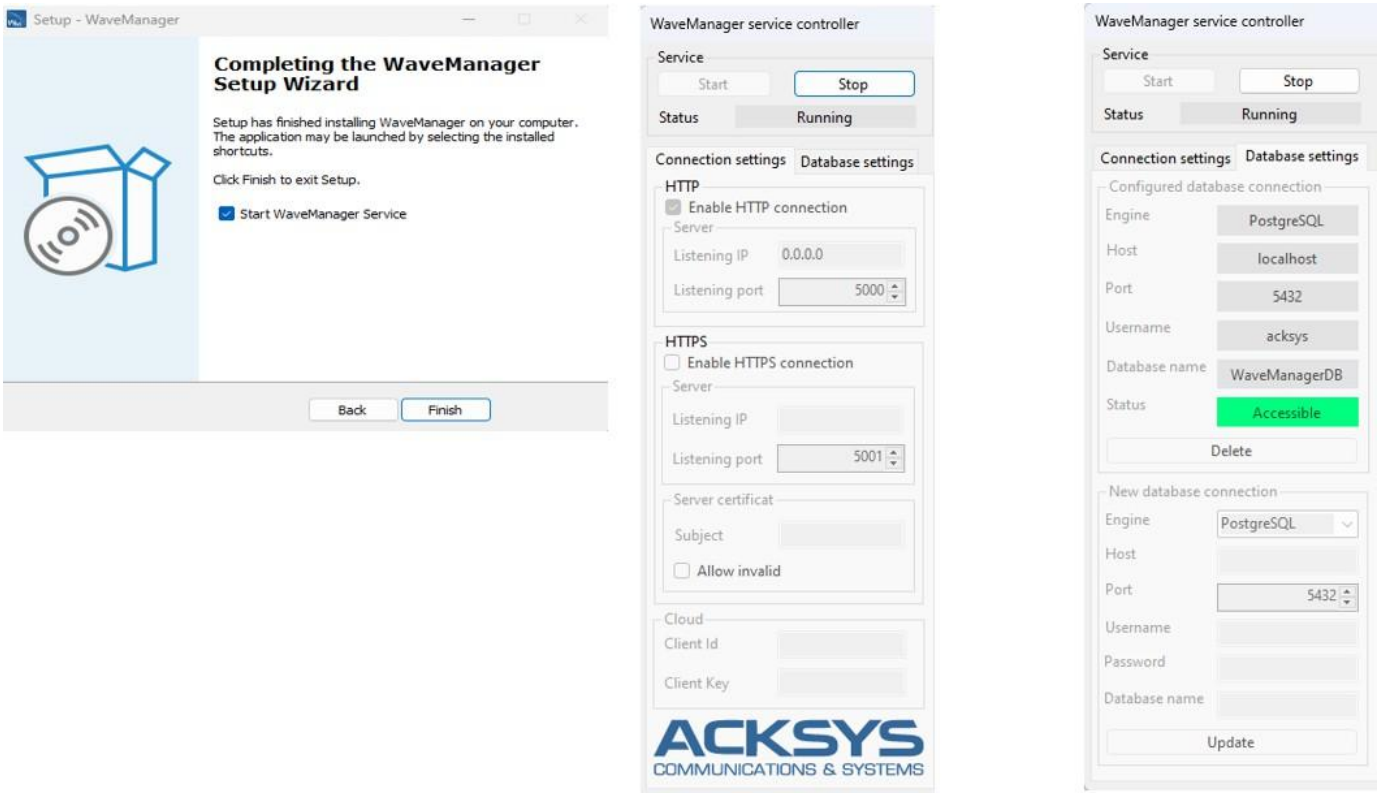




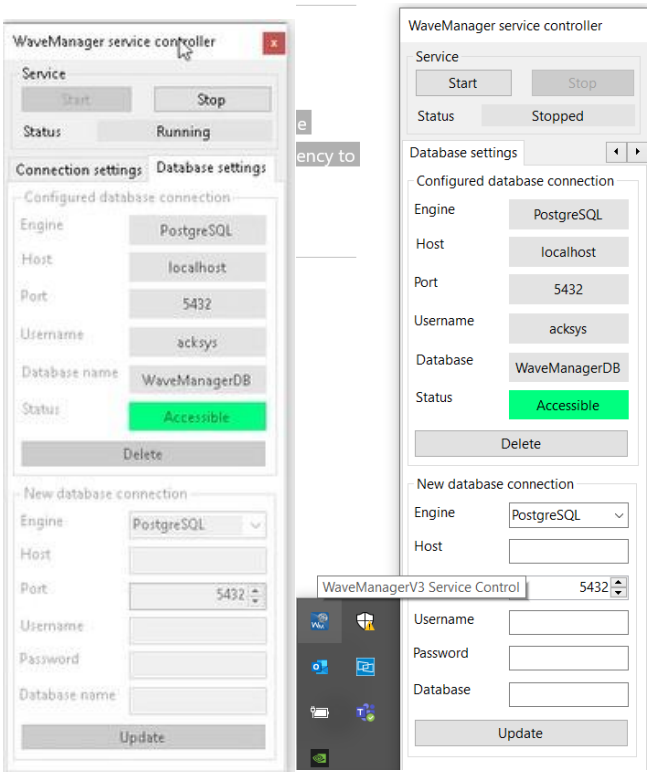




Do not forget to replace the database name, username, password, and Database host (The IP address of your database server) in the form. Once the information is entered correctly, press the Next button to submit the form.



If the database information is not correct, you can edit the database fields in the following form:



"Please update the WaveManager database with the relevant information after completing the necessary actions. Ensure that all fields are populated accurately and double-check for consistency to avoid discrepancies."

Finally, After entering all the required information in the form, Click on the Update button to install the WaveManager database.

Congratulations! You have successfully configured WaveManager with the external database.. All the database queries will be executed on our database server.

For Linux Server

Update the System

```
sudo apt update && sudo apt upgrade -y
```

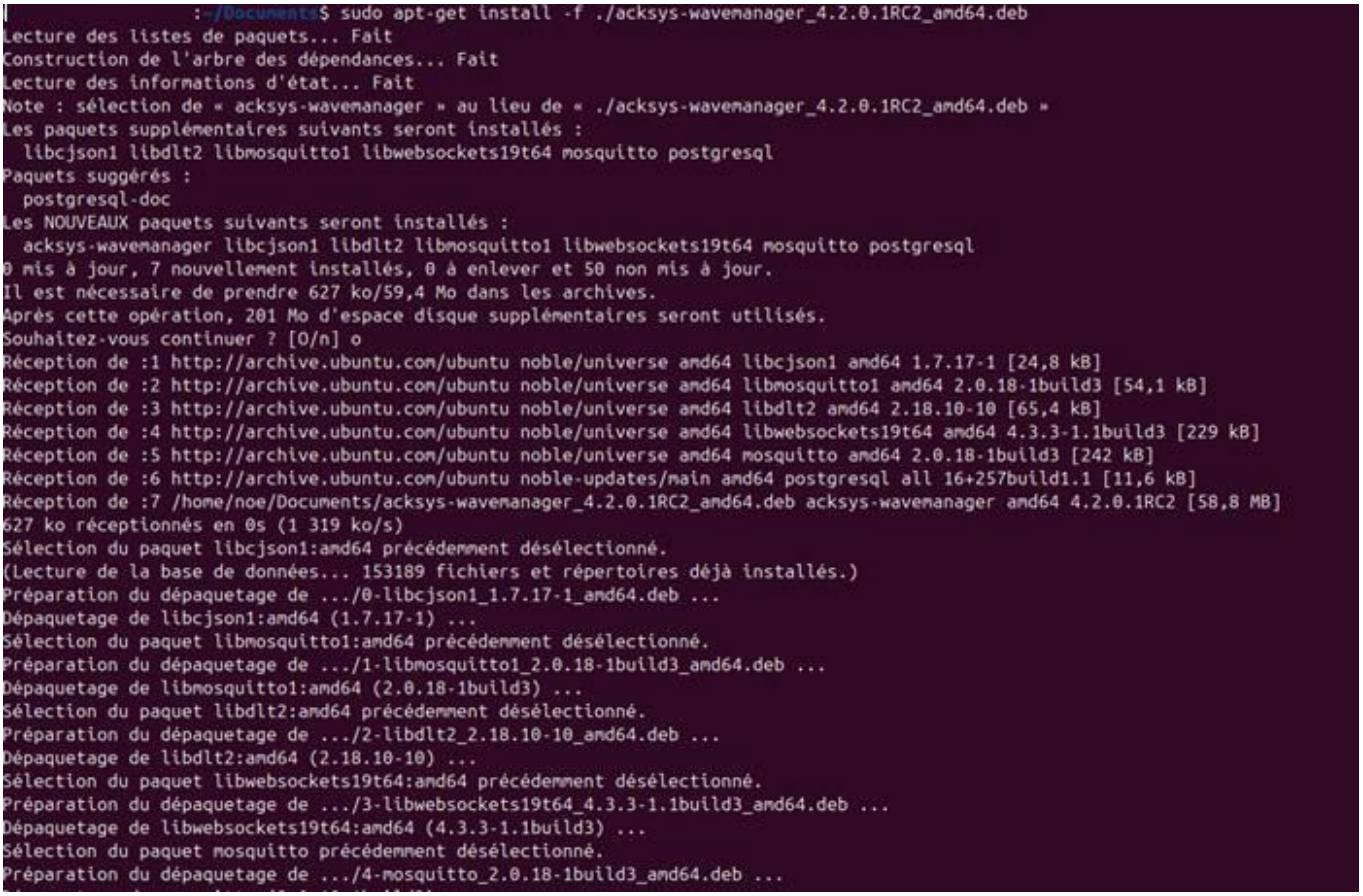
Install WaveManager Packet

After downloading the Linux WaveManager packet acksys-wavemanager_4.2.0.1RC2_amd64.deb, type the following command to install the packet:

```
Sudo apt-get install -f ./acksys-wavemanager_4.2.0.1RC2_amd64.deb
```

Installation OverView

Please note that during the installation process, you are invited to set the Database password.



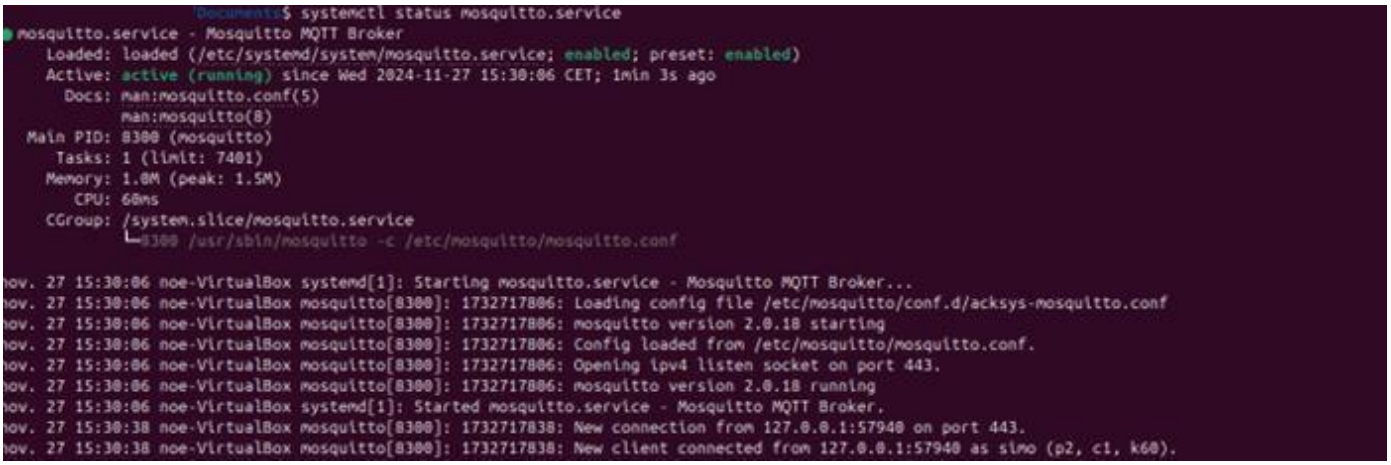
```
Dépaquetage de libcjson1:amd64 (1.7.17-1) ...
Sélection du paquet libmosquitto1:amd64 précédemment désélectionné.
Préparation du dépaquetage de .../1-libmosquitto1_2.0.18-1build3_amd64.deb ...
Dépaquetage de libmosquitto1:amd64 (2.0.18-1build3) ...
Sélection du paquet libdlt2:amd64 précédemment désélectionné.
Préparation du dépaquetage de .../2-libdlt2_2.18.10-10_amd64.deb ...
Dépaquetage de libdlt2:amd64 (2.18.10-10) ...
Sélection du paquet libwebsockets19t64:amd64 précédemment désélectionné.
Préparation du dépaquetage de .../3-libwebsockets19t64_4.3.3-1.1build3_amd64.deb ...
Dépaquetage de libwebsockets19t64:amd64 (4.3.3-1.1build3) ...
Sélection du paquet mosquitto précédemment désélectionné.
Préparation du dépaquetage de .../4-mosquitto_2.0.18-1build3_amd64.deb ...
Dépaquetage de mosquitto (2.0.18-1build3) ...
Sélection du paquet postgresql précédemment désélectionné.
Préparation du dépaquetage de .../5-postgresql_16+257build1.1_all.deb ...
Dépaquetage de postgresql (16+257build1.1) ...
Sélection du paquet acksys-wavemanager précédemment désélectionné.
Préparation du dépaquetage de .../6-acksys-wavemanager_4.2.0.1RC2_amd64.deb ...
Dépaquetage de acksys-wavemanager (4.2.0.1RC2) ...
Paramétrage de libmosquitto1:amd64 (2.0.18-1build3) ...
Paramétrage de libcjson1:amd64 (1.7.17-1) ...
Paramétrage de libwebsockets19t64:amd64 (4.3.3-1.1build3) ...
Paramétrage de libdlt2:amd64 (2.18.10-10) ...
Paramétrage de postgresql (16+257build1.1) ...
Paramétrage de mosquitto (2.0.18-1build3) ...
Could not execute systemctl:  at /usr/bin/deb-systemd-invoke line 148.
Paramétrage de acksys-wavemanager (4.2.0.1RC2) ...
Changing ownership of directories...
Configuration de la connexion au serveur de base de données...
Enter the postgres administration password : this will be used to connect to the PostgreSQL server
Password:
Configuring PostgreSQL Server...
ALTER ROLE
Configuring UFW to allow traffic on port 5432...
Omission de l'ajout de la règle existante
Omission de l'ajout de la règle existante (v6)
Pare-feu inactif (rechargement ignoré)
Restarting PostgreSQL Server...
Configuration de Mosquitto...
Création des répertoires nécessaires...
```

```
Paramétrage de libcjson1:amd64 (1.7.17-1) ...
Paramétrage de libwebsockets19t64:amd64 (4.3.3-1.1build3) ...
Paramétrage de libdlt2:amd64 (2.18.10-10) ...
Paramétrage de postgresql (16+257build1.1) ...
Paramétrage de mosquitto (2.0.18-1build3) ...
Could not execute systemctl:  at /usr/bin/deb-systemd-invoke line 148.
Paramétrage de acksys-wavemanager (4.2.0.1RC2) ...
Changing ownership of directories...
Configuration de la connexion au serveur de base de données...
Enter the postgres administration password : this will be used to connect to the PostgreSQL server
Password:
Configuring PostgreSQL Server...
ALTER ROLE
Configuring UFW to allow traffic on port 5432...
Omission de l'ajout de la règle existante
Omission de l'ajout de la règle existante (v6)
Pare-feu inactif (rechargement ignoré)
Restarting PostgreSQL Server...
Configuration de Mosquitto...
Création des répertoires nécessaires...
Création du fichier de configuration principal de Mosquitto...
Fichier de configuration principal créé et permissions définies sur 644.
Création du fichier de configuration Mosquitto...
Fichier de configuration créé et permissions définies sur 755.
Création du fichier de service Mosquitto...
Fichier de service créé et permissions définies sur 644.
Redémarrage du service Mosquitto...
```

PostgreSQL Database service Status (once installed)

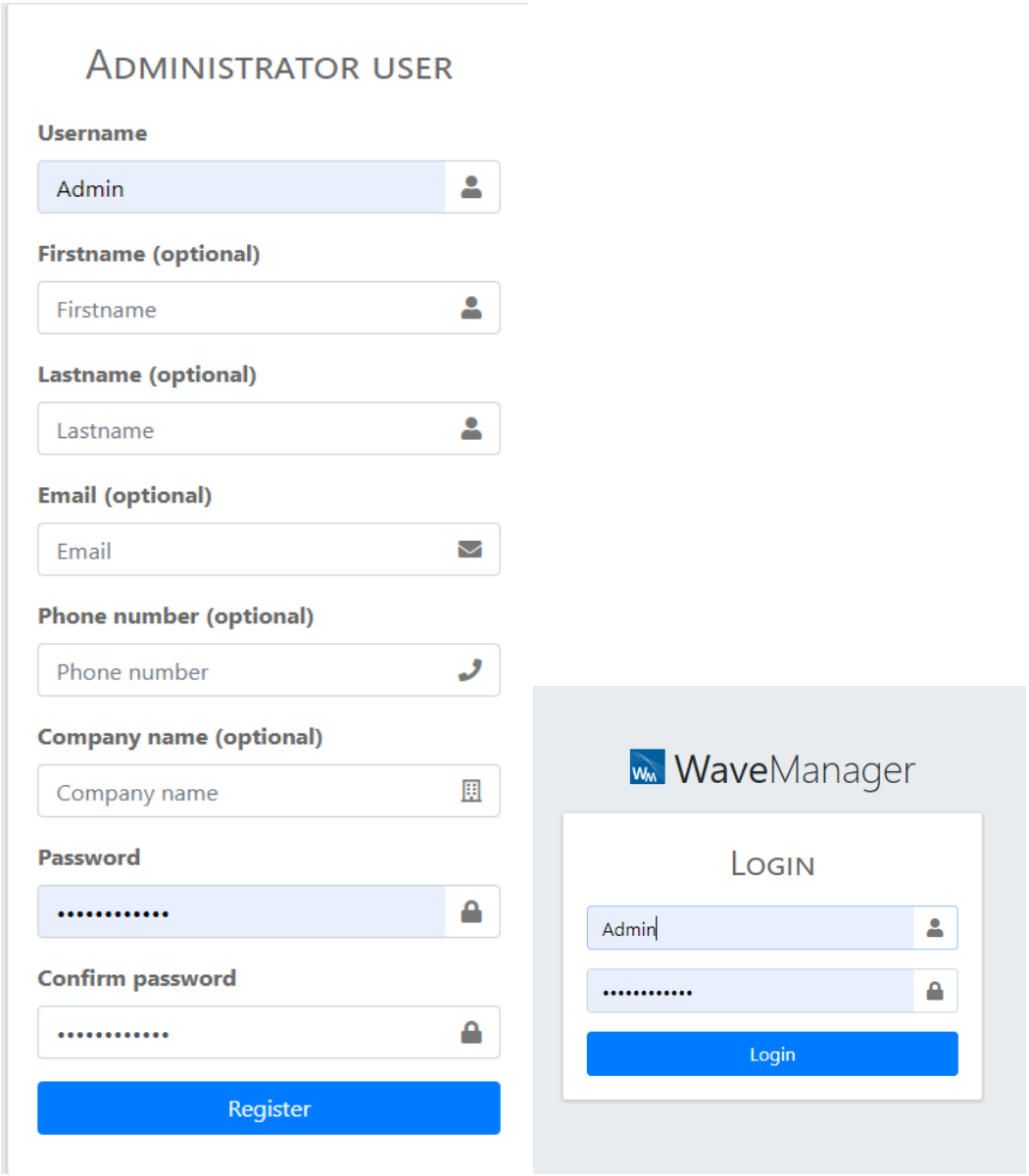
```
$ systemctl status acksys-wavemanager.service
● acksys-wavemanager.service - Acksys WaveManager server.
     Loaded: loaded (/etc/systemd/system/acksys-wavemanager.service; enabled; preset: enabled)
     Active: active (running) since Wed 2024-11-27 15:30:29 CET; 13s ago
   Main PID: 9023 (Acksys.WaveMana)
      Tasks: 19 (limit: 7401)
     Memory: 132.3M (peak: 132.8M)
        CPU: 4.011s
     CGroup: /system.slice/acksys-wavemanager.service
             └─9023 /opt/acksys/bin/Acksys.WaveManager.Server

nov. 27 15:30:38 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveMana          rationalServices.CommunicationServices.LocalClientServices.LocalMqttClientServi
nov. 27 15:30:38 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.CommunicationServices.LocalClientServices.LocalMqttClientServi
nov. 27 15:30:38 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.CommunicationServices.LocalClientServices.LocalMqttClientServi
nov. 27 15:30:38 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.CommunicationServices.LocalClientServices.LocalMqttClientServi
nov. 27 15:30:38 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.CommunicationServices.LocalClientServices.LocalMqttClientServi
nov. 27 15:30:38 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.CommunicationServices.LocalClientServices.LocalMqttClientServi
nov. 27 15:30:38 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.CommunicationServices.LocalClientServices.LocalMqttClientServi
nov. 27 15:30:38 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.CommunicationServices.LocalClientServices.LocalMqttClientServi
nov. 27 15:30:43 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.CollectServices.CollectService[0] OnProductConfigurationDataRe
nov. 27 15:30:43 noe-VirtualBox acksys-wavemanager.service[9023]: Acksys.WaveManager.Server.Services.OperationalServices.UpdateServices.UpdateService[0] OnUpdateTimerTriggered.
lines 1-20/20 (END)
```


Mosquitto Service Status (once installed)



Configure your Admin account (First Login)

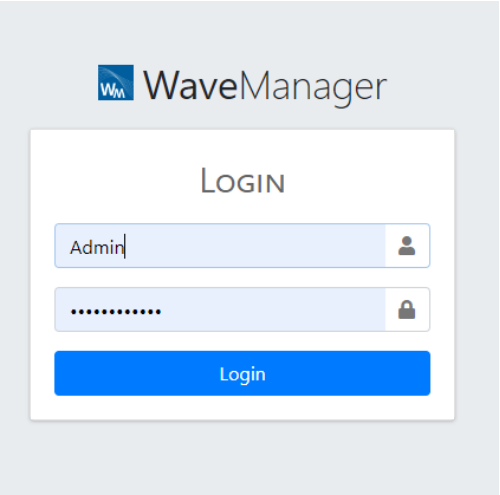
Open a browser and navigate to http://<server-ip>:5000 or the domain configured and you will be invited to fill the login form and configure your admin account.



Connect on the WaveManager On-Premise

Access WaveManager:

Open a browser and navigate to http://<server-ip>:5005 (default port 5000) or the domain configured and you will be invited to fill login/password.



On Premise WaveManager License

WaveManager On Premise and Cloud requires valid licenses before any complete configuration of the ACKSYS router.

For On premise solution, there is only one licensing level, with one free license available per default for testing purpose to fully mange an ACKSYS router.

License Level	Description
Inactive Level	Provides access only to essential features: If the customer has not bought a license, they can add their products or routers to WaveManager. In this case, only the minimum information such as the IP address of the product and a link to redirect to the router's web server are available (to configure the product via its GUI). By default a free license is active for only one router for testing purpose.
Active Level	Grants access to all features : License file associated to the hardware Id on which WaveManager is installed.

Request On Premise WaveManager License

Step 1: Access WaveManager

1. Log in to WaveManager with administrator credentials.
2. Navigate to the License Management locate in the admin submenu section or in Settings > Licenses

Step 2: Generate License Request

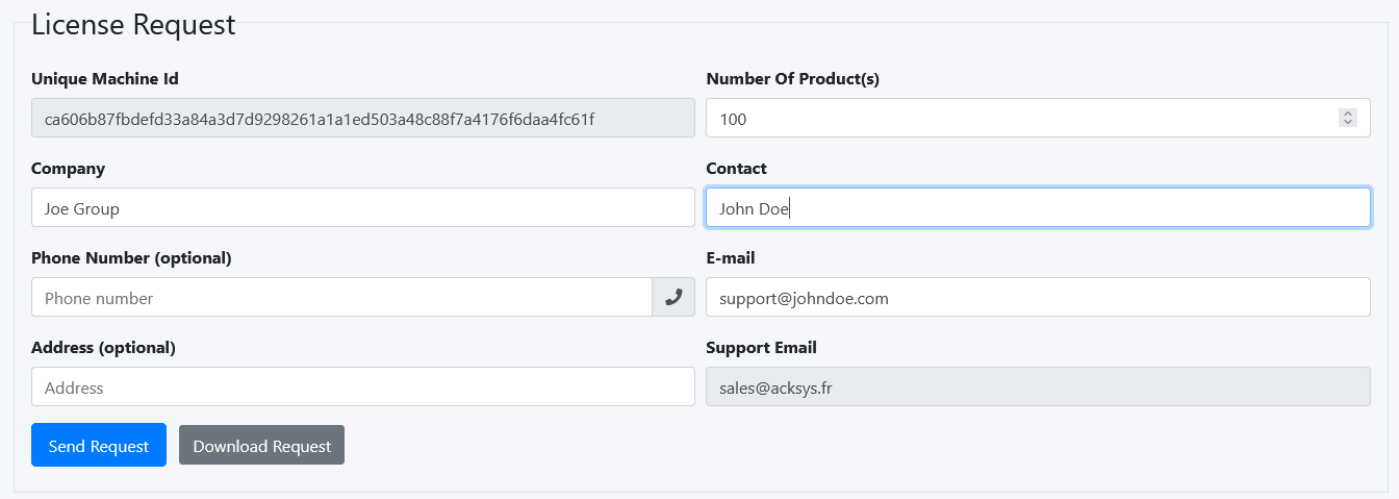
Required License Request Form Fields To generate a license request, ensure the following mandatory fields are completed:

- Unique Machine ID (Auto-generated)
- Number of Products :100 (Number of routers requiring a license according to your needs)
- Company Name
- Contact Name
- Email Address

Optional fields:

- Phone Number
- Physical Address

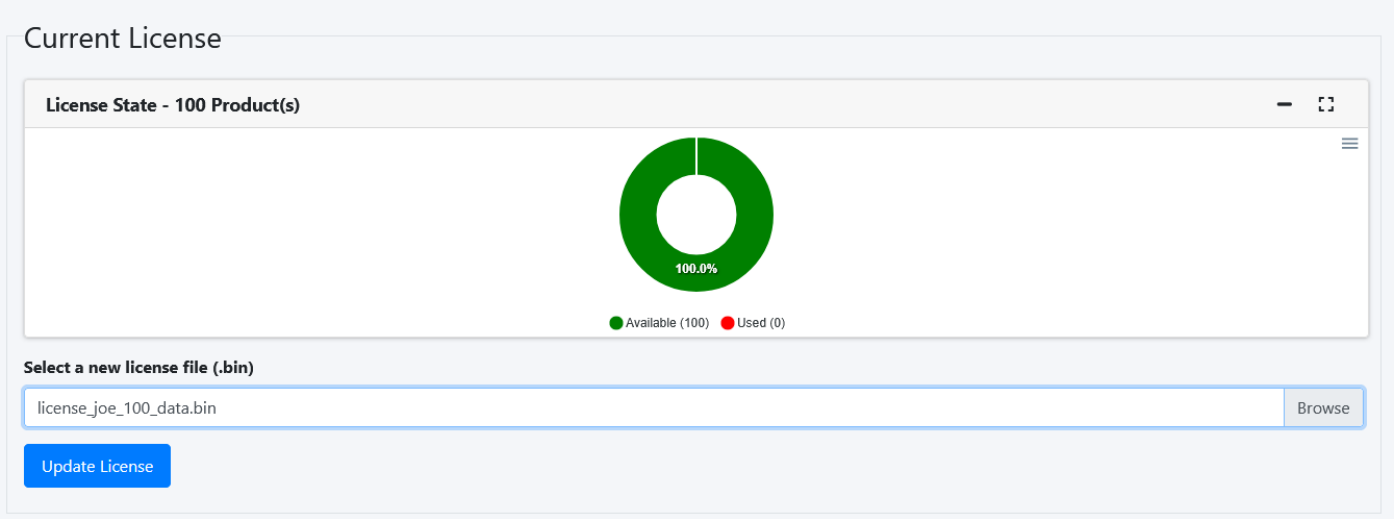
Click finally on Send request or Download Request to Submit your license Request to ACKSYS sales Teams in charge of generating your license file.



Installing License WaveManager On Premise

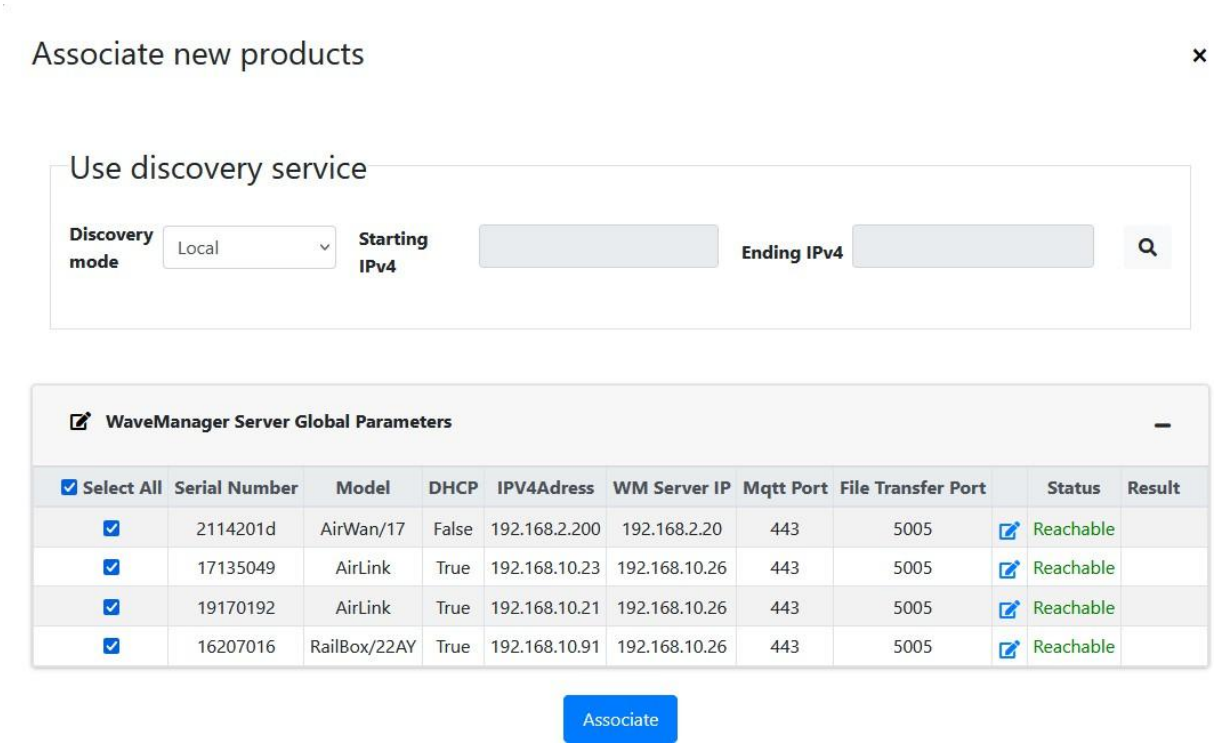
Update License

1. Navigate to Licenses under License Management.
2. Click Select a new license file and browse to locate the .bin license file received from ACKSYS Sales Teams after requesting license.
3. Click Update License

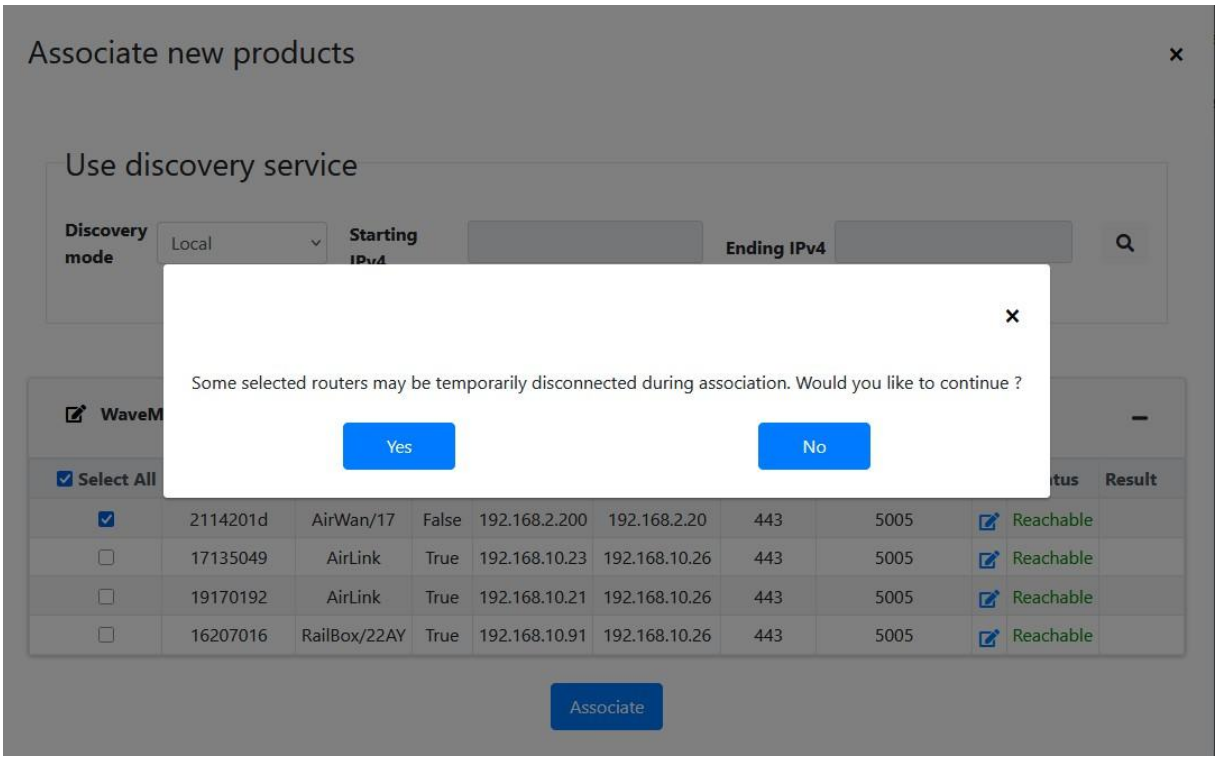


Associate Product to WaveManager

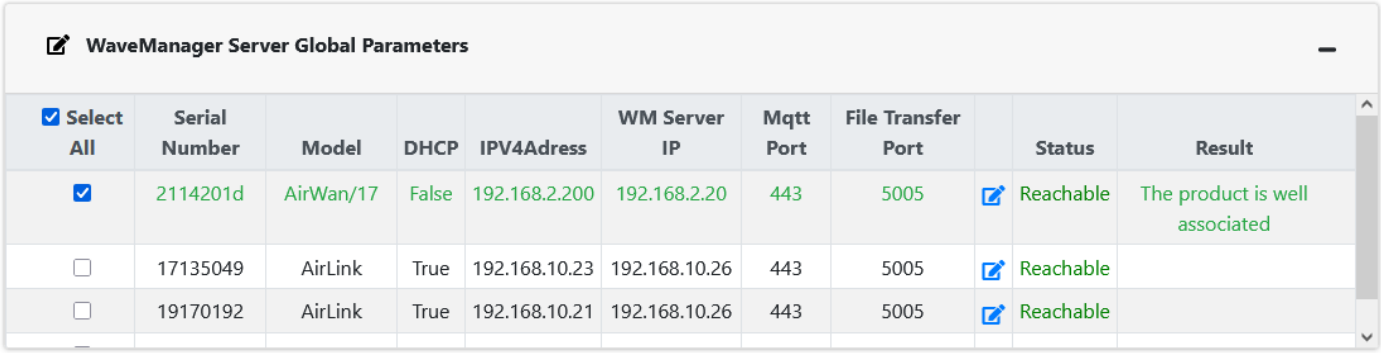
1. Navigate to WaveManager > Products > Associate products
2. Associate products use discovery service (Local or Remote mode)
3. Click on Search button to identify ACKSYS router parks on the LAN:



The Next Step is to associated our Router (AirWan/17) in our use case to WaveManager with the below warning during the association.

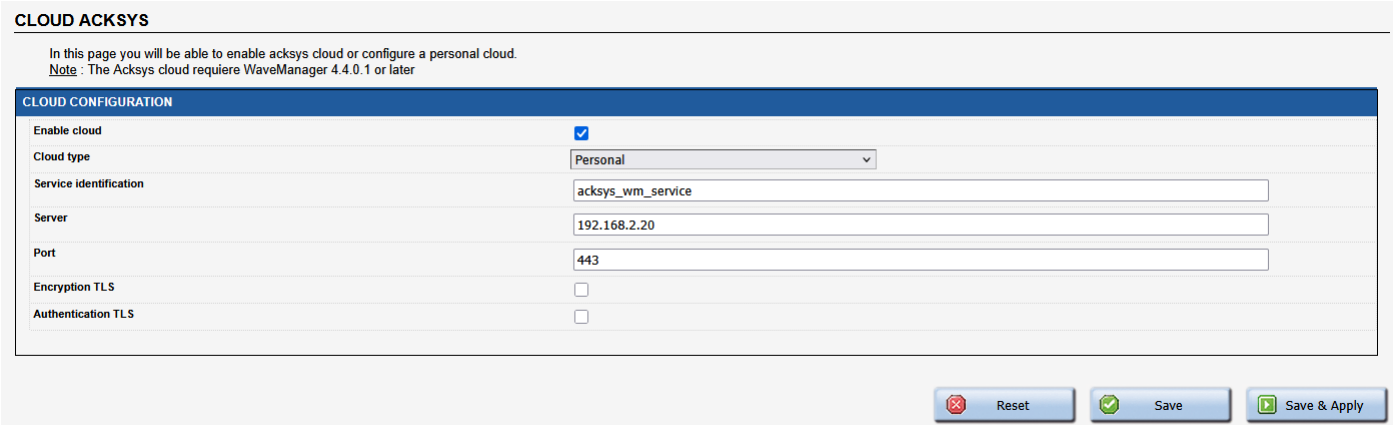


The AirWan Router is associated to WaveManager with the Association status (Well Associated or Not Associated in case of issue).



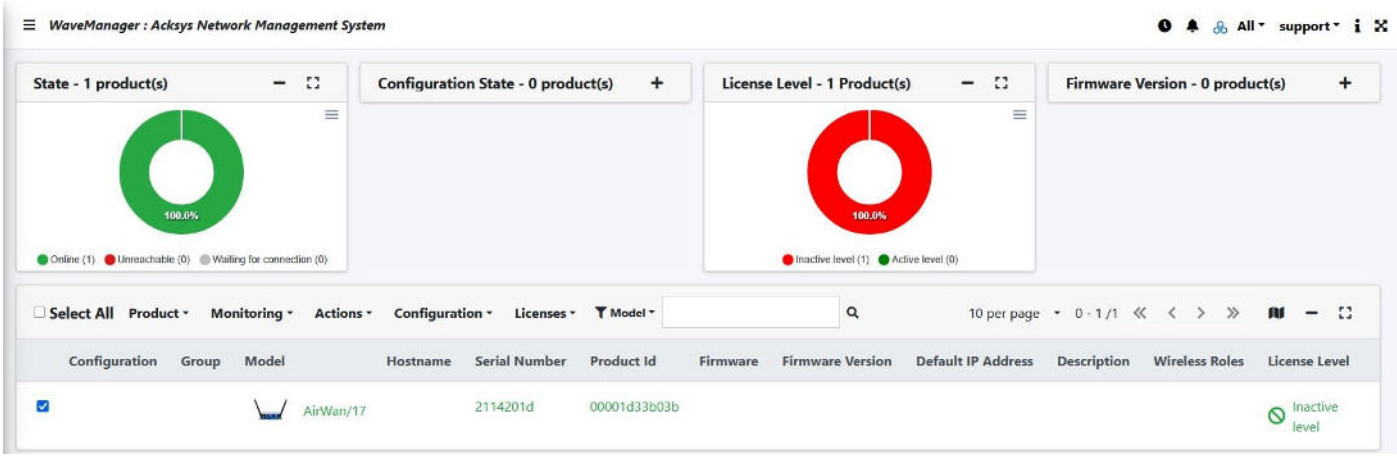
Checking ACKSYS Router, AirWan configuration

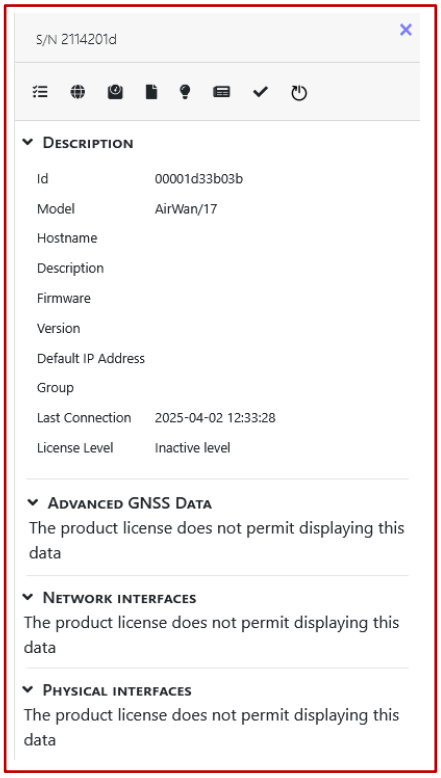
1. Go back to ACKSYS Router GUI in Setup > Services > Cloud to check if the router is well associated to WaveManager



As soon as the product is associated and the license are installed on WaveManager, the Router has as default status .

1. Verify that all registered routers now display an license status under the Product Overview section.

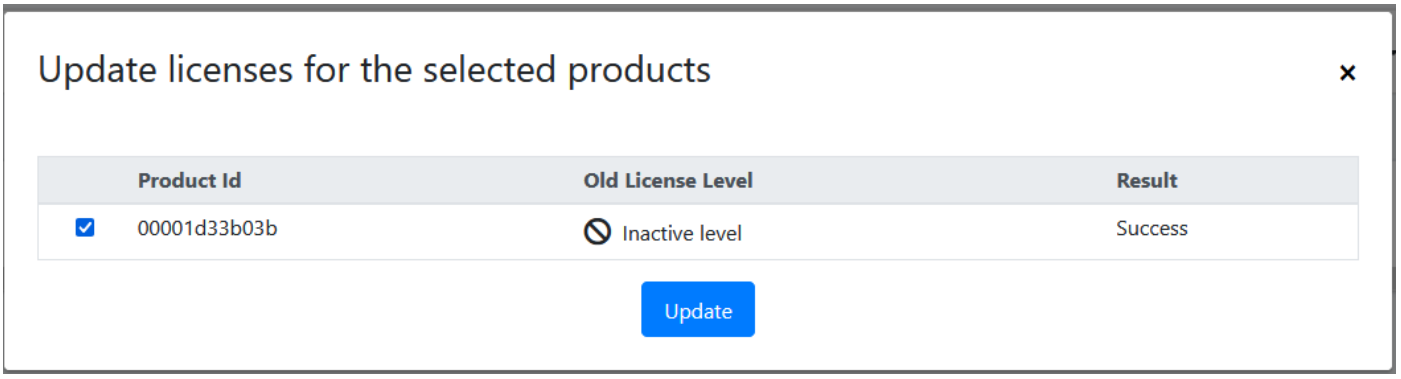




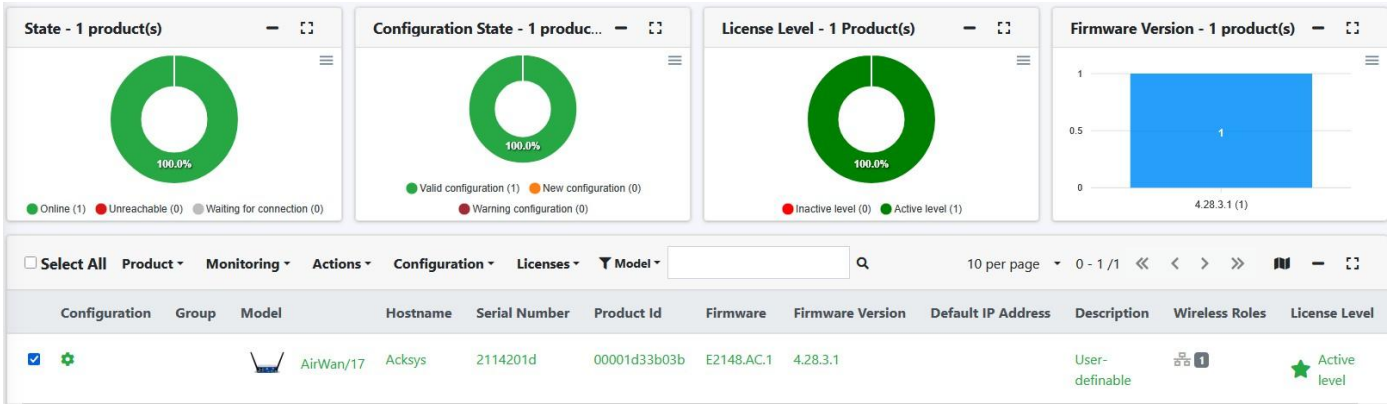
By default the router associated to WaveManager doesn't show any configuration data if no license is affected. Any configuration is possible for Active Level

Activating the License on AirWan Router

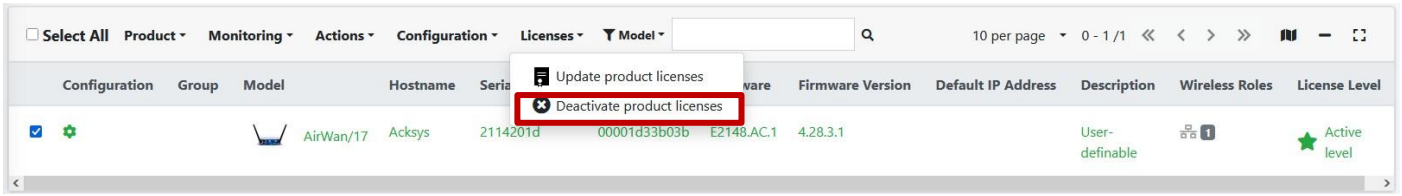
2. Select the AirWan Router in Product View in WaveManager.
3. Click License > Update Product License and enter the provided License Key.
4. Click Updated and then Yes to confirm to apply the update the license for the select router
5. Check the License result status (Success or Failed)



6. Verify that all registered routers now display an active status under the Licensing Overview section with all the Router configuration options.



The same way the license is affected to the router, it can also be disabled on its by choosing Deactived product licenses (but you will then lose all product history):



WaveManager On Cloud Licensing

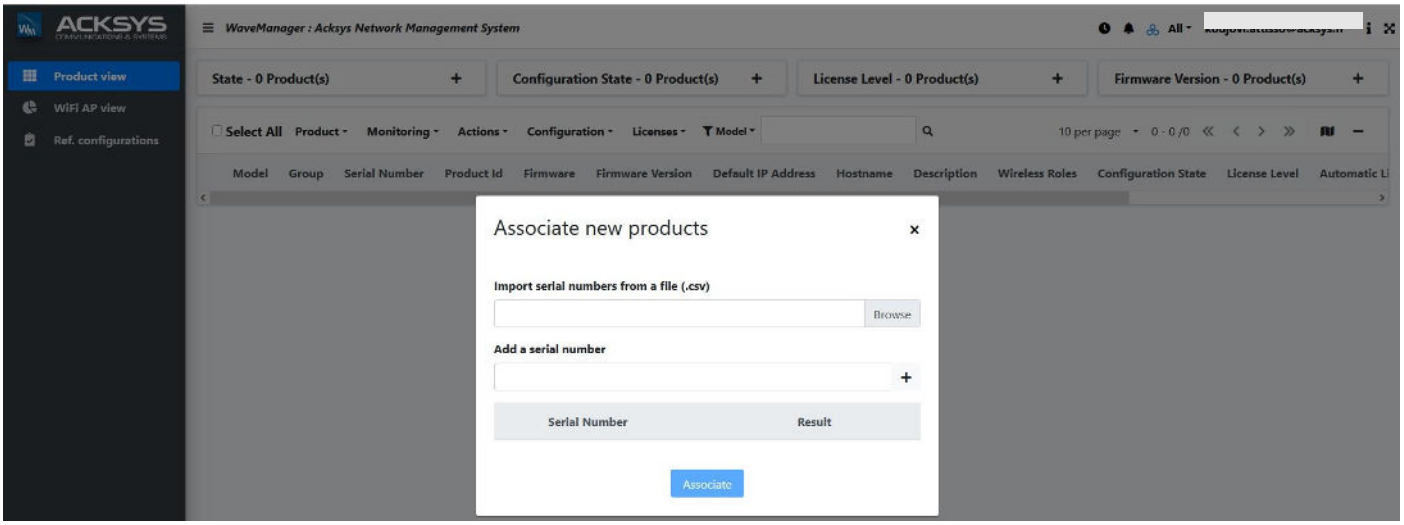
For Cloud solution, there are two types of licenses available: Basic and Advanced.

After product association to the WaveManager Cloud, you benefit of 1 month of basic license corresponding to 1 token.

Step 1: Access WaveManager

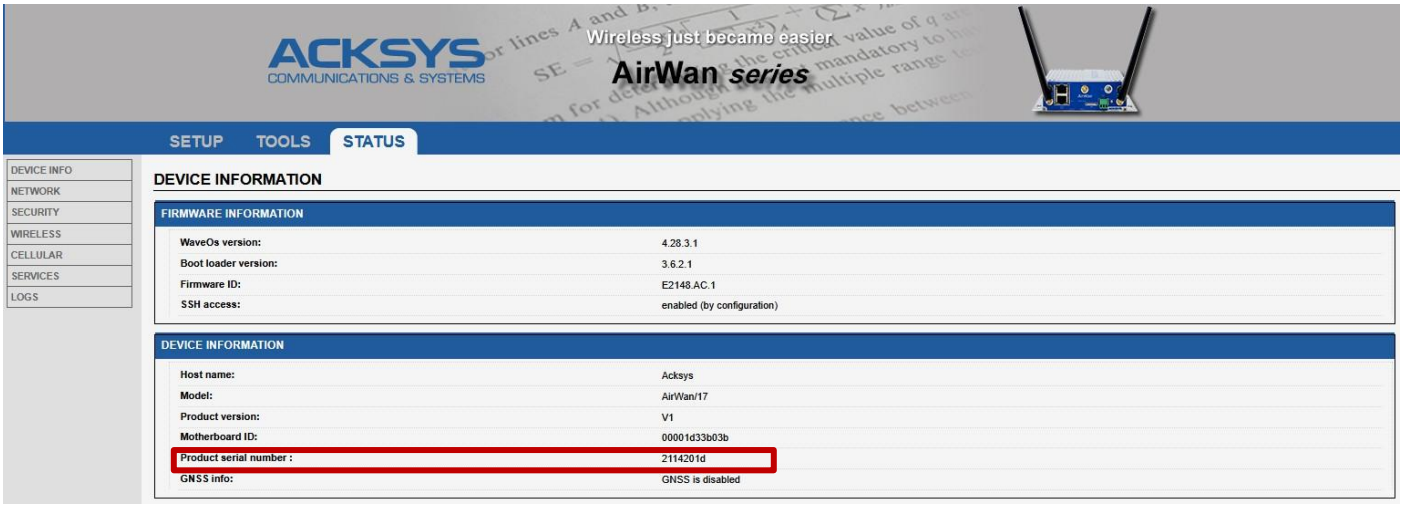
1. Create the admin account in WaveManager in cloud portal with the necessary information asked on the portal

2. Click Register and then check your mail
3. Enable your cloud account by clicking the Cloud Link provided
4. Log in to WaveManager in cloud with administrator credentials created and validated
5. After authentication, you are redirected to home page to associated products

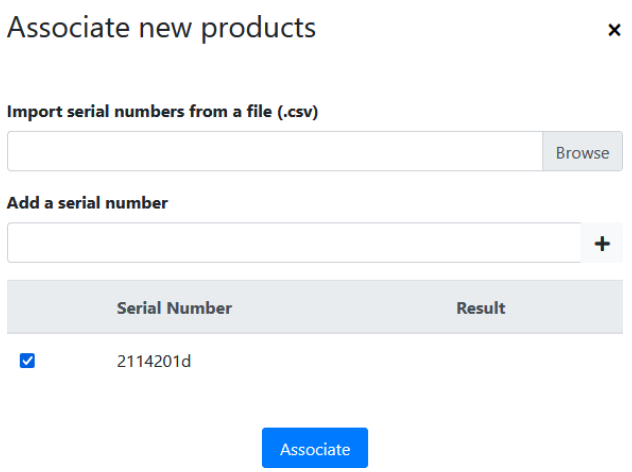


Associate Product to WaveManager in Cloud

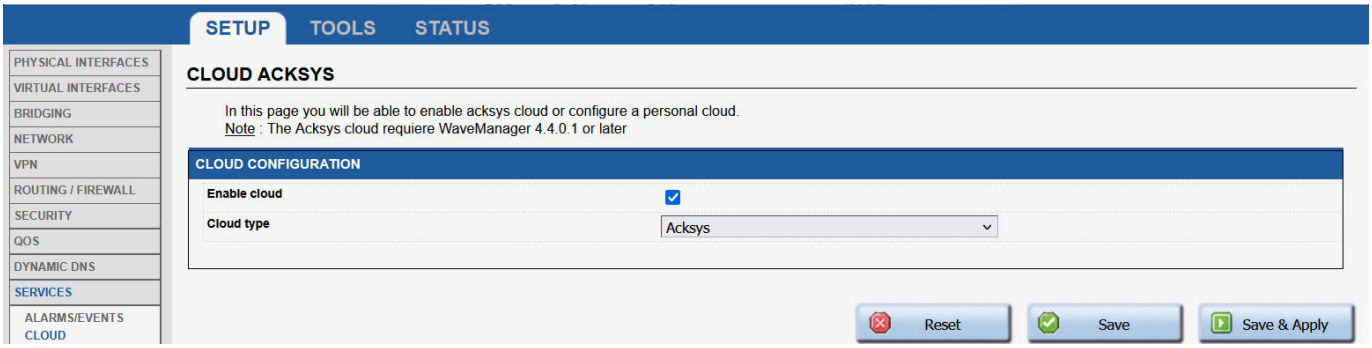
1. Navigate to the Router GUI to collect the serial number (GUI > Status) or provided a .csv file to import serial number WaveManager



2. Add the serial number of the router
3. Click on + button to record ACKSYS router
4. Select the Router and click on Associated button to associate the router to your organization with the result of the association process.



By default in the latest WaveOs firmware, The ACKSYS Cloud is enable in the configuration: Setup > Services > Cloud



WaveManager Cloud License

The cloud solution's licensing system is based on token consumption. The organization's administrator can found the token pool by applying a license code provided by the ACKSYS sales team.

Once the token pool is granted, the admin can update the license of one or more products by assigning them one of the following license levels:

License Level	Number of token consumed per month	Description
Basic	1	Provides access only to essential features
Advanced	3	Grants access to all features
Inactive		Disables the license usage for the product

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

NOTE : By default a router has for one month for Basic license features for testing purpose. The date of the first association is considered to determine whether a product is eligible for a free month or not. After expiration of the license of a router, the router passed to inactive state.

License Level and Associated service

The following table lists the features exposed by each license level.

Features	Description	License Level		
		Inactive	Basic	Advanced
Viewing Managed Products	Product Display: • In list form • In the form of a tile In the form of a map	X	X	X
Display and storage of static product data	The static data is: Id, serial number, code, icon. This information comes from the enrollment phase	X	X	X
Collecting and viewing product configuration/details	This concerns the interface displayed on the right, allowing you to display the current configuration of the product as well as some last key values (signal level, number of connected clients, last known GPS position, etc.).	⊘	X	X
Product Configuration Update	This applies to the following actions: Firmware update Modifying the configuration of an existing network interface Changing the configuration of a physical radio interface Modifying the configuration of an existing Wi-Fi interface Changing the configuration of web server access Downloading and applying a configuration file	⊘	X	X
Execution of test commands	Command executed on the router: - Ping - Scan de Wifi - Led tracking	⊘	X	X
Display of warning messages	Warning messages are used to specify potential product configuration anomalies, including: Whether the time of the product is well synchronized or not See if there are any other warning messages to add	⊘	X	X
Collecting and viewing product histories	These are the product histories detected by WaveManager (product validation, product configuration change, product accessibility change, product license expiration, etc.)	⊘	⊘	X

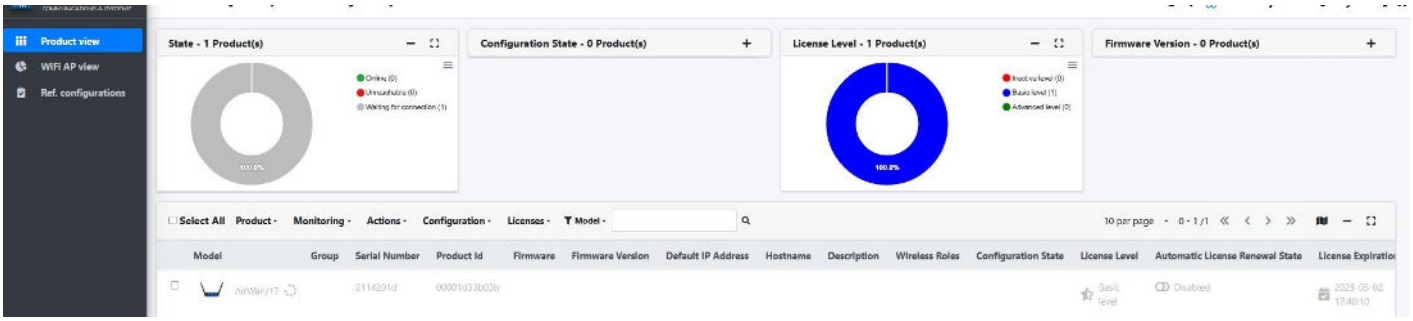
Features	Description	License Level		
		Inactive	Basic	Advanced
Collection and display of product statistics (analytics data)	Collecting statistics and displaying data in graphical form: - WiFI Signal Level Graph (RSSI) - Graph of the number of customers of an AP - Signal Level Graph (RSSI) Cellular - Graph of cellular data used - Graph of the SIM card used	⊘	⊘	X
Defining, detecting and displaying/notifying product alarms	These are the alarms detected by WaveManager: - Unreachable product - Product configuration changed - Signal level exceeding a high threshold - Signal level below a low threshold	⊘	⊘	X

Advanced services and features to be introduced in an upcoming release shortly

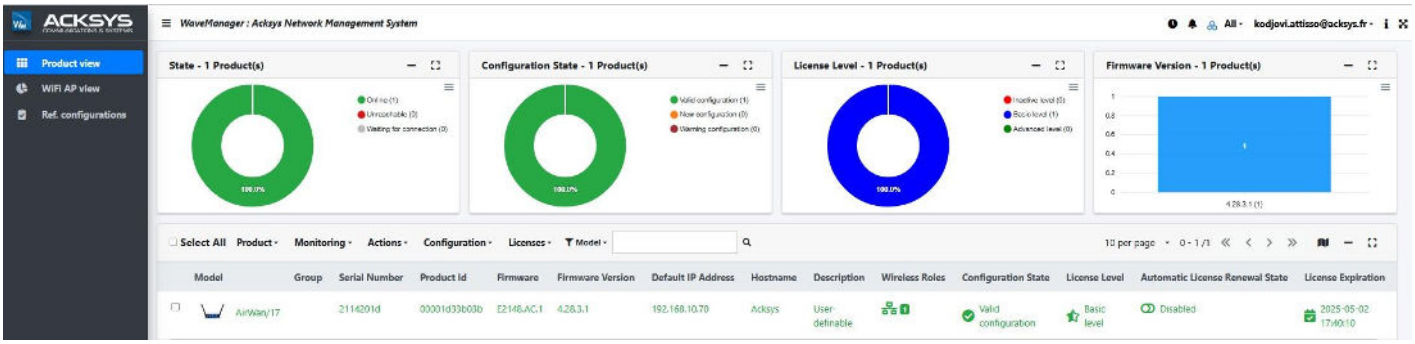
Features	Description	License Level		
		Inactive	Basic	Advanced
Collection and display of product logs	system and kernel logs	⊘	⊘	X
Collection and display of product statistics (analytics data)	Collecting statistics and displaying data in graphical form: - Roaming History - Roaming Graph	⊘	⊘	X

Basic Level License

After associating step, the router can appear in the Product view with the status "Waiting for connection". This status indicates that the product is associated with the organization but communication with WaveManager has not yet been initiated (ex: in case that the product is not yet reachable by internet).



The status of related products should change to "Online" in a few of seconds as soon as the communication of the Router is established but in case the waiting state persists, please check you router internet connection.

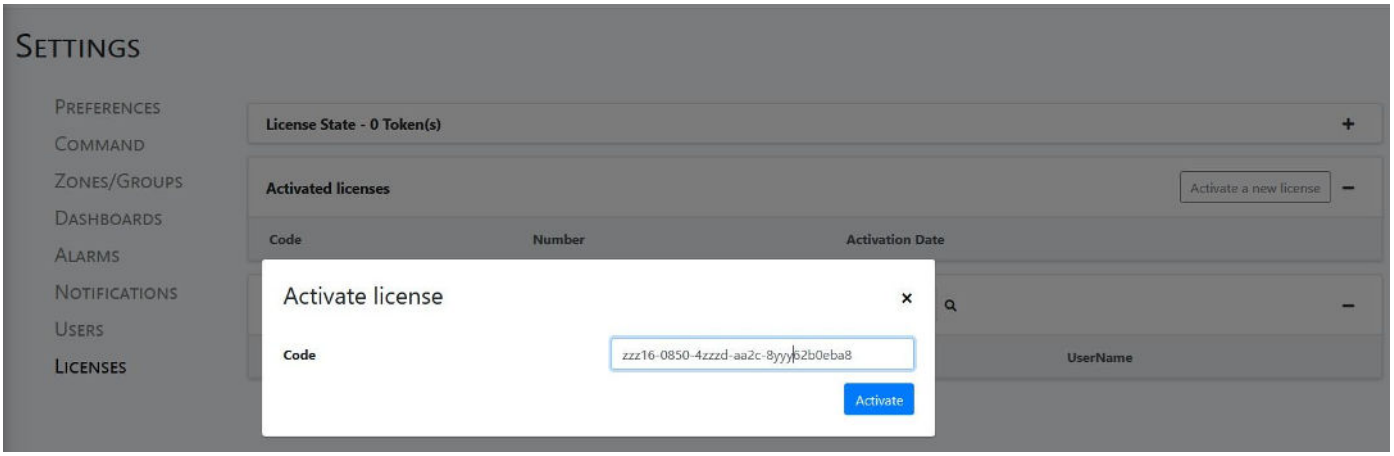


After first association, the product has one free month of Basic license level activated.
For each product, the following information is displayed on the main page: license level, license auto-renewal status, and license expiration date. In addition, the number of tokens reserved for each product is displayed in the interface detailing the product information.

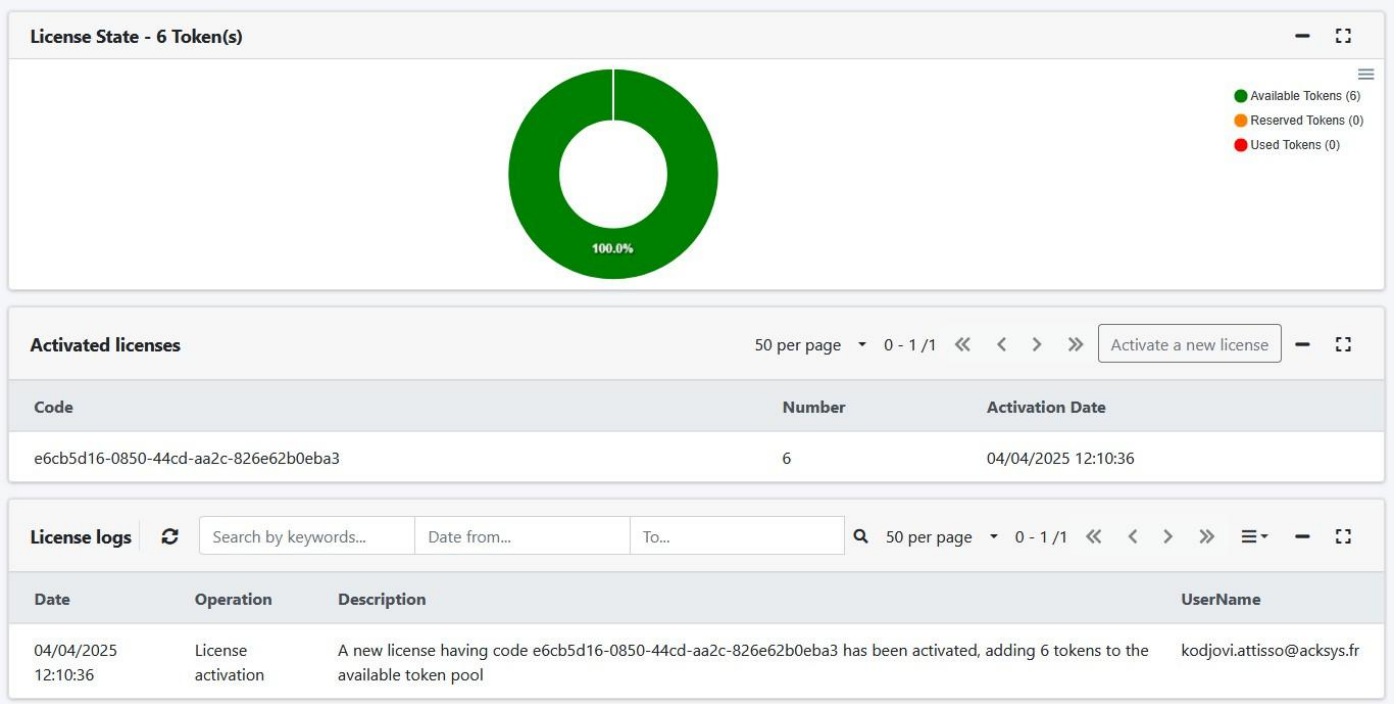
After expiration of this free license or if you want in the meanwhile to update basic to advanced level, you have to purchase license tokens from the ACKSYS sales team.

Adding purchased token to your WaveManager Cloud account

1. Navigate to WaveManager > **Your Login Submenu > Manage License > Actived License > Active licence > Add Code provided by ACKSYS sales Team**
2. Click on Activate



After activating the license via the code provided by ACKSYS sales teams according to the number of token, please check if the license is well installed.

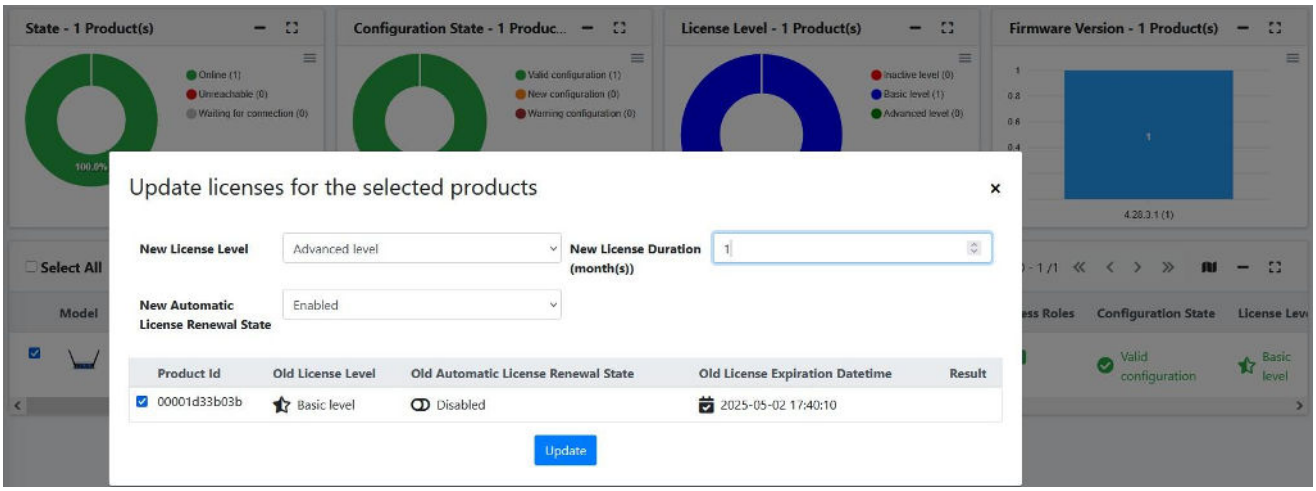


In our use case, we order 6 token which can be used for the Basic level License (1 token/month) and for Advanced Level License (3 token/month).

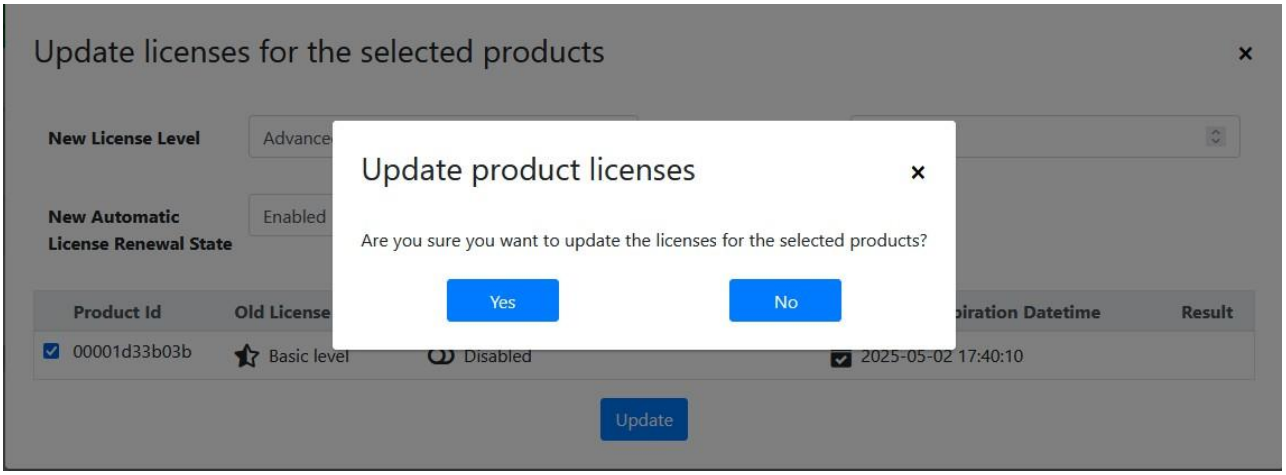
Steps to Update Basic Level License to Advanced Level License

The Basic Level license use 1 token whereas Advanced Level 3 Token per month and in this scenario, the purpose is to apply Advanced Level License for the Airwan Router.

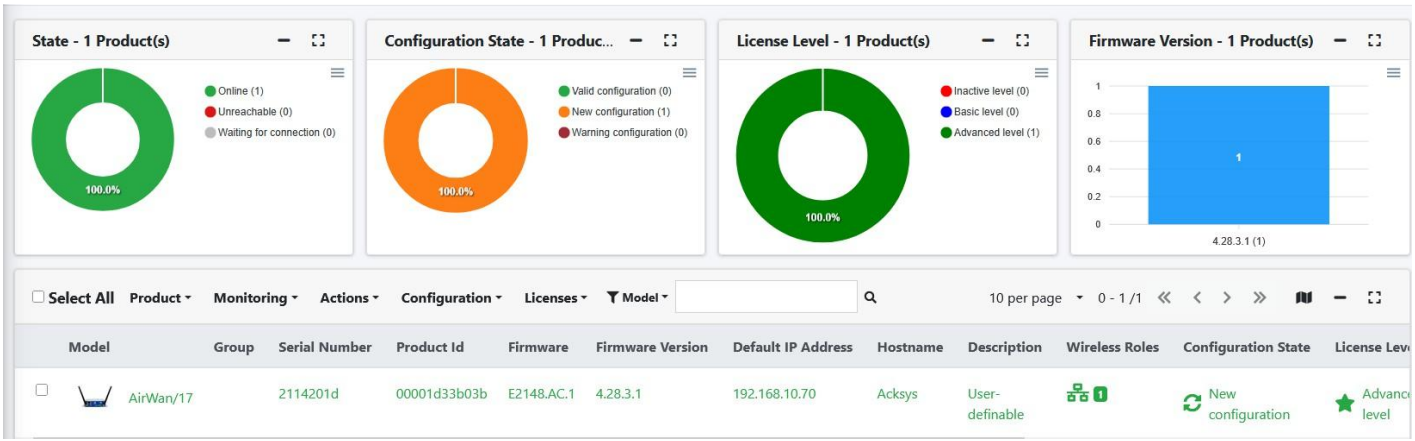
1. Connect on WaveManager > Product View > Select the Router (AirWan)
2. Click on Licenses > Update Product License



3. Click on Update and confirm

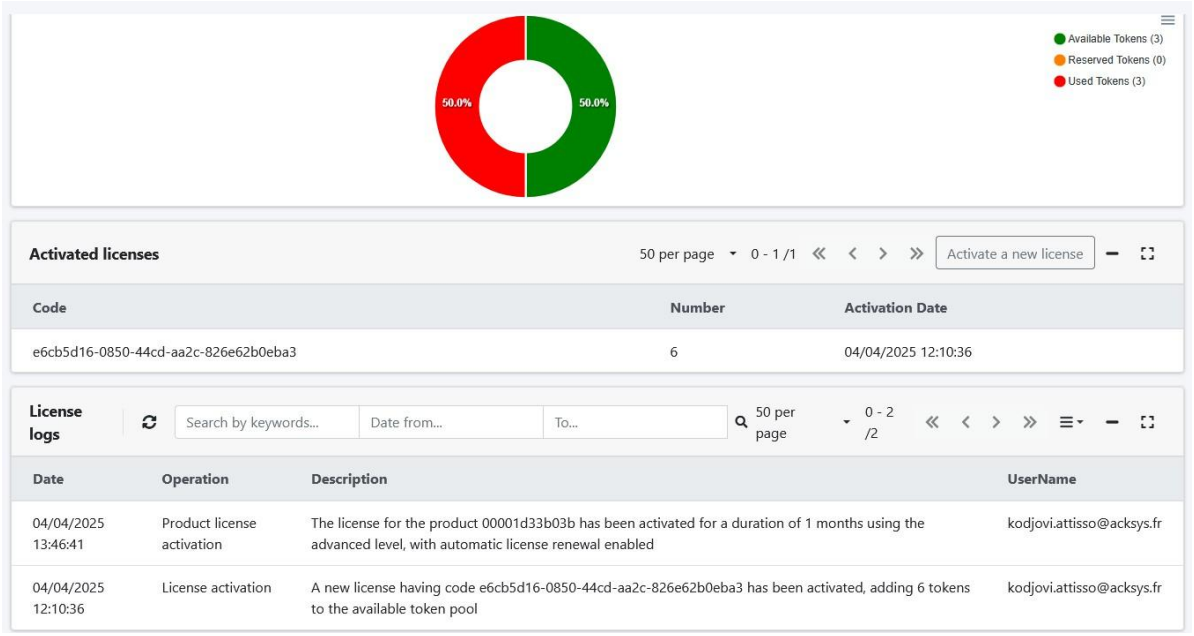


Refresh WaveManager page



License Management

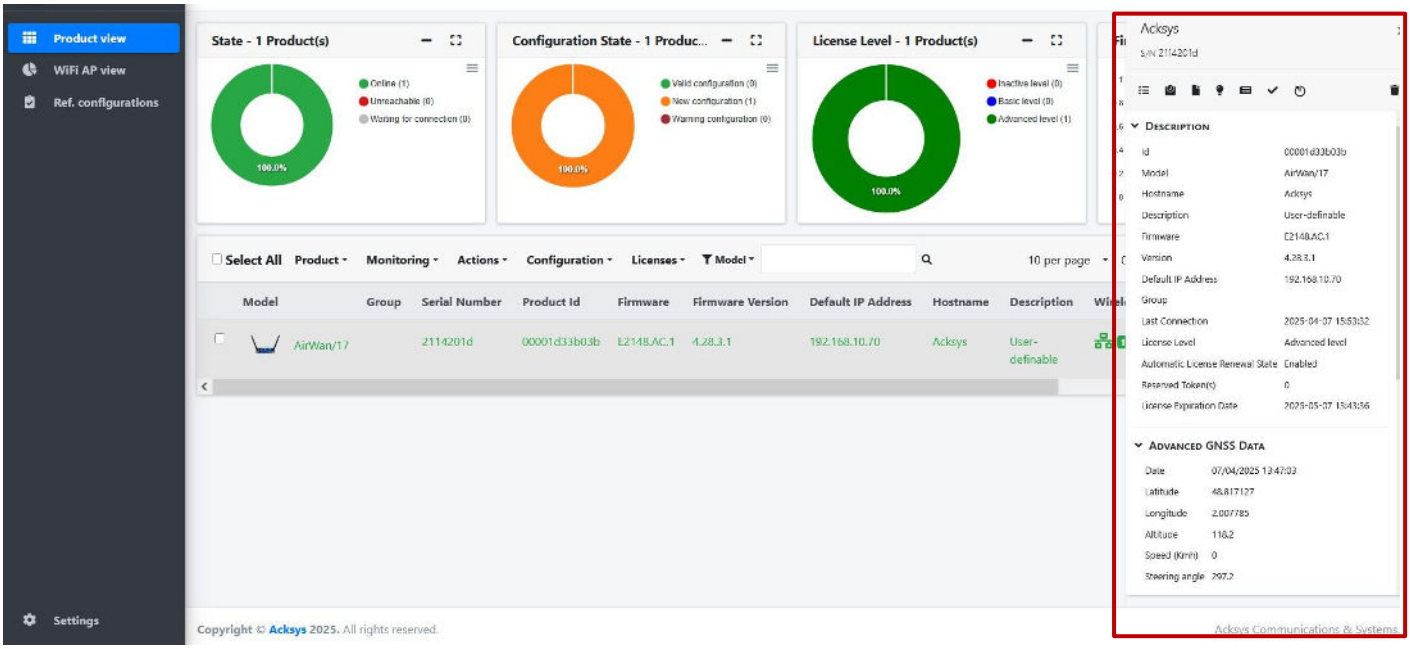
As soon Updating Basic License to Advanced , we have consumed 3 tokens in the total of 6 available.



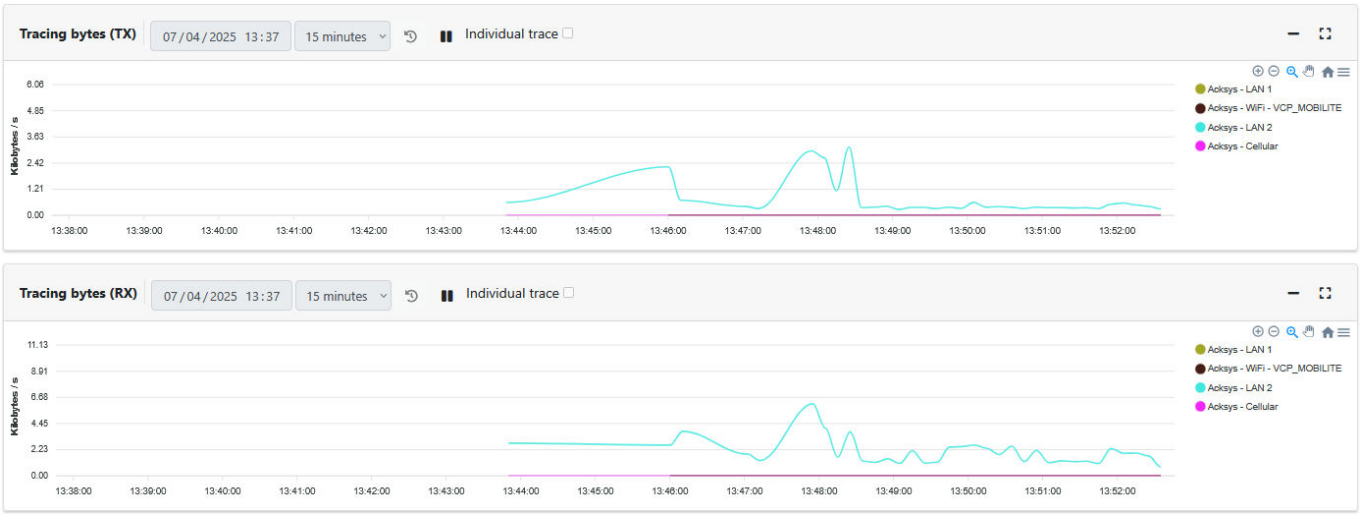
Basic Configurations and Monitoring

From WaveManager in Cloud, you can configure (Validate configuration, Update firmware, Update network interface settings, Update Wireless element settings, Update wireless interface settings etc……) and monitor routers (Data Charts).

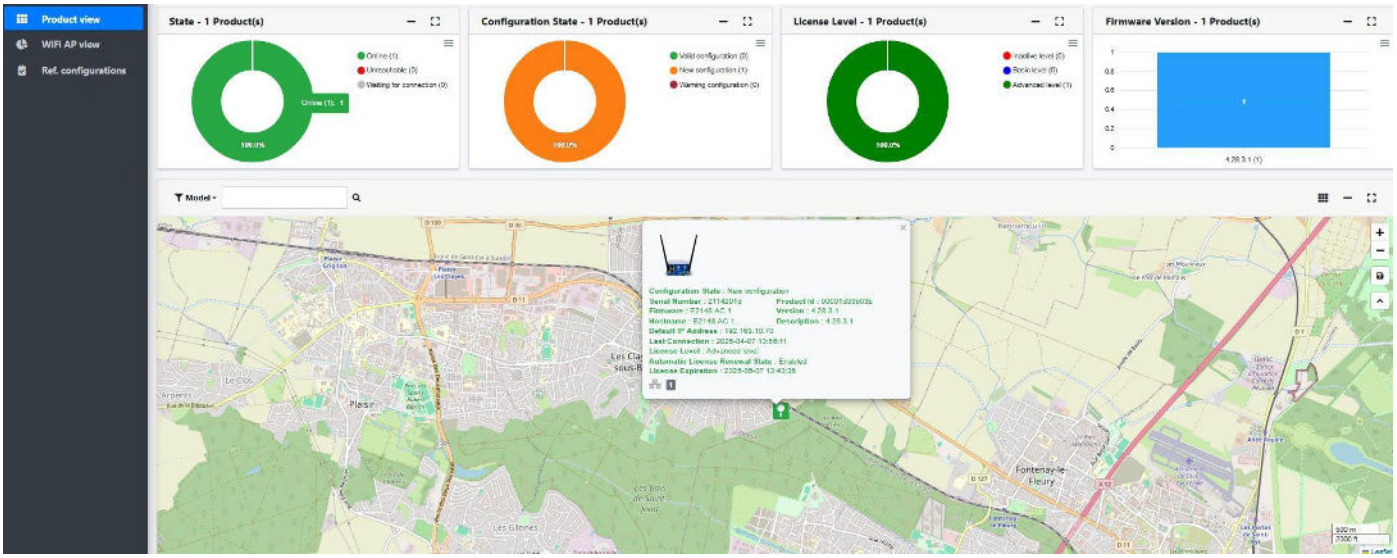
Example Configuration settings (Double click on the router)



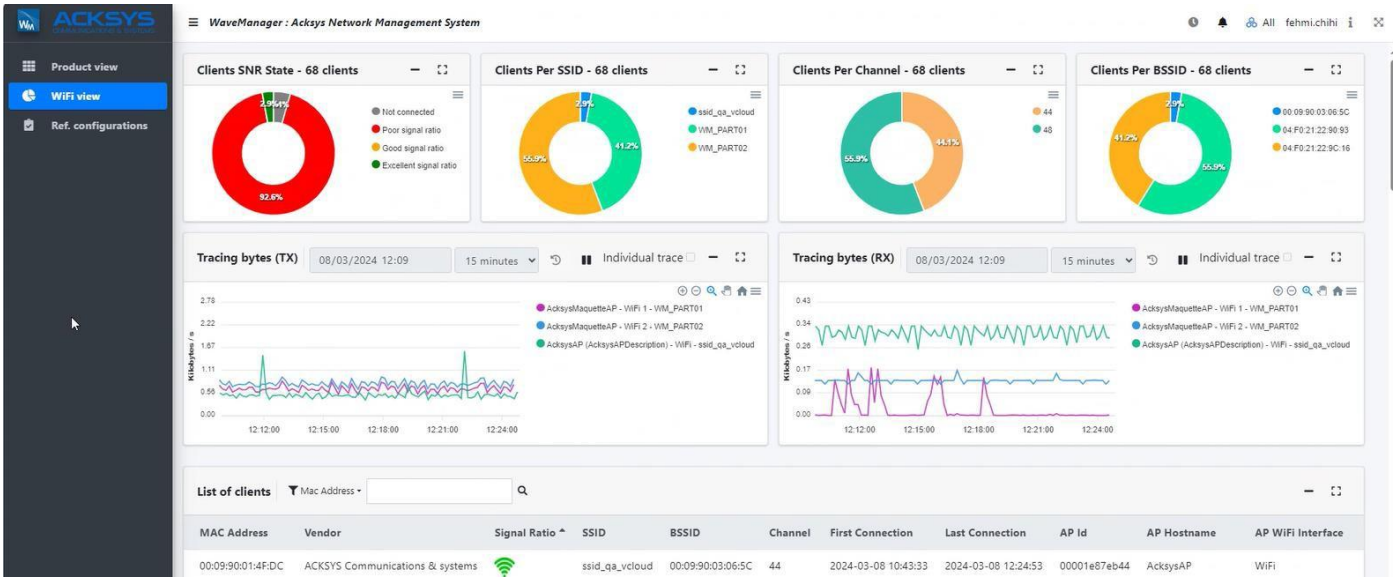
Example of BANDWIDTH Monitoring



Example of Products Map View on Click



Example of WIFI View Information displayed



For further assistance, consult the official WaveManager documentation or contact support.

Support : https://support.acksys.fr