

WaveManager

Version 2.6.0.1

- User Manual -



ACKSYS
COMMUNICATIONS & SYSTEMS

TABLE OF CONTENTS

1. DESCRIPTION.....	4
2. WAVEMANAGER INTERFACE ACCESS	7
3. MAIN WINDOW	8
4. TAB DESCRIPTION	10
4.1. Information tab.....	10
4.2. Help tab	11
4.3. Home tab	12
4.4. Group/Zone tab	13
Use of Group/Zone	14
Creating a new group or zone.....	14
Managing a group	15
Managing a zone	17
Selecting products from a zone or group	18
Deleting a group or zone.....	18
5. PRODUCT INVENTORIES	20
5.1. Inventory status details.....	21
6. PRODUCT DISPLAY	22
Filtered Product display according to the inventory.....	22
Filtered product display according to Groups/Zones.....	23
Filtered product display according to the inventory and the groups/zones	24
6.1. Product list.....	25
6.2. Column modularity.....	26
Customizing the column display	26
6.3. “Group” display	28
6.4. Hierarchical display	30
6.5. Product details.....	31
View product details.....	31
Product details window	32
Product Log	34
7. THE TOOLBAR	35
7.1. Actualization	36
Discover/Refresh	36
Discover Remote Products	38
7.2. Product management	39

Validate button	39
Setup button	39
Firmware button	46
Archives button	51
Web server button.....	53
7.3. Trace	54
RSSI signal monitoring	54
Trace settings	55
Advanced features	55
Graphic printing.....	56
7.4. Geolocation	57
7.5. LED Tracking.....	58
7.6. Application Settings	59
General	59
SNMP	61
Advanced.....	63
User settings.....	65
Print/Export	68
Colors	68
Applying the settings.....	69
7.7. Database	70
7.8. Grid Display	72
8. CHARACTERISTICS.....	73
8.1. Hardware configuration	73
8.2. Supported languages	73
8.3. Protocols and Ports	73

1. DESCRIPTION

WaveManager is a Windows-based software designed to manage and control an entire equipment fleet of ACKSYS Wi-Fi products running WaveOS firmware version 3.18.0.1 or higher.



WaveManager offers the following functionalities:

- ✓ **Automatic product detection**
All the products detected are registered in a local database. A validation procedure (manual or automatic) records them permanently, memorizing their configuration checksum.
- ✓ **Regular monitoring of registered product accessibility**
WaveManager will identify the products that no longer respond.
- ✓ **Regular monitoring of registered product configuration**
WaveManager will identify products whose configuration has changed since they were last validated.
- ✓ **Assistance with product configuration**
 - IP address
 - RADIO channel
 - SSID
 - HTTPS certificate

✓ **Effective maintenance**

- The possibility to restore a previous configuration or to set up a new one for each product;
- The possibility to assign a reference configuration file to one or several products;
- Firmware update for one or several products in delayed or real time;
- Export of Wi-Fi logs and product inventory;
- Product group management to ease monitoring and tracking;
- Real-time status indication of products in the dashboard and in the product list (e.g. IP conflict, unreachable...).

✓ **Analysis of the Wi-Fi signals** of each client associated with an access point.

- Ability to monitor Wi-Fi signals in real time

✓ **Analysis of the RSSI signal** from an associated client.

- Ability to trace RSSI signals in real-time
- Trace exports



Warning: products located outside the local network will be detected only if the user searches on a specific IP range.
(see 7.1 → *Discover/Refresh*).



Wi-Fi products not running under WaveOS may be recognized by WaveManager but will not benefit from all the software's features.

Installing and running the software:

WaveManager software is available for download at <https://www.acksys.fr/en>

(Support/Download Center/Softwares and drivers downloads / Administration tools & utilities)



WaveManager only works on Windows-based computers.

- Run the installation program in a directory.
- Find WaveManager executable shortcut.
- Double-click on it:



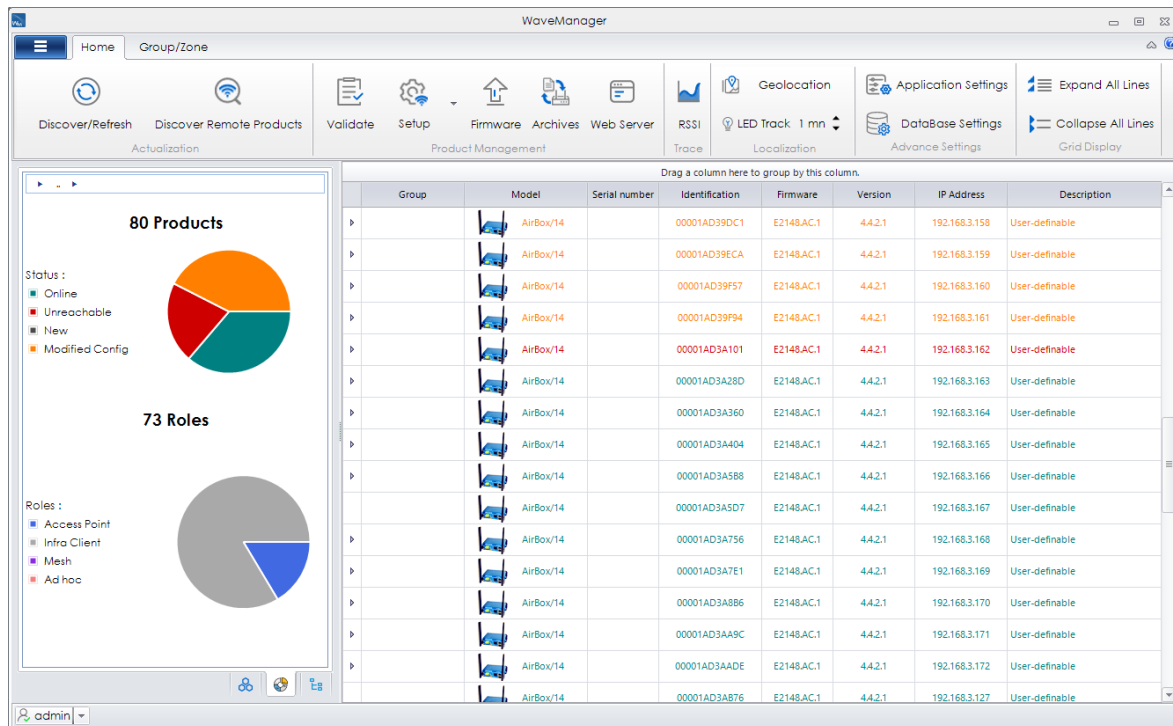
When launching the software, the screen will display the details of the initialization process:



2. WAVEMANAGER INTERFACE ACCESS

By default, there is no need to login to access the software interface.

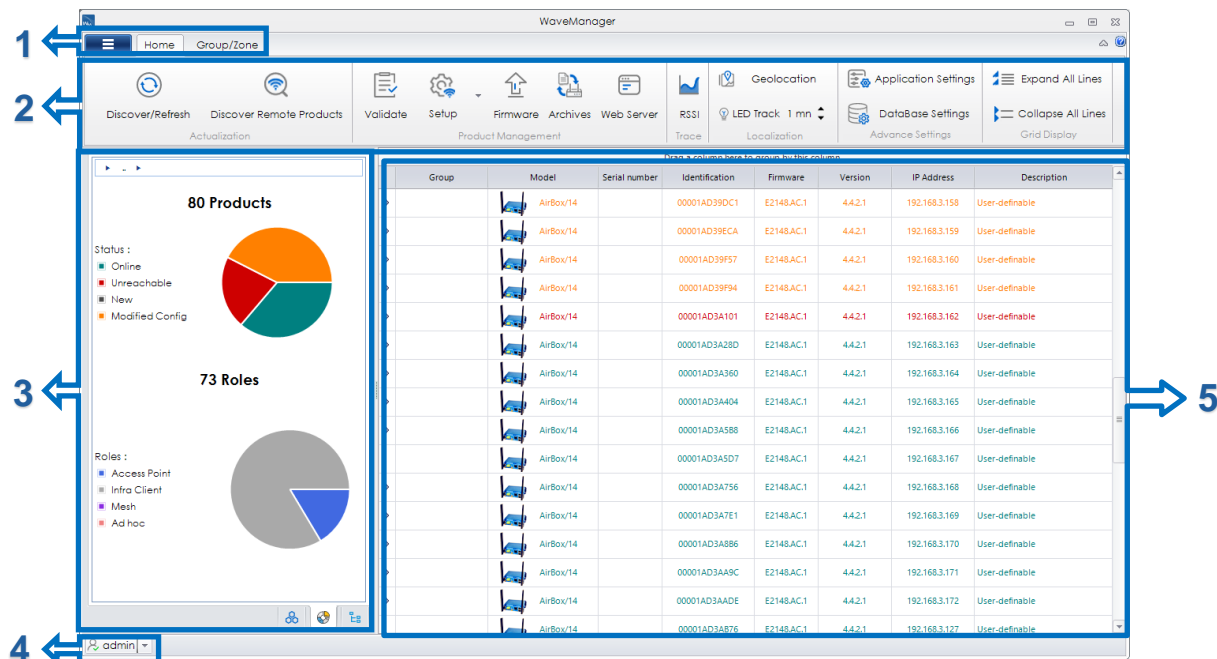
The user has all access rights to the menus.



For security reasons, it is strongly recommended to protect access to WaveManager by creating user accounts (see *User settings*).

3. MAIN WINDOW

WaveManager main window has five areas:



Structure description:

1. Main navigation tabs:
 - Information
 - Home
 - Group/Zone*
2. The toolbar that applies for one or several products.
3. The dashboard, including:
 - The global inventory of registered products according to their operating status, their Wi-Fi role and their assignment to groups/zones.
 - Navigation between the Group/Zone Explorer and the two types of inventories.
4. User information and access to WaveManager account settings**.
5. Product display.



* The **Group** tab only appears if the “**Managing Product Groups**” option has been checked in the **Application Settings** (*see General*).

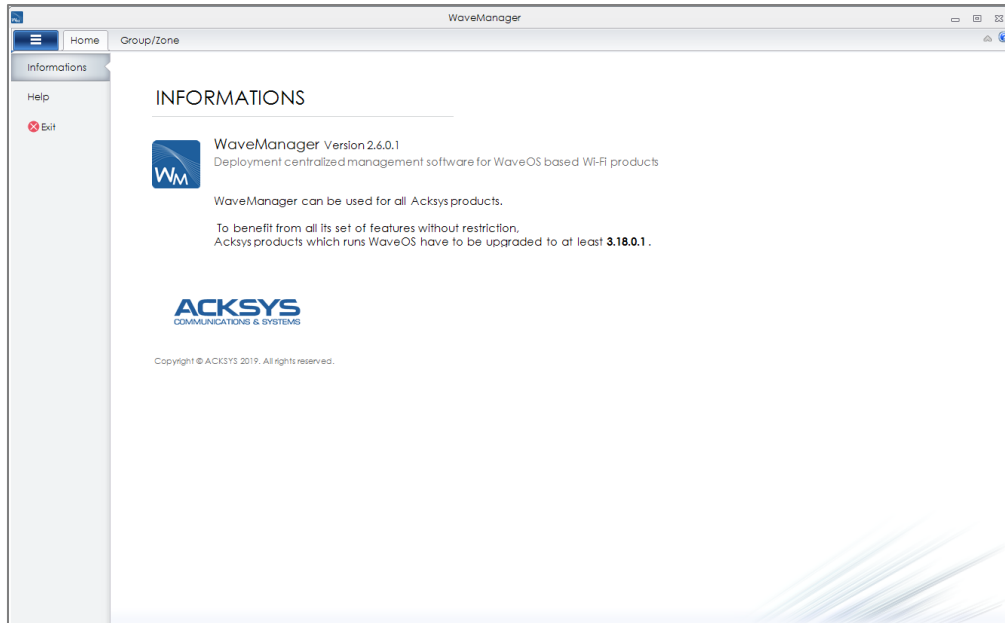


** The user account settings only appear if the “**User Management**” option has been checked in the **Application Settings** (*see User settings*).

4. TAB DESCRIPTION

4.1. Information tab

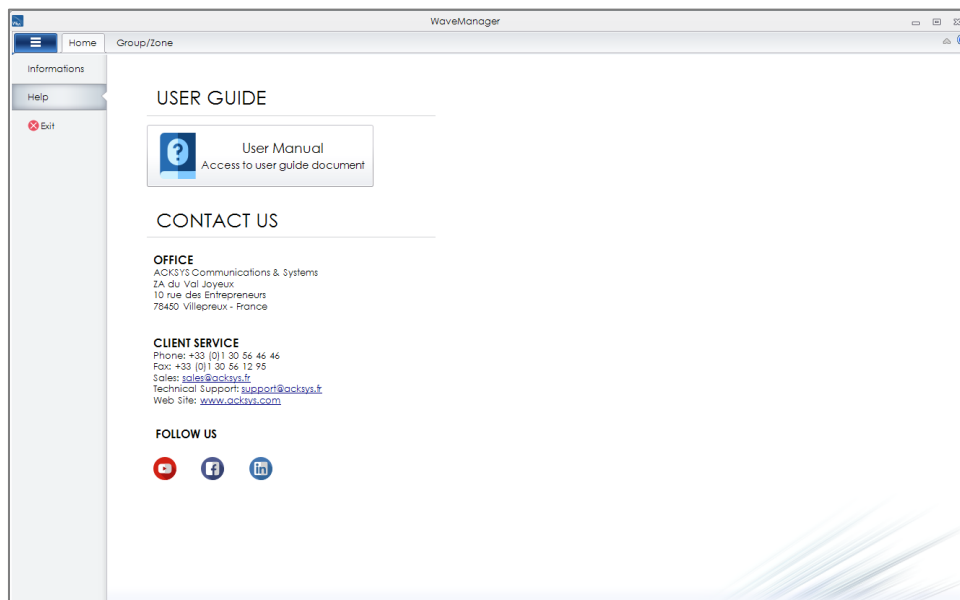
This reminds WaveManager terms of use.



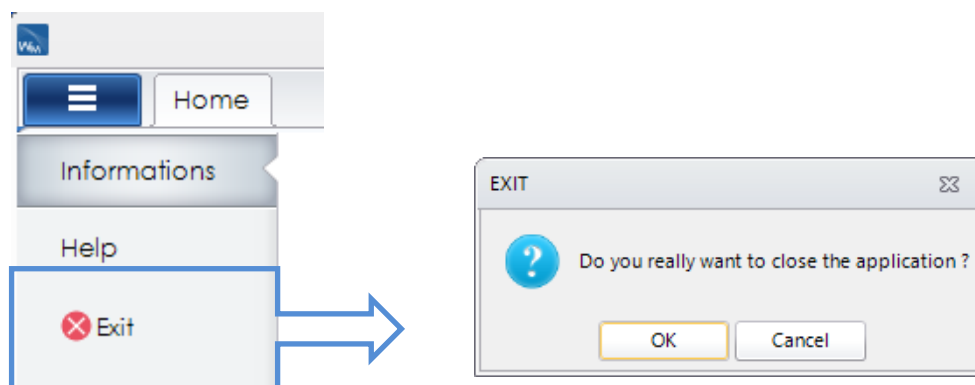
Hence, to benefit from all the software functionalities, your ACKSYS products must run under at least **WaveOS version 3.18.0.1**.

4.2. Help tab

It provides access to ACKSYS technical support contact information if needed.

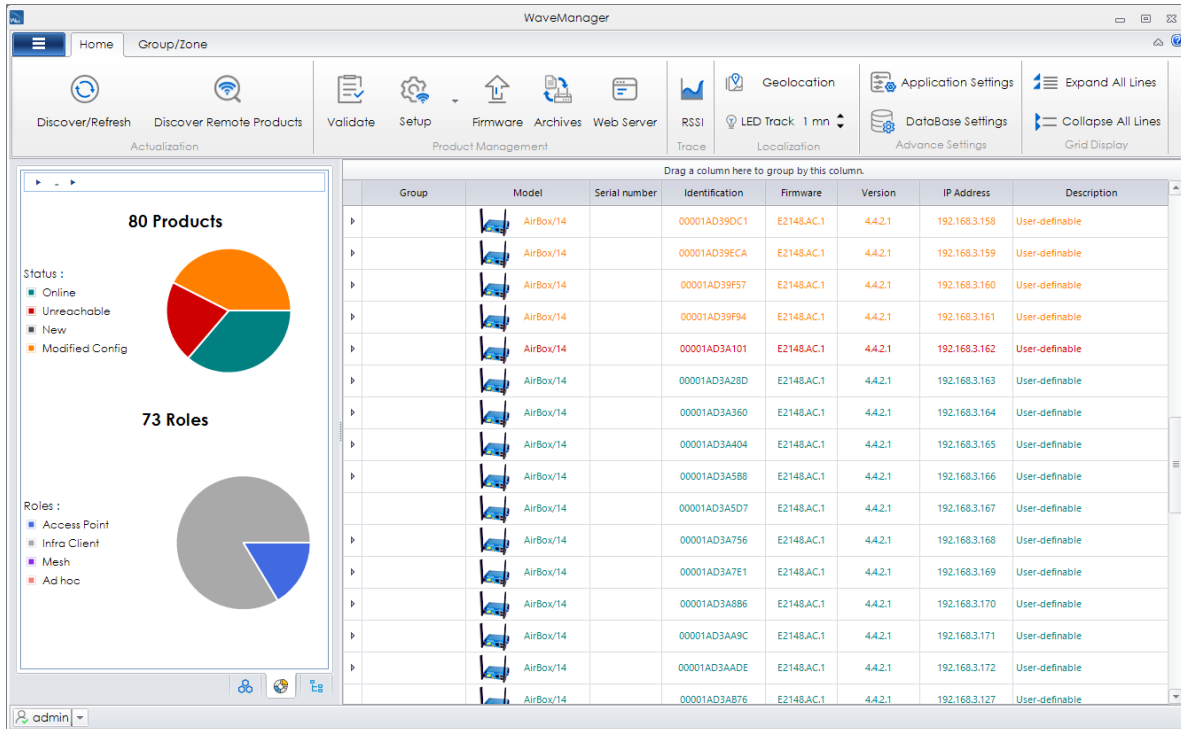


The “**Exit**” button closes WaveManager.



4.3. Home tab

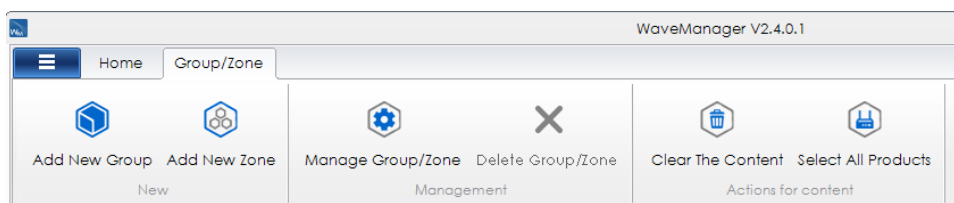
It gives access to all the features: the dashboard and the product inventories supported by WaveManager.



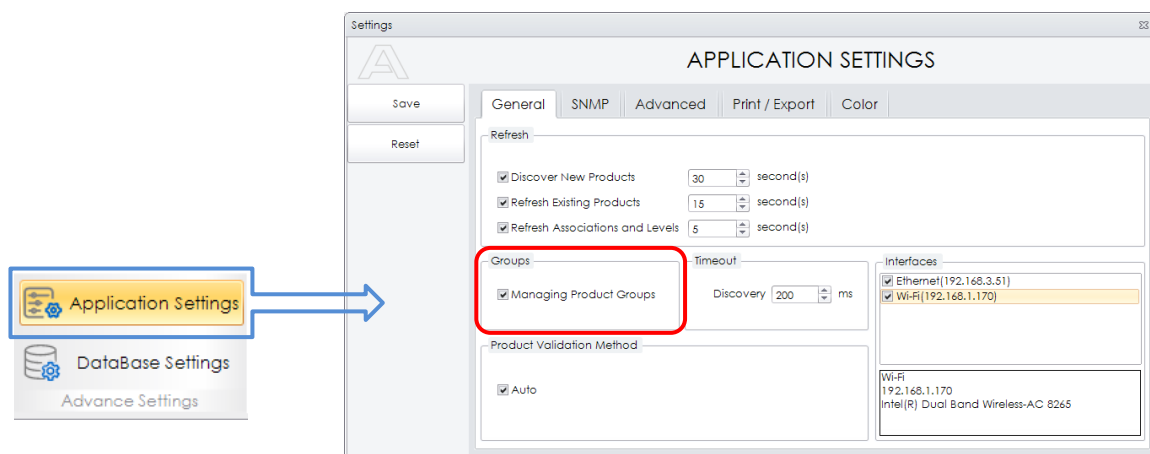
4.4. Group/Zone tab

It 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.

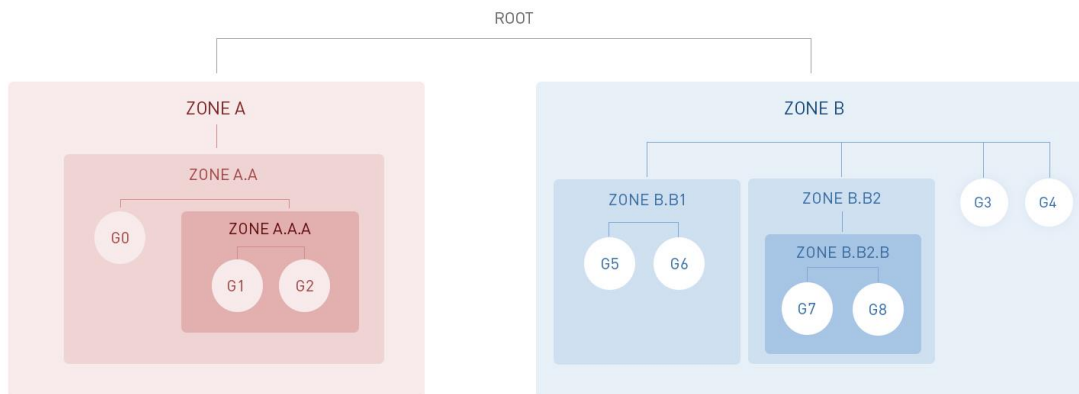


This tab **is not available by default**. The group management has to be enabled in the “Application Settings”. (see *General*).



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 a new group or zone

To create a new group or zone:

1. Click on **“Add New Group”** or **“Add New Zone”**



Create new group

A group allows to classify and reference the products in an infrastructure.

Enter the new group name:

Enter the group description: (optional)

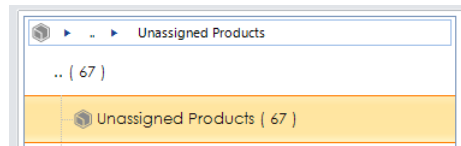
After the group is created, you'll be able to add the products to it by "manage group/zone".

OK

Cancel

2. Enter the name of the group (e. g. G0).
3. Enter the group description.
4. Click on “**OK**” to confirm.

WaveManager will then display the group or zone (empty). Click on “*Unassigned Products*” to return to the main product list.



By making a right-click on a group or a zone name, you can edit, rename or delete it from the context menu.

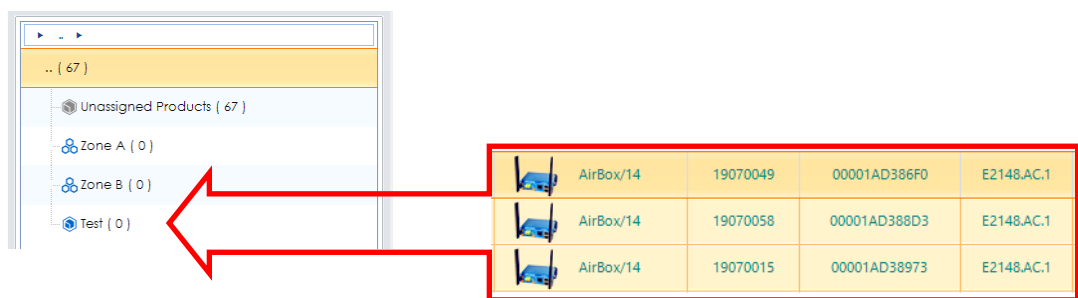
Managing a group

To manage a group by drag and drop:

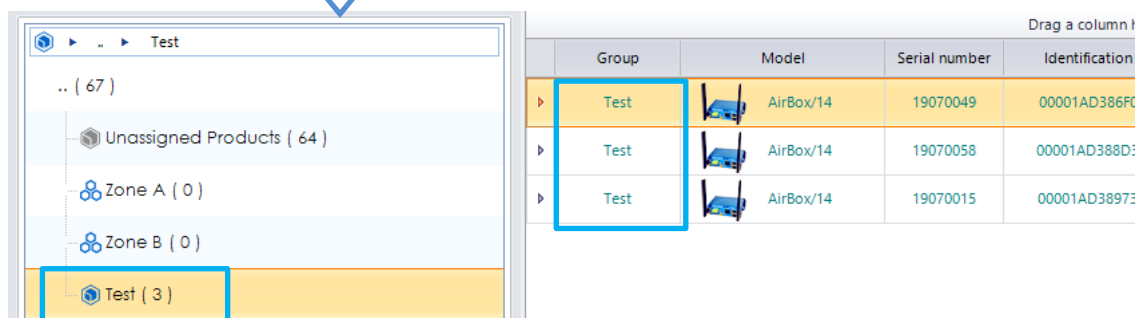
1. Select several products (shift or ctrl) from the main list
2. Drag them into the desired group



Keep the “shift” or “ctrl” key as well as the mouse key pressed until the products are moved into the group

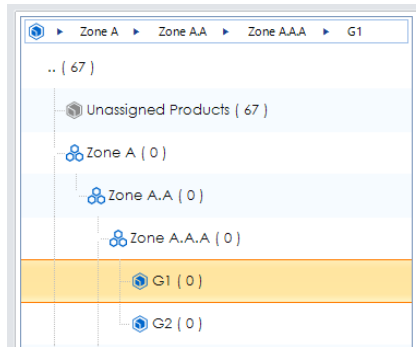


The change of management is automatically taken into account

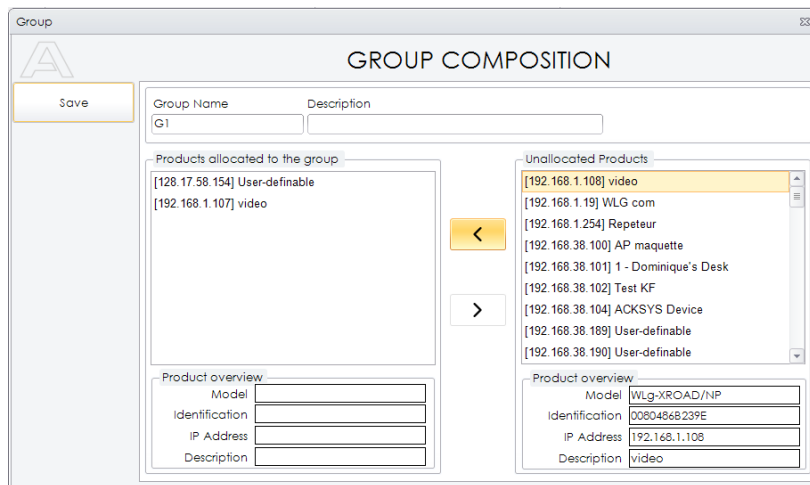


To manage a group from the group composition window:

1. Select the group in the Group/Zone Explorer:



2. Then Click on “**Manage Group/Zone**” in the toolbar or right-click > Manage Group/Zone.
3. To add a product to a group, select it from the “Unallocated Products” list and click on the “<” button or double click on the selected product.
4. Likewise, to remove a product from a group, select it from the product list in the group and click on the “>” button or double-click on the selected product.



You can move a group from the Group/Zone Explorer by dragging and dropping it onto the name of the requested zone.

Managing a zone

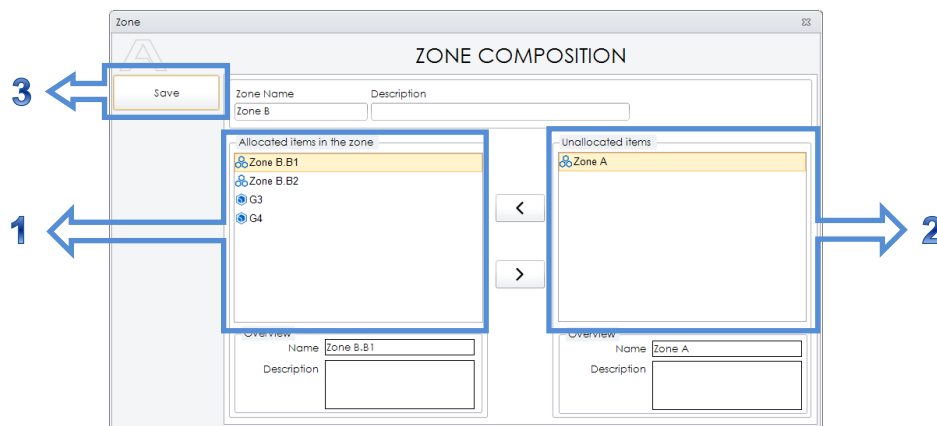
To move a zone from the Group/Zone Explorer:

1. Select a zone in the Group/Zone Explorer.
2. Drag and drop it onto another zone.

To move a zone from the Zone Managing window:

1. Select a zone in the Group/Zone Explorer.
2. Then click on “**Manage Group/Zone**” in the toolbar or right-click > Manage Group/Zone.
3. The Unallocated items list will only display the elements located at the **root of the tree structure** while the list of the elements assigned to the zone will show the elements included in the zone **without their sub-elements**.

Example: Managing Zone B.



1. The items allocated to Zone B appear without their sub-items.
2. The only available item at the root, Zone A, appears.
3. “**Save**” button to confirm changes.



By moving an allocated item into the unallocated items list, that item will end up at the root of the tree structure.

Selecting products from a zone or group

To select all products assigned to a zone or group:

1. Click on a desired zone.
2. Then click on “**Select All Products**” in the toolbar or right-click > **Select All Products**.

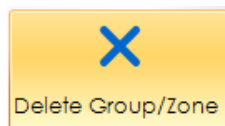


3. All the products assigned to the zone or group will be selected.

Deleting a group or zone

To delete a zone or group:

1. Select the group or zone to be deleted.
2. Click on “**Delete Group/Zone**” or right-click > **Delete**.



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.

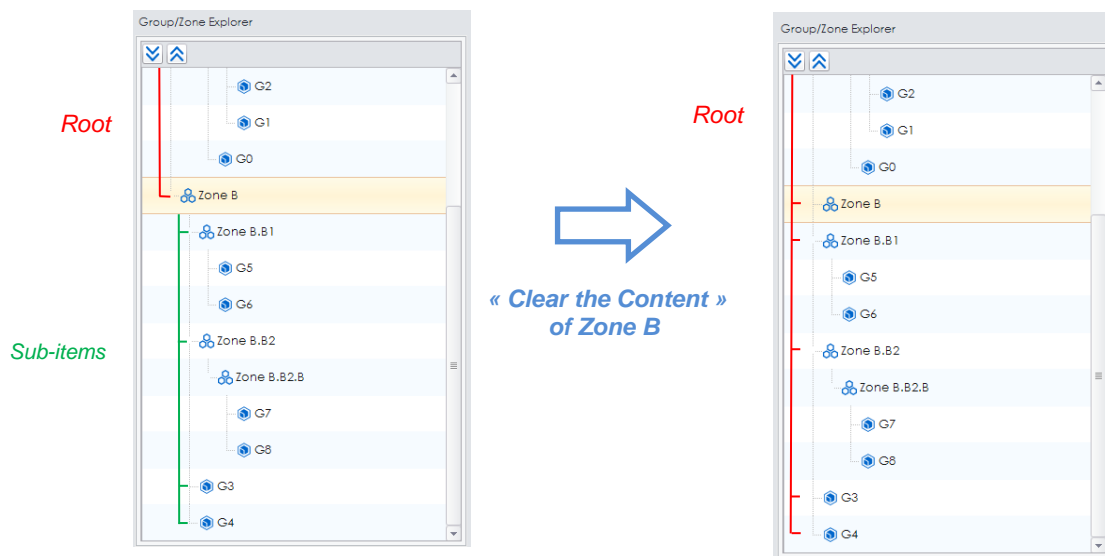
To remove elements allocated to a zone:

1. Select a desired zone.
2. Click on “**Clear The content**” in the toolbar or right-click > Clear the content



3. The removed elements of the zone will end up at the root of the tree structure.

Example: By clearing the content of Zone B, all its included items will be moved to the root while keeping their related sub hierarchies.

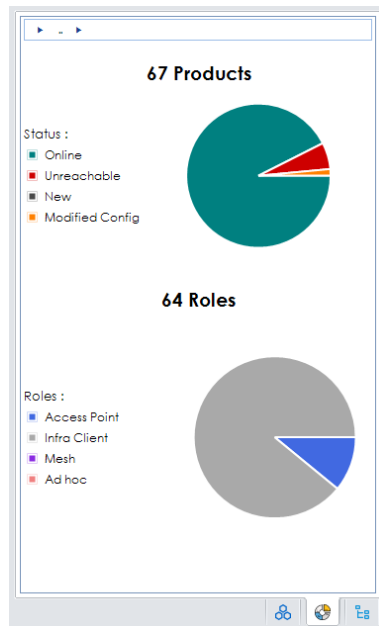


5. PRODUCT INVENTORIES

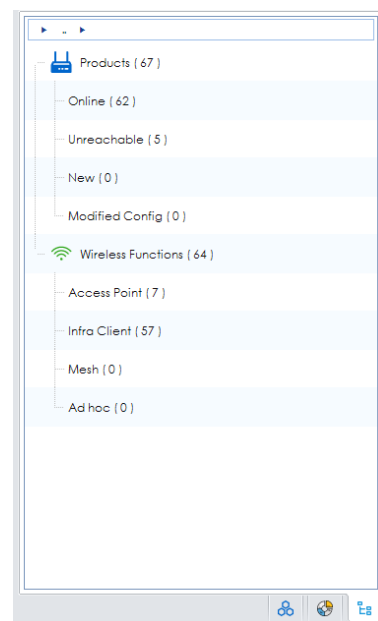
There are two display modes available for inventories, chart and tree view.

Inventories provide a synthetic overview of products and roles. The result is immediate visibility on the network status and the opportunity to view the list in two display modes.

Chart display



Tree view display



To switch from one view to another, click on one of the three icons at the bottom of the inventory, the first one being the Group/Zone Explorer.



5.1. Inventory status details

There are five statuses:

1. New

It refers to a product that has never been detected by WaveManager and needs to be “validated”. A product can be validated as soon as it is detected automatically or manually (*see. Application Settings*). If a new product is no longer detected by WaveManager, it will be removed from the database.



It is important to note that its configuration is validated at the same time.

2. Online

It refers to a validated product that responds to WaveManager queries.

3. Unreachable

It refers to a product that has been online and has not responded to WaveManager last query.

4. Modified Config.

It refers to an online (validated) product that has changed its configuration since its last validation.

When the product changes to the Modified config status, the new configuration must be manually validated by right clicking on the product (Validate configuration) or by clicking on the “**Validate**” button in the toolbar.

5. IP Conflict

It refers to a product that has an IP address already used by another one.



Products with *IP conflict* status must be deleted or refresh **manually** by the user as soon as the conflict is fixed.

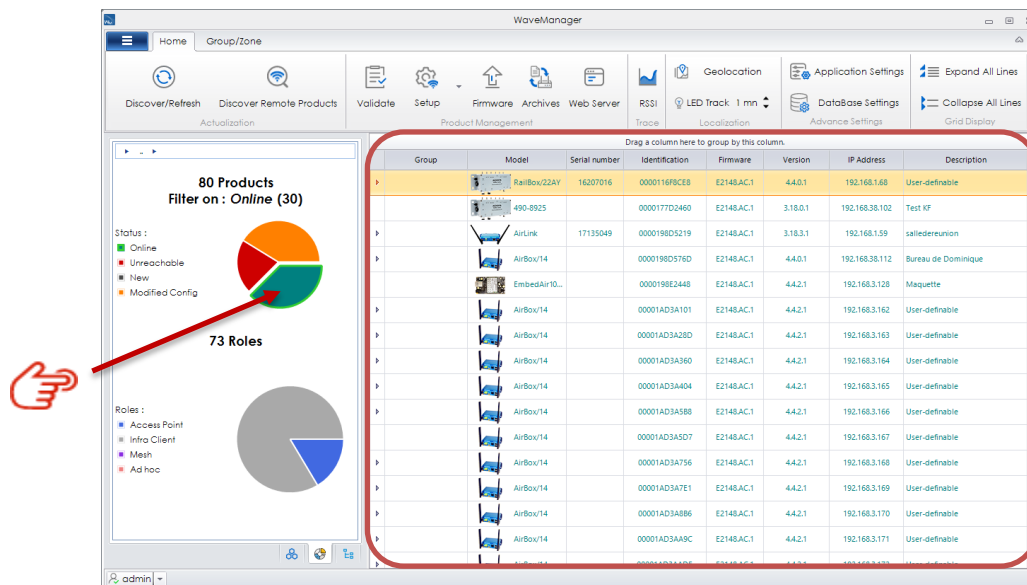
6. PRODUCT DISPLAY

The dashboard displays products according to the filtering performed in terms of the inventory and/or the Group/Zone Explorer.

Filtered Product display according to the inventory

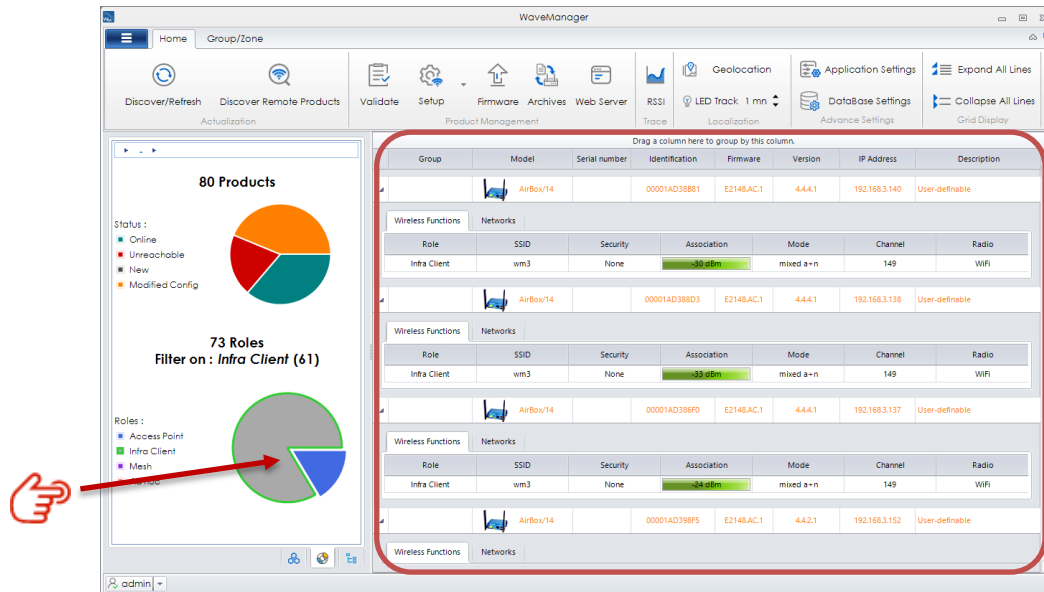
1st example:

If you wish to display **online** products, click on the **corresponding portion** (green part) of the graphical inventory. The dashboard will then display the matching products.



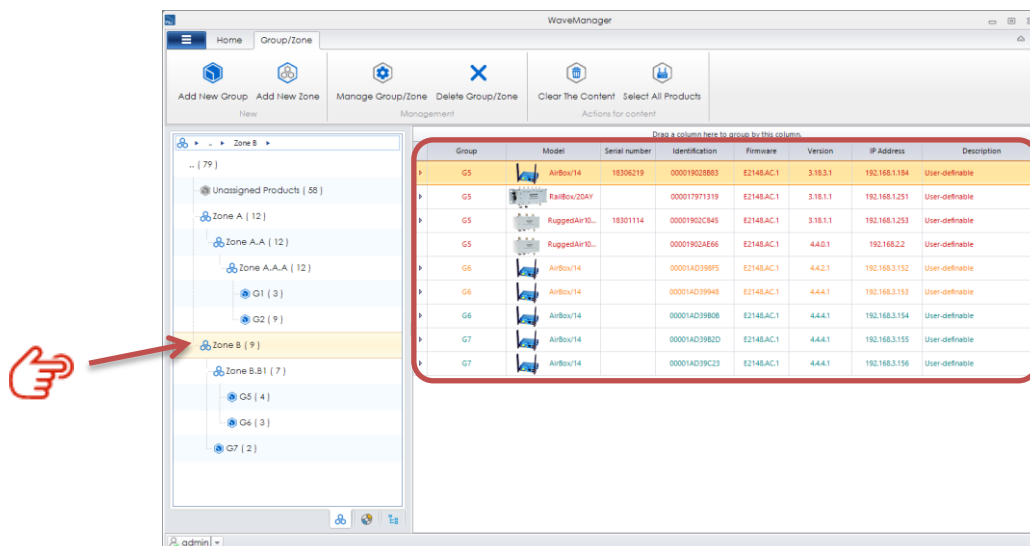
2nd example:

If you wish to display products configured as **Infra Client**, click on the **corresponding portion** (grey part) in the graphical inventory. The dashboard will then display the matching products.



Filtered product display according to Groups/Zones

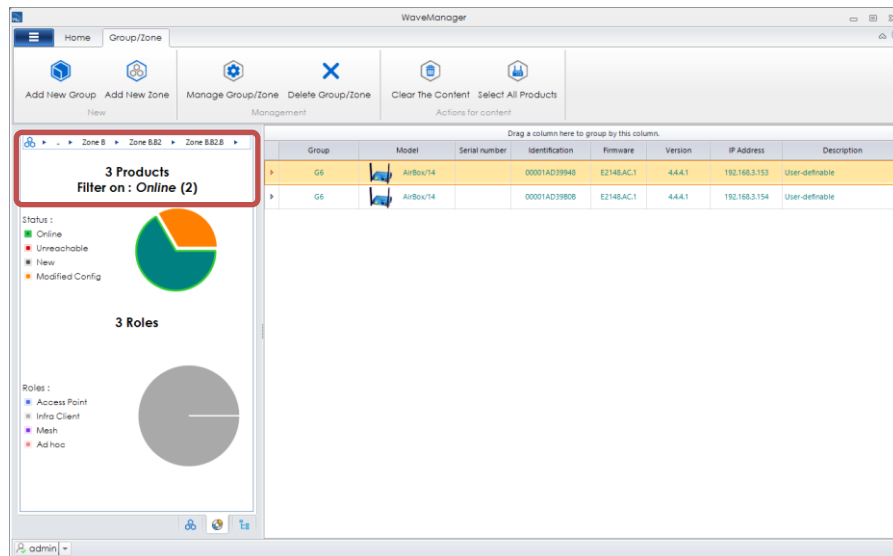
If you wish to display products assigned to a **Group/Zone**, click on the **corresponding group or zone** (Zone B here) in the “Group/Zone Explorer”. The dashboard will then display the matching products.



Filtered product display according to the inventory and the groups/zones

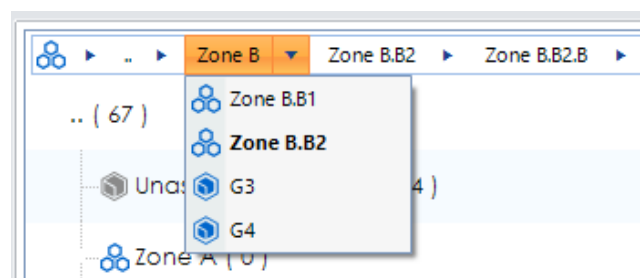
If you wish to display products assigned to a **zone or group** according to the **inventory**:

1. Click on the desired group in the Group/Zone Explorer (Zone B.B2.B here).
2. Switch to one of the two inventory display modes (chart display here).
3. Click on the desired portion of the graphical inventory (orange part here).



The path navigator including the parent zones to B.B2.B (Zone B.B2 and Zone B) will be displayed above the inventory as selectors.

You can select other zones or groups to show from these selectors:



6.1. Product list

The product list can be organized according to several criteria:

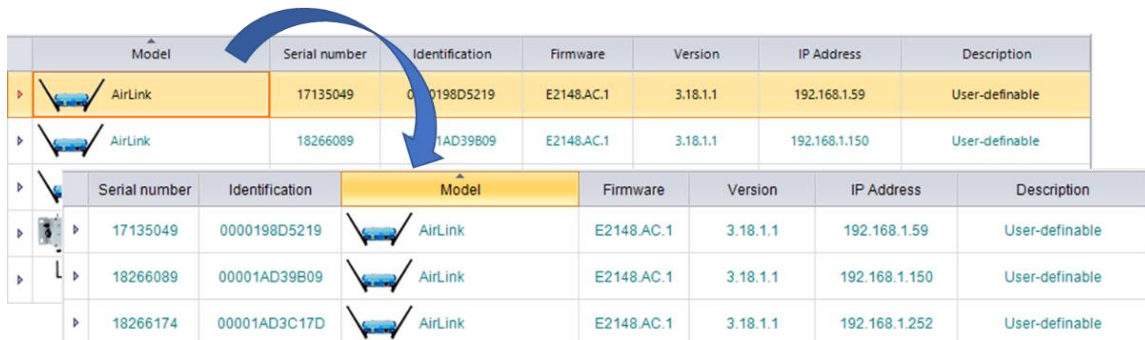
- ✓ Choice of columns to display
- ✓ Order of display of columns
- ✓ Sorting up or down on a given column
- ✓ Product classification by dragging and dropping the header of the column you wish

By clicking on the column header, you can update the list sorting order:

- One click for increasing sorting
- A second click for descending sorting
- One last click to cancel the sorting

6.2. Column modularity

The order of display of the columns is customizable according to your preferences by dragging a column header to the right or left.

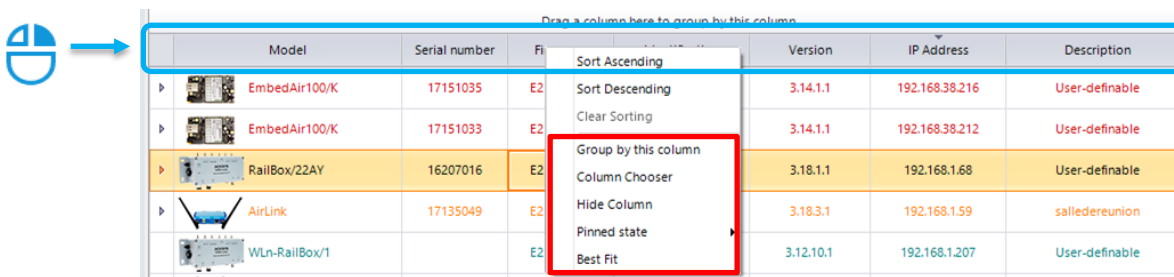


Model	Serial number	Identification	Firmware	Version	IP Address	Description
AirLink	17135049	0000198D5219	E2148.AC.1	3.18.1.1	192.168.1.59	User-definable
AirLink	18266089	00001AD39B09	E2148.AC.1	3.18.1.1	192.168.1.150	User-definable

Serial number	Identification	Model	Firmware	Version	IP Address	Description
17135049	0000198D5219	AirLink	E2148.AC.1	3.18.1.1	192.168.1.59	User-definable
18266089	00001AD39B09	AirLink	E2148.AC.1	3.18.1.1	192.168.1.150	User-definable
18266174	00001AD3C17D	AirLink	E2148.AC.1	3.18.1.1	192.168.1.252	User-definable

Customizing the column display

By right-clicking on a column header, you can bring up a context menu allowing you to customize their display:



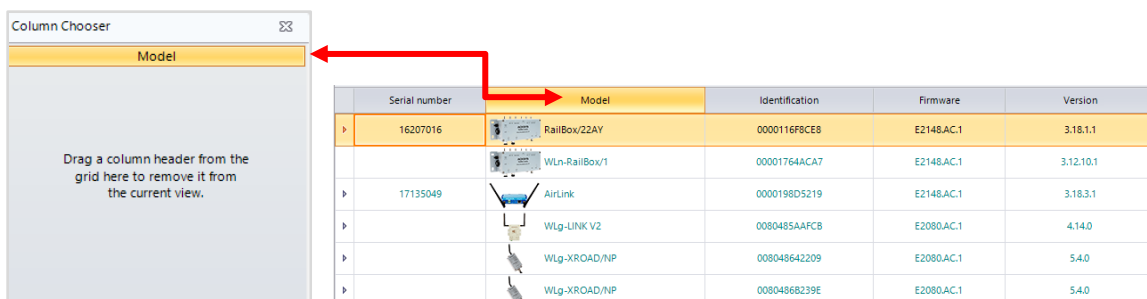
Model	Serial number	Firmware	Version	IP Address	Description
EmbedAir100/K	17151035	E2148.AC.1	3.14.1.1	192.168.38.216	User-definable
EmbedAir100/K	17151033	E2148.AC.1	3.14.1.1	192.168.38.212	User-definable
RailBox/22AY	16207016	E2148.AC.1	3.18.1.1	192.168.1.68	User-definable
AirLink	17135049	E2148.AC.1	3.18.3.1	192.168.1.59	salledereunion
WLn-RailBox/1		E2148.AC.1	3.12.10.1	192.168.1.207	User-definable

→ **“Group by this column”**: See “Group” display.

→ **Column Chooser**: allows you to hide or re-display one or several columns.

To hide a column: select it and drag and drop it into the column selector.

To display a column again: select the requested column in the selector and drag and drop it onto one of the column headers.



Column Chooser

Model

Drag a column header from the grid here to remove it from the current view.

Serial number	Model	Identification	Firmware	Version
16207016	RailBox/22AY	0000116F8CE8	E2148.AC.1	3.18.1.1
	WLn-RailBox/1	00001764ACA7	E2148.AC.1	3.12.10.1
17135049	AirLink	0000198D5219	E2148.AC.1	3.18.3.1
	WLn-LINK V2	0080485AFCB	E2080.AC.1	4.14.0
	WLn-XROAD/NP	008048642209	E2080.AC.1	5.4.0
	WLn-XROAD/NP	00804868239E	E2080.AC.1	5.4.0

→ **Hide Column:** This option allows you to hide a column. To cancel the action, use the column selector.

→ **Pinned state:** permits pinning a column to the left or right of the table.

To cancel the action, select the default value which is **Unpin Column**.

<input checked="" type="checkbox"/>	Unpin Column
<input type="checkbox"/>	Pin at left
<input type="checkbox"/>	Pin at right

→ **Best fit:** This option allows fitting the selected column width for optimal viewing of its cells.

Identification
0000116F8CE8
00001764ACA7
0000198D5219
0080485AAFCB
008048642209
0080486B239E

Column widths may also be set manually by:

- hovering over the separation of two column headers until the resizing cursor appears (↔)
- then by clicking and dragging the mouse to the right or left.

Double-clicking on a column header separation also acts as the “best fit” option (as described above) :

Serial number	Firmware
16207016	E2148.AC.1
	E2148.AC.1
17135049	E2148.AC.1
	E2080.AC.1
	E2080.AC.1
	E2080.AC.1

6.3. “Group” display

For an organized view, WaveManager makes it possible to classify products by column **except** with the **Serial number** and **Identifier** columns which are **unique**.

To achieve this, drag and drop a column header into the specific area at the top of the product list to group with it.



It is possible to create groups and display the product list according to these groups.

1st example: Product display according to the **Model**

Drag and drop the **Model** column into “Drag a column here to group by this column”

Model	Serial number
EmbedAir100/K	17151042
EmbedAir100/K	17151035
EmbedAir100/K	17151033
AirBox/14	
SAC.20.03.001	
RailBox/24A0	18022001
WLg-XROAD/N	
RailBox/22AY	16207016
AirLink	17135049

Group by: **Model**

Serial number	Firmware
Model: AirBox/14	
Model: AirLink	
Model: EmbedAir100/K	
Model: RailBox/22AY	
Model: RailBox/24A0	
Model: SAC.20.03.001	
Model: WLg-LINK V2	
Model: WLg-XROAD/N	
Model: WLg-XROAD/NP	
Model: WLn-RailBox/1	

2nd example: Product classification according to **several** columns:

→ Sorted classification

1. Click on a column of your choice; in this example, it is still the **Model** column
2. Drag and drop the column into “Drag a column here to group by this column”
3. Click on another column of your choice; in this case, it is the **Firmware** column
4. Drag and drop it to the right of the **Model** classification

The product list will be firstly classified by the models and then by the matching firmware:

Group by: Model x Firmware x

	Serial number	Identification
Model: AirBox/14		
Firmware: E2148.AC.1		
		0000198D576D
Model: AirLink		
Model: EmbedAir100/K		
Model: RailBox/22AY		
Model: RailBox/24A0		

→ *Combined classification*

To display product models and their firmware all at once, drag and drop the Firmware column, **into the same spot** as the Model column.

The product model and firmware are then displayed at the same level:

Group by: Model x Firmware x

	Identification	Serial number	Version	Firmware
Model: AirLink				
Model: RailBox/22AY				
Model: WLg-LINK V2				
Model: WLg-XROAD/NP				
Model: WLn-RailBox/1				

Group by: Model x Firmware x

	Identification	Serial number	Version
Model, Firmware: AirLink,E2148.AC.1			
Model, Firmware: RailBox/22AY,E2148.AC.1			
Model, Firmware: WLg-LINK V2,E2080.AC.1			
Model, Firmware: WLg-XROAD/NP,E2080.AC.1			
Model, Firmware: WLn-RailBox/1,E2148.AC.1			

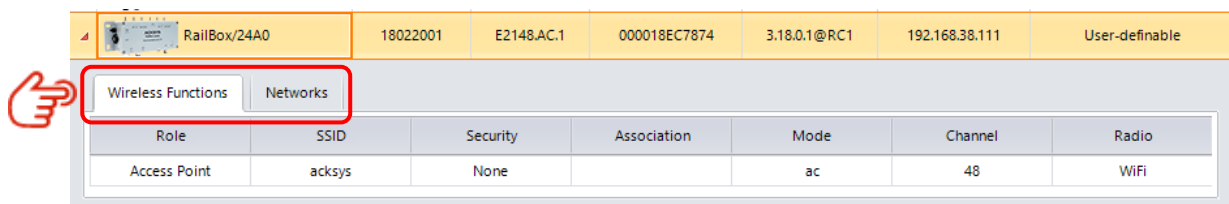
6.4. Hierarchical display

For a detailed view of a product in the list, click on the left corner arrow of the selected product line. A second click will hide the view.

Example:

Click on the left corner arrow of the *RailBox/24A0* line. Two tabs are then available:

- ✓ The **Wireless Functions** tab lists all Wi-Fi roles
- ✓ The **Networks** tab lists all networks



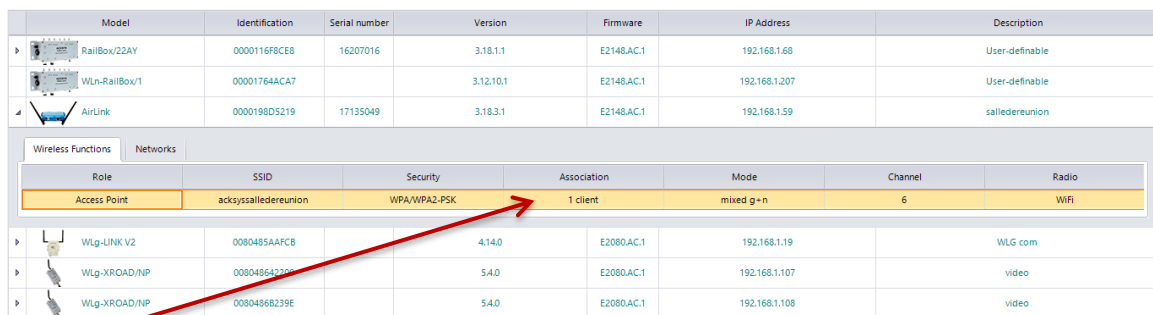
	RailBox/24A0	18022001	E2148.AC.1	000018EC7874	3.18.0.1@RC1	192.168.38.111	User-definable
<div>Wireless Functions Networks</div>							
Role	SSID	Security	Association	Mode	Channel	Radio	
Access Point	acksys	None		ac	48	WiFi	

To display clients associated with an access point (or to view a mesh point neighbors), double-click on the line of the selected access point.



By double-clicking on the line of an infra client (or *ad-hoc*), the real time RSSI monitoring will be activated (see *Trace*).

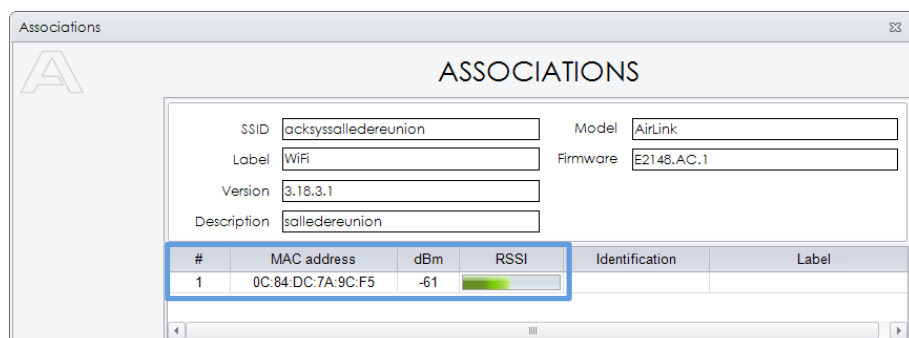
The screenshot shows clients associated with the selected access point:



Model	Identification	Serial number	Version	Firmware	IP Address	Description
	RailBox/22AY	0000116F8CE8	16207016	3.18.1.1	E2148.AC.1	192.168.1.68 User-definable
	WLn-RailBox/1	00001764ACA7		3.12.10.1	E2148.AC.1	192.168.1.207 User-definable
	AirLink	0000198D5219	17135049	3.18.3.1	E2148.AC.1	192.168.1.59 salledereunion

Wireless Functions Networks							
Role	SSID	Security	Association	Mode	Channel	Radio	
Access Point	acksysalledereunion	WPA/WPA2-PSK	1 client	mixed g+n	6	WiFi	

	WLG-LINK V2	0080485AFCB		4.14.0	E2080.AC.1	192.168.1.19	WLG com
	WLG-XROAD/1P	00804864239E		5.4.0	E2080.AC.1	192.168.1.107	video
	WLG-XROAD/1P	00804868239E		5.4.0	E2080.AC.1	192.168.1.108	video



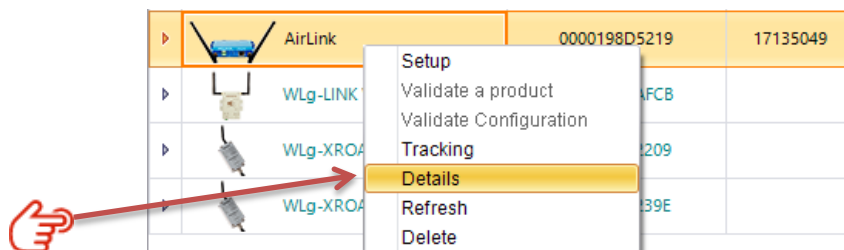
ASSOCIATIONS							
SSID		acksysalledereunion		Model		AirLink	
Label		WiFi		Firmware		E2148.AC.1	
Version		3.18.3.1		Description		salledereunion	
#	MAC address	dBm	RSSI	Identification	Label		
1	0C:84:DC:7A:9C:F5	-61					

6.5. Product details

View product details

There are two ways to access the **Product Details** window:

1. Right-click on the selected product then click on **Details** in the menu that appears.



2. Double-click on the line of the selected product.

Some details are accessible by hovering the cursor over the **IP Address** or **Description** cell of the selected product.

Example:

1. The RailBox product has been selected from the list.
2. By hovering the cursor over its "Description" or "IP Address" cell, WaveManager displays pop-up tip information:

Model	Identification	Serial number	Version	Firmware	IP Address	Description
RailBox/22AY	0000116F8CE8	16207016	3.18.1.1	E2148.AC.1	192.168.1.68	User-definable
WLn-RailBox/1	00001764ACA7		3.12.10.1	E2148.AC.1	192.168.1.1	User-definable (SN.16207016) is a RailBox/22AY IP Address : 192.168.1.68 Last connexion : 6/3/2019 2:58:42 PM Discovery date : 6/3/2019 2:11:48 PM
AirLink	0000198D5219	17135049	3.18.3.1	E2148.AC.1	192.168.1.19	• WiFi 1 (04-F0-21-22-9838) - Enable • WiFi 2 (04-F0-21-22-9826) - Enable • LAN 1 (00-09-90-00-620C) - Up • LAN 2 (00-09-90-00-620C) - Down
WLg-LINK V2	0080485AAPCB		4.14.0	E2080.AC.1	192.168.1.107	video
WLg-XROAD/NP	008048642209		5.4.0	E2080.AC.1	192.168.1.107	video
WLg-XROAD/NP	00804868239E		5.4.0	E2080.AC.1	192.168.1.108	video

Model	Identification	Serial number	Version	Firmware	IP Address	Description
RailBox/22AY	0000116F8CE8	16207016	3.18.1.1	E2148.AC.1	192.168.1.68	User-definable
WLn-RailBox/1	00001764ACA7		3.12.10.1	E2148.AC.1	192.168.1.1	User-definable
AirLink	0000198D5219	17135049	3.18.3.1	E2148.AC.1	192.168.1.19	IP : 192.168.1.68 Mask : 255.255.255.0 Gateway : 0.0.0.0 Network List • LAN (Static IP : 192.168.1.68 Mask : 255.255.255.0) - Enable
WLg-LINK V2	0080485AAPCB		4.14.0	E2080.AC.1	192.168.1.107	WLg com
WLg-XROAD/NP	008048642209		5.4.0	E2080.AC.1	192.168.1.107	video
WLg-XROAD/NP	00804868239E		5.4.0	E2080.AC.1	192.168.1.108	video

Product details window

The **Product details** window has three sections:

PRODUCT DETAILS

3 ← (Sidebar menu: Geolocation, Log, Configuration File, Signal Trace, Associations)

1 → (Product section)

2 → (Elements section)

Product section details:

- Product: **AirBox/14**, S/N 19070049
- Discovery date: Wednesday, December 18, 2019 - 2:34:...
- Last connection: Wednesday, December 18, 2019 - 3:26:...
- IP Address: 192.168.3.137, Mask: 255.255.255.0, Gateway: 192.168.3.1, Group: Test
- Identification: 00001AD386F0, Firmware: E2148.AC.1, Version: 4.4.2.1
- Description: User-definable
- Latitude: , Longitude:
- Buttons: Validate Product, Validate Configuration, ☒ Discovery Agent, ☒ SNMP Agent, Tracking (●), Ping, Web Server

Elements section details:

Physical Interfaces | Network Interfaces

#	Type	Label	MAC address	Status
1	WIFI	WiFi	00:09:90:01:4E-AA	Enable
2	CELLULAR	Cellular		Disable
3	GNSS			Enable
4	LAN	LAN1	00:09:90:01:4E-AB	Down
5	LAN	LAN2	00:09:90:01:4E-AC	Up

Roles/Details

#	SSID	BSSID	Role	Security	Mode	Channel	Association
1	wm3	04:F0:21:22:90:93	Infra Client	None	mixed a+n	149	-35 dBm

1. The “Product” section which includes:

Product

AirBox/14, S/N 19070049

Discovery date: Wednesday, December 18, 2019 - 2:34:...

Last connection: Wednesday, December 18, 2019 - 3:30:...

IP Address: 192.168.3.137, Mask: 255.255.255.0, Gateway: 192.168.3.1, Group: Test

Identification: 00001AD386F0, Firmware: E2148.AC.1, Version: 4.4.2.1

Description: User-definable

Latitude: , Longitude:

Buttons: Validate Product, Validate Configuration, ☒ Discovery Agent, ☒ SNMP Agent, Tracking (●), Ping, Web Server

- ✓ The product picture;
- ✓ The product model name and its serial number;
- ✓ The discovery date of the product and the time of its last appearance;
- ✓ The IP addressing (address, subnet mask and gateway);
- ✓ The location information;
- ✓ The firmware ID and version;
- ✓ Two fields indicating whether the discovery service and SNMP are available.

- The **Validate Product** button is active if the product is “New”. To validate a new product, click on that button.
- The **Validate Configuration** button is active when the product has the “Modified Config” status. To validate the configuration, click on that button.
- The **Tracking** button triggers the product diagnostic LED flash to spot it. A second click on the button will stop the flashing (see *LED Tracking*).

- The **Ping** button tests the product accessibility by sending it a request in which a response is expected.
- The last button, **Web Interface**, allows accessing a product web interface if it is reachable with the *HTTP* protocol.

2. “Elements” section:

→ Physical Interfaces tab:

This tab lists the physical LAN (Ethernet) and Wi-Fi (radio) interfaces of the product.

The screenshot shows the 'Elements' section of the WaveManager interface. It contains two tabs: 'Physical Interfaces' and 'Network Interfaces'. The 'Physical Interfaces' tab is active, displaying a table with columns: #, Type, Label, MAC address, and Status. Below it is the 'Roles/Details' tab, which is currently empty. Blue arrows point to specific rows in both tables, labeled 1 and 2.

#	Type	Label	MAC address	Status
1	WIFI	WIFI	00:09:90:01:4E:AA	Enable
2	CELLULAR	Cellular		Disable
3	GNSS			Enable
4	LAN	LAN1	00:09:90:01:4E:AB	Down
5	LAN	LAN2	00:09:90:01:4E:AC	Up

#	SSID	BSSID	Role	Security	Mode	Channel	Association
1	wm3	04:F0:21:22:90:93	Infra Client	None	mixed a+n	149	-36 dBm

1. By selecting one line, WaveManager will show the list of roles configured as Wi-Fi or LAN interface.
2. The list should appear below in **Roles/Details**

→ Network Interfaces tab

It provides a list of IP network interfaces configured on the product.

The screenshot shows the 'Elements' section of the WaveManager interface. It contains two tabs: 'Physical Interfaces' and 'Network Interfaces'. The 'Network Interfaces' tab is active, displaying a table with columns: #, Label, Mode, IP Address, Subnet Mask, Status, and MAC address. Below it is the 'Roles/Details' tab, which is currently empty.

#	Label	Mode	IP Address	Subnet Mask	Status	MAC address
1	lan	Static	192.168.2.100	255.255.255.0	Enable	00:09:90:01:4E:AB
2	LAN2	Static	192.168.3.137	255.255.255.0	Enable	00:09:90:01:4E:AA

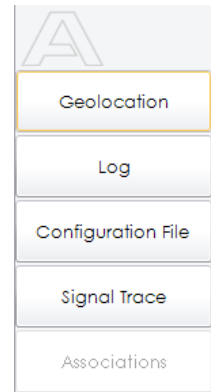
Index	Name	Status	MAC Address
1	LAN1	Down	00:09:90:01:4E:AB
2	LAN2	Up	00:09:90:01:4E:AC

By selecting one line, WaveManager will show the list of LAN or WLAN roles, granting access to that IP interface. The list appears below in **Roles/Details**.

3. Product details menu

It gives access to:

- **Location**, to find a product via its GPS coordinates (see *Geolocation*).
- **Log**, to consult all the changes made according to the date.
- **Configuration file**, to import or export the whole product configuration (see *Archives button*).
- **Signal Trace**, to display the RSSI trace of the product (see *Trac*).
- **Associations**, to display, for product in access point mode, the details of associated clients.



Product Log

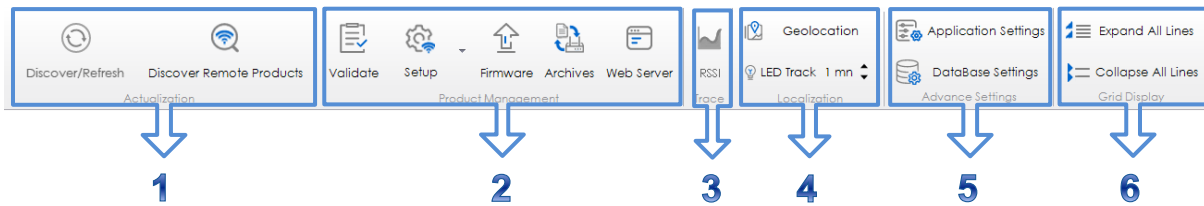
This screen displays all the operations performed on the product since its discovery.

However, the time range may vary according to the value selected in: *Database > Compact section > Log file*.

PRODUCT LOG			
MAC Address	00001AD3C17D	Model	AirLink
IP Address	192.168.1.252	Firmware	E2148 AC.1
Identification	00001AD3C17D	Description	User-definable
Version			3.18.1.1
Date	User	Type	Description
4/26/2019 3:13:53 PM	admin	Config	REACHABLE PRODUCT
4/26/2019 3:13:39 PM	admin	Config	UNREACHABLE PRODUCT
4/26/2019 2:01:41 PM	admin	Config	REACHABLE PRODUCT
4/26/2019 2:01:28 PM	admin	Config	UNREACHABLE PRODUCT
4/26/2019 12:30:47 PM	admin	Config	REACHABLE PRODUCT
4/26/2019 12:30:47 PM	admin	Config	REACHABLE PRODUCT
4/26/2019 12:25:38 PM	admin	Config	UNREACHABLE PRODUCT
4/26/2019 12:22:51 PM	admin	Config	REACHABLE PRODUCT
4/26/2019 12:21:38 PM	admin	Config	UNREACHABLE PRODUCT
4/26/2019 12:06:10 PM	admin	Config	REACHABLE PRODUCT
4/26/2019 12:06:08 PM	admin	Config	REACHABLE PRODUCT
4/26/2019 10:58:14 AM	admin	Config	UNREACHABLE PRODUCT

7. THE TOOLBAR

The toolbar is divided into six very distinct parts:



1. Actualization: product research and refresh
2. Product management: Product integration and configuration
3. Trace: RSSI monitoring
4. Localization: GPS or local geolocation
5. Advanced Settings: WaveManager and its database settings
6. Grid Display: Options to change the product list display

7.1. Actualization

This part has two menus:

- Discover / Refresh
- Discover Remote Products

Discover/Refresh

This function allows to manually discover or refresh products in the inventory.



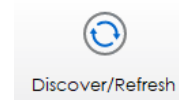
The refreshing delay of a product is editable in the application settings (see *Application Settings*).

Several cases:

1. If the product discovery and the refreshments are enabled:

Refresh		
<input checked="" type="checkbox"/> Discover New Products	30	second(s)
<input checked="" type="checkbox"/> Refresh Existing Products	15	second(s)
<input checked="" type="checkbox"/> Refresh Associations and Levels	5	second(s)

- WaveManager will propose to discover new products in the local network or to refresh the status of the products in the database.



2. If only the refreshments are enabled:

Refresh		
<input type="checkbox"/> Discover New Products	30	second(s)
<input checked="" type="checkbox"/> Refresh Existing Products	15	second(s)
<input checked="" type="checkbox"/> Refresh Associations and Levels	5	second(s)

- WaveManager will only propose to refresh the status of the products in the database



3. If only the product discovery is enabled:

→ WaveManager will only propose to discover new products in the local network.

Refresh

☒ Discover New Products

30

↑
↓

second(s)

☐ Refresh Existing Products

15

↑
↓

second(s)

☐ Refresh Associations and Levels

5

↑
↓

second(s)

Discover

4. If nothing is enabled:

→ WaveManager will neither propose the product discovery nor the product refreshment. The button will be disabled.

Refresh

☐ Discover New Products

30

↑
↓

second(s)

☐ Refresh Existing Products

15

↑
↓

second(s)

☐ Refresh Associations and Levels

5

↑
↓

second(s)

Discover/Refresh

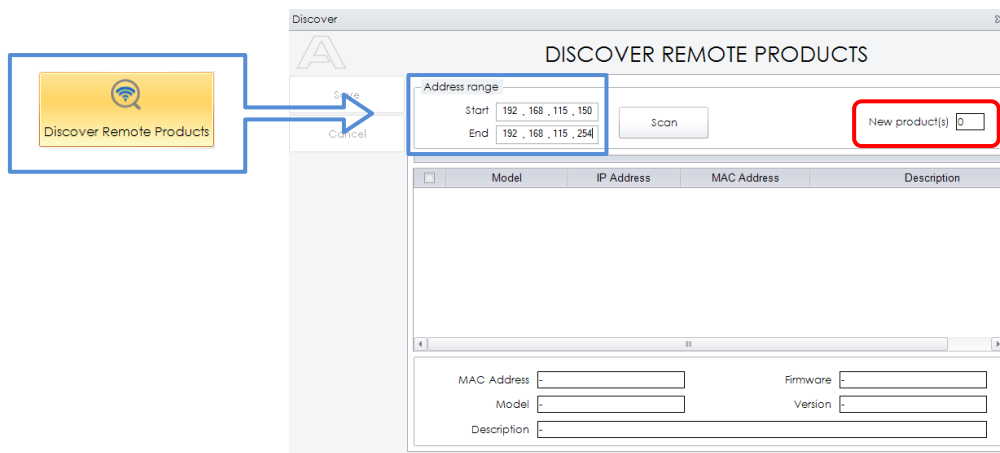


By clicking on the discovery/refreshment button, WaveManager will send a refresh request **immediately**, according to the specific case.

Discover Remote Products

This function allows detecting products manually. This mode should be used to detect products outside the local network.

It requires entering the range of IP addresses to scan.



WaveManager displays all the products found (except those already registered in the database (see *Database*)).

The search delay depends on the address range and the network topology.

At the end of the search, the “New products” counter indicates the number of products discovered in that address range.

→ To save the displayed products, select them and click on “**Save**”. Those products will be registered in the **database**.

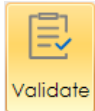


If you have several networks and/or IP address ranges to explore, repeat the operation for each case.

7.2. Product management

Validate button

This button validates the products detected in the database:

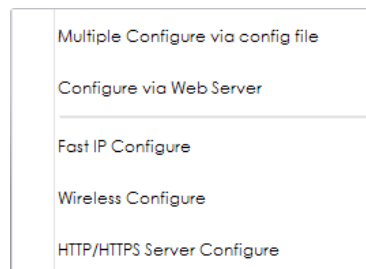


1. Select one or several products from the list
 2. Click on Validate
- You may also right-click on the selected product, then click on “**Validate product**” or “**Validate configuration**” in the context menu

Setup button

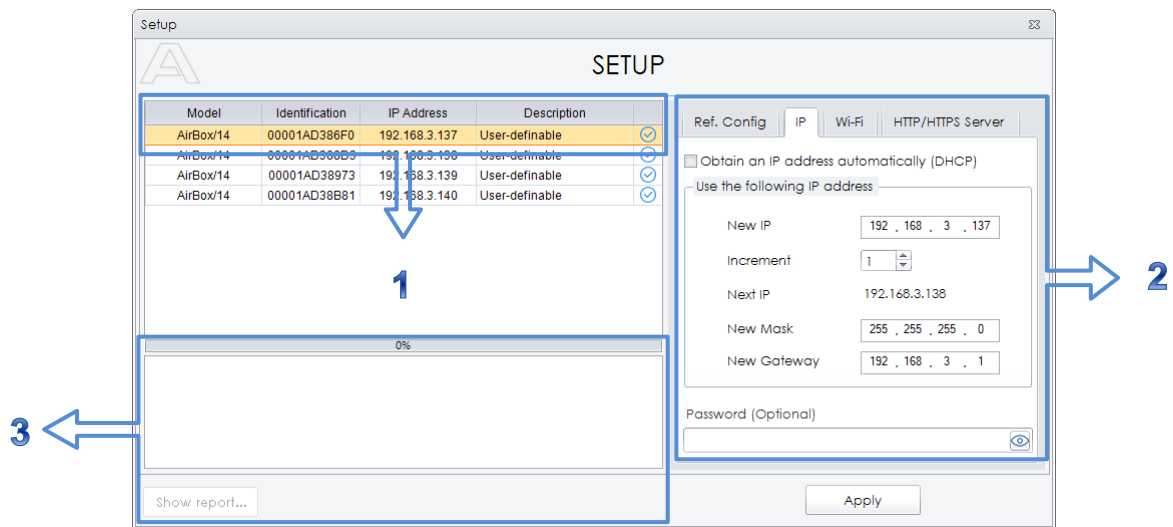
This option allows changing the settings of the selected product(s).

By clicking on this button, several options are available:

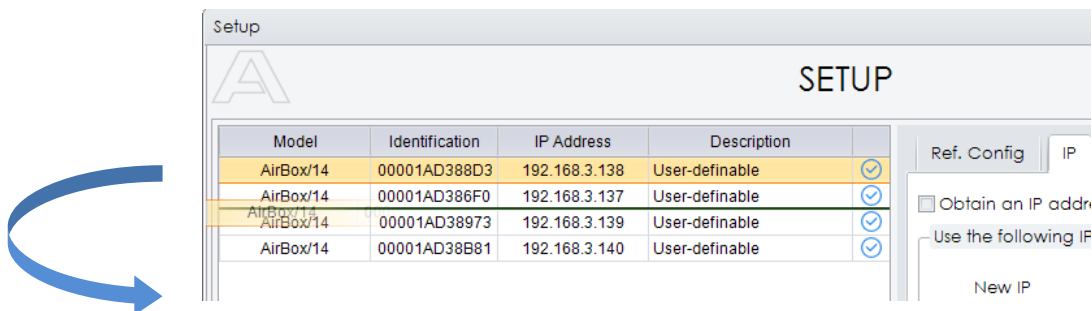


- “Multiple Configure via config file” allows to assign a reference configuration file to the products in the list;
- “Configure via Web Server” allows to access whole settings of the selected product in the web interface (see *Web server button*);
- The “Fast IP Configure”, “Wireless Configure” and “HTTP/HTTPS Server Configure” options give access to the corresponding tab in the “Setup” window.

The “Setup” Window is divided into 3 sections:



1. The top left section displays the inventory of the product(s) which the changes are being made. All the columns (Model, ID, IP address and description) are used to sort the products. You might organize the product list manually by dragging and dropping **if there is no existed sorting**.



An icon on the right of the list displays the status of the product to be edited. By hovering over it, a small information as tooltip will appear:

- ✓ Means the product is available and compatible with the operation to be performed.
- ⊛ Means the compatibility between the operation and the product cannot be verified yet the product may be affected by the operation.
- ⊗ Means the product is incompatible or unavailable. It will not be affected by the operation.
- ✓ Means the operation was successful.
- ✗ Means the operation was a failure.

2. The right section with the tabs allows managing the product configuration reference file and changing IP address, Wi-Fi and web server.

- Report about the operation result. To export and print all the operations performed results, click on the “**Show report...**” button:

Product ID	Type	Sched...	Predicted Date	Effective Date	Achie...	Status	Error
0000116EEA17	Configuration File	<input type="checkbox"/>	11/7/2019 4:27:26 PM	11/7/2019 4:27:26 PM	✓	✗	
0000116F8CE8	Configuration File	<input type="checkbox"/>	11/7/2019 4:27:26 PM	11/7/2019 4:27:26 PM	✓	✗	
0000196D17B4	Configuration File	<input type="checkbox"/>	11/7/2019 4:27:26 PM	11/7/2019 4:27:27 PM	✓	✗	
0000196D6219	Configuration File	<input type="checkbox"/>	11/7/2019 4:27:26 PM	11/7/2019 4:27:28 PM	✓	✓	
0000196D676D	Configuration File	<input type="checkbox"/>	11/7/2019 4:27:26 PM	11/7/2019 4:27:28 PM	✓	✗	
0000196C68B9	Configuration File	<input type="checkbox"/>	10/29/2019 4:27:47 ...	10/29/2019 4:27:48 ...	✓	✓	
0000196C29F8	Configuration File	<input type="checkbox"/>	10/29/2019 4:27:47 ...	10/29/2019 4:27:49 ...	✓	✓	
0000196D475F	Configuration File	<input type="checkbox"/>	10/29/2019 4:27:47 ...	10/29/2019 4:27:50 ...	✓	✓	



You cannot change all the products settings simultaneously; it has to be done product by product according to the list order.

“Ref. Config” tab:

This tab makes it possible to assign a reference configuration file to one or several products.

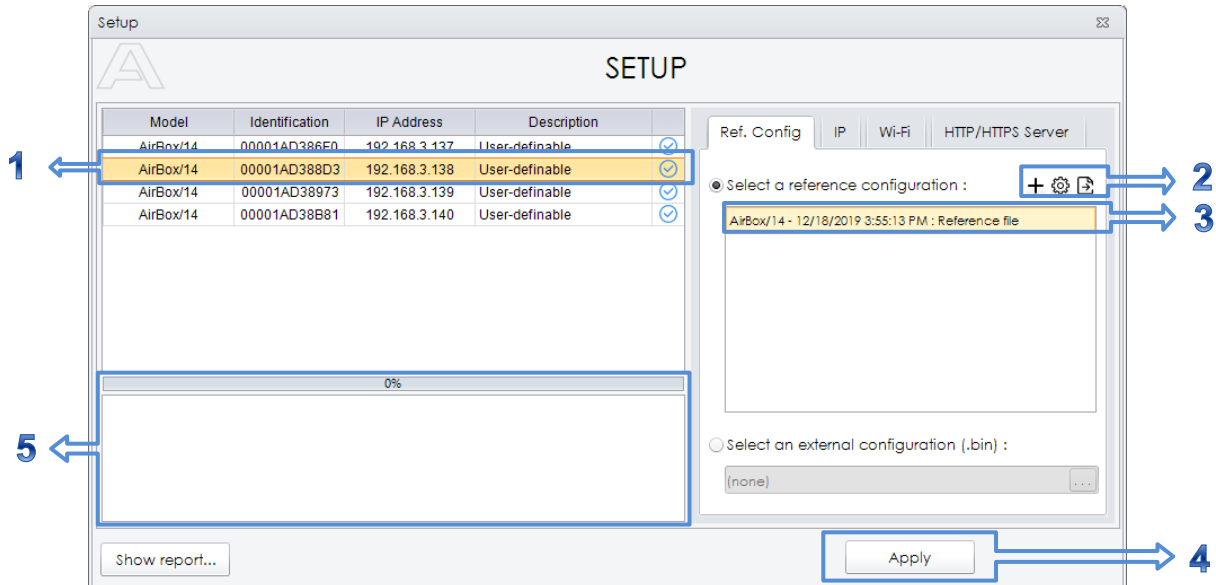
A reference configuration file is a file listing whole parameters of the reference product (of a given model).





The assignment of a reference configuration file only works on products of the same model.

→ **Assigning a configuration file from a product in the list:**

It is possible to generate a reference configuration file for a product in the list by using the current window or by using the “Archives” menu in the toolbar (see *Archives button*).



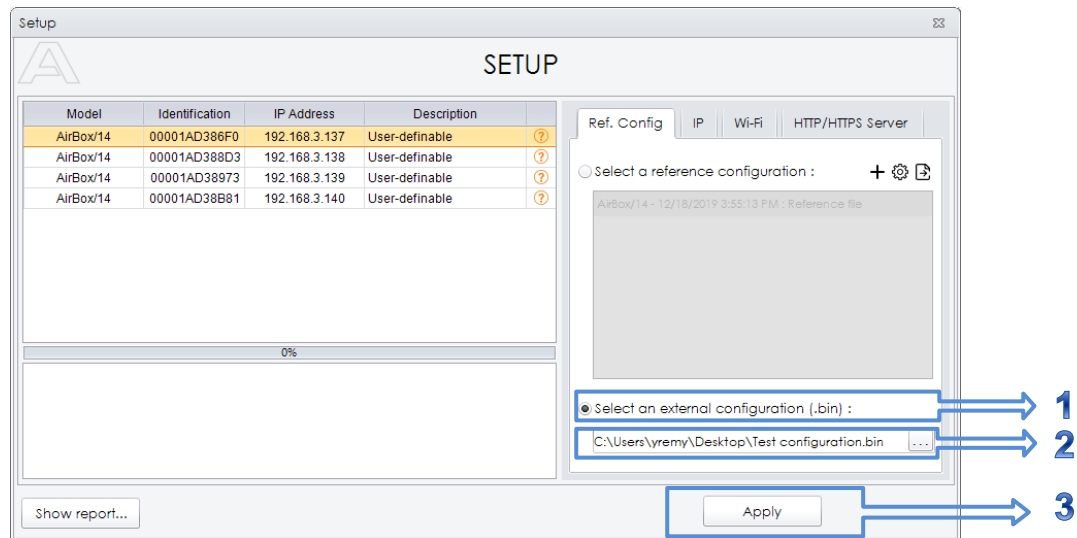
1. After selecting some products in the main interface and clicking on the “**Configure**” button > Multiple Configure via config file;
2. Click on the requested product then click on the  icon to generate its reference configuration file;

 Manage all the reference configuration files available (see *Archives button*).

 Export the reference configuration file selected in the list.

3. A reference configuration file is then generated. That file is also available in the product’s archives window (see *Archives button*). Generating various versions of a reference configuration file is also possible.
4. Click on “**Apply**” to assign the configuration to all products in the list.
5. The operation details will be displayed.

→ **Assigning a configuration from an external file:**



1. Choose “Select an external configuration (.bin)”.
2. Import the external configuration file.
3. Click on “**Apply**” to assign the imported configuration to all products in the list.



It is important to note that the reference configuration file to be assigned to the products should be set to **Automatic IP**. Otherwise, the products will end up in “IP conflict” (see “*IP*” tab below).

“IP” tab:

This tab allows changing the IP configuration of the selected devices.



IP configuration is only possible if the product discovery agent is enabled (see *Product details* window). **That feature only works on a local network.**

On this tab, you can:

- Enable or disable the automatic IP mode (DHCP);
- Set a new fixed IP (if DHCP disabled);
- Set a new subnet mask;
- Set the gateway address.

You can change the IP address for several products by specifying the address increment value.

If you have set a **Discover AGENT password** in the product web interface (see *Overview of the WEB interface below*), fill in the field “**Password**” to allow changes

→ Overview of the Web Interface:



In case of “IP Conflict”, the recommended IP setting is DHCP:

In the main interface, select the products concerned, then go to Configuration > Fast IP Configure.

Check the box “Obtain an IP address automatically”.

Save the changes.

Please note that a DHCP server must be available on the local network.



WaveManager is not a DHCP server, it only facilitates the IP configuration for the products to allow their integration into your infrastructure.

“Wi-Fi” tab

This tab allows changing the SSID, security mode and channel for the products in the left list.



A product may have **several roles** (and therefore several SSIDs and channels), it will be necessary to enter the values of *SSID* and *channel* to be changed in the “Old” field.

“HTTP/HTTPS Server” tab

In this tab, you can edit the web server configuration for the products in the list by:

- ✓ Adding an HTTPS certificate
- ✓ Disabling the default HTTP port
- ✓ Setting the HTTPS port

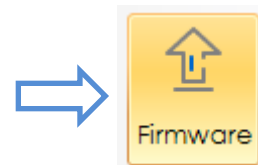
1. Upload of the HTTPS certificate from your machine
2. Additional settings

Firmware button

It updates the firmware for the selected products.

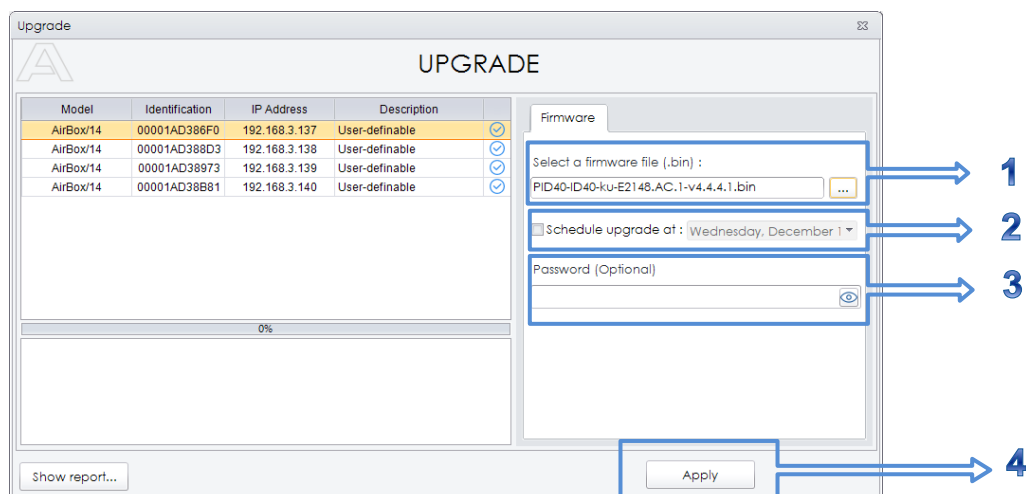
1. Select the product(s) with the “Ctrl or shift” key.
2. Click on **Firmware** or right-click > Update firmware.

Drag a column here to group by this column.						
	Model	Identification	Serial number	Version	Firmware	IP Address
>	RailBox/22AY	0000116F8CE8	16207016	3.18.1.1	E2148.AC.1	192.168.1.68
>	WLn-RailBox/1	00001764ACA7		3.12.10.1	E2148.AC.1	192.168.1.207
>	AirLink	0000198D5219	17135049	3.18.3.1	E2148.AC.1	192.168.1.59
>	WLG-LINK V2	0080485A AFCB		4.14.0	E2080.AC.1	192.168.1.19
>	WLG-XROAD/NP	008048642209		5.4.0	E2080.AC.1	192.168.1.107
>	WLG-XROAD/NP	00804868239E		5.4.0	E2080.AC.1	192.168.1.108



WaveManager partially supports WaveOS products with versions prior to the one specified in the **Information** tab.

It is strongly advised to update your WaveOS products to the last version of the firmware for the optimal support of whole WaveManager functionalities.



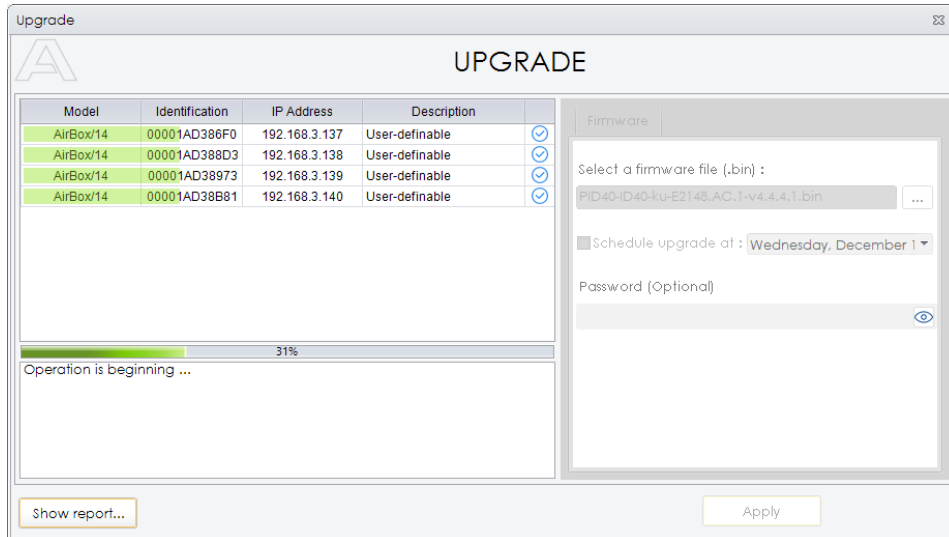
1. Upload the new firmware version from your computer.



WaveOS firmware is available for download at:

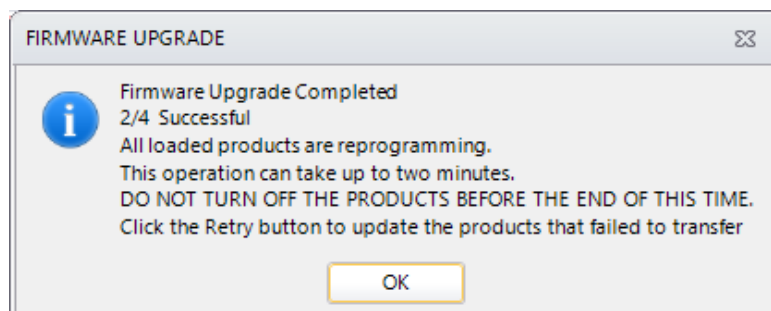
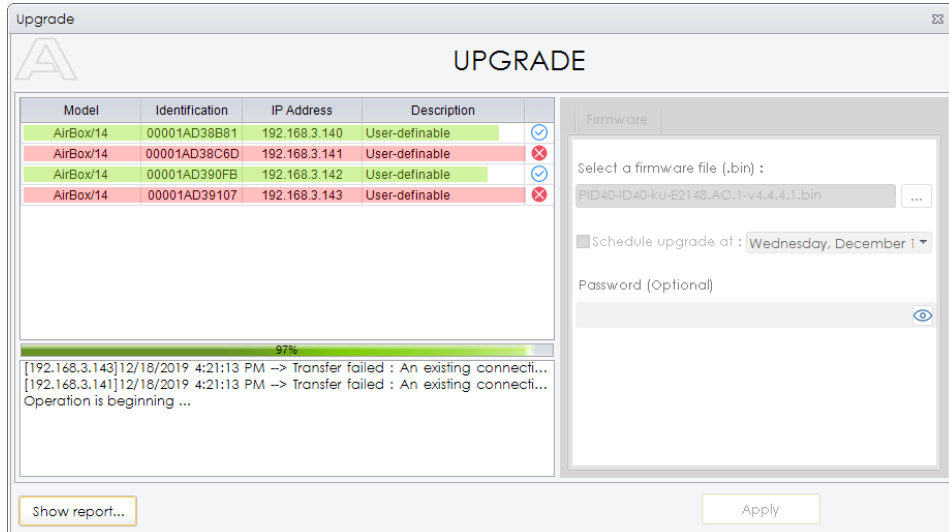
<https://www.acksys.fr/en/support/download-center/softwares-and-drivers-downloads/>

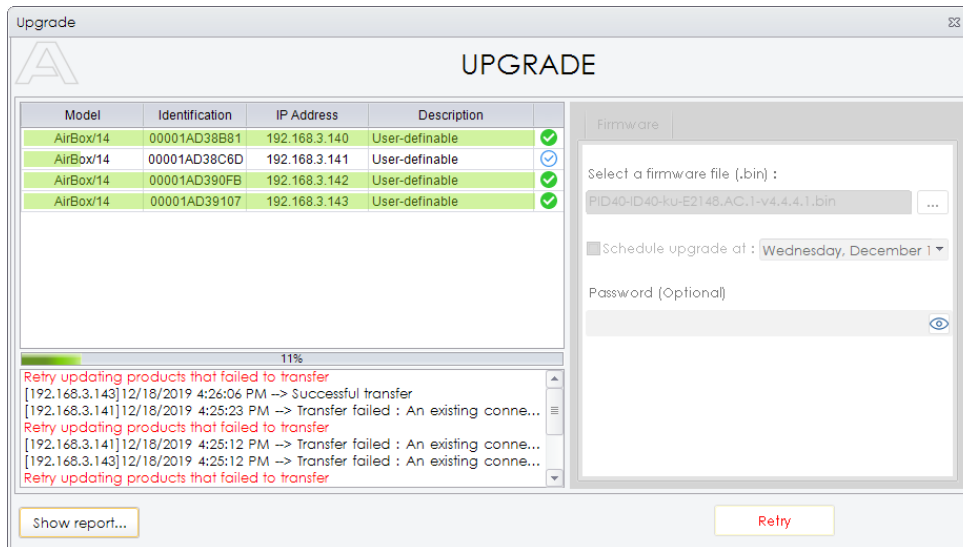
2. Since the update procedure can be long, it is possible to schedule it by choosing the time and date of it (See *To make a delayed update p.49*)
3. The password is defined in the product web interface at *SNMP > Discover AGENT* (see *SNMP*).
4. Click on “**Apply**”.



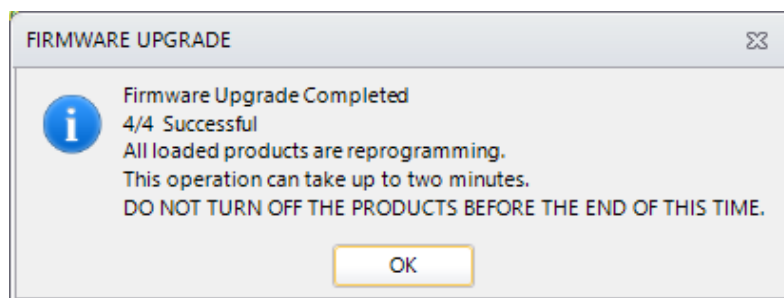
The products will be updated simultaneously.

In case of failure on one or several products, you will have the possibility to relaunch the update exclusively for the failed ones.





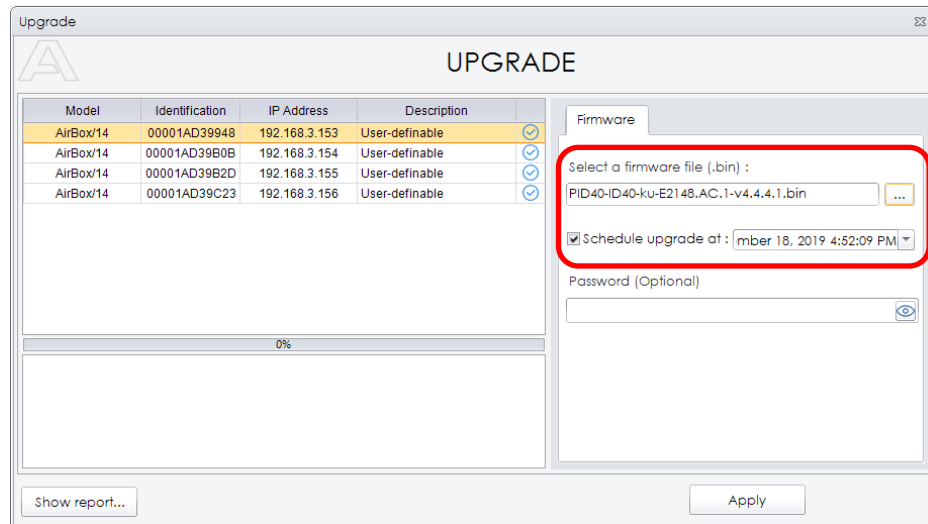
A message will appear when the updates are made and will inform you about the restart of the products.



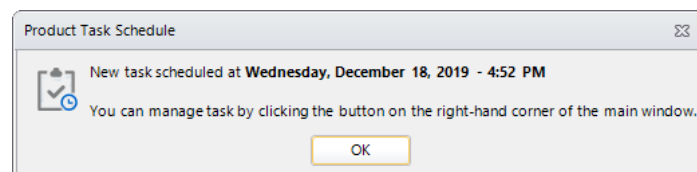
Warning: The firmware must be **compatible** to all the products in the update list.
 Simultaneous product update takes up a lot of bandwidth.

To make a delayed update:

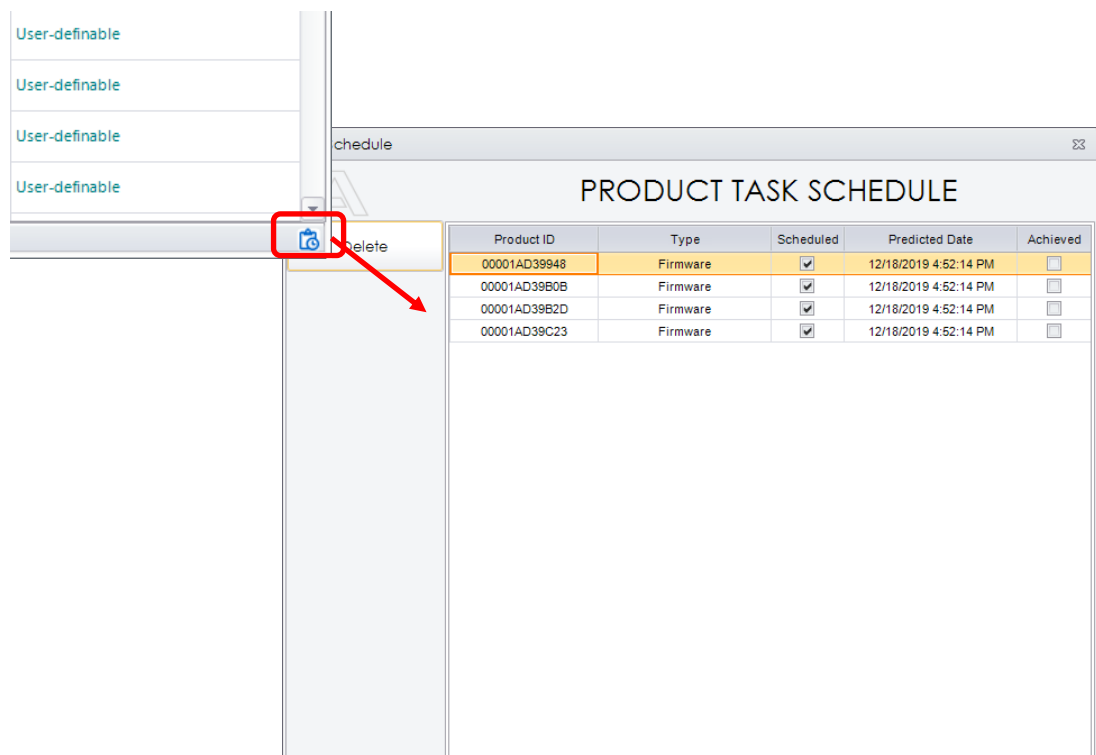
Choose the firmware to update on your computer as well as the desired date and time of the update.



A message will appear to inform you of the task schedule.



You can manage your tasks by clicking on the icon at the bottom right (You can for example delete a scheduled task before its execution).



The update will start automatically on the date and time set.

Model	Identification	IP Address	Description
AirBox/14	00001AD386F0	192.168.3.137	User-definable
AirBox/14	00001AD388D3	192.168.3.138	User-definable
AirBox/14	00001AD38973	192.168.3.139	User-definable
AirBox/14	00001AD38B81	192.168.3.140	User-definable

A message will appear when the updates are made and will inform you about the reprogramming of the products. For more details on the status of the products, click on “Show report”.

Upgrade

Wednesday, December 18, 2019 - 4:54 PM
Firmware Upgrade Completed
4/4 Successful
All loaded products are reprogramming.
This operation can take up to two minutes.
DO NOT TURN OFF THE PRODUCTS BEFORE THE END OF THIS TIME.

Show Report

Export

Print

PRODUCT OPERATION REPORT

Filter by date: ☒ All Dates ☐ Specific Date:

Filter by operation type: ☒ Indifferent ☐ Firmware ☐ Configuration File

Product ID	Type	Scheduled	Predicted Date	Effective Date	Achieved	Status	Error
0000198D478E	Firmware	<input type="checkbox"/>	10/30/2019 4:06:57 PM	10/30/2019 4:07:08 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Transfer failed : A connection attempt failed because the...
0000198D1AF1	Firmware	<input type="checkbox"/>	10/30/2019 4:01:38 PM	10/30/2019 4:01:38 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
0000198D16F3	Configuration File	<input type="checkbox"/>	7/8/2019 2:42:48 PM	7/8/2019 2:42:48 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Error upgrading firmware, product unreachable
0000198D3940	Configuration File	<input type="checkbox"/>	7/8/2019 2:42:48 PM	7/8/2019 2:42:50 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
0000198D3EAE	Configuration File	<input type="checkbox"/>	7/8/2019 2:42:48 PM	7/8/2019 2:42:51 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
0000198D477C	Configuration File	<input type="checkbox"/>	7/8/2019 2:42:48 PM	7/8/2019 2:42:52 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
0000198D479D	Configuration File	<input type="checkbox"/>	7/8/2019 2:42:48 PM	7/8/2019 2:42:53 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	



In case of failure on one or more products, WaveManager will automatically restart the update once.

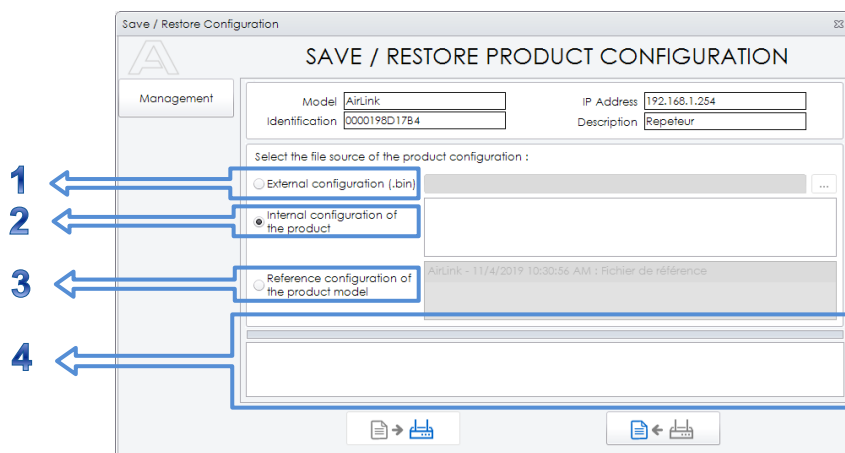
Archives button



It allows managing the settings of a product via a configuration file.

The main window, **Save/Restore product configuration**, allows you to:

1. Assign an external configuration file (.bin) to the product.
2. **Archive** configuration file into the WaveManager database.



3. Generate a reference configuration file from a product to make it assignable to the products in the same model (see *Setup button* → “Ref. Config” tab).

The name of the configuration file is automatically saved in “Date-Time-Configuration File” format.

You can rename or delete it by clicking on the “**Management**” button.

- After importing an external configuration file, click on the following button to apply the settings into the product:



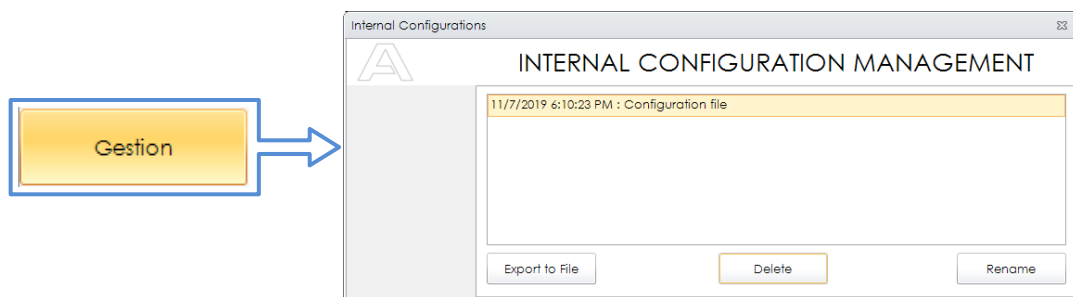
- After selecting the internal configuration file option or the reference configuration file option, click on the following button to generate the archive from the product:



The lower part of the window displays the logs of the archiving operation.



- To manage an internal archive file, click on the “**Management**” button:

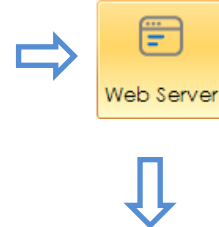


The **Internal Configuration Management** window gives access to all the archives stored in the database. It allows you to export, delete or rename them.

Web server button

The **Web Server** button gives access to all the product settings on the web interface.

Drag a column here to group by this column.						
	Model	Identification	Serial number	Version	Firmware	IP Address
▶	RailBox/22AY	0000116F8CE8	16207016	3.18.1.1	E2148.AC.1	192.168.1.68
▶	WLn-RailBox/1	00001764ACA7		3.12.10.1	E2148.AC.1	192.168.1.207
▶	AirLink	0000198D5219	17135049	3.18.3.1	E2148.AC.1	192.168.1.59
▶	WLn-LINK V2	0080485AAFCB		4.14.0	E2080.AC.1	192.168.1.19
▶	WLn-XROAD/NP	008048642209		54.0	E2080.AC.1	192.168.1.107
▶	WLn-XROAD/NP	00804868239E		54.0	E2080.AC.1	192.168.1.108



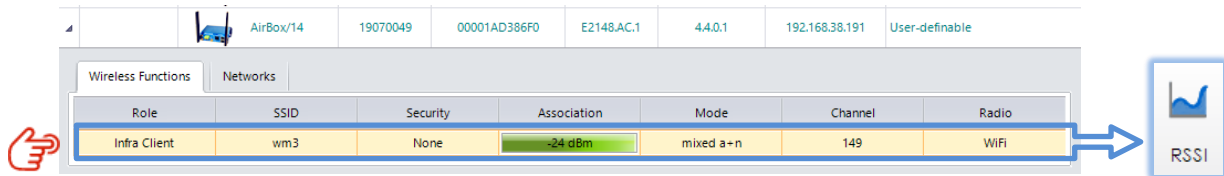
A screenshot of the ACKSYS web interface for the 'AirLink series'. The browser address bar shows '192.168.1.59/cgi-bin/guiweb'. The interface features a navigation menu on the left with options: DEVICE INFO, NETWORK, WIRELESS, SERVICES, and LOGS. The main content area is titled 'DEVICE INFORMATION' and is divided into two sections:

- FIRMWARE INFORMATION:**
 - WaveOs version: 3.18.3.1
 - Boot loader version: 3.0.7.1
 - Firmware ID: E2148.AC.1
- DEVICE INFORMATION:**
 - Host name: salledereunion
 - Model: AirLink
 - Product version: V1
 - Motherboard ID: 0000198d5219
 - Product serial number : 17135049

7.3. Trace

The **RSSI** (Received **S**ignal **S**trength **I**ndicator) is an estimated indicator of the signal quality received by a client.

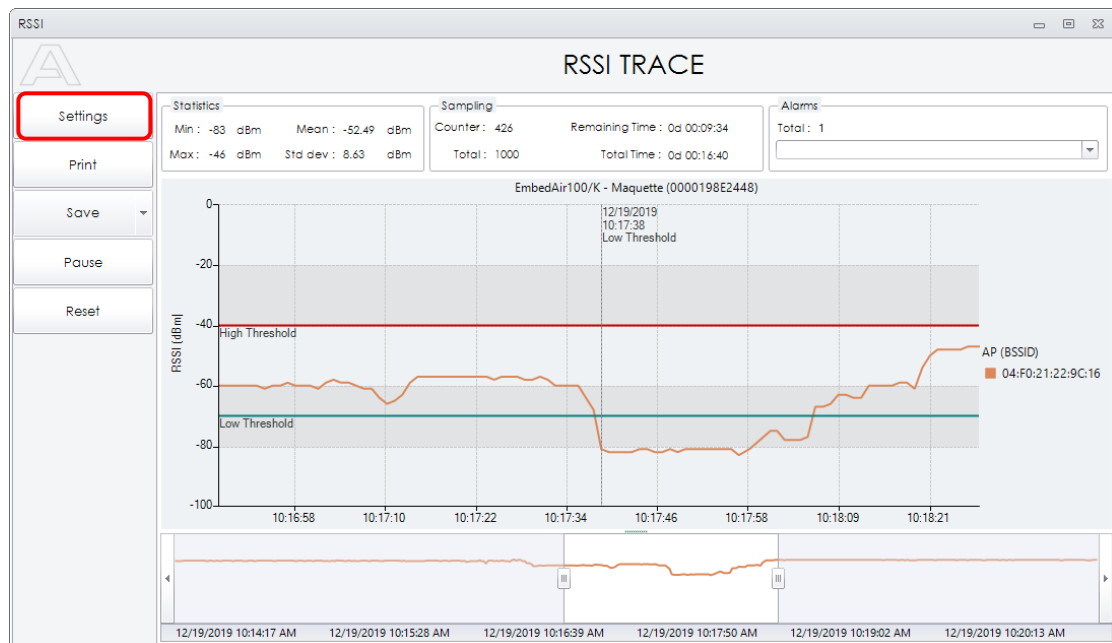
To display and analyze the signal quality of a Wi-Fi client associated with an access point, select the client to examine and click on the **RSSI** button or double-click on it. The RSSI trace will start automatically.



RSSI signal monitoring

The *RSSI trace* window displays the signal level change over a set time frame which depends on the graphic asset.

At the bottom of the window, you can use the sliding section to zoom or move the signal graphic for a specific period.



The update interval is configurable in the “**Settings**” menu.

Trace settings

In this window, you can:

- ✓ Define the sampling rate;
- ✓ Customize the alarm criteria;
- ✓ Customize the tracing graph display.

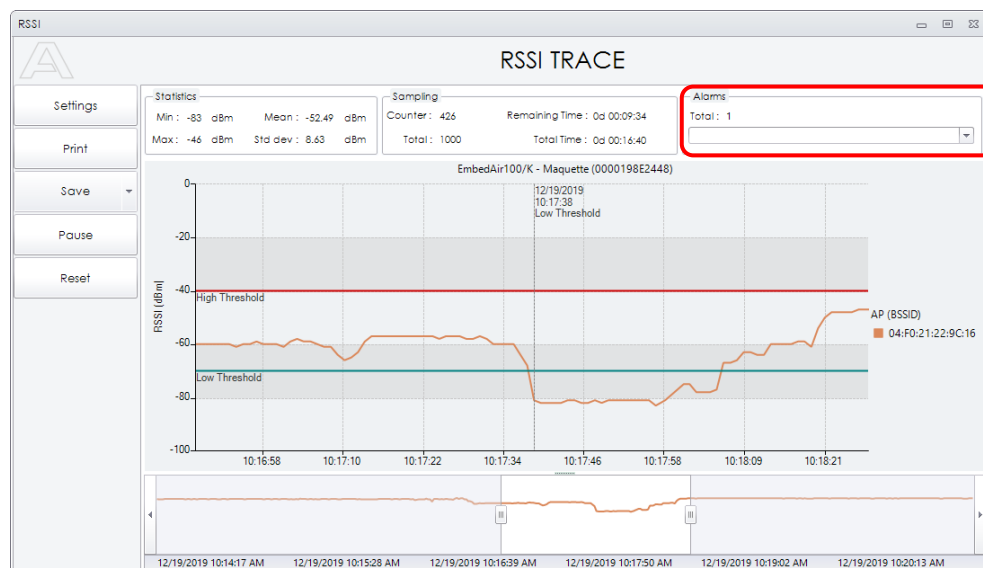


The default sampling rate is **1000** ms (one sample per second).

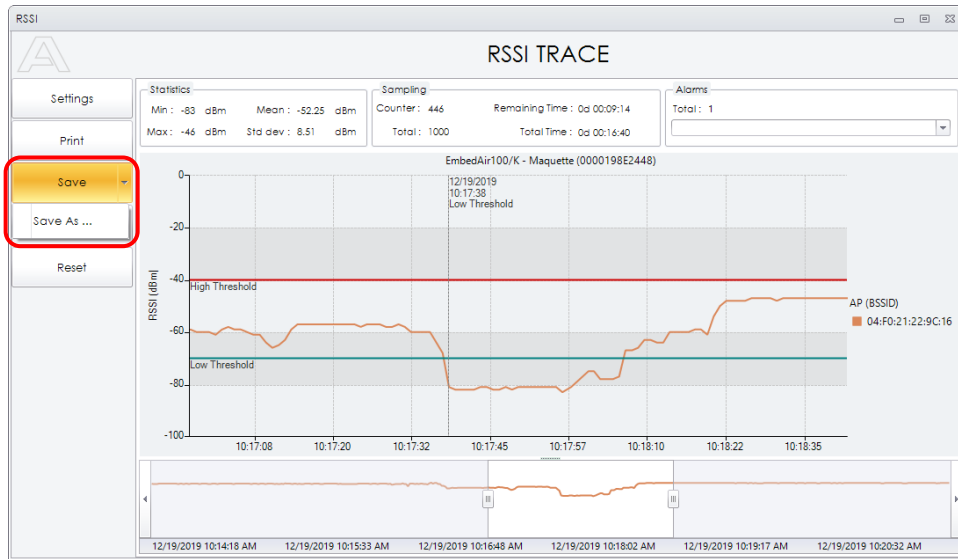
Advanced features

WaveManager provides alarms regarding association and RSSI threshold levels. They are activated by default. (*See **Erreur ! Source du renvoi introuvable.***).

When an alarm is triggered, WaveManager creates a record in the "Alarms" section and shows it on the graph (date and time specified).



The "Save" button allows you to export the RSSI trace data in ".txt" or ".csv" format. To create a new data file, click on "Save as".



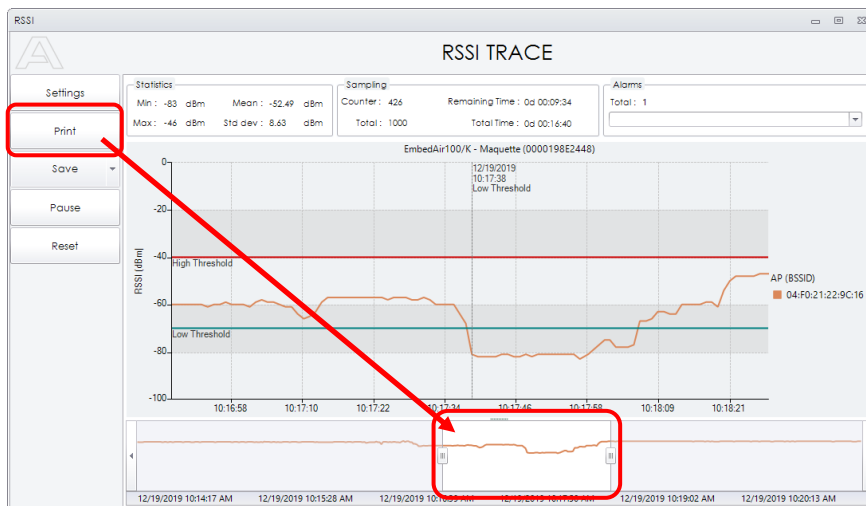
Warning: "Save" saves the history of (previous) data and not those to come.

The "Pause" button temporarily stops the scrolling of the RSSI trace. Just click on "Resume" to restart it.

The "Reset" button allows you to erase all previous data and create a new RSSI trace.

Graphic printing

The "Print" button allows you to print the RSSI signal matching the time range of the current zoom section.



7.4. Geolocation

Geolocation is used to edit a product **Description** field and to enter or find the GPS coordinates of the latter product.

- If you know the product coordinates, you can enter them directly in the fields and click on save. They will thus be saved in the WaveManager database.



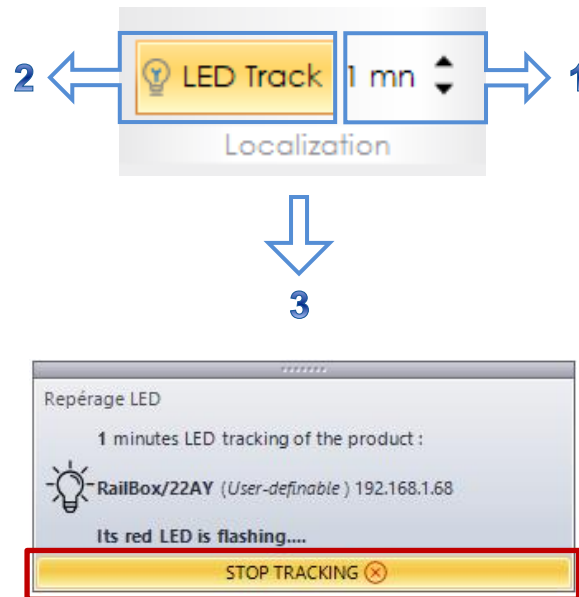
Automatic geolocation ("Search" button) is only possible on LTE products.

To locate an LTE device, select it from the product list and click on the **"Geolocation"** button in the toolbar.

- Click on **"Find"**. The "Longitude" and "Latitude" fields will be filled in automatically.
- Add a description if necessary.
- Save the coordinates and the description by clicking on **"Save"**.

7.5. LED Tracking

This option allows you to “physically” locate a product by flashing its diagnostic LED within a given time.



1. After selecting the product to be tracked, you can customize the flashing duration (in minutes) by using the ▲ and ▼ arrows.
2. Click on “**LED Track**” to trigger the flashing.
3. A new pop-up window will appear. You can stop the process before the expiry time by clicking on “**Stop Tracking**”.

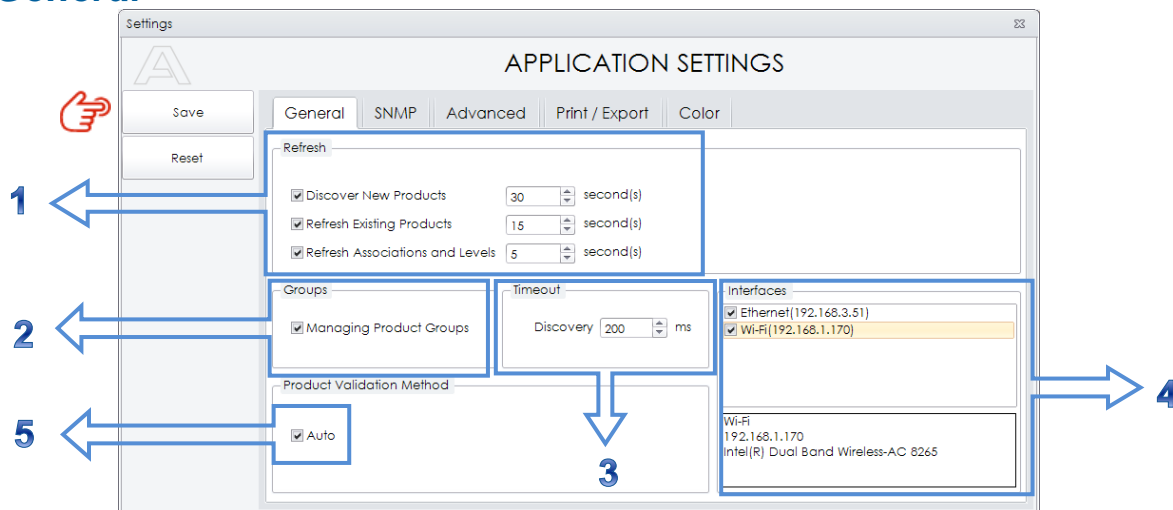


The product to track cannot be **Unreachable** or **IP conflict** status.

7.6. Application Settings

This menu allows you to configure and customize WaveManager through various tabs:

General



1. Refresh section

Discover New Products:

Enables the automatic detection mode and defines its frequency. This mode only allows the detection of products located on the local network.

Min.	1 sec
Max.	3600 sec
Default	30 sec

Refresh Existing Products:

Queries the database on the products it contains to retrieve their configuration information and update their status ("Online", "Unreachable" ...) according to a query frequency.

Min.	1 sec
Max.	3600 sec
Default	15 sec

Refresh Associations and Levels:

Updates the *Access point / Client* association information, the signal level recorded in the database and defines the update frequency.

Min.	1 sec
Max.	3600 sec
Default	5 sec

2. Groups section

Enables group management and displays the “Group/Zone” tab on the main screen (see Group/Zone tab) and the “Group” column in the product list.

3. Timeout section

Sets the timeout of the automatic detection process.

Min.	5 ms
Max.	5000 ms
Default	300 ms

4. Interfaces section

Allows you to select which network interfaces (found on the computer) will be used in the automatic detection process. You must select at least one interface, otherwise no product will be detected.



Warning: Whenever the network configuration of your PC changes, you must restart WaveManager and check the selection of WaveManager interfaces in this section.

5. Product validation method section

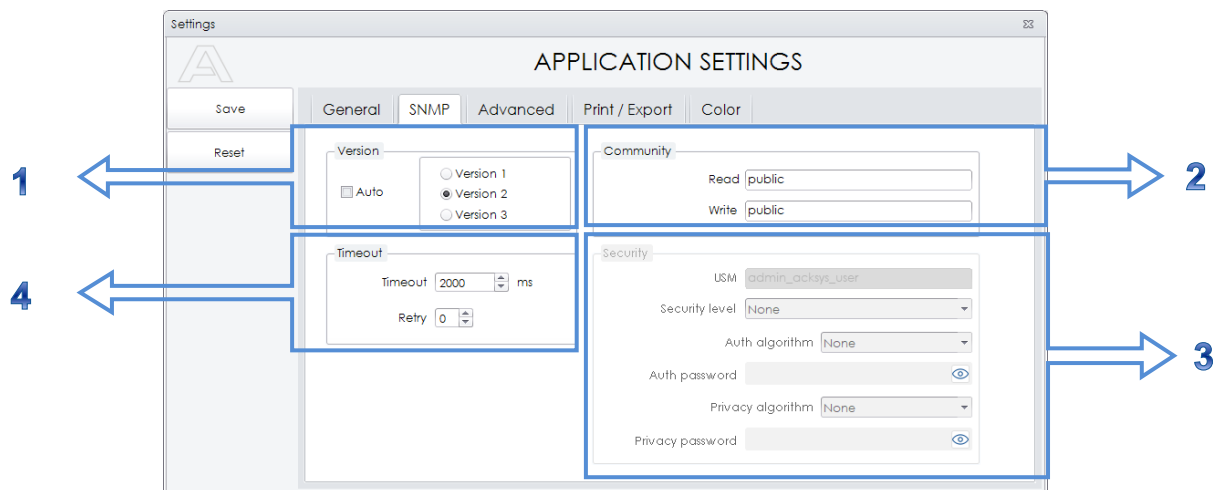
If the “**Auto**” option is checked, a new detected product will be validated automatically to **Online** status.

Its configuration will also be validated at the same time.

SNMP

To give the administrator an overview of the ACKSYS SNMP equipment, WaveManager supports the SNMP protocol.

SNMP makes it easier to manage and detect the deployed products.



1. Version section

→ Sets the SNMP version used for manual product search and the configuration information collection.



Warning: The SNMP service must, therefore, be activated in the product, and its WaveOS version must match the one specified in **WaveManager information** tab.

2. Community section

→ Access settings for SNMP V2.

3. Security section

→ Settings of access and security for SNMP V3.

4. Timeout section

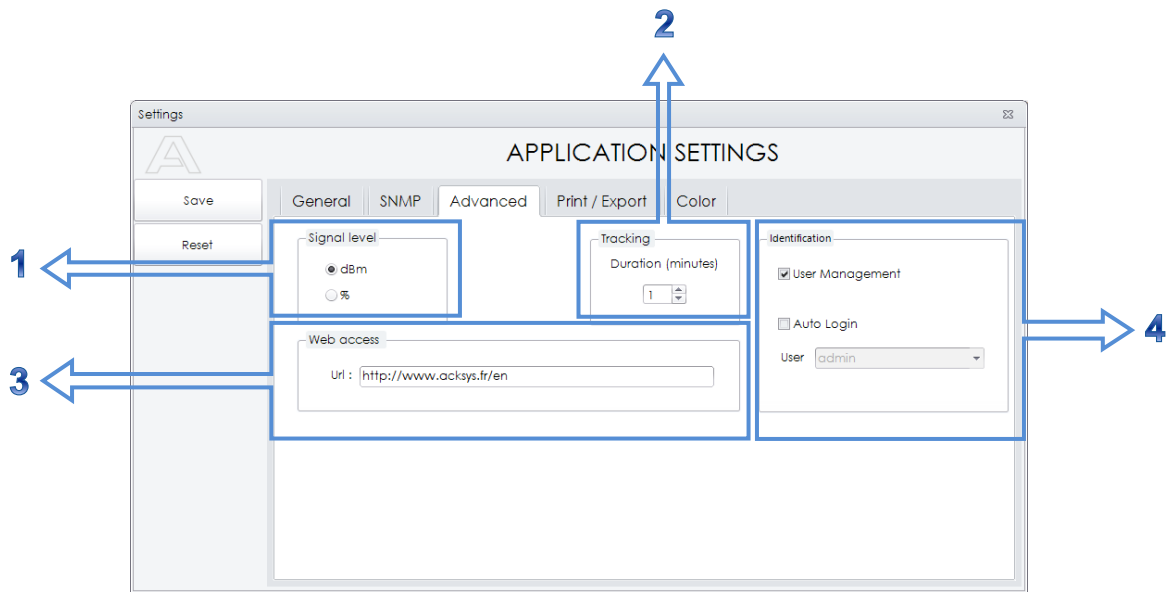
→ Sets the SNMP timeout:

Min.	5 ms
Max.	5000 ms
Default	2000 ms

→ Sets the SNMP retry counter:

Min. retry number	0
Max. retry number	10
Default retry number	0

Advanced



1. Signal level section

- Allows selecting the unit of the RSSI level. This unit is used to generate the signal graph of a product set in *Client* mode.

2. Tracking section

- Setting of the flashing time of a product **DIAG** LED when requesting a LED tracking. (See 7.5)

Min.	1 min
Max.	60 min
Default	1 min

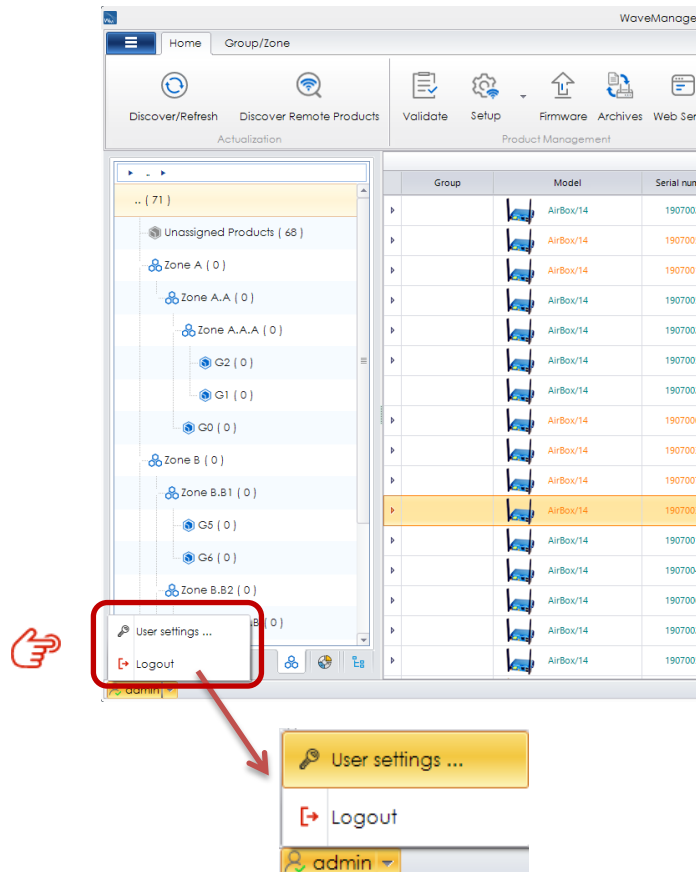
3. Web Access section

- ACKSYS website address.

4. Identification section

- This section makes it possible to limit WaveManager access by a **login request**.
- As soon as the option is checked and saved for the first time, the “admin” user, with all rights, will be enabled by default and a new button will appear at the bottom of the main screen.

By clicking on that button, you can access the **User Settings**.



The **default** login details for the *admin* account are:

Username: admin

Password: admin

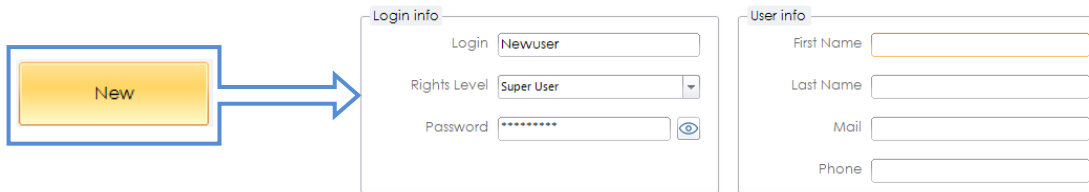
User settings

This menu allows defining users according to their rights level and editing their information.

Adding a user:

To add a user:

1. Click on “**New**”.



The diagram illustrates the process of adding a new user. On the left, a yellow button labeled 'New' is highlighted with a blue border. A blue arrow points from this button to a form titled 'Login info' and 'User info'. The 'Login info' section contains fields for 'Login' (with the value 'Newuser'), 'Rights Level' (a dropdown menu showing 'Super User'), and 'Password' (a masked field with 8 dots and an eye icon). The 'User info' section contains optional fields for 'First Name', 'Last Name', 'Mail', and 'Phone'.

2. Enter the requested information:

- **Login:** which must only contain alphanumeric characters
- **Rights Level:** 3 types of users are available:
 - ✓ **Administrator** who has all the configuration rights on WaveManager
 - ✓ **Super User** who has all the configuration rights **except** the one to edit users
 - ✓ **User** who has no configuration rights.



The “User” role may be useful for creating a **guest** account.

- **Password:** which must contain **at least 8 alphanumeric characters**.
- The “User Info” section fields are optional.

3. Click on “**Save**” to create the user.



For security reasons, only users with “**Administrator**” right level can add new users.

Editing a user:

To edit a user or the logged-in account:

1. Click on **Edit**
2. In the case of an “admin” session, choose the user to edit from the list.
3. Update the fields.
4. Click on **Save**

The screenshot shows a window titled 'User Information'. On the left is a sidebar with buttons: 'New', 'Save', 'Edit', and 'Delete'. The 'Edit' button is highlighted with a blue box and a blue arrow labeled '1' pointing to it. The 'Save' button is also highlighted with a blue box and a blue arrow labeled '4' pointing to it. The main area of the window is titled 'USER INFORMATION'. It contains a 'Login info' section with a 'Login' field showing 'guest1' and a 'Rights Level' dropdown set to 'User'. Below this is a 'Change Password' button. To the right of the 'Login' field is a dropdown menu showing a list of users: 'guest1', 'guest', 'admin', and 'guest1'. A blue arrow labeled '2' points to this dropdown menu. Below the 'Login info' section are fields for 'Last Name', 'Mail', and 'Phone'.



For security reasons, all the users (except **administrators**) can only edit their own profile. **Administrators** can edit any user.

To change a user password:

- Still in the “Edit” menu, click on **Change password**.
- A new window appears:

The screenshot shows a window titled 'Password' with a sub-header 'CHANGE PASSWORD'. On the left is a sidebar with a 'Save' button. The main area contains a 'Change Password' section with three input fields: 'Current', 'New', and 'Confirm'. Each field has a small eye icon to its right. Below the input fields is a yellow warning icon and the text 'Password must be at least 8 characters long.'

- Enter the current password in the “Current” field.
- Enter the new password in the next two fields.
- Click on **Save**.

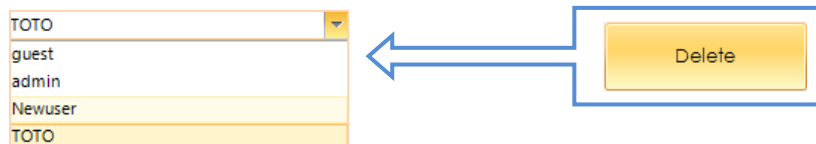


The “Save” button becomes active when the two new passwords entered are identical, and the current password is correct.

Deleting a user:

To delete a user (as an *administrator*):

1. Select the requested user from the drop-down list:



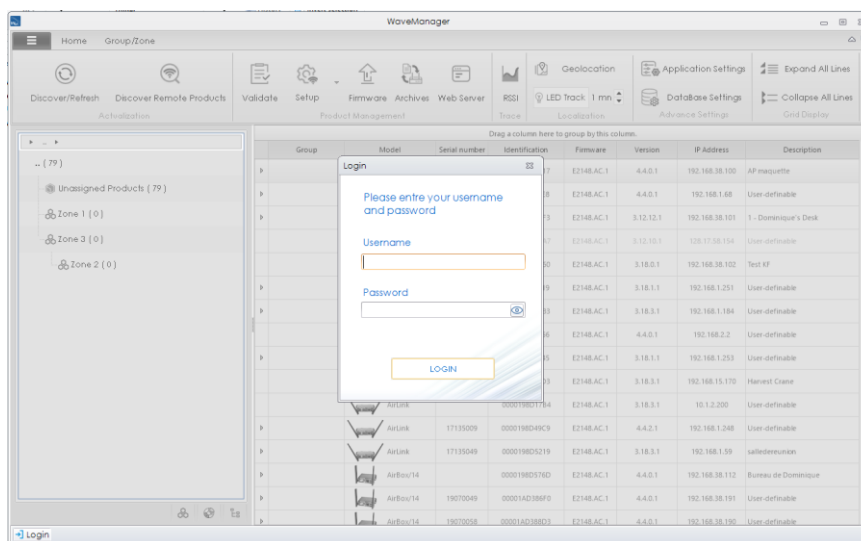
→ Click on “**Delete**”.



For security reasons, only **administrators** can delete users.

Login / Logout:

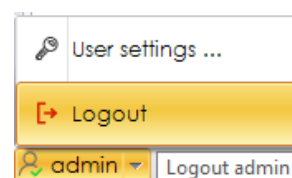
→ From now on, as the user management is activated, WaveManager starts with a frozen window:



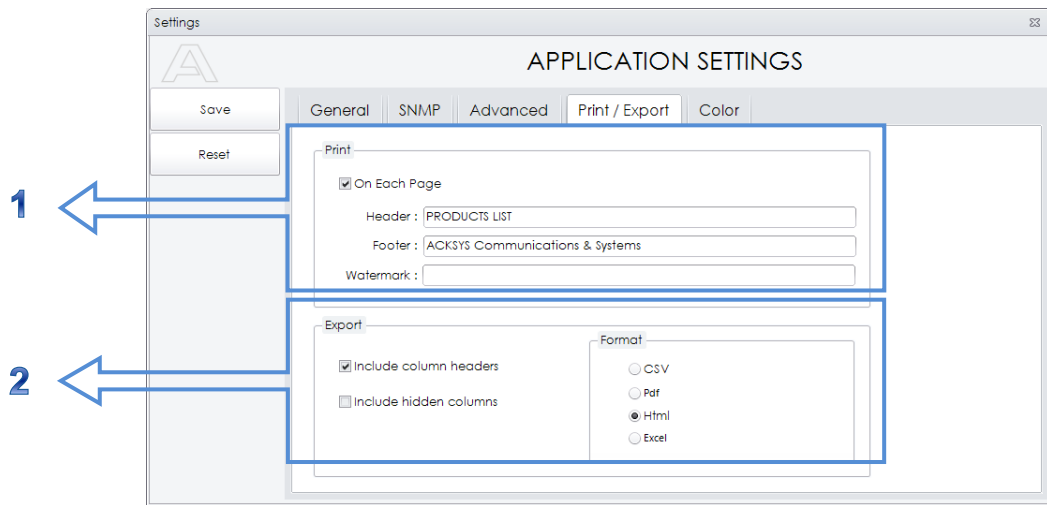
1. Click on “**Login**” at the bottom of the window.
2. Fill in the login name and password.
3. Click on the “**Login**” button.

→ In case “**Auto Login**” has been checked in the application settings, WaveManager will automatically start a session with the defined user. You will then have to log out to change user.

→ To log out from any session: click on the logged-in user name, and then click on “**Logout**”.



Print/Export



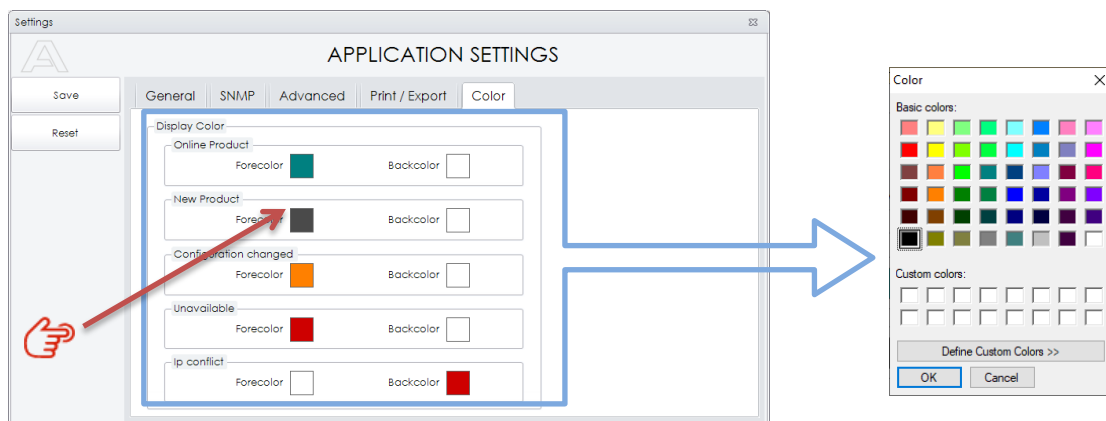
1. Print

This section allows you to customize the printing and export of the database report by adding a header, footer and/or watermark (see *Database*).

2. Export

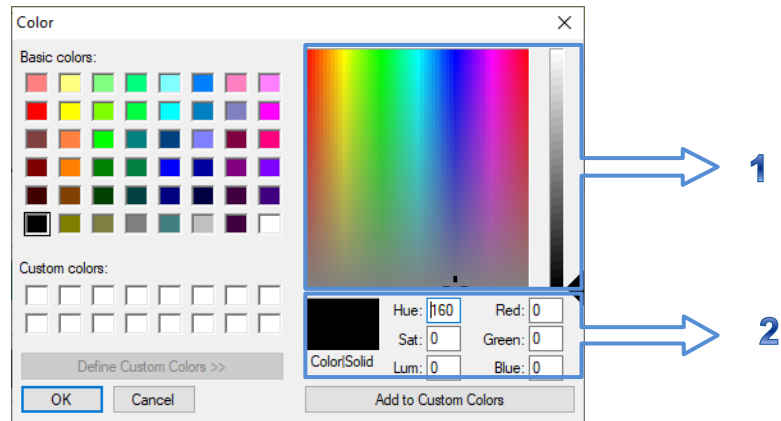
This section sets the report format of the database to be exported (CSV, HTML, Xlsx or PDF) containing the product list and the column options (see *Database*).

Colors



This tab allows customizing the colors of the status of the products displayed in the inventory.

Adding Custom Colors: You can add up to 16 custom colors by clicking on **“Define Custom Colors”**



1. Select the color using both selectors.
2. You can also manually enter the HSB (hue, saturation and brightness) or RGB (red, blue and green) values of the requested color.
3. Click on **“Add to Custom Colors”**.
4. Confirm the changes by clicking on **“OK”**.

Applying the settings

The Save button validates the changes made.

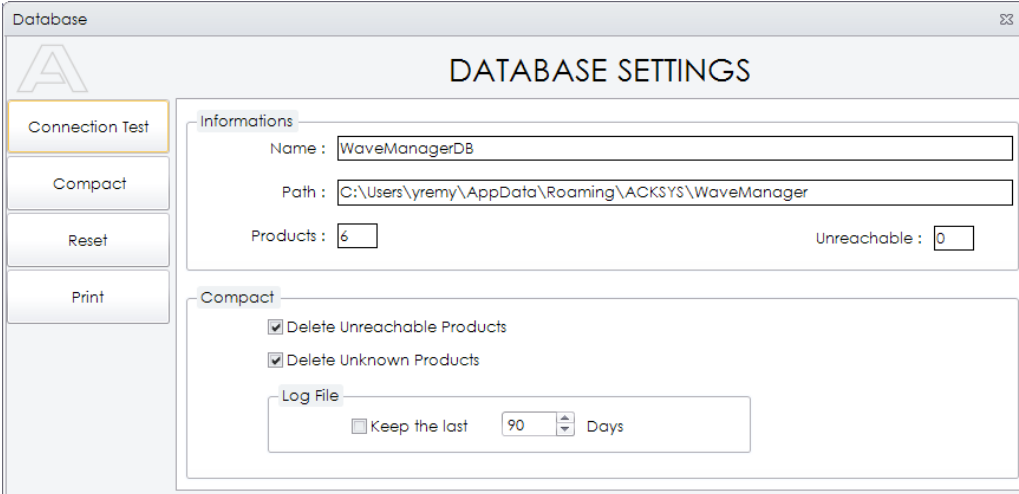
The Reset button restores the default values of the software settings.

7.7. Database

WaveManager backs up the information about all registered products in its database.

The screen below shows:

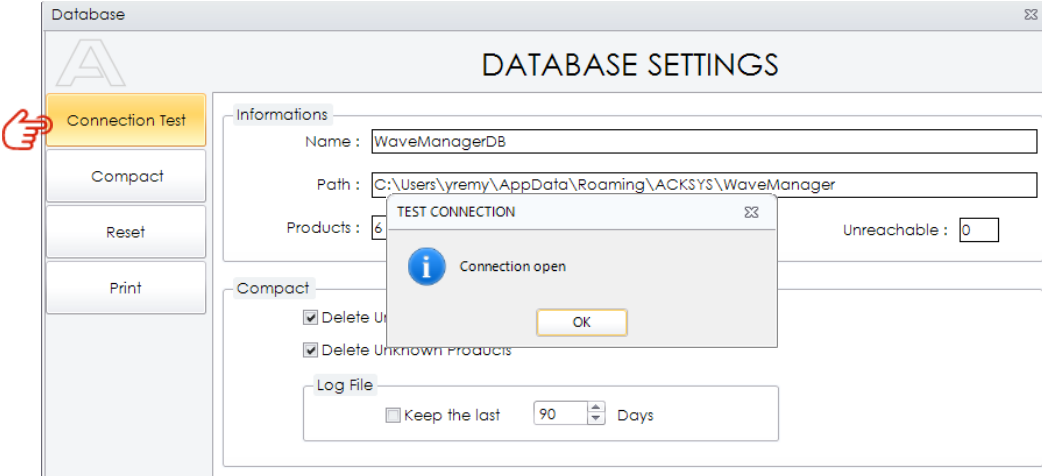
- ✓ The name of the database
- ✓ The database location
- ✓ The number of products registered in the database
- ✓ The number of undetected products (in “Unreachable” status) at the time of consultation



The screenshot shows the 'Database Settings' window. On the left is a sidebar with buttons: 'Connection Test' (highlighted with an orange border), 'Compact', 'Reset', and 'Print'. The main area is titled 'DATABASE SETTINGS' and contains two sections. The 'Informations' section has fields for 'Name' (WaveManagerDB), 'Path' (C:\Users\yremy\AppData\Roaming\ACKSYS\WaveManager), 'Products' (6), and 'Unreachable' (0). The 'Compact' section has two checked checkboxes: 'Delete Unreachable Products' and 'Delete Unknown Products'. Below these is a 'Log File' section with a checkbox 'Keep the last' and a value of '90' followed by 'Days'.

Besides, you can perform some maintenance operations such as:

→ **Connection Test** to check the database connection status.



This screenshot shows the same 'Database Settings' window as before, but with the 'Connection Test' button highlighted by a red hand icon. A small dialog box titled 'TEST CONNECTION' is open in the center, displaying an information icon and the text 'Connection open', with an 'OK' button.

→ **Compact**, which acts according to the options selected in the “Compact” section:

- ✓ **Delete Unreachable products** (“Unreachable” status).
- ✓ **Delete Unknown products** refers to all the products not supported by WaveManager.



If the product is still on the network, it will **reappear in the list** at the next detection.

- ✓ **Log file**: sets the duration of the backup history in days.

Min.	0 d.
Max.	365 d.
Default	90 d.

→ **Reset**, removes all products from the database.

→ **Print** allows printing and exporting all or some of the product list. That list can be printed or exported with the group names and the products it contains.

The database report is printed out with a header, footer and/or a custom watermark (see *Print/Export*).

Export & Printing

PRODUCTS DATABASE REPORT

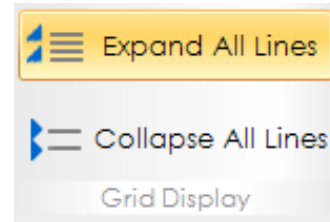
Selection: ☒ All ☐ Group Format: ☐ Show Groups

Model	Identification	Serial number	Firmware	Version	IP Address	Description
RailBox/22AY	0000116EEA17	16206012	E2148.AC.1	4.4.0.1	192.168.3.100	AP maquette
RailBox/22AY	0000116F8CE8	16207016	E2148.AC.1	4.4.0.1	192.168.1.68	User-definable
WLn-RailBox/1	00001764ACA7		E2148.AC.1	3.12.10.1	128.17.58.154	User-definable
490-8925	0000177D2460		E2148.AC.1	3.18.0.1	192.168.38.102	Test KF
RailBox/20AY	000017971319		E2148.AC.1	4.4.4.1	192.168.1.249	User-definable
RailBox/20P0	00001797503A		E2148.AC.1	3.18.3.1	172.17.95.2	User-definable
AirBox/14	000019028B83	18306219	E2148.AC.1	3.18.3.1	192.168.1.253	User-definable
AirLink	0000198C82D3		E2148.AC.1	3.18.3.1	192.168.15.170	Harvest Crane
AirLink	0000198D17B4		E2148.AC.1	3.18.3.1	192.168.15.171	Harvest side section 1
AirLink	0000198D49C9	17135009	E2148.AC.1	3.18.3.1	192.168.1.252	User-definable
AirLink	0000198D5219	17135049	E2148.AC.1	3.18.3.1	192.168.1.59	salledereunion
AirBox/14	0000198D576D		E2148.AC.1	4.4.0.1	192.168.38.112	Bureau de Dominique
EmbedAir100/K	0000198E2448	17151032	E2148.AC.1	4.4.2.1	192.168.3.128	Maquette
AirBox/14	00001AD386F0	19070049	E2148.AC.1	4.4.4.1	192.168.3.137	User-definable
AirBox/14	00001AD388D3	19070058	E2148.AC.1	4.4.4.1	192.168.3.138	User-definable
AirBox/14	00001AD38973	19070015	E2148.AC.1	4.4.2.1	192.168.3.139	User-definable
AirBox/14	00001AD38B81	19070044	E2148.AC.1	4.4.4.1	192.168.3.140	User-definable

7.8. Grid Display

For a detailed view of the products discovered by WaveManager, click on the **“Expand All Lines”** button.

For a reduced view, click on **“Collapse All Lines”**.



→ **Example of an expanded view:**

Drag a column here to group by this column.

Model	Identification	Serial number	Version	Firmware	IP Address	Description																					
RailBox/22AY	0000116F8CE8	16207016	3.18.1.1	E2148.AC.1	192.168.1.68	User-definable																					
<div>Wireless Functions Networks</div> <table> <tr> <th>Role</th><th>SSID</th><th>Security</th><th>Association</th><th>Mode</th><th>Channel</th><th>Radio</th></tr> <tr> <td>Access Point</td><td>R&D_Anthony</td><td>WPA/WPA2-PSK</td><td>2 clients</td><td>ac</td><td>36</td><td>WiFi 1</td></tr> <tr> <td>Access Point</td><td>R&D_Anthony</td><td>WPA/WPA2-PSK</td><td></td><td>ac</td><td>64</td><td>WiFi 2</td></tr> </table>							Role	SSID	Security	Association	Mode	Channel	Radio	Access Point	R&D_Anthony	WPA/WPA2-PSK	2 clients	ac	36	WiFi 1	Access Point	R&D_Anthony	WPA/WPA2-PSK		ac	64	WiFi 2
Role	SSID	Security	Association	Mode	Channel	Radio																					
Access Point	R&D_Anthony	WPA/WPA2-PSK	2 clients	ac	36	WiFi 1																					
Access Point	R&D_Anthony	WPA/WPA2-PSK		ac	64	WiFi 2																					
WLn-RailBox/1	00001764ACA7		3.12.10.1	E2148.AC.1	192.168.1.207	User-definable																					
AirLink	0000198D5219	17135049	3.18.3.1	E2148.AC.1	192.168.1.59	salledereunion																					
<div>Wireless Functions Networks</div> <table> <tr> <th>Role</th><th>SSID</th><th>Security</th><th>Association</th><th>Mode</th><th>Channel</th><th>Radio</th></tr> <tr> <td>Access Point</td><td></td><td>None</td><td></td><td></td><td>...</td><td>WiFi</td></tr> </table>							Role	SSID	Security	Association	Mode	Channel	Radio	Access Point		None			...	WiFi							
Role	SSID	Security	Association	Mode	Channel	Radio																					
Access Point		None			...	WiFi																					
WLG-LINK V2	0080485AFCB		4.14.0	E2080.AC.1	192.168.1.19	WLG com																					
<div>Wireless Functions Networks</div> <table> <tr> <th>Role</th><th>SSID</th><th>Security</th><th>Association</th><th>Mode</th><th>Channel</th><th>Radio</th></tr> <tr> <td>Access Point</td><td>acksyscom</td><td>WPA/WPA2-PSK</td><td>5 clients</td><td>mixed b + g</td><td>13</td><td>wifi</td></tr> </table>							Role	SSID	Security	Association	Mode	Channel	Radio	Access Point	acksyscom	WPA/WPA2-PSK	5 clients	mixed b + g	13	wifi							
Role	SSID	Security	Association	Mode	Channel	Radio																					
Access Point	acksyscom	WPA/WPA2-PSK	5 clients	mixed b + g	13	wifi																					
WLG-XROAD/NP	008048642209		5.4.0	E2080.AC.1	192.168.1.107	video																					
<div>Wireless Functions Networks</div> <table> <tr> <th>Role</th><th>SSID</th><th>Security</th><th>Association</th><th>Mode</th><th>Channel</th><th>Radio</th></tr> <tr> <td>Infra Client</td><td>az12@bjKm</td><td>WPA/WPA2-PSK</td><td><div><div></div>-70 dBm</div></td><td>a-only</td><td>120</td><td>wifi</td></tr> </table>							Role	SSID	Security	Association	Mode	Channel	Radio	Infra Client	az12@bjKm	WPA/WPA2-PSK	<div><div></div>-70 dBm</div>	a-only	120	wifi							
Role	SSID	Security	Association	Mode	Channel	Radio																					
Infra Client	az12@bjKm	WPA/WPA2-PSK	<div><div></div>-70 dBm</div>	a-only	120	wifi																					
WLG-XROAD/NP	00804868239E		5.4.0	E2080.AC.1	192.168.1.108	video																					

→ **Example of a collapsed view:**

Drag a column here to group by this column.

Model	Identification	Serial number	Version	Firmware	IP Address	Description
RailBox/22AY	0000116F8CE8	16207016	3.18.1.1	E2148.AC.1	192.168.1.68	User-definable
WLn-RailBox/1	00001764ACA7		3.12.10.1	E2148.AC.1	192.168.1.207	User-definable
AirLink	0000198D5219	17135049	3.18.3.1	E2148.AC.1	192.168.1.59	salledereunion
WLG-LINK V2	0080485AFCB		4.14.0	E2080.AC.1	192.168.1.19	WLG com
WLG-XROAD/NP	008048642209		5.4.0	E2080.AC.1	192.168.1.107	video

8. CHARACTERISTICS

8.1. Hardware configuration

- ✓ At least Windows 7 (Windows 10 recommended)
- ✓ 32- or 64-bit version (64-bit recommended)
- ✓ NET Framework 4.5.2 at least
- ✓ GB Memory (8 GB recommended)
- ✓ Hard disk (512 GB recommended)
- ✓ A network interface of at least 100 Mbps (1 Gbps recommended)

8.2. Supported languages

- ✓ French
- ✓ English

The language displayed depends on the language supported (or selected) on the installed Windows computer.

8.3. Protocols and Ports

UDP

- ✓ Used by UDAP, SNMP and TFTP protocols
Port 17

UDAP

- ✓ Automatic detection of products available by broadcast
- ✓ Reading and editing the IP address of a product
- ✓ Port 17784 and port range: 11000 to 11999

SNMP

- ✓ Product monitoring
- ✓ Reading and writing a product configuration
- ✓ Ports 161 and 162

TFTP

- ✓ Downloading a firmware
- ✓ Reading and writing a configuration file
- ✓ Port 69

ICMP

- ✓ Used to search for the product(s) within a given address range.
- ✓ Port 1