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WTG QuickStart Guide

AKCP Wireless Tunnel Gateway (WTG)

The WTG is a new product based on sensorProbe+ series, and supports up to 30 AKCP Wireless Tunnel™ Sensors (WTS).
You can view the collected data via the embedded Web UI of the unit, or consolidate the data from multiple gateways on AKCPro Server.

Important Notice: the WTG is not yet supported on the AKCPro Server 14.2.x version, but will be supported in the near future on APS v15. Contact support for more information.

WiFi support: If the WTG is placed in an area you don't have accessible Ethernet cable for network connection, you can use the WiFi option to connect the unit with your IP network. WiFi can also function as a hotspot for direct access without a wired or wireless network.

In this QuickStart Guide, we will cover the following:

A) How to first power on the unit and get access to the WebUI
B) How to add a Wireless Sensor (BOS/WTS) to the WTG
C) WTG Network Settings and how to connect the WTG to an existing WiFi network
D) License Management
E) Cloud WebUI
F) Features overview: Virtual Sensors, Graphing

A) How to first power on the unit and get access to the WebUI

To access and configure the WTG unit, two methods are supported:

1. Traditional wired connection (LAN): fast and easy setup
2. WiFi connection: slower but still convenient setup

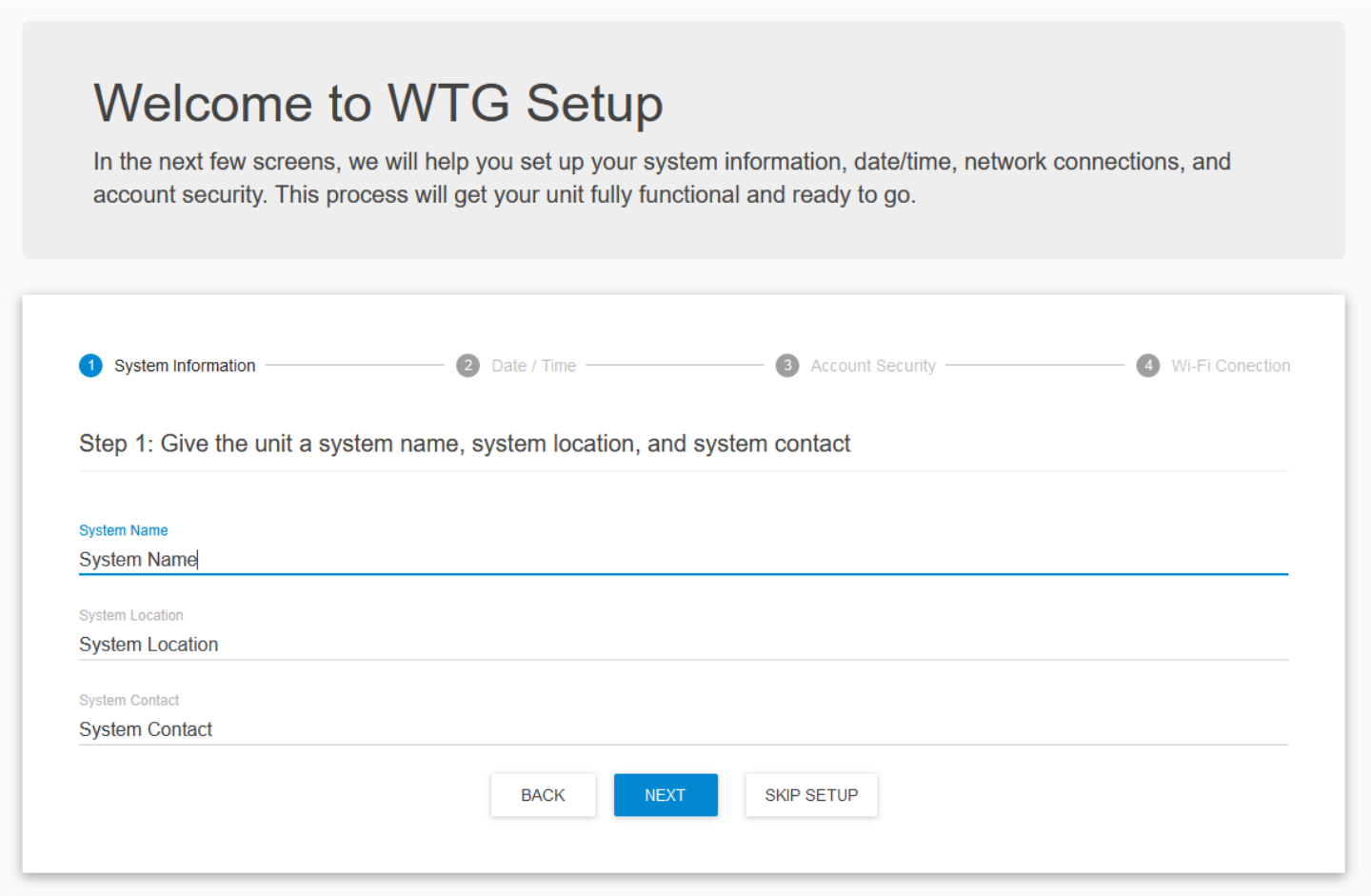
After the initial connection, both methods will provide access to the unit's WebUI for further configuration.

Wired setup

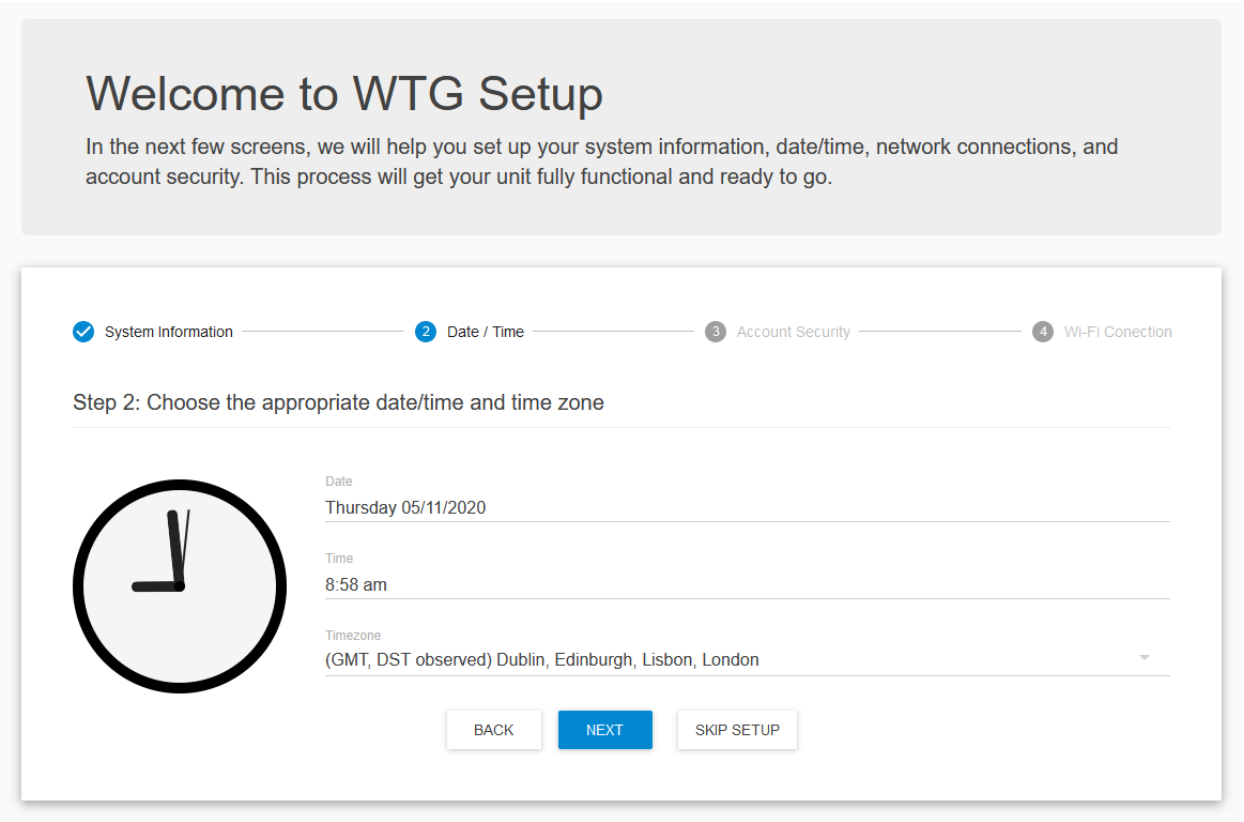
Connect a network (LAN) cable to the unit's Ethernet port and power on the unit.

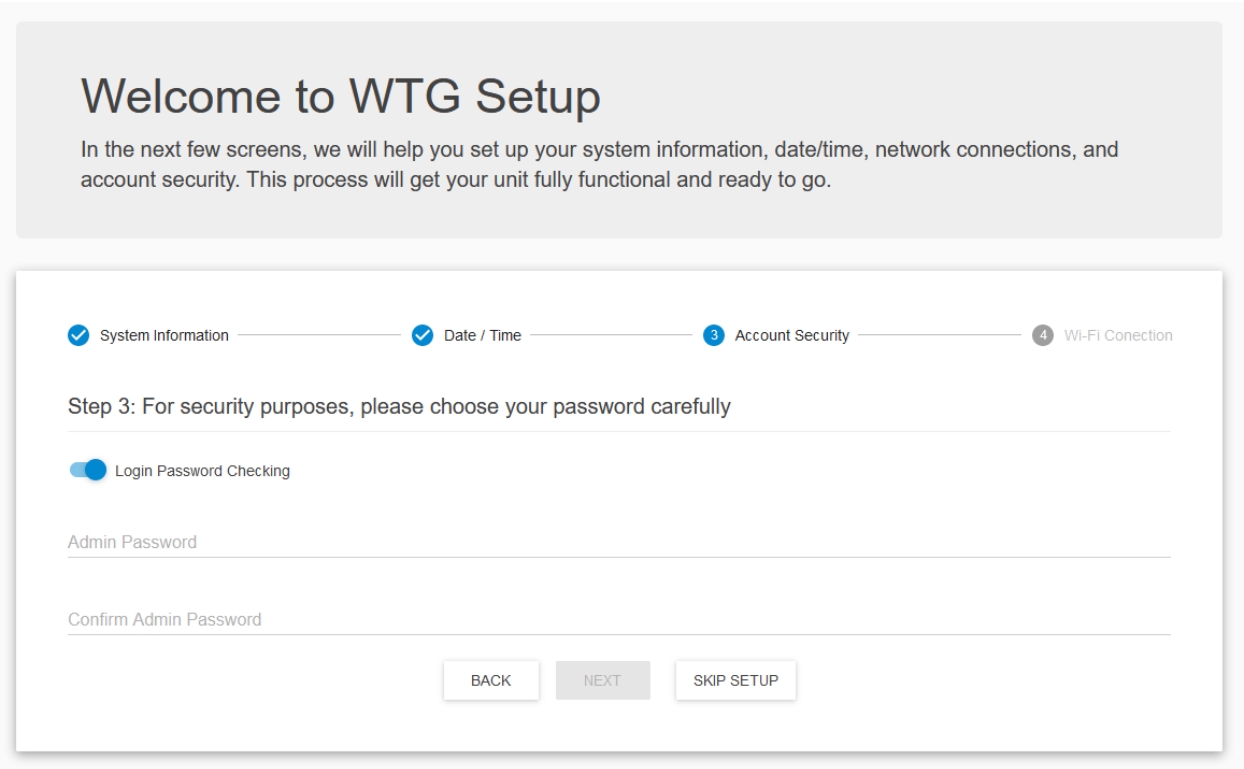
Using a PC or laptop, configure your network card's IP with IPv4 address: **192.168.0.200**
Connect the WTG directly to your PC or laptop's network card with a crossover cable.

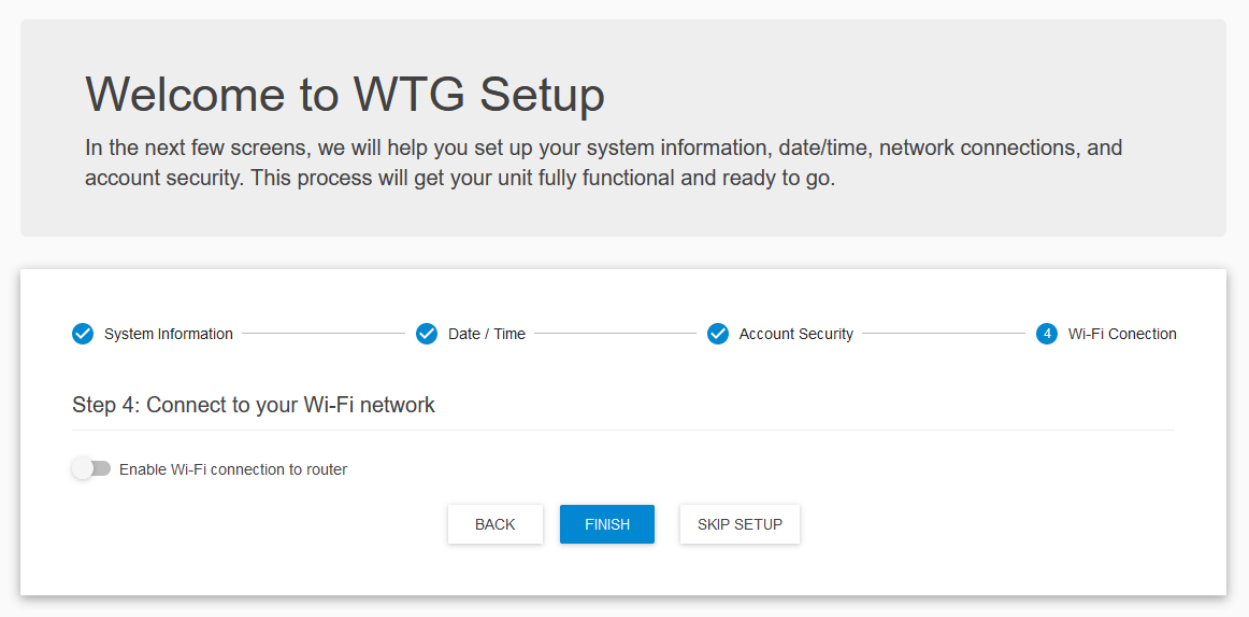
After the WTG has boot up, open the WebUI using the unit's default IP **192.168.0.100**
Open http://192.168.0.100 with a supported browser (Chrome or Firefox).

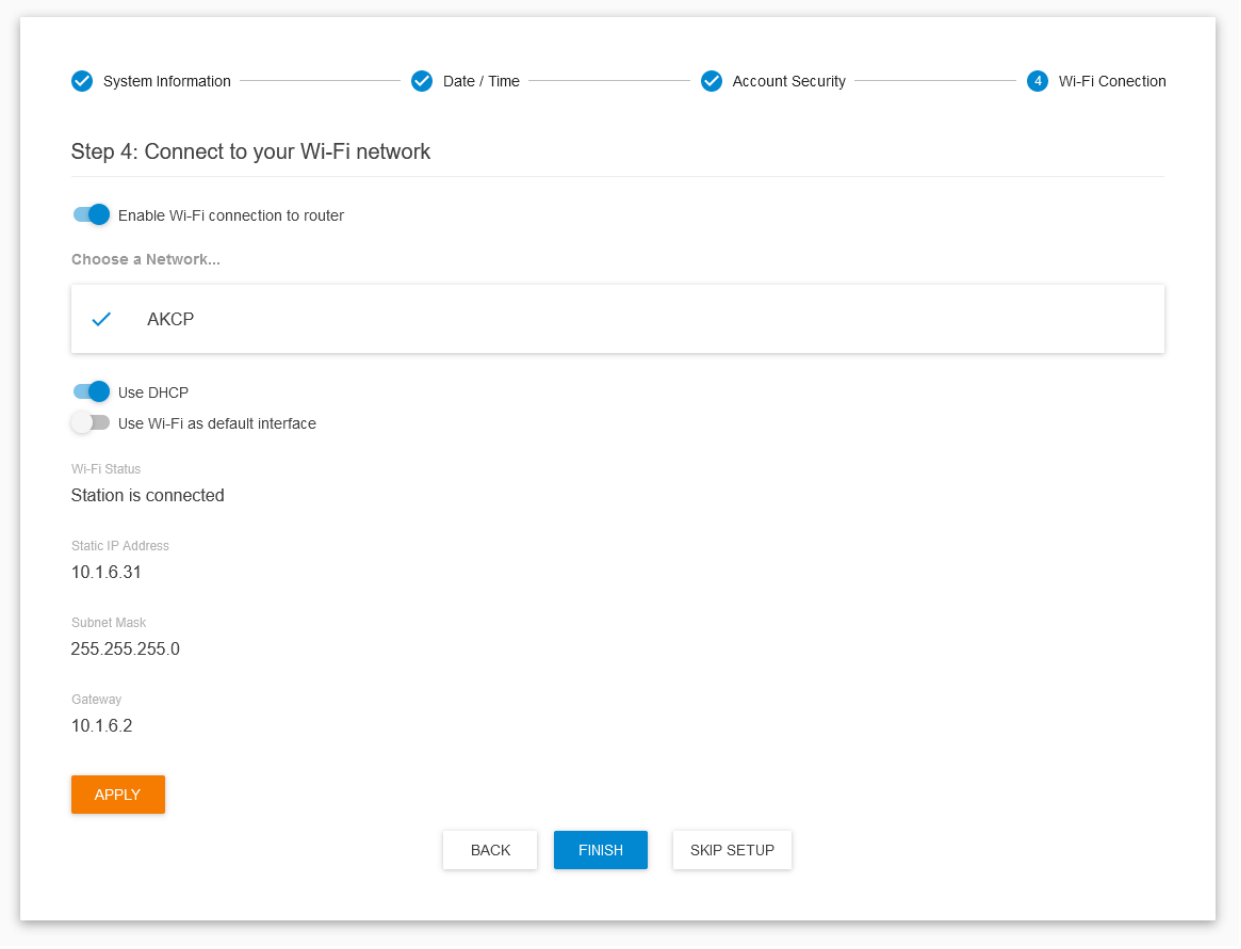


The unit's setup wizard will load.
You can customize the unit's basic parameters now (system name, location, contact, date&time, password checking, WiFi connection), or you can choose "Skip setup" and do it later.


Welcome to WTG Setup
In the next few screens, we will help you set up your system information, date/time, network connections, and account security. This process will get your unit fully functional and ready to go.
System Information
2 Date / Time
3 Account Security
4 Wi-Fi Conection
Step 2: Choose the appropriate date/time and time zone
Date
Thursday 05/11/2020
Time
8:58 am
Timezone
(GMT, DST observed) Dublin, Edinburgh, Lisbon, London
BACK
NEXT
SKIP SETUP

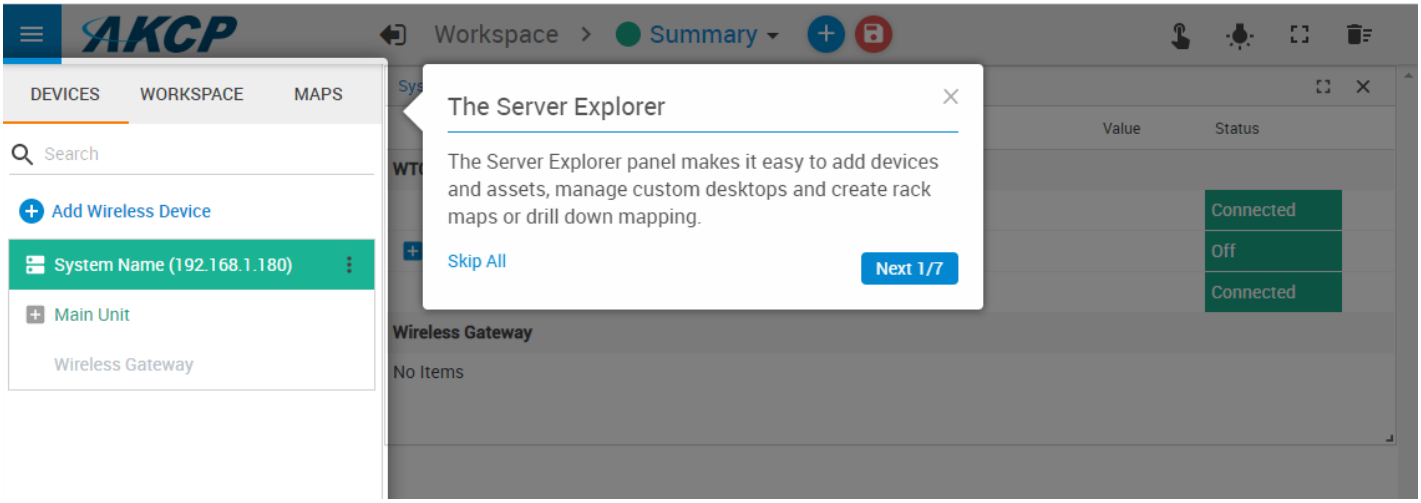

Welcome to WTG Setup
In the next few screens, we will help you set up your system information, date/time, network connections, and account security. This process will get your unit fully functional and ready to go.
System Information
Date / Time
3 Account Security
4 Wi-Fi Conection
Step 3: For security purposes, please choose your password carefully
Login Password Checking
Admin Password
Confirm Admin Password
BACK
NEXT
SKIP SETUP





For details about connecting to an existing WiFi network, see below in this manual.

A WebUI tutorial will follow, where you can learn the basics of using the interface. You can skip the tutorial any time.



Setup over WiFi

By default, the WTG has its Wi-Fi Access Point (AP) enabled and station mode (client mode) is disabled.

Very Important Note: on each power cycle of the unit, **the Default Access Point settings (see below) will be temporary re-enabled for 5 minutes**, regardless of the current configured WiFi settings. **Only after 5 minutes** the user configured settings will take effect (which can be another Access Point with custom settings or the wireless Station/Client mode to connect to another network).

Default Access Point settings

The default access point's **SSID** name is **WTG[3 last bytes of MAC address in hex]**.
For example if your unit's MAC ID is 00:0B:DC:01:47:A4 then the default SSID of this unit will be: WTG0147A4

The **WiFi password** of this default Access Point will depend on the following:

A) Any WTG unit after any number of power cycles, configured or unconfigured (for the first 5 minutes only, as described above):

   The default WiFi password is "publicpublic" (without quotes). Because of this, when the unit is put to production usage it is recommended to enable password checking for WebUI user accounts, to prevent someone unauthorized from accessing the WTG.

B) Fresh out-of-the box unconfigured unit without any modifications:

   5 minutes after bootup, the default WiFi settings will use a password as the unit's MAC address in all-capitals hexadecimal without the : or - characters.
   For example if your unit's MAC ID is 00:0B:DC:01:47:A4 then the default WiFi password of this unit will be: 000BDC0147A4

The unit's default IP address when connected over WiFi is **192.168.250.100**
The DHCP and DNS servers are enabled for connecting WiFi clients, such as phone or tablet.
The unit could be also accessed via hostname **akcp.local** if your device supports it.

Access over WiFi

Connect your laptop, phone or tablet to the unit's **Default Access Point** with the settings as noted earlier.
For example if your unit's MAC ID is 00:0B:DC:01:47:A4 then you need to connect to the WTG0147A4 wireless network, and use 000BDC0147A4 as the WiFi connection password.

Next open the WebUI using the unit's default WiFi IP **192.168.250.100** or the hostname **akcp.local** if your device supports it.
Open http://192.168.250.100 or http://akcp.local with a supported browser (Chrome or Firefox).

The rest of the configuration will be the same as described for the wired connection mode: the Setup wizard will load (which you may skip) and then the WebUI of the unit with the default tutorials.

Note: The WebUI loading speed over WiFi will be slower than the wired connection. Please be patient.

B) How to add a Wireless Sensor (BOS/WTS) to the WTG

Wireless sensors have the advantage of easy installation with no communication cables or power required. These sensors communicate with the WTG using radio frequency signals, and you need to pair them with the WTG to get their data.

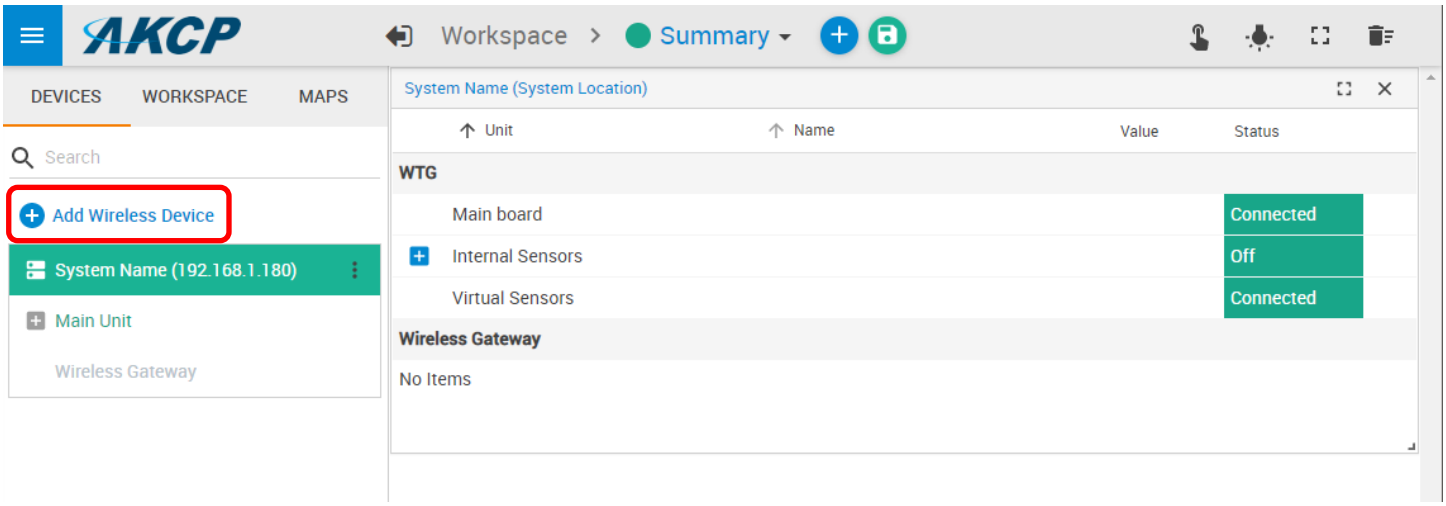
As an example, we will use the Wireless Temperature & Humidity Sensor (WTS-TH).

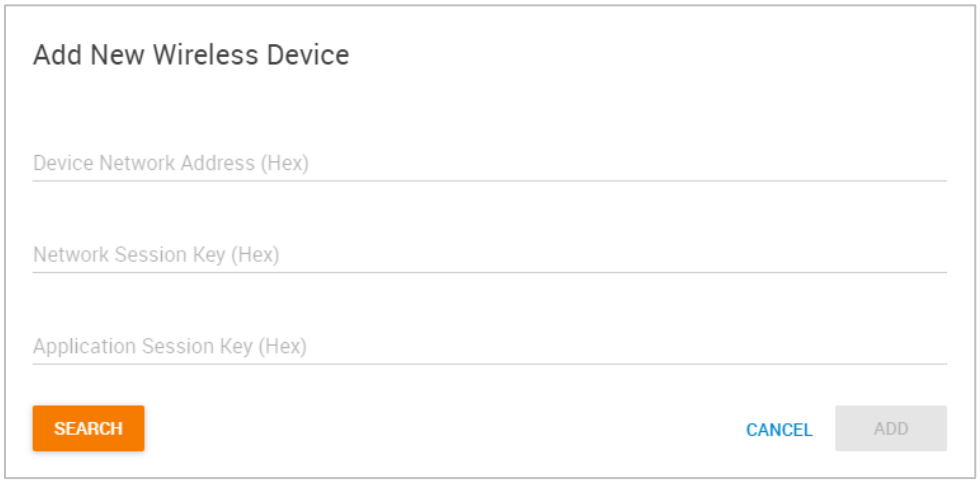
This type of wireless sensor will monitor temperature and humidity levels, can log and graph data over time, and you can configure real-time alerts when user defined sensor thresholds are exceeded. It can also be used as a data logger, with the readings buffered and then synchronized to the gateway when in range. The IP66 rated enclosure provides weatherproofing for use in outdoor environments.
The WTS-TH can be ordered with the sensor on cable up to 15ft length (as on the picture on the left). This allows you to place the radio module in a convenient location with the sensor placed in a precise position.
The sensor can be battery powered with an estimated 10-year life, or connected to a USB power source.

Adding a wireless sensor

First make sure that your wireless sensor is in RUN mode in order to complete the sensor pairing: press and hold the sensor's button for 1-2 seconds. The wireless sensor's LED will light up briefly.

Then open the WTG unit's WebUI. Click on the **Add Wireless Device** icon to begin.

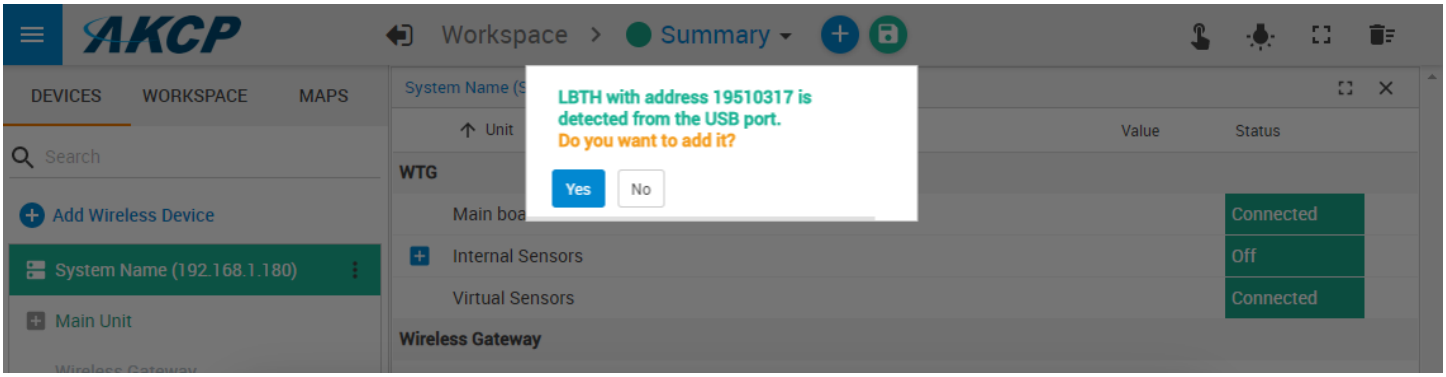




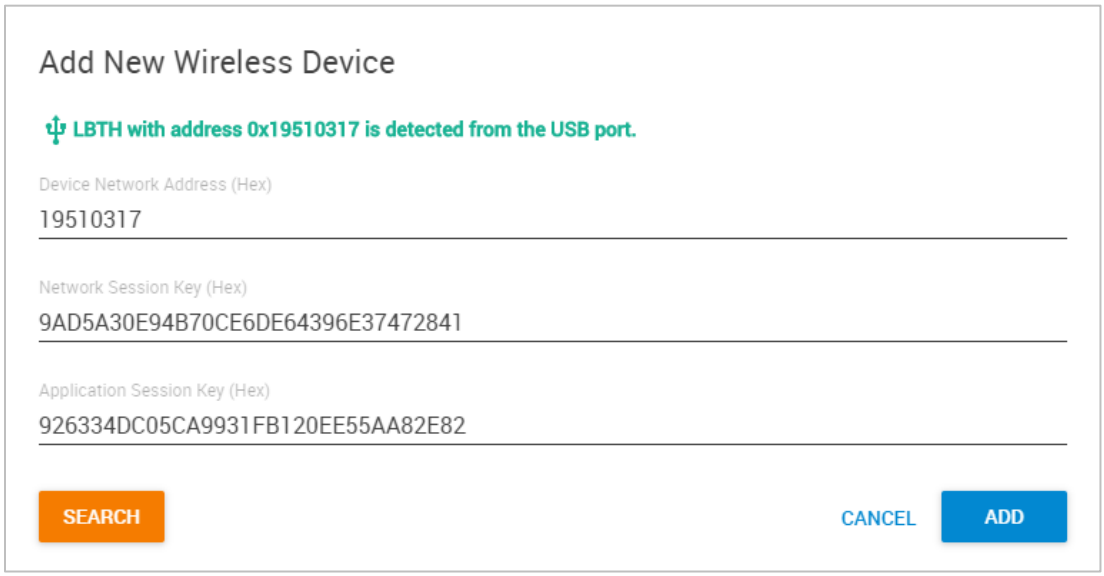
You may either input the wireless key details manually, or use one of the automated methods detailed below.

USB

If you connect the wireless sensor directly to the WTG unit's USB port, it will be automatically detected. You can add it when you see the popup window:

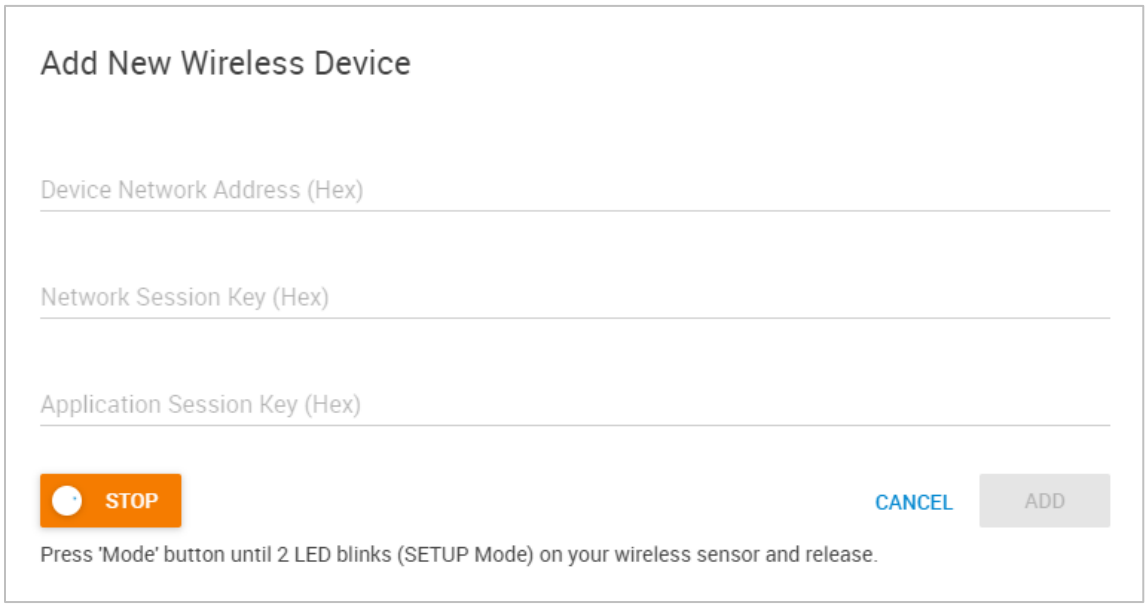


Otherwise, when you click **Add Wireless Device** and the sensor is connected to the USB port, its parameters will be automatically detected:



Click **Add** to add it to WTG.

Search

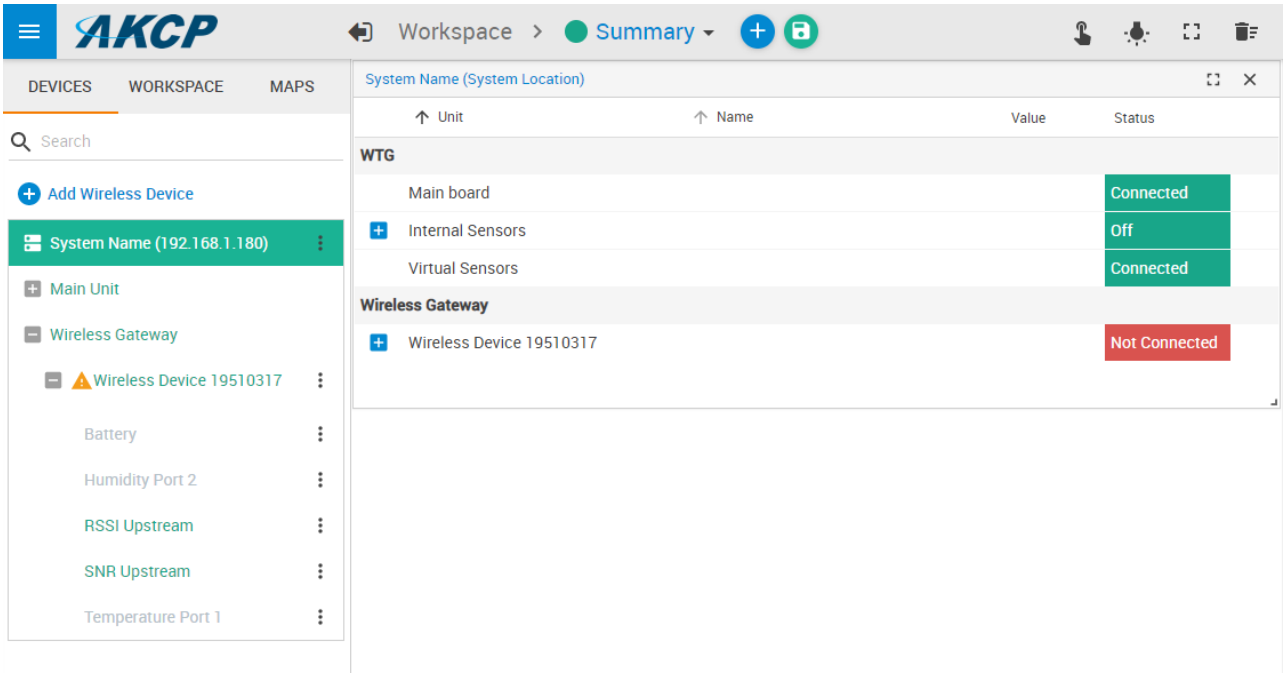


The wireless search method can be used to automatically find a wireless sensor.
Click **Add Wireless Device** then click on the **Search** button on the lower left corner.
Press and hold the button on the wireless sensor until the LED begins to blink (SETUP mode).

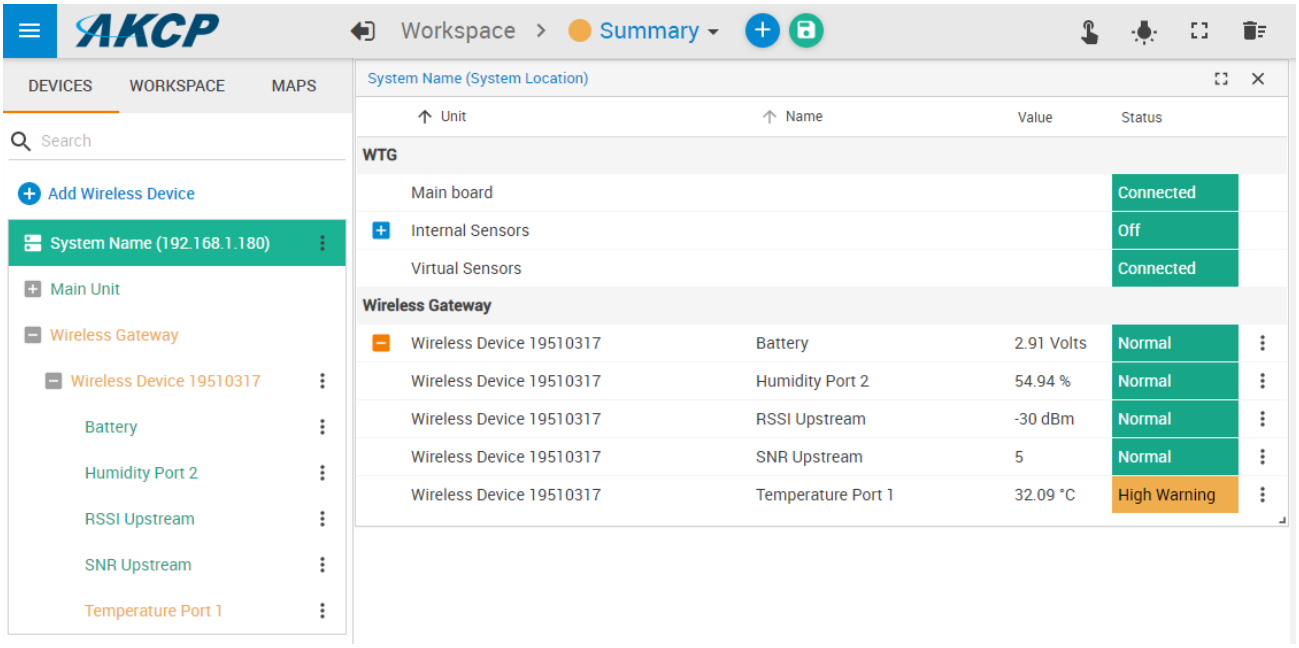
After it's detected, click on **Add** to add it to WTG.

Note: make sure that your wireless sensor is in RUN mode in order to complete the sensor pairing: press and hold the sensor's button for 1-2 seconds. The wireless sensor's LED will light up briefly.

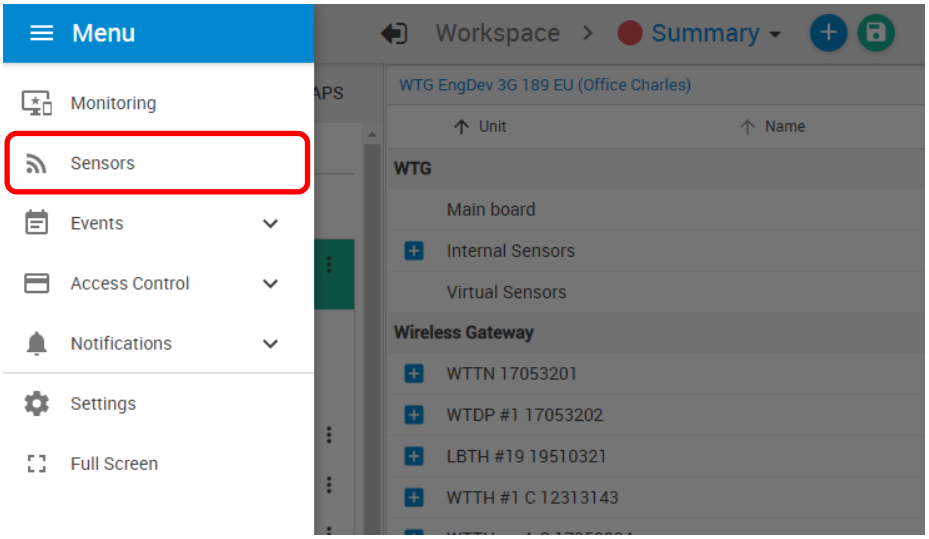
After a new sensor has been added, you will notice a warning triangle next to it:



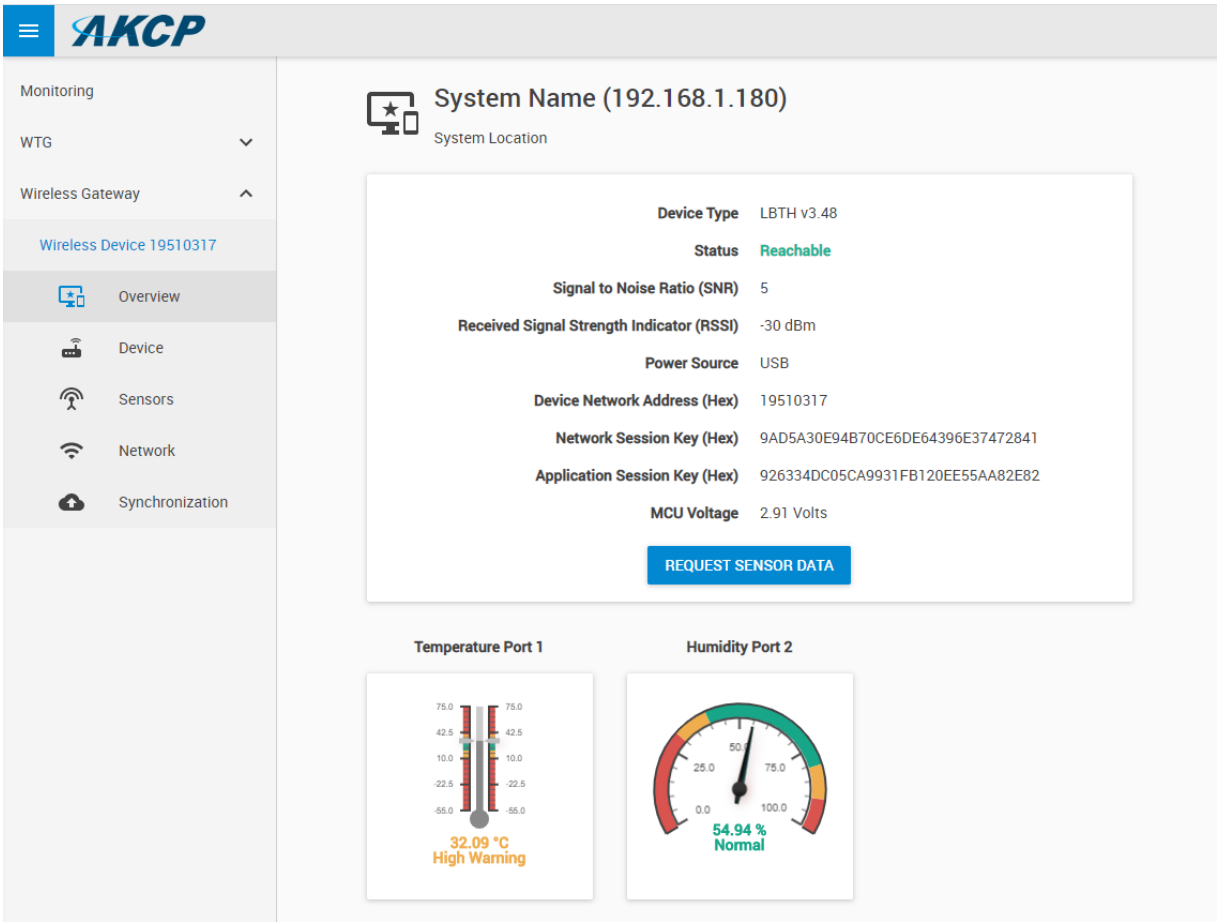
This indicates that the sensor still requires sync (pairing) with the WTG.
Normally the sync will be done automatically, and after that the sensor readings should display correctly:



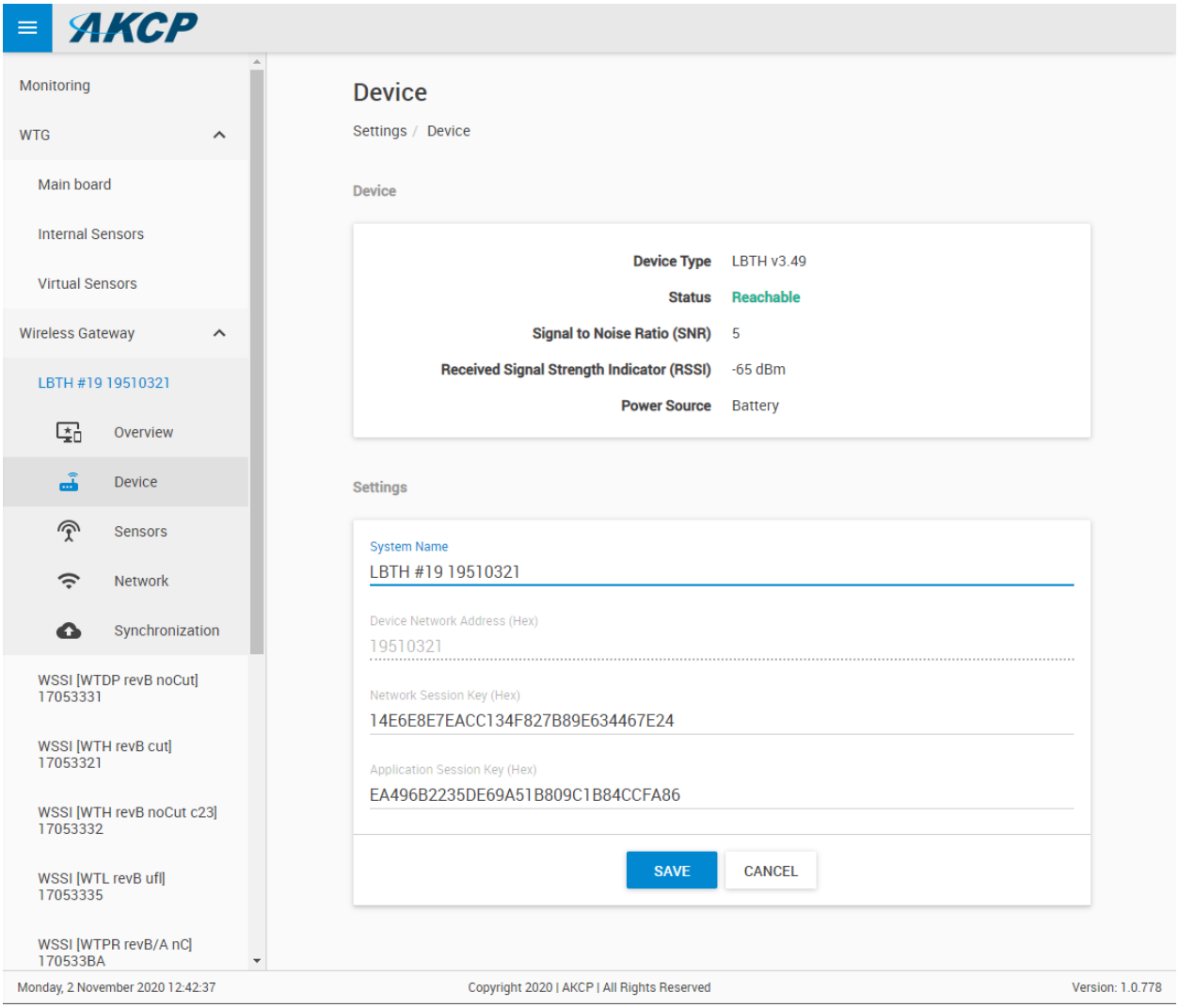
Further sensor configuration



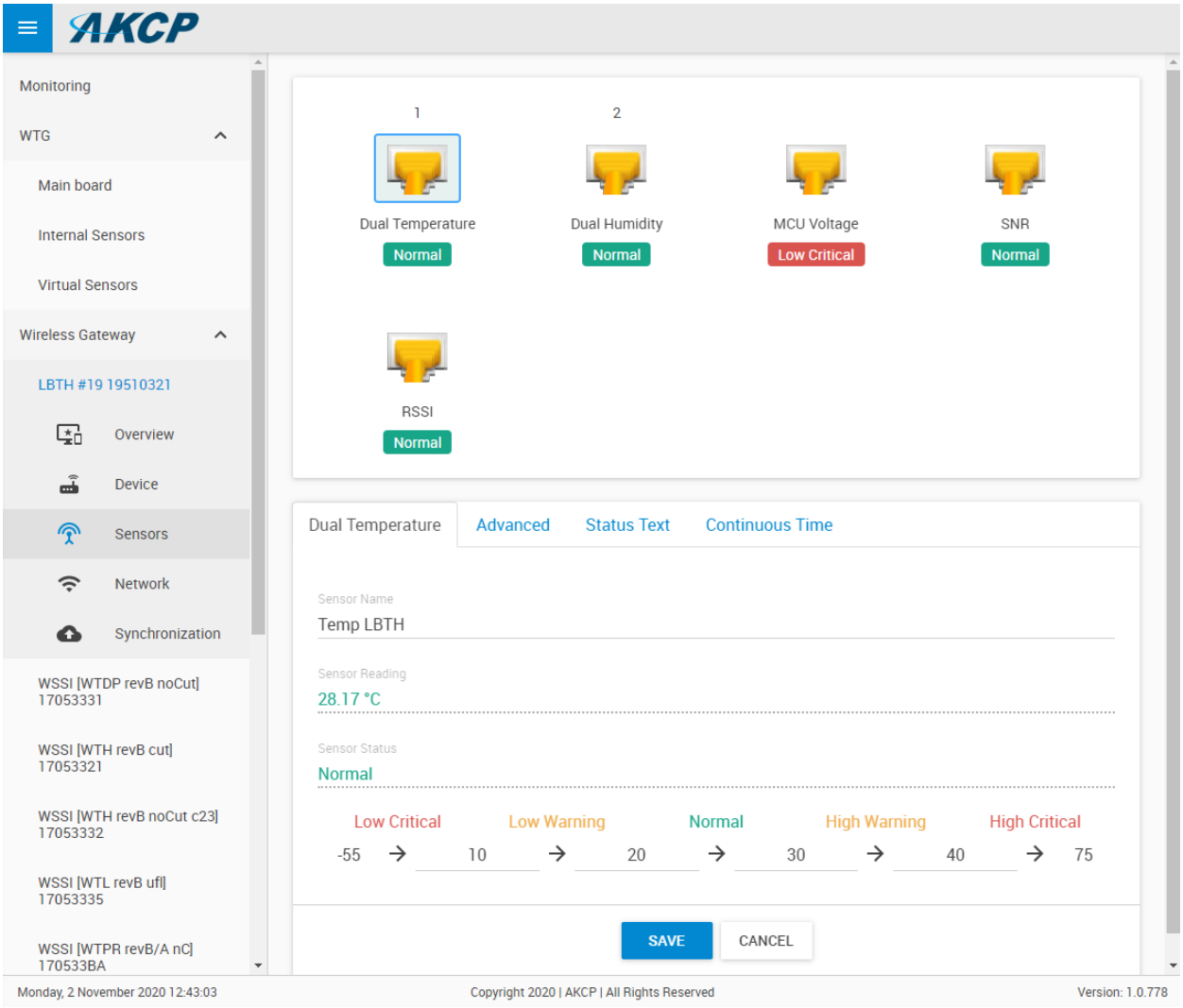
Access the menu on the top left corner and go to the **Sensors** page. The wireless sensors can be managed from this menu.



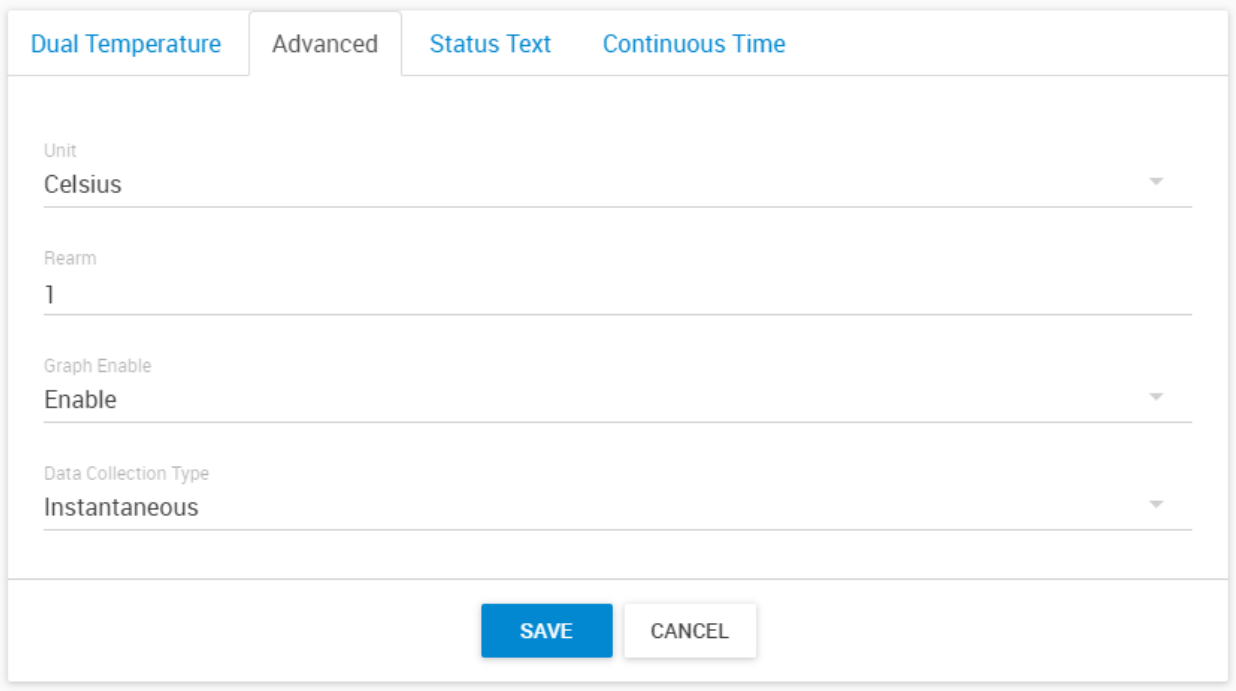
Here you can rename the sensor for easier identification:



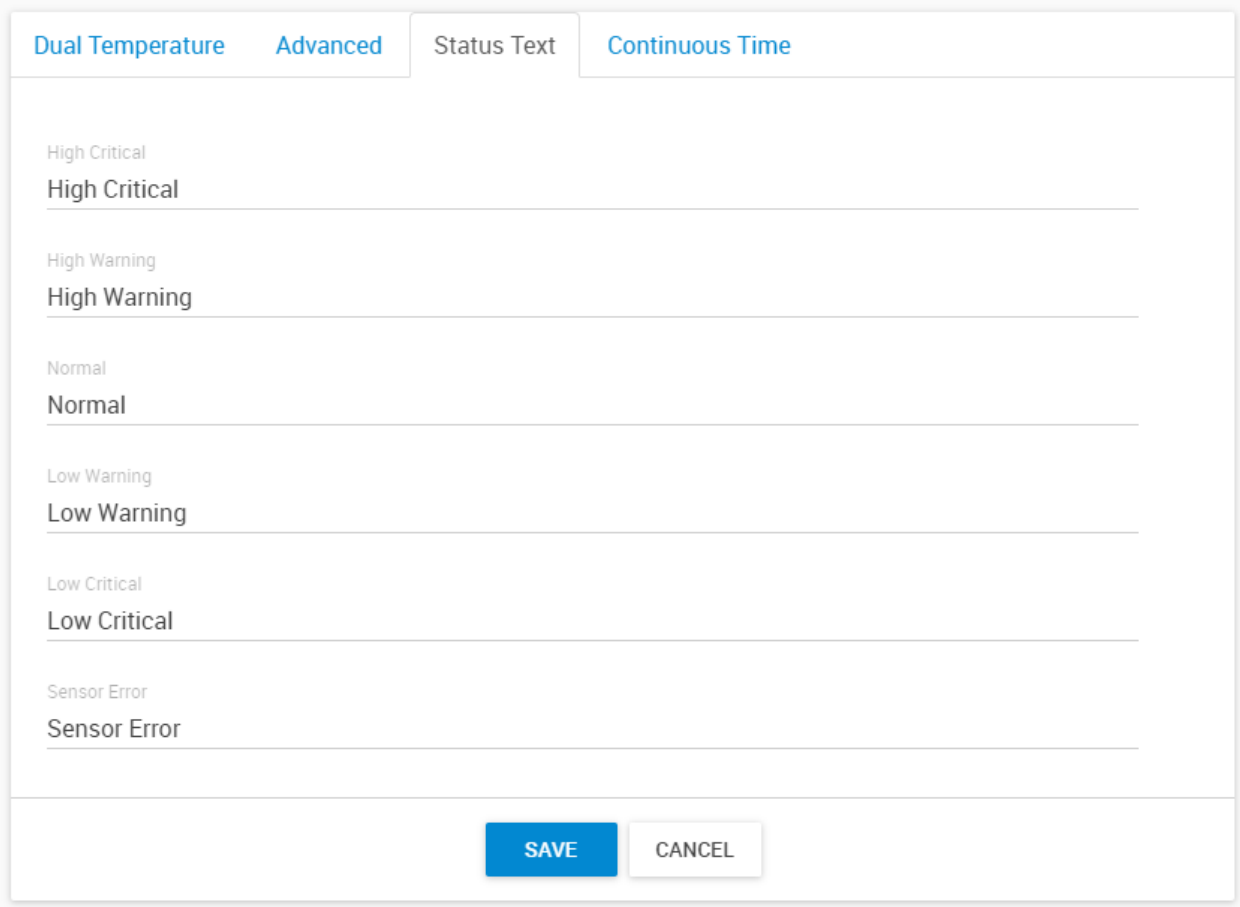
Adjust the sensor reading thresholds:



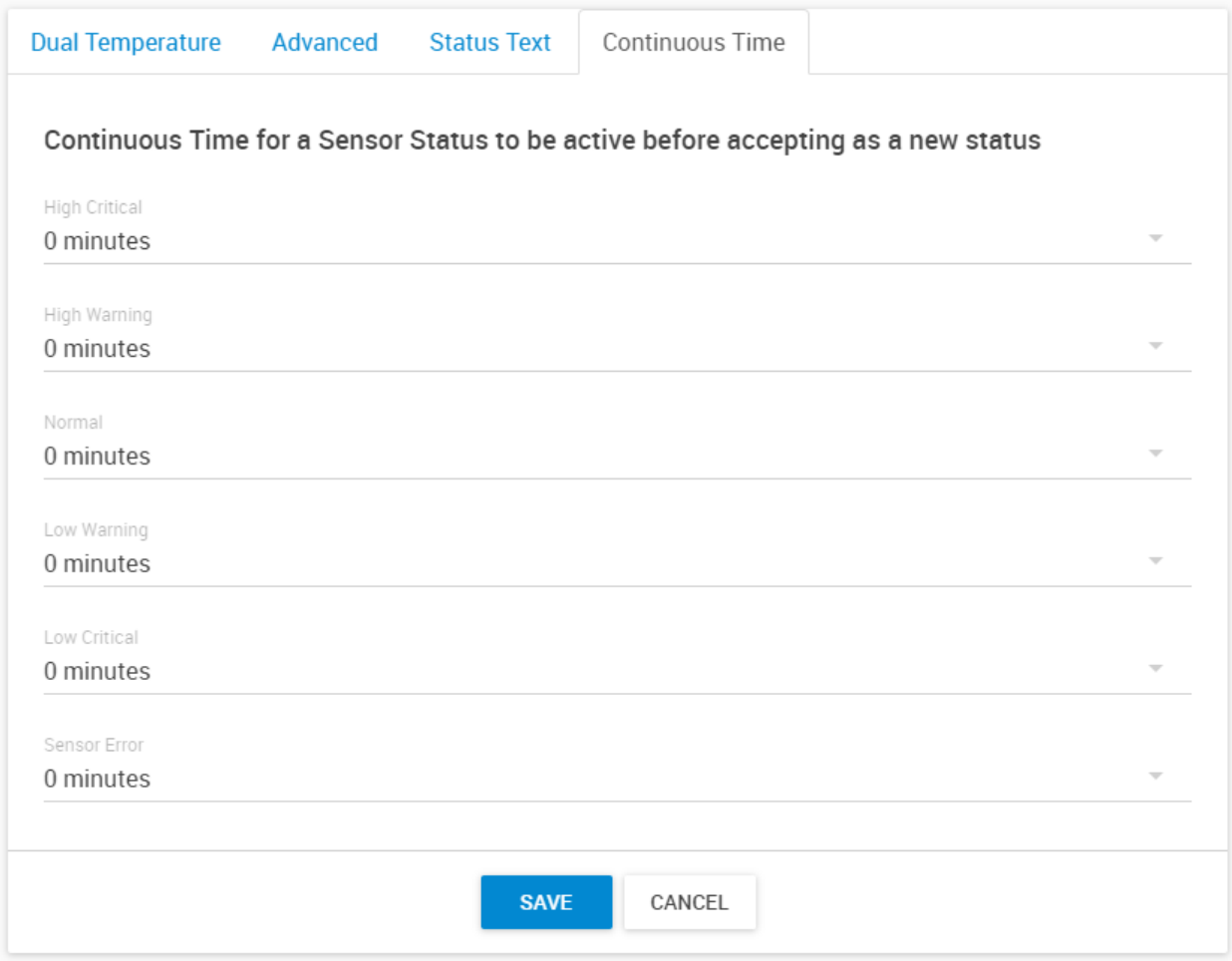
Access further fine-tuning of the readings:



Change the sensor reading status texts for each status:



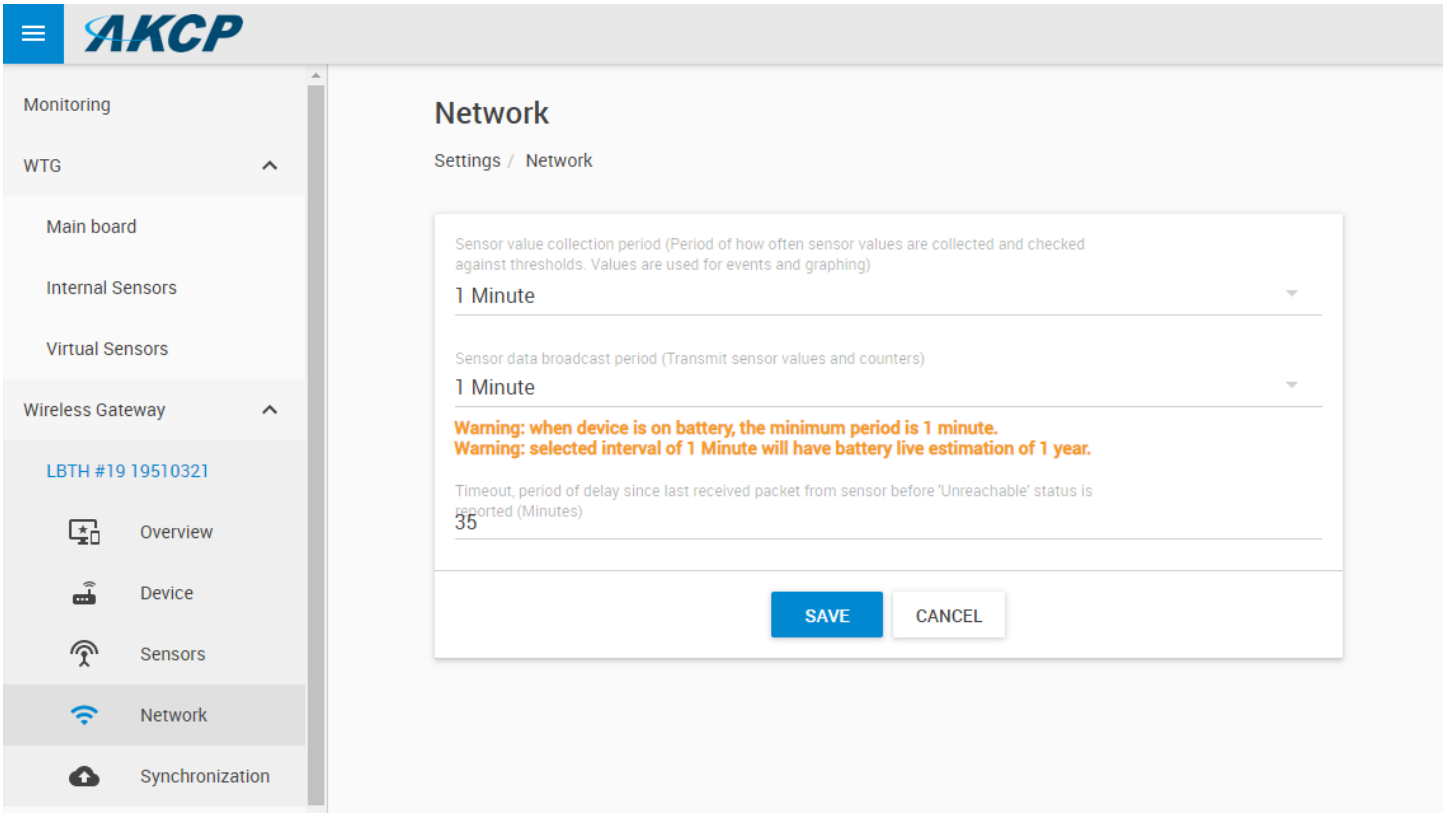
Adjust continuous time for each sensor status:



For switch type sensor, it's working the same as the feature we have on the wired AKCP sensors.

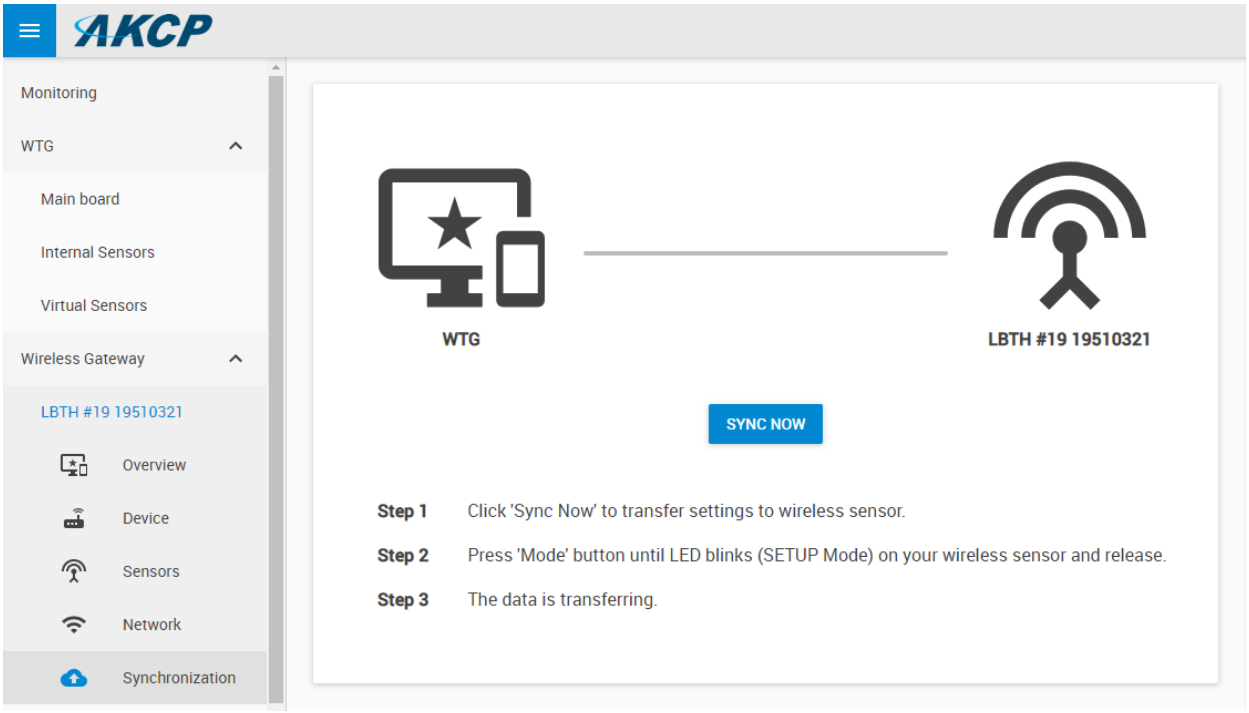
For analog sensor type, you can set the number of polling (we display in time, polling number * polling interval) before accepting the status.

Adjust wireless network settings per sensor (take note of the warnings regarding battery life):

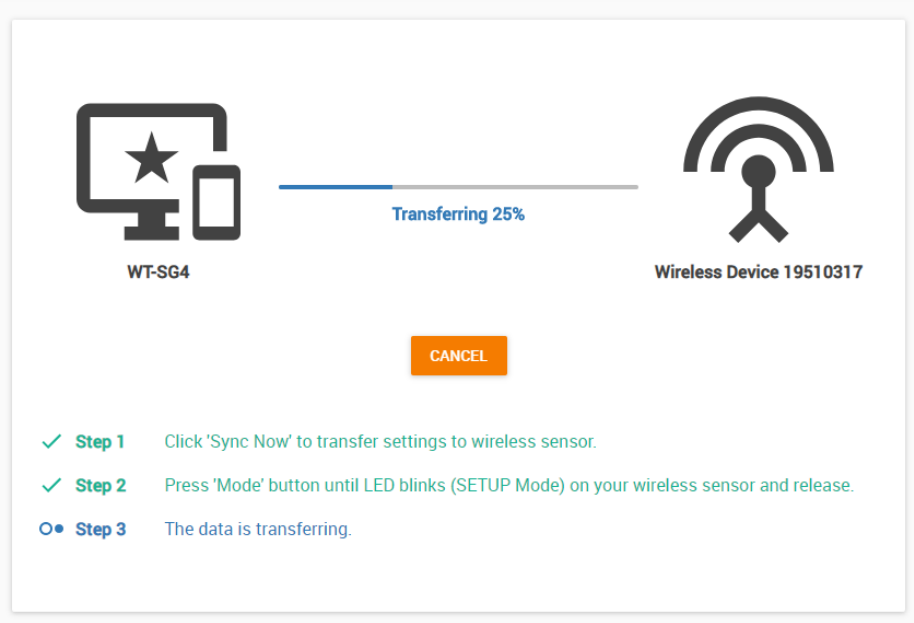


Important: the graph sampling period will use the “sensor value collection period” parameter. See details below in the Graphing feature overview.

After making any changes, you would need to re-sync the sensor.
This ensures that all configured settings will be sent to the sensor. Without sync, your new thresholds won't be applied.
Note: the sensor settings can also be synced automatically the next time that the sensor broadcast a packet, but doing a manual sync is a faster way when the sensor is close at hands.

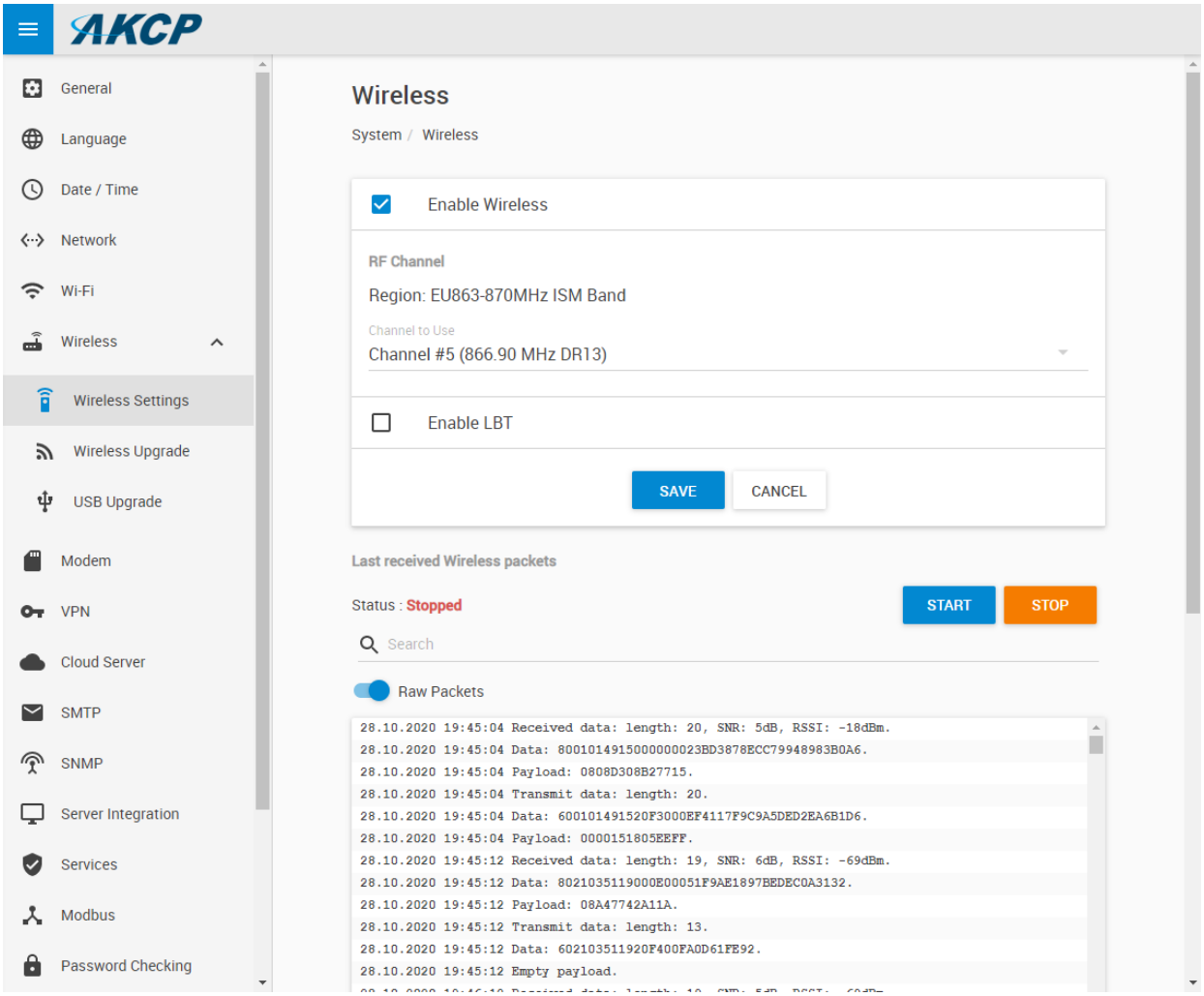


Click **Sync Now** button and follow the instructions on screen (switch the sensor to SETUP mode).



We recommend to change the used LoRa wireless channel, if you are in an environment with high radio traffic that affects sensor reading.

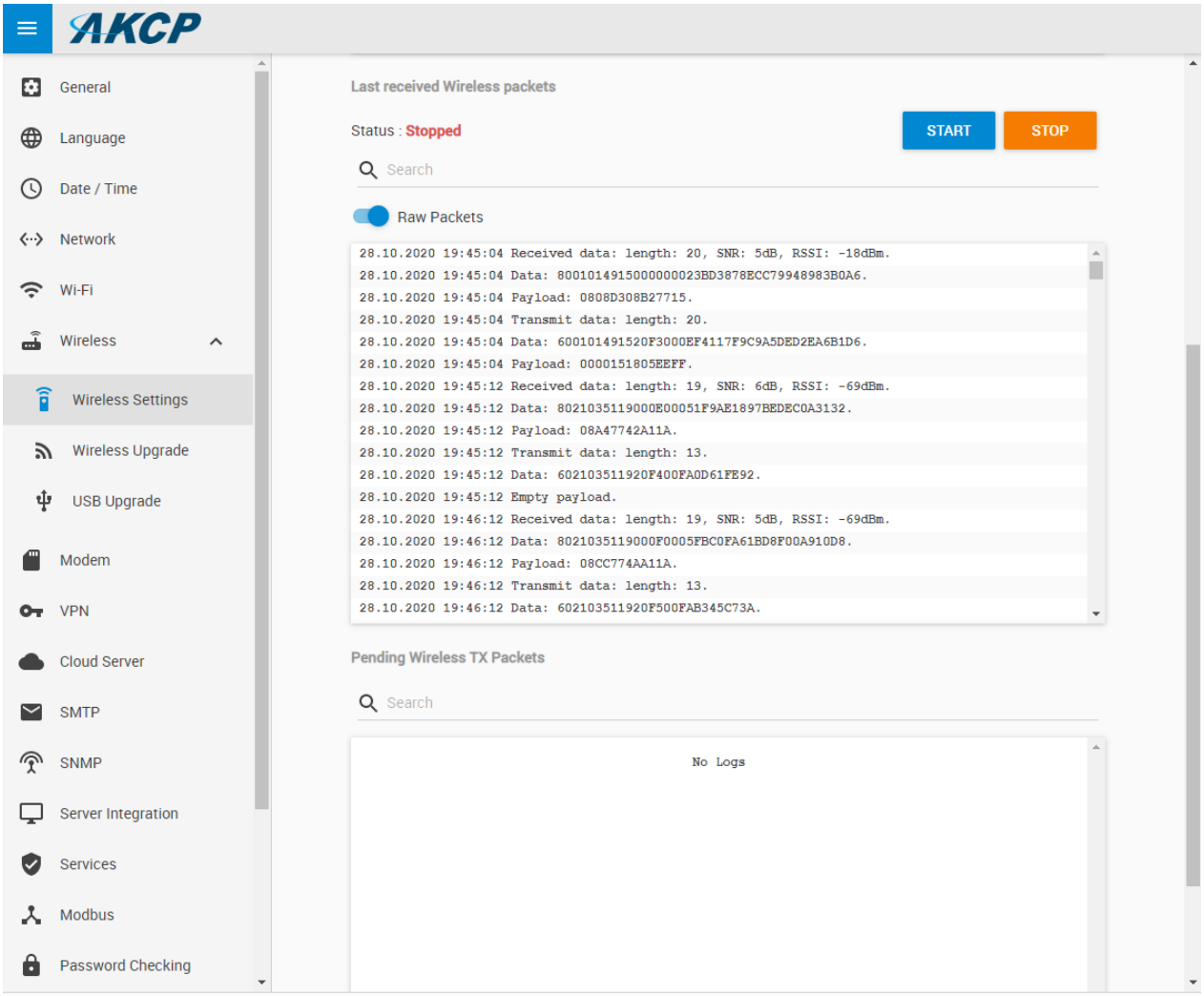
Go to **Settings menu / Wireless / Wireless Settings**:



Choose a different channel which has less radio traffic.
The available list of channels will depend on your country's radio frequency regulations.

Important: after changing the channel, you will need to manually re-sync your wireless sensors!

The Wireless Settings page also provides a packet logger feature for troubleshooting:

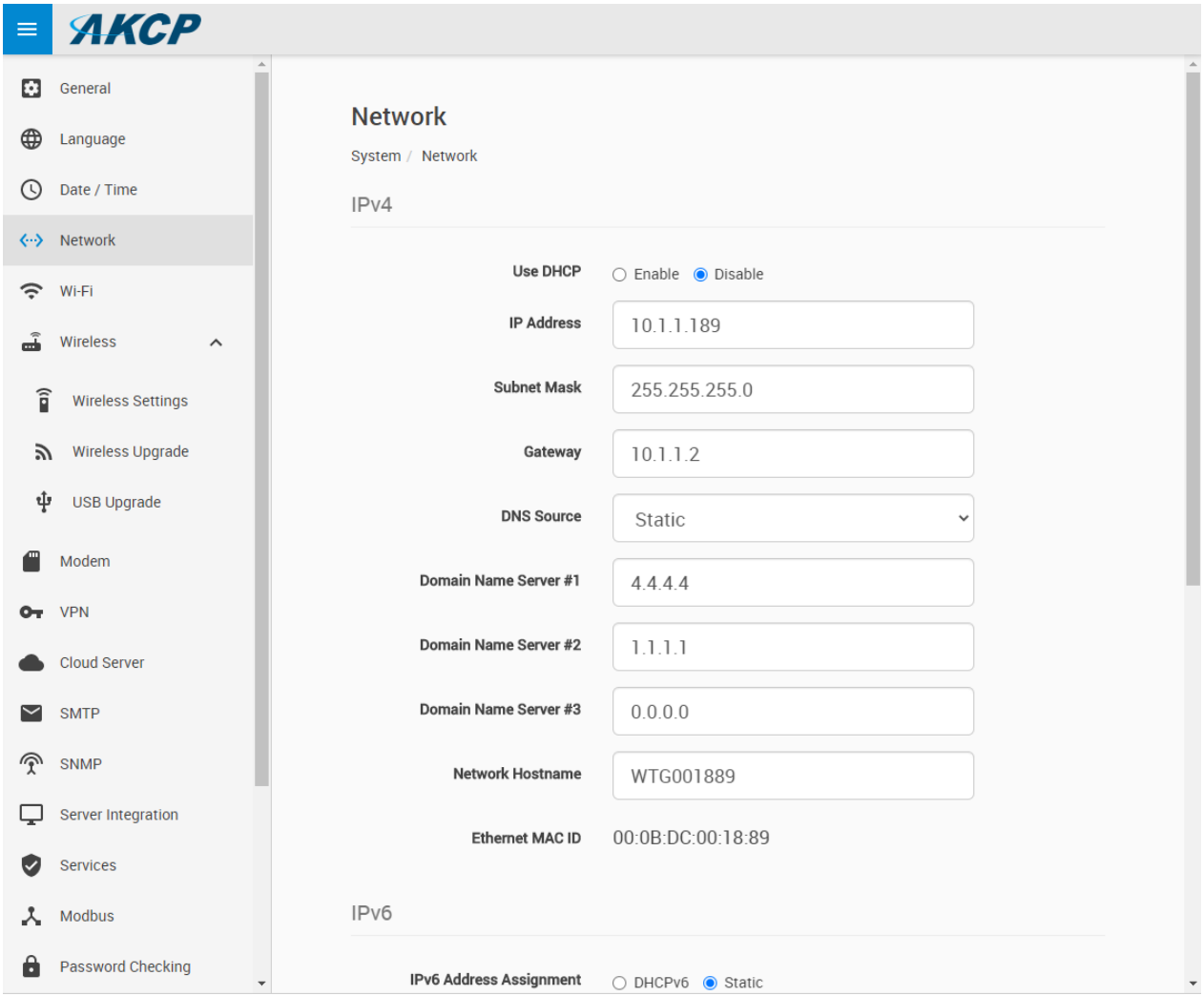


Press **Start** to begin logging of the wireless packets; it will show the received and transmitted packets. The logging will stop automatically, or you can stop it manually.

C) WTG Network Settings

Ethernet

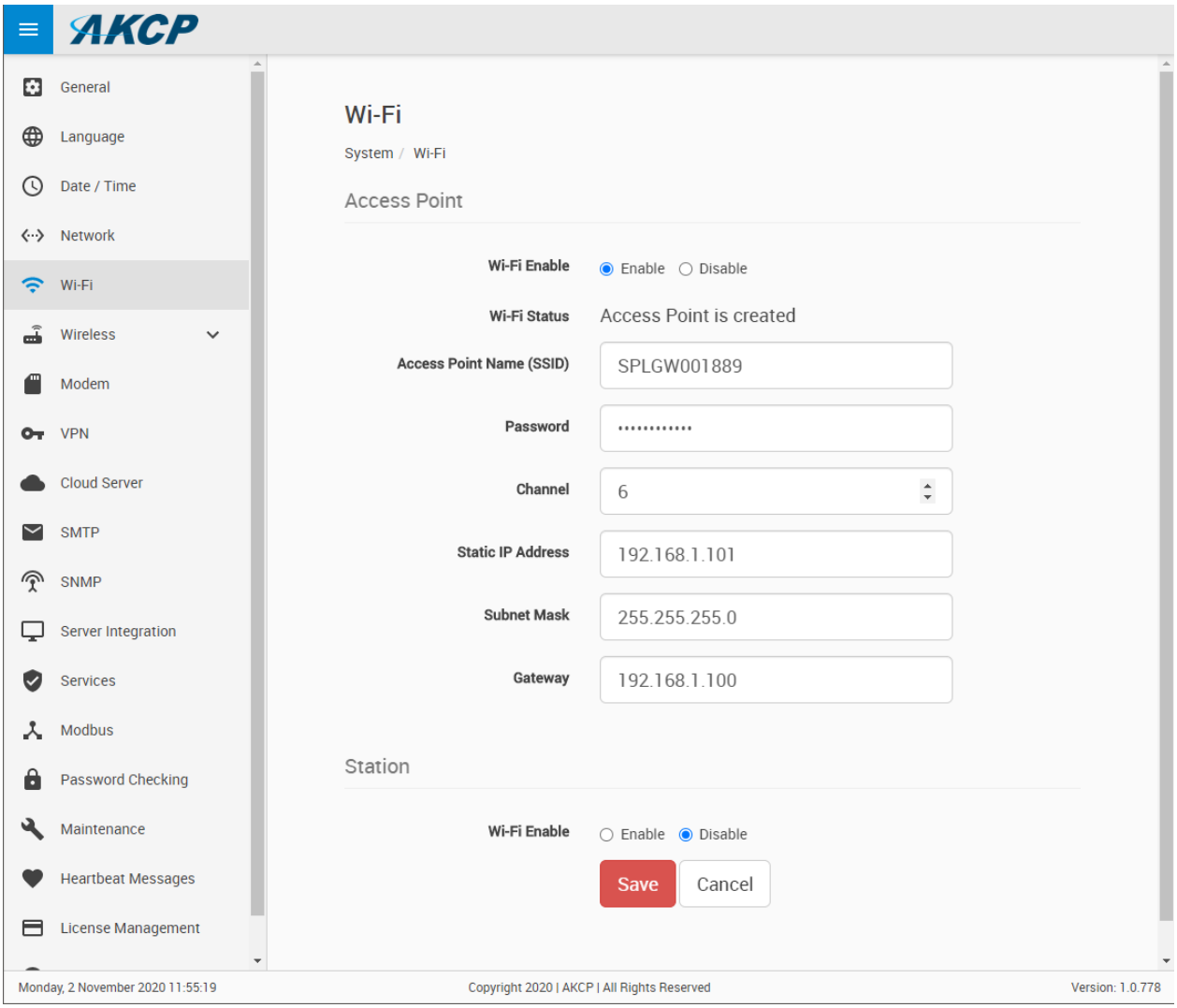
You can change the WTG unit's Ethernet network settings under **Settings menu / Network**:



These settings will affect the Ethernet interface only (wired connection).
IPv6 is also supported on the WTG (requires license).

WiFi

You can change the WTG unit's WiFi network settings under **Settings menu / WiFi**:

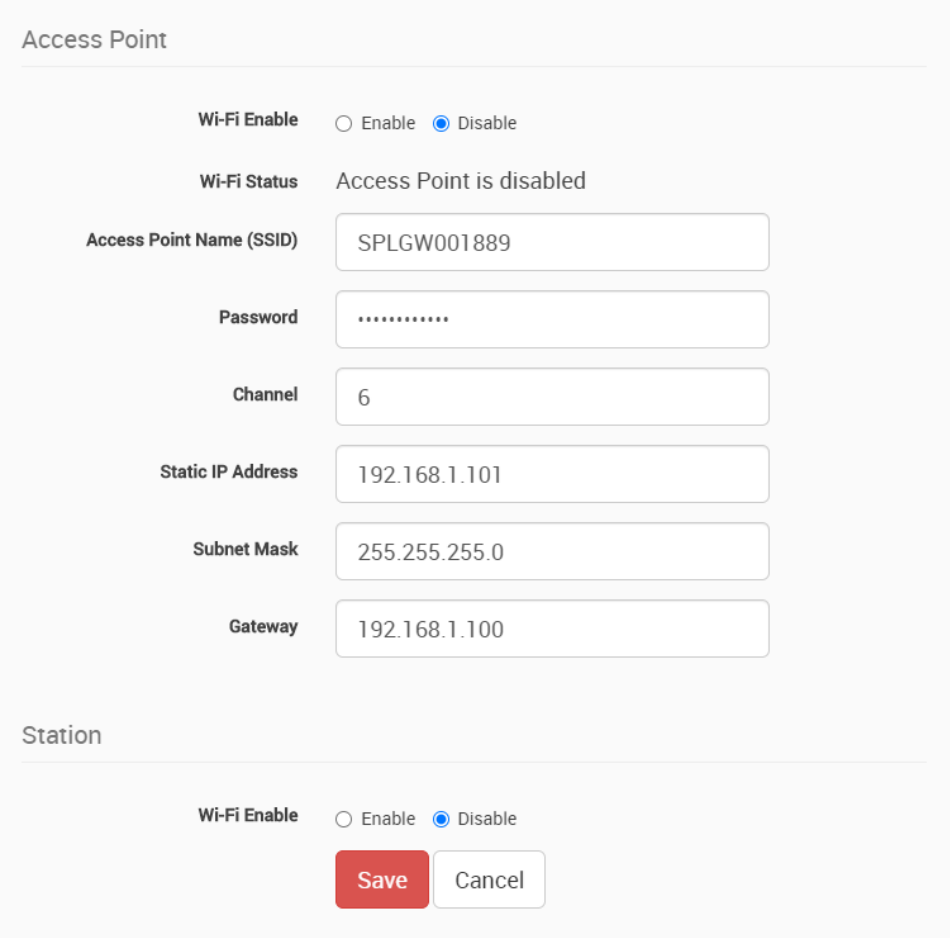


The Access Point setup will allow accessing the WTG WebUI. DHCP and DNS are offered for WiFi clients that are connecting to the WTG Access Point.
The Default Access Point settings can be overridden with a user-defined configuration.

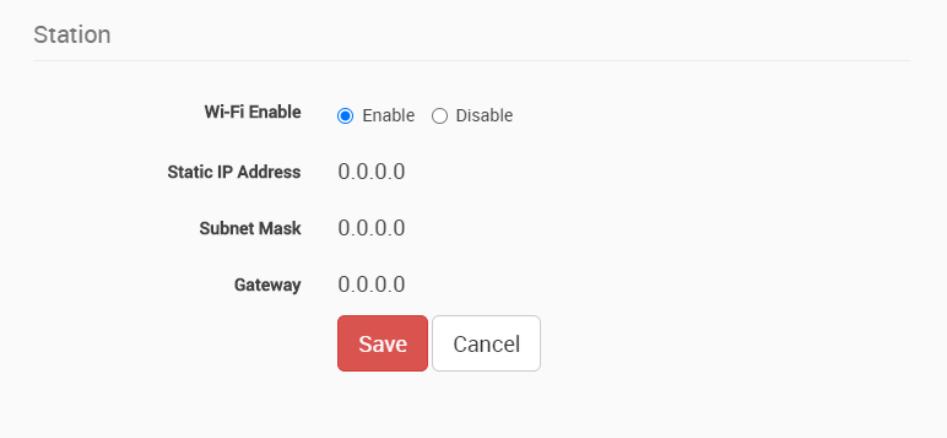
Very Important Note: on each power cycle of the unit, **the Default Access Point settings will be temporary re-enabled for 5 minutes**, regardless of the current configured WiFi settings.
Only after 5 minutes the user configured settings will take effect (which can be another Access Point with custom settings or the wireless Station/Client mode to connect to another network).

Press **Save** after making any changes.

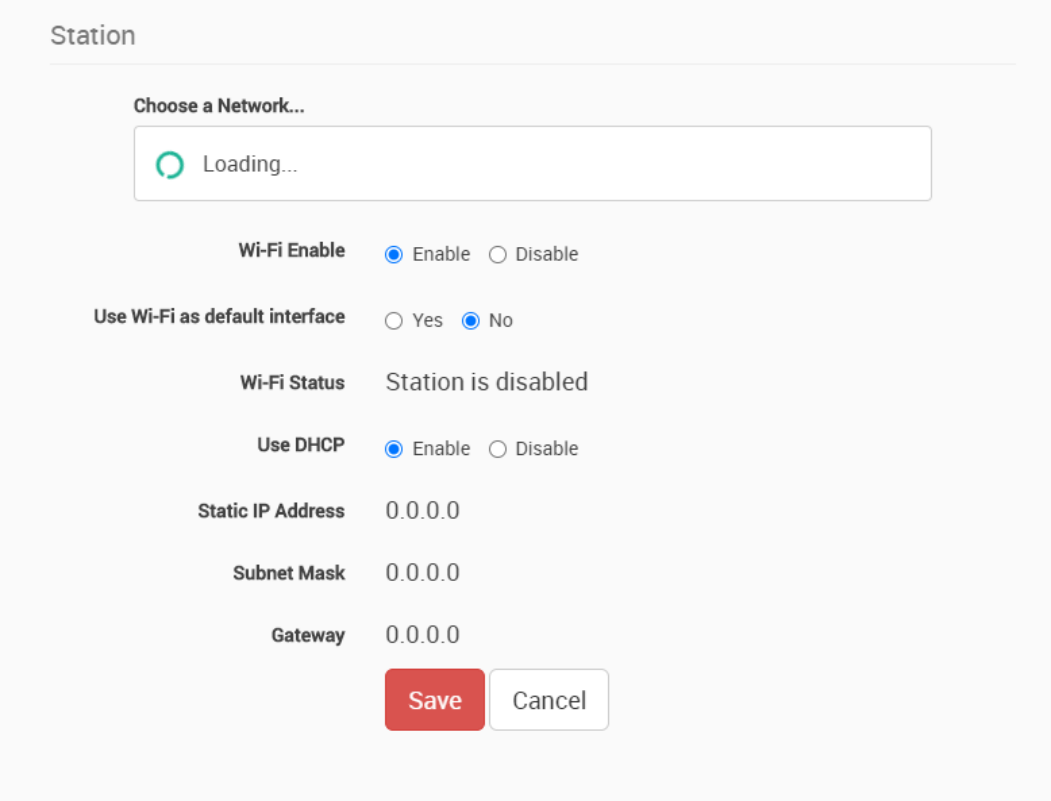
To configure Station mode (WiFi client) and connect to an existing WiFi network do the following:



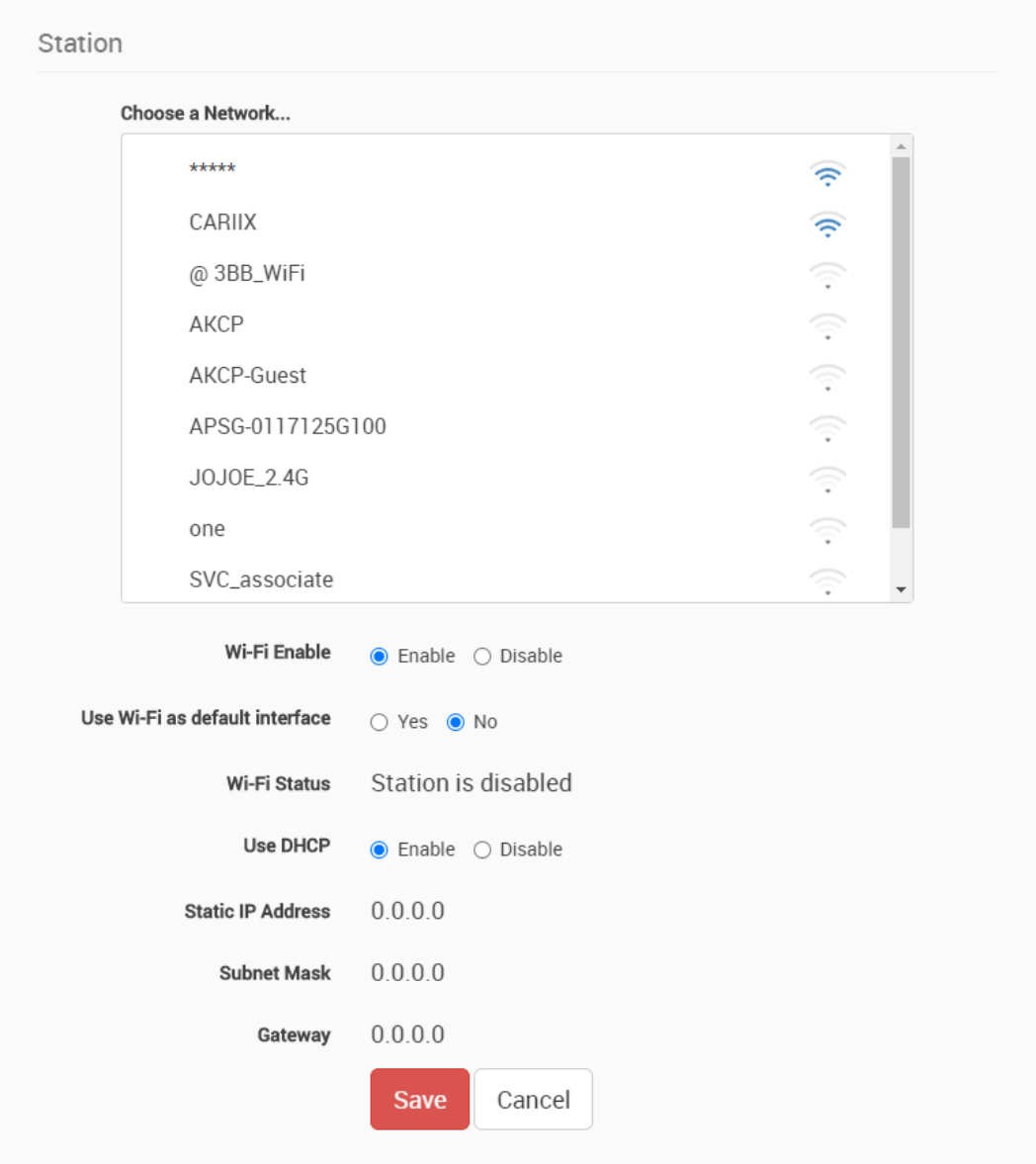
Set the **Access Point** mode to **Disabled**



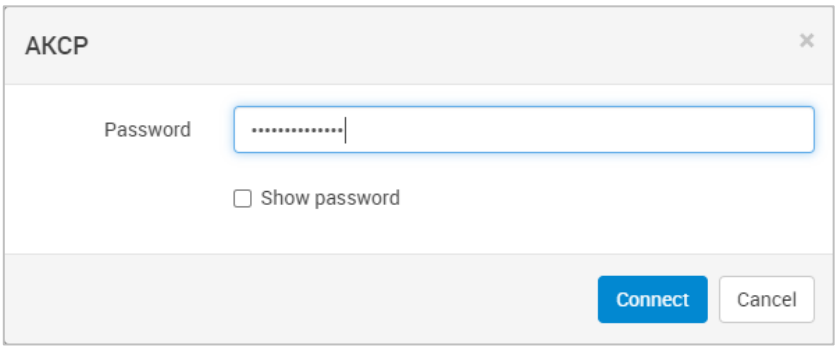
Set the **Station** mode to **Enabled** and press **Save**



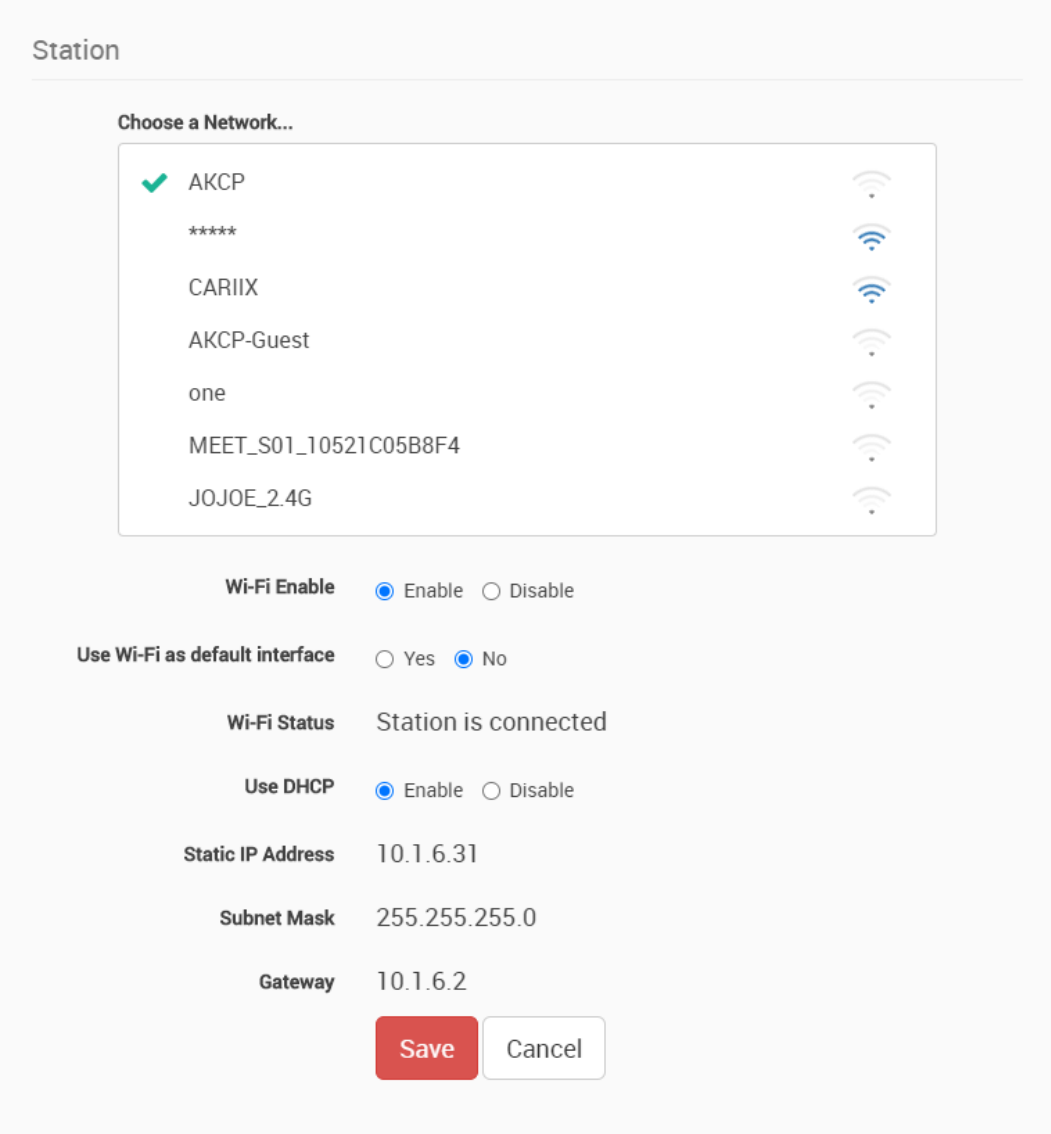
The WiFi module will start to search for available WiFi networks to connect to, and display the results.



Choose your WiFi network from the list and click on it.



Enter your WiFi password when prompted.

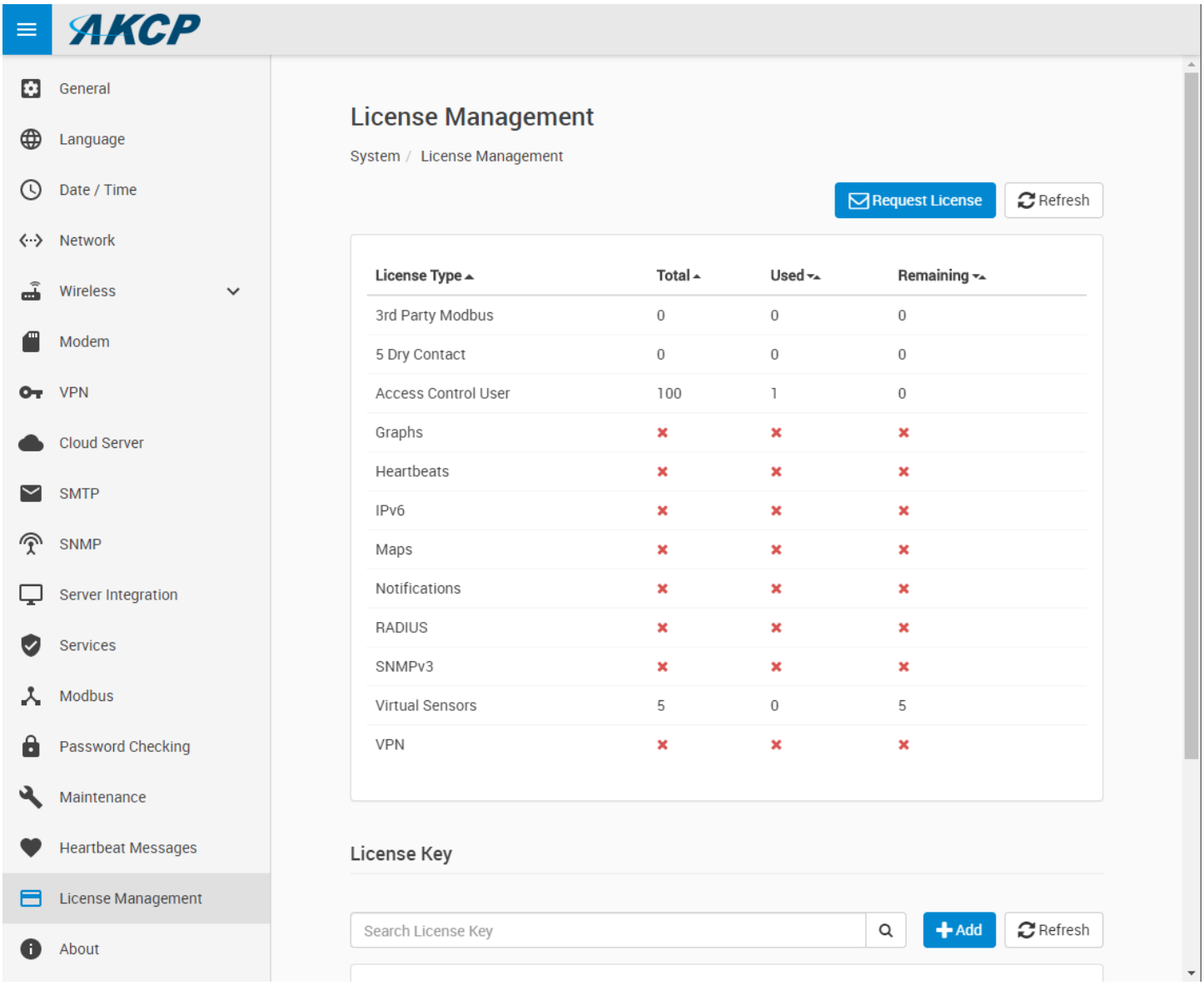


After the connection was successful, you will see a green tick mark. Otherwise an error popup will be shown.

You can review the WiFi connection details after the WTG has connected.
It will show the IP address, netmask and gateway settings that it received from the WiFi router by DHCP.
You may also select to disable DHCP and manually assign the network configuration for the WiFi network.

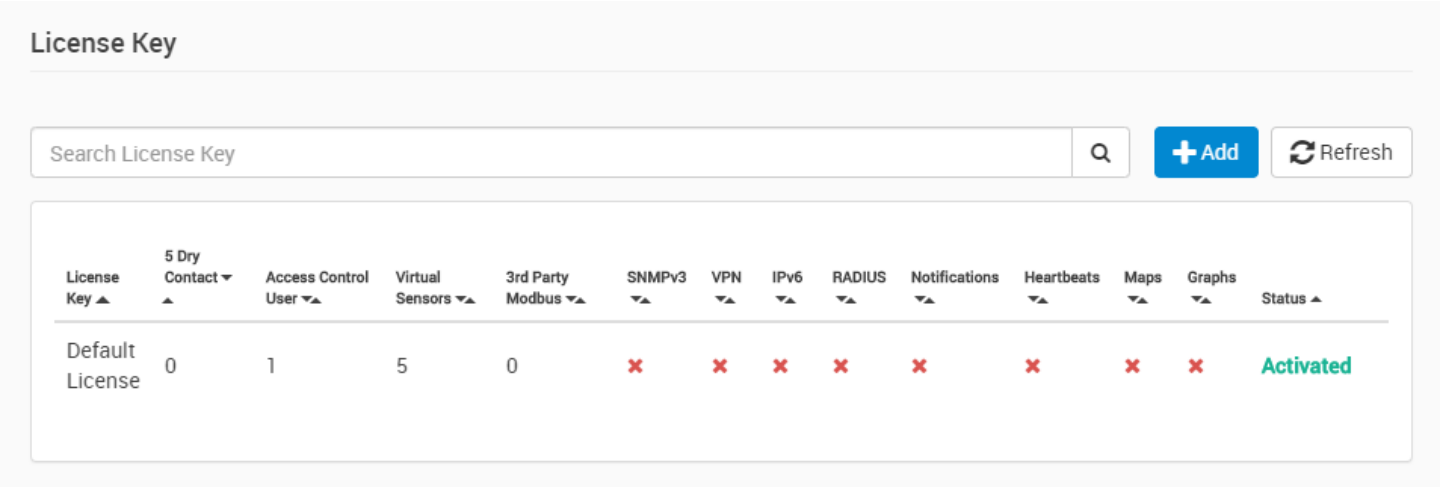
D) License Management

You can review the current license under **Settings menu / License Management**:

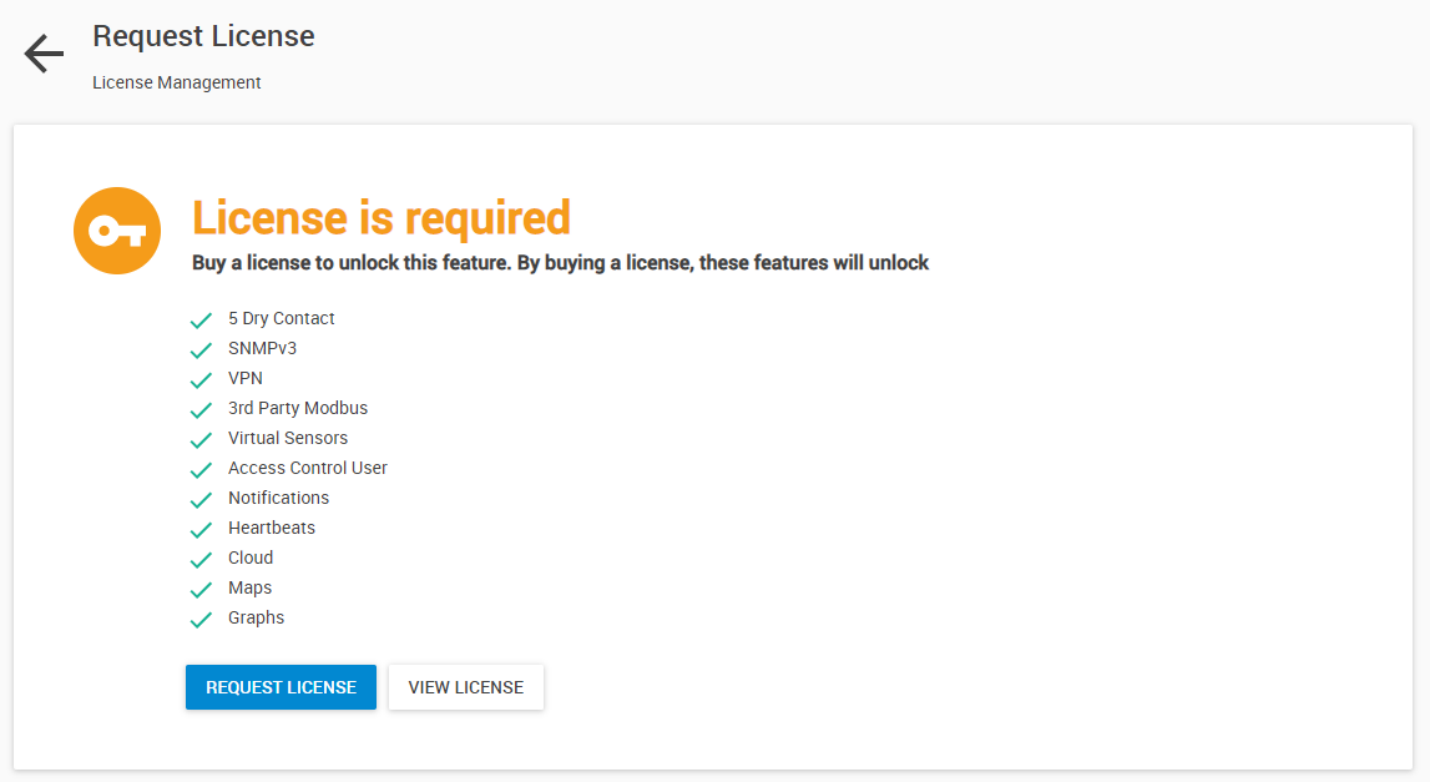


This page will show the current state of licensed features.
Scroll down to view any License Keys that are installed for your WTG.

All units are shipped with the default license. This has some restrictions on product usage - most features will be disabled, such as virtual sensors, graphing, notifications (see details below).

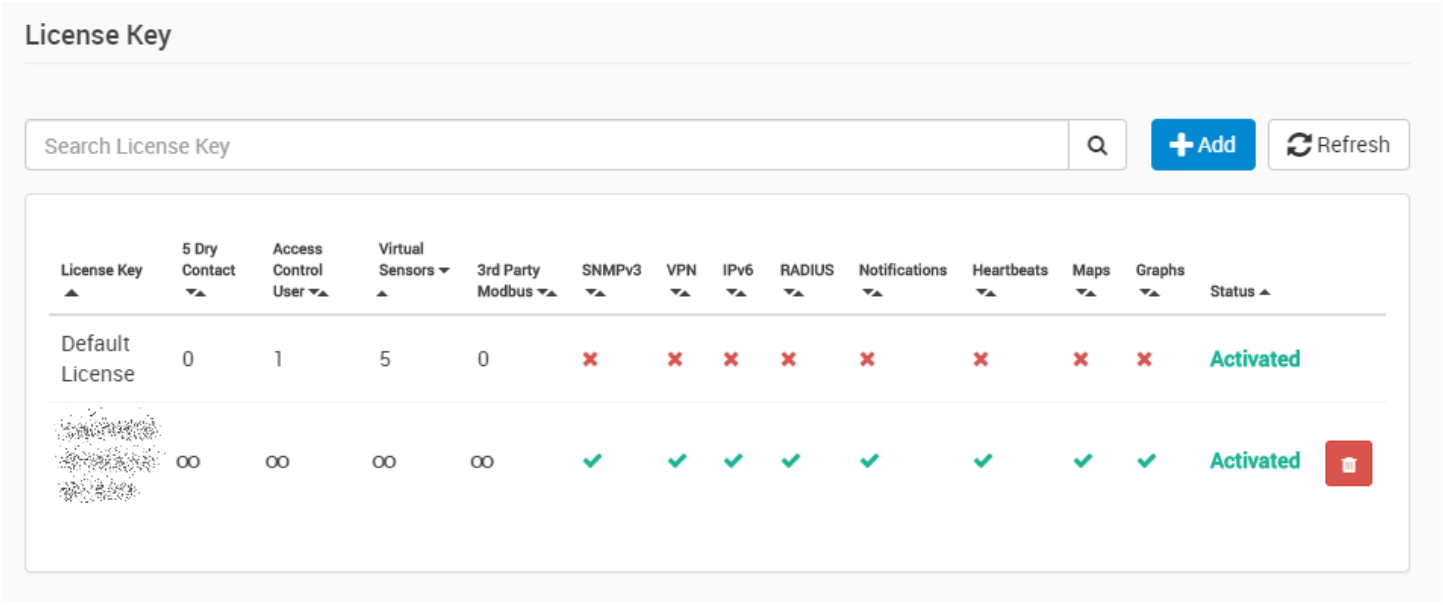


When you attempt to use a feature that requires a license, you will see a notification:



Contact Sales for a quotation for your required licensed features by clicking **Request License**.

When you receive the license key, click on **Add** and copy-paste the key:



You will see a green tick-mark for the enabled features, and the number of Virtual Sensors, Access Control Users etc. that your license allows to use.

Note: the entered license will remain in effect even if your unit is returned to factory defaults.

You must reboot the device after making any changes.

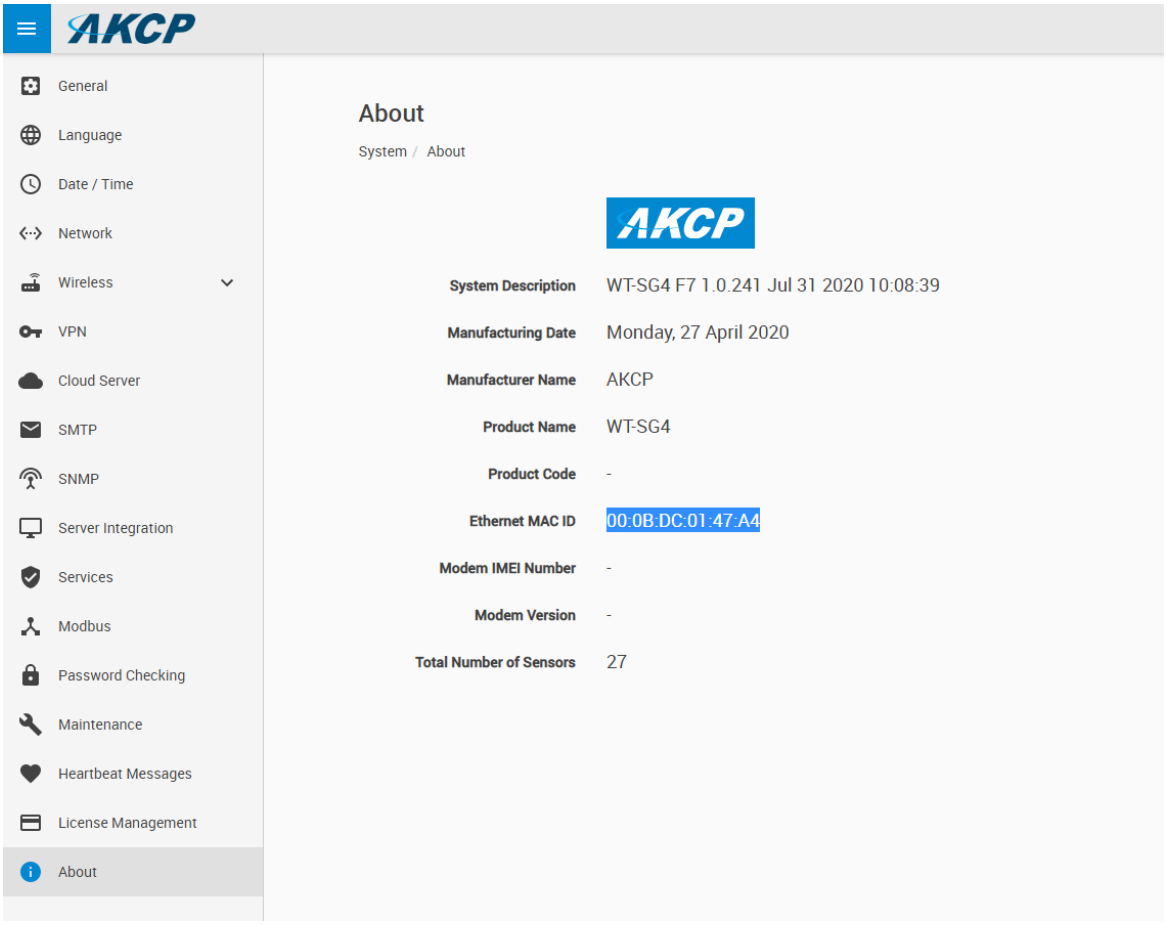
Hint: when prompted for reboot, the default Admin user password is “public”.

E) Cloud WebUI

The AKCP Cloud service is used for WebUI forwarding of supported devices using VPN, and is a licensed feature. The forwarding will enable accessing the unit's WebUI from anywhere in the world by logging in to the AKCP Cloud dashboard with the unit's MAC ID.
Because the Cloud service will enable world-wide access to the unit's WebUI by using the MAC ID, the unit's owner has to set up and enable the additional WebUI password protection to prevent unauthorized access.

Connecting your device to cloud.akcp.com

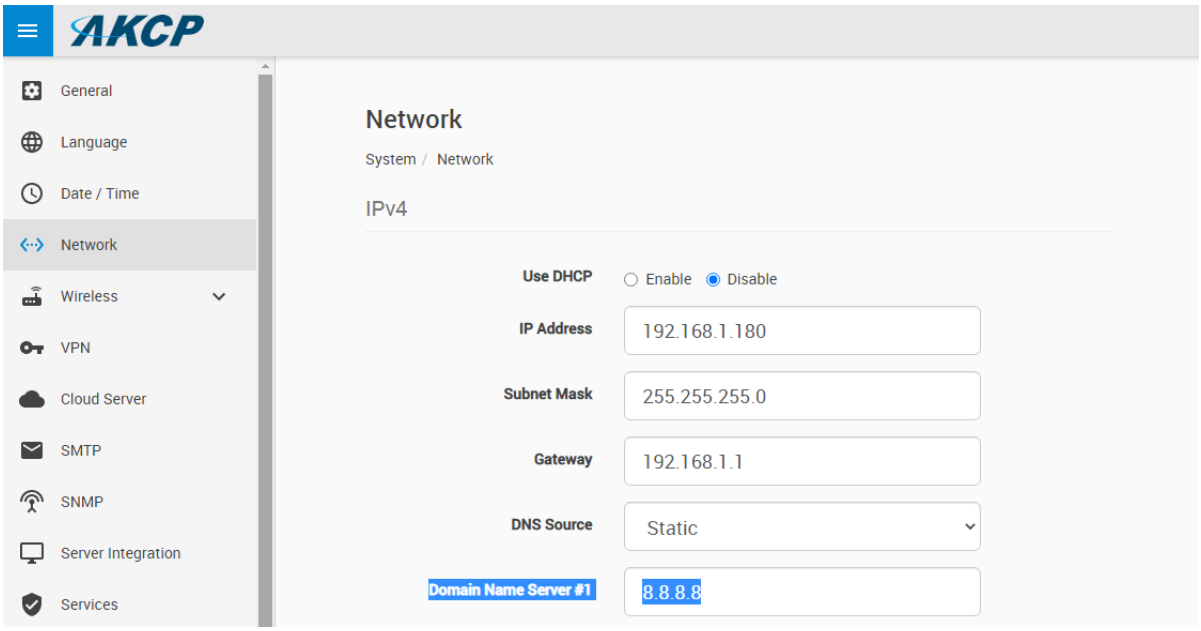
1. Copy the device MAC ID from the unit's **About** page, for example: 00:0B:DC:01:47:A4



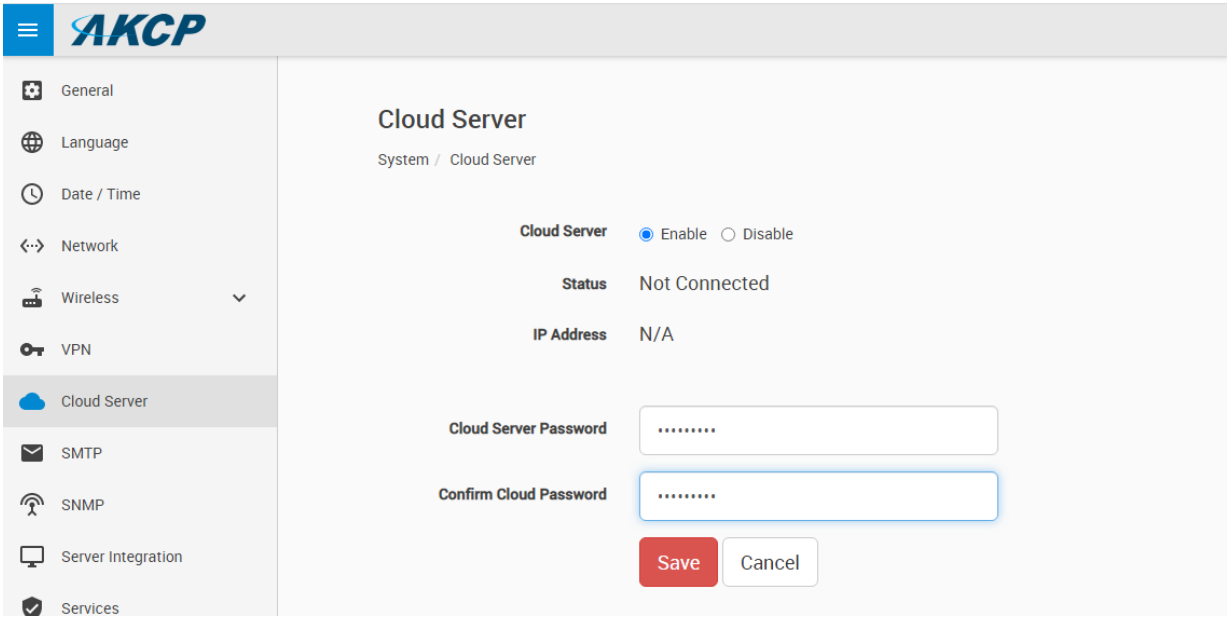
2. Send a request email to AKCP Sales sales@akcp.com to add your unit to AKCP Cloud

   You will get a reply with the Cloud VPN password, which you will need to enter manually on your unit to connect.

3. Check that your unit can **resolve hostnames** with DNS server correctly (contact your network administrator, if you are not sure)



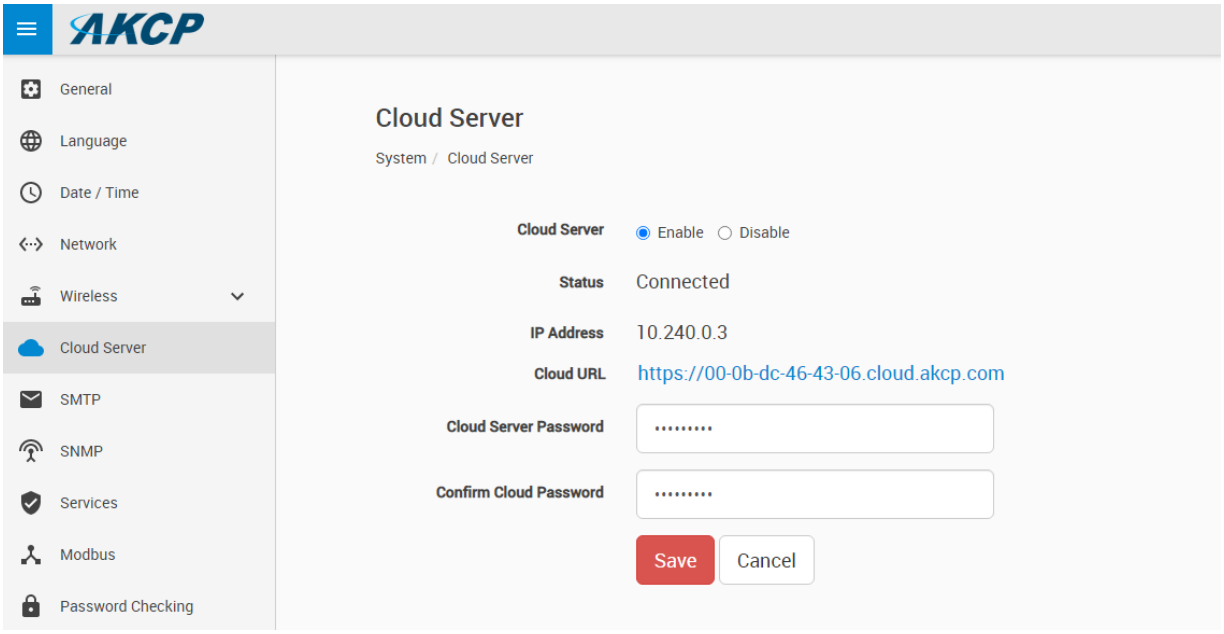
4. Go to **Cloud Server page** on the unit and fill out the **password** which was set up for your unit at the AKCP Cloud dashboard, click **Enable** and then **Save**.



Important: The unit will need to be rebooted after the changes.

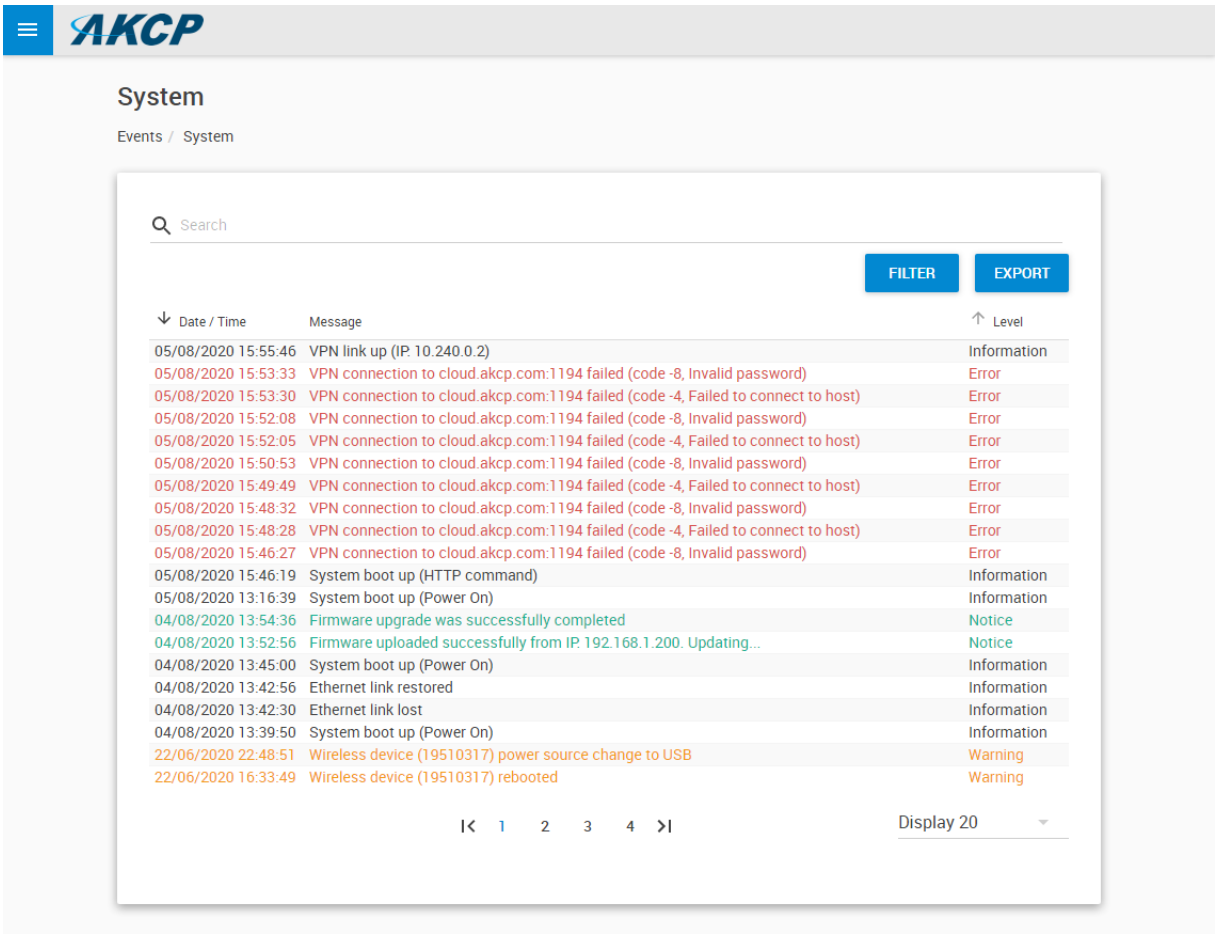
Note: the **VPN** and **Server Integration** pages will be automatically hidden if the Cloud Server settings are set up. This is because Cloud server uses VPN, and Server Integration needs to be disabled when using Cloud service.

5. **Reboot** the unit and wait for the device to be connected.

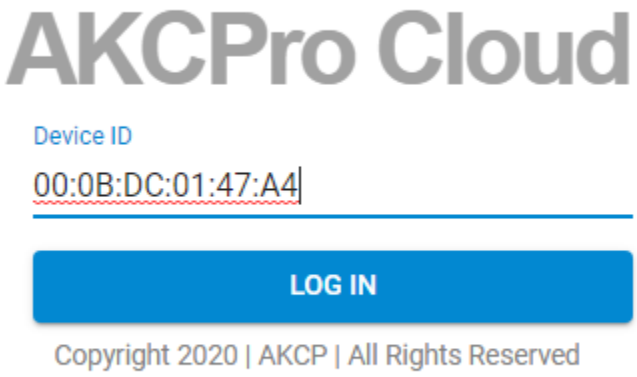


The Cloud URL will also be displayed for quick access.

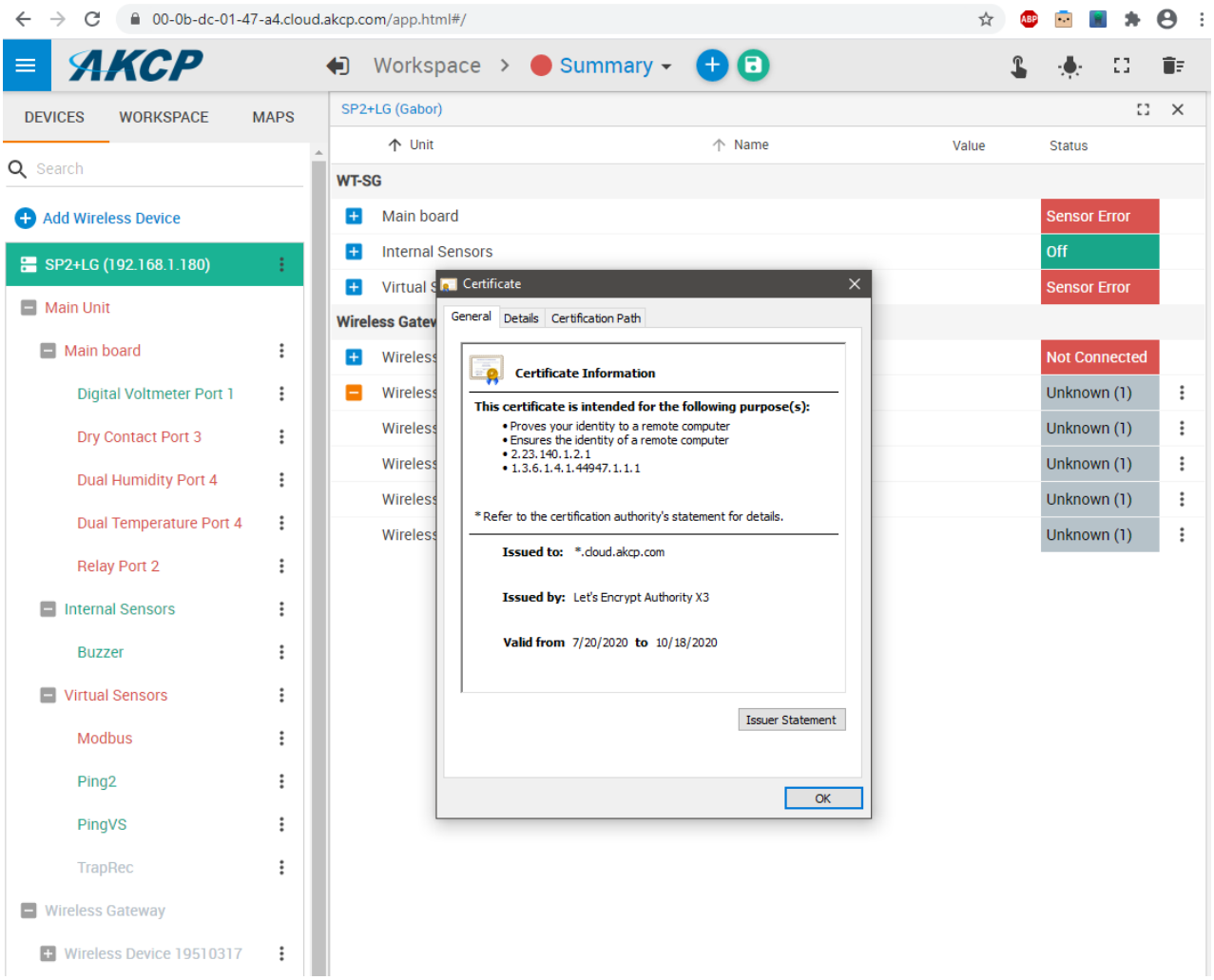
If there's any connection issues (password, cannot resolve name etc.), it will be logged in the Event Log:



6. Go to http://cloud.akcp.com, and log in with the Device MAC ID, e.g. 00:0B:DC:01:47:A4



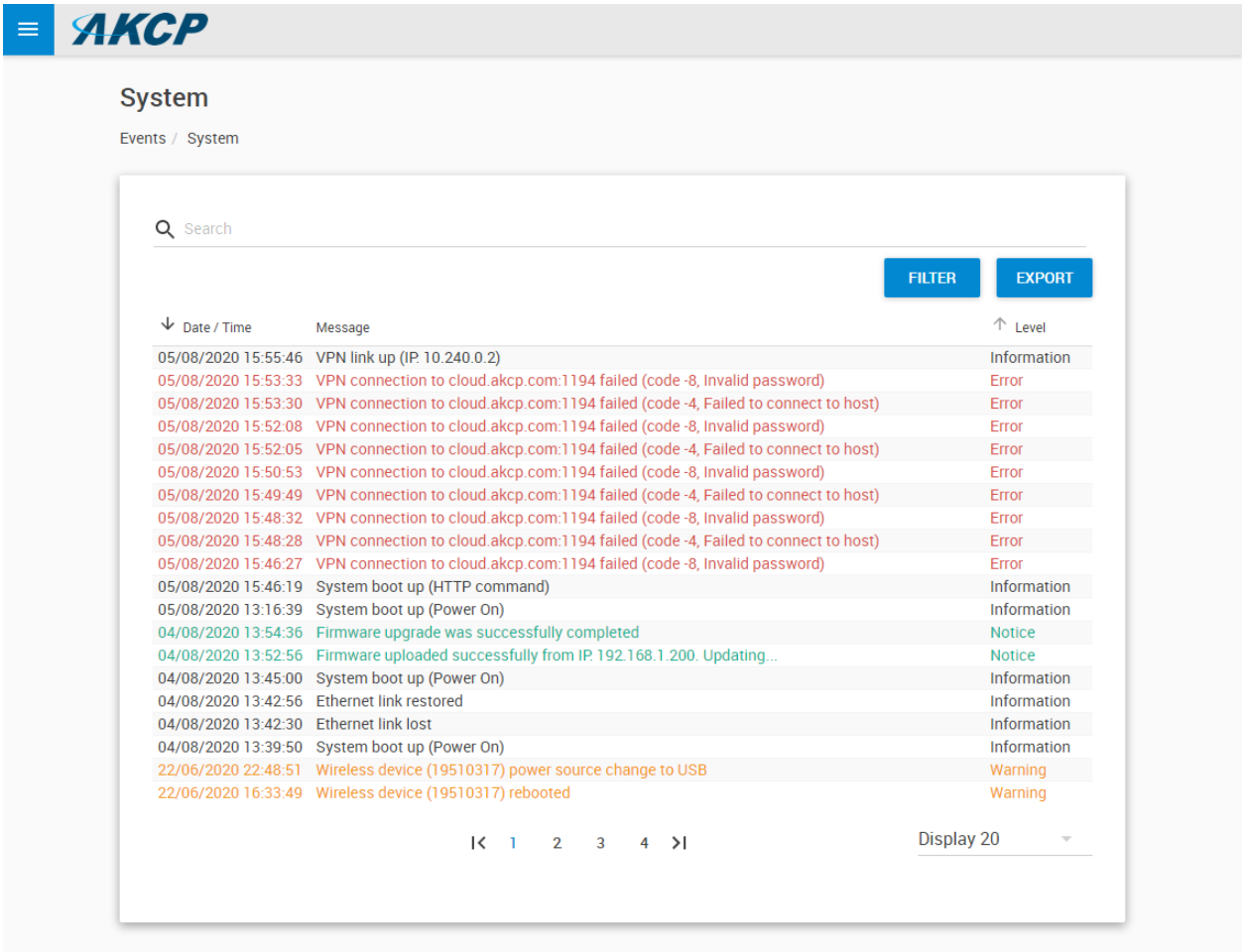
7. The WebUI of the connected device will load (first time loading could be slow), and the HTTPS certificate should show as valid from LetsEncrypt:



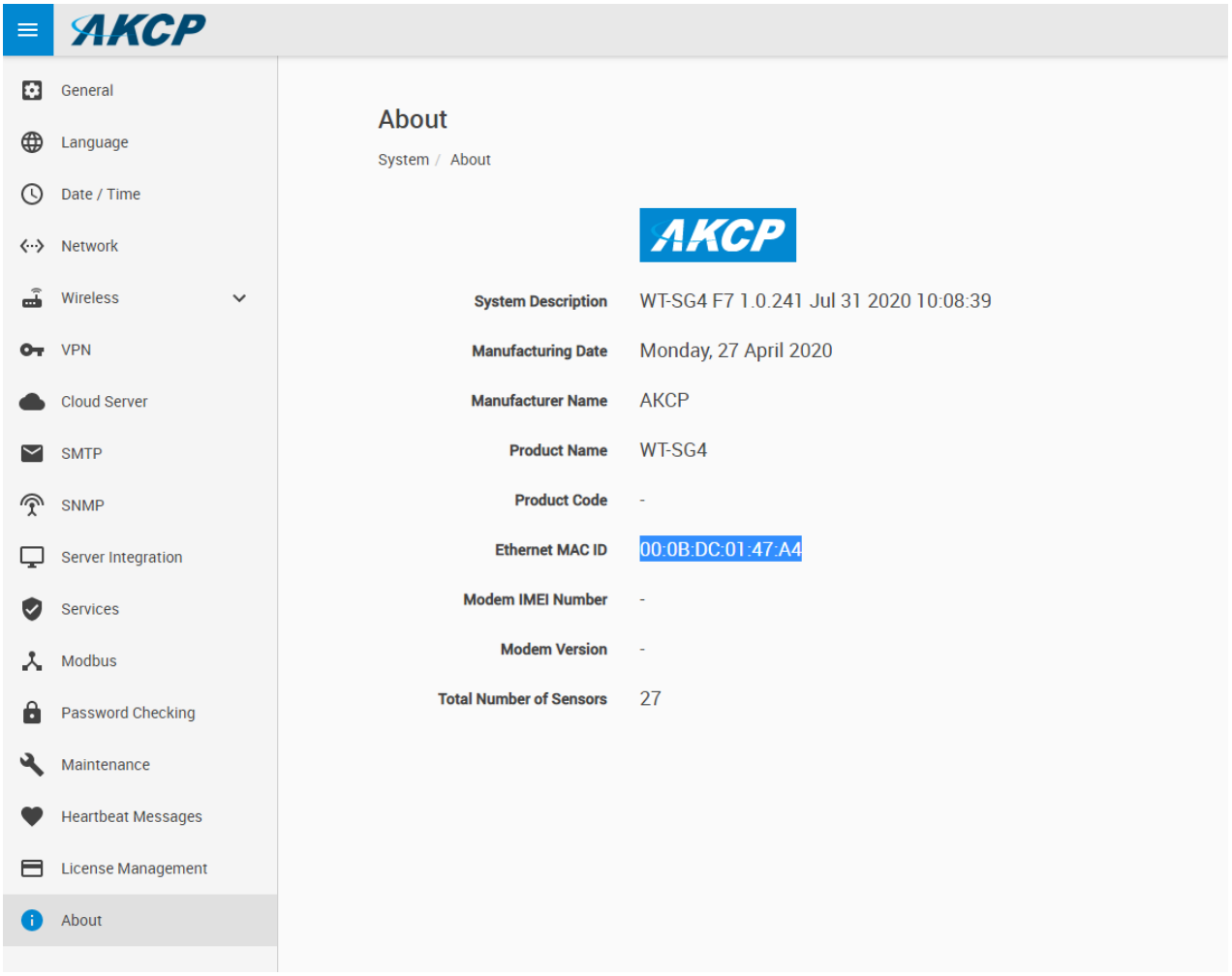
Cloud Troubleshooting

1. First check for common connection issues:
    - Wrong password
    - Unit cannot resolve DNS name or no Internet access
    - Unit's cloud license expired
    - Unit disabled in Cloud console

    Check the unit's Event Log for problems:



2. Contact Support and ask for help resolving the issue: support@akcp.com

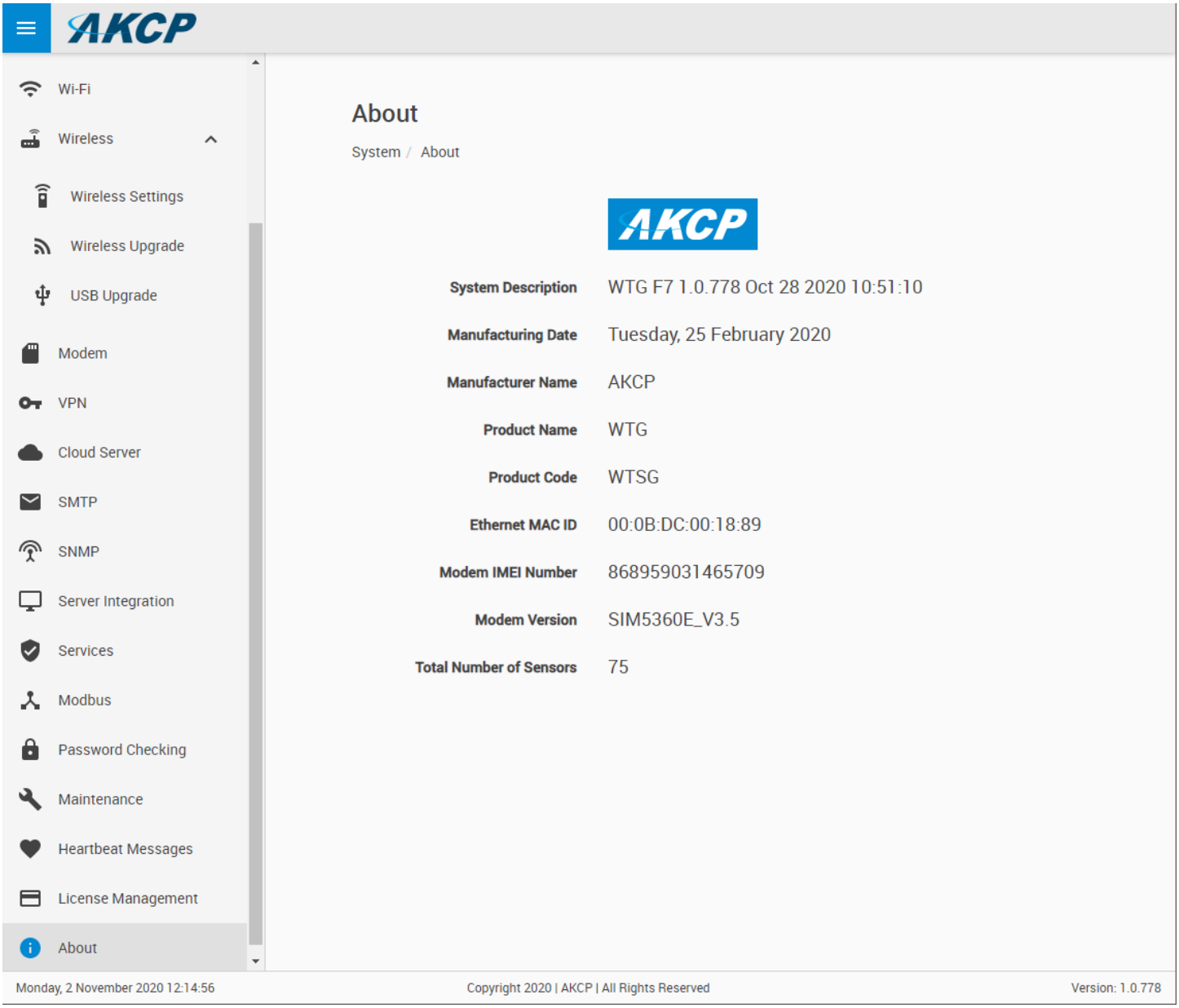


Note your device's MAC ID and System Description.

F) Features overview

About device

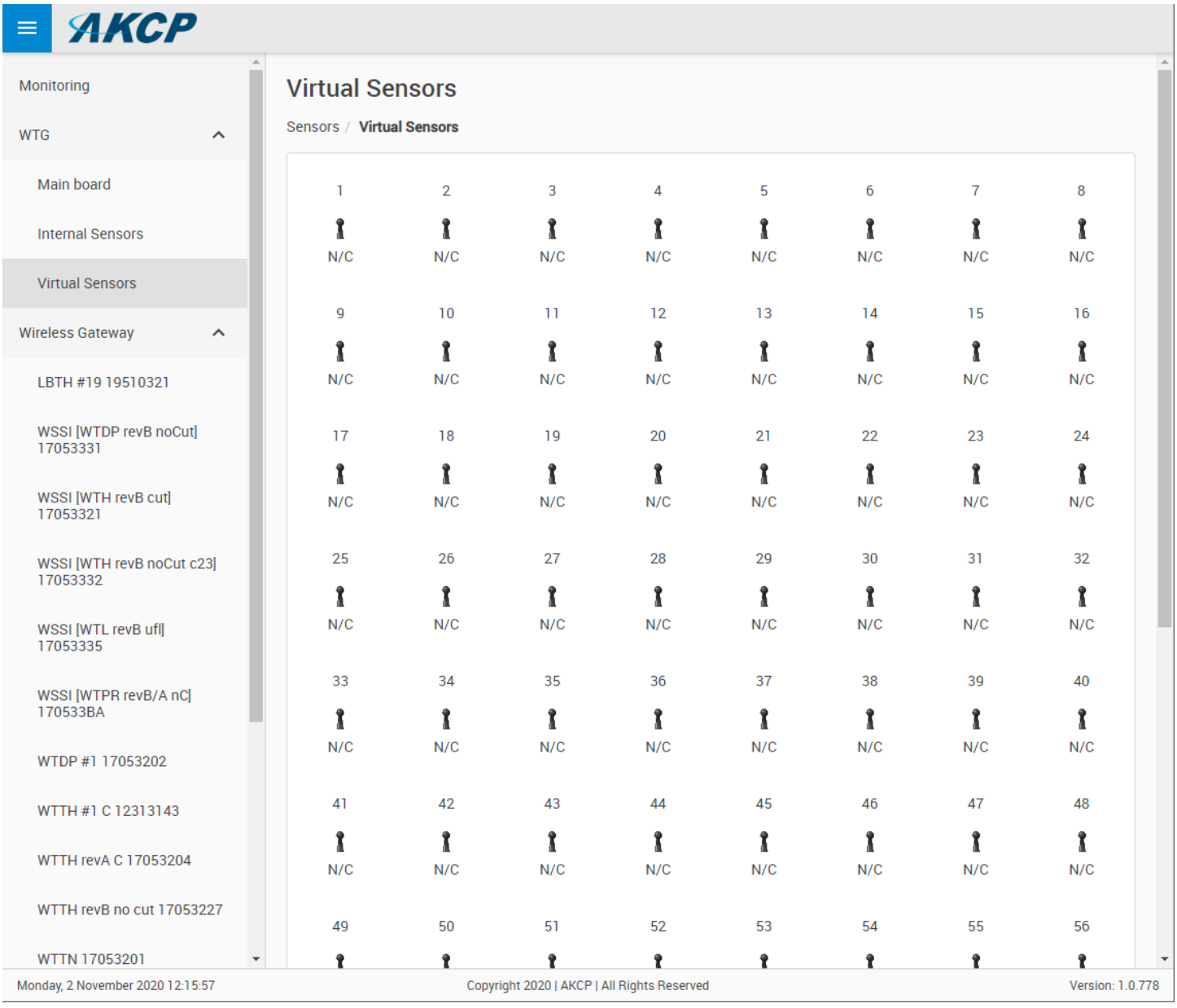
In **Settings menu / About** you can review the details of your device:



It contains important information such as the firmware version, product type, MAC ID and the total number of sensors.
It is a good practice to make a screenshot of this page when you contact Support.

Virtual Sensors

You can access the Virtual Sensor configuration under **Sensors menu / Virtual Sensors**:



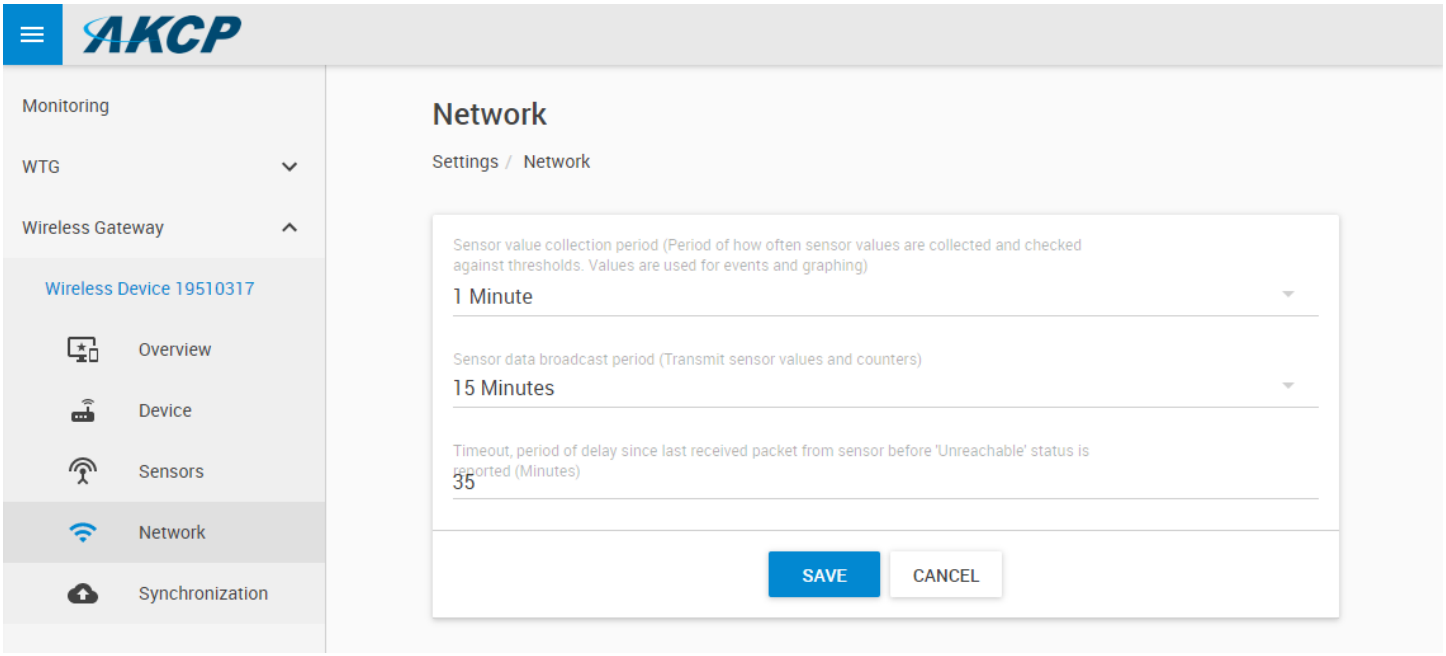
The configuration and supported features are the same as on our sensorProbe+ family units. Contact Support for the sensorProbe+ manual that contains the Virtual Sensor configuration details.

Note: you will need virtual sensor license to be able to use this feature.

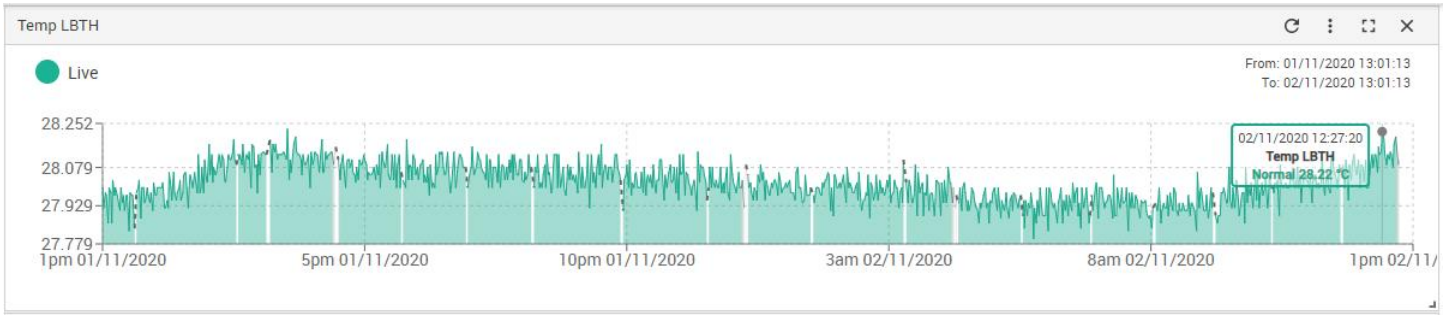
Graphing

You will need to manually enable graphing collection for any virtual sensors one by one.
For wireless sensors, the graphing is automatically enabled – but to be able to see the collected graph data, you will need graph license.
The supported graph features are the same as on our sensorProbe+ family units.

The wireless sensor graph collection period settings are set on each sensor's settings page (sensor value collection period):

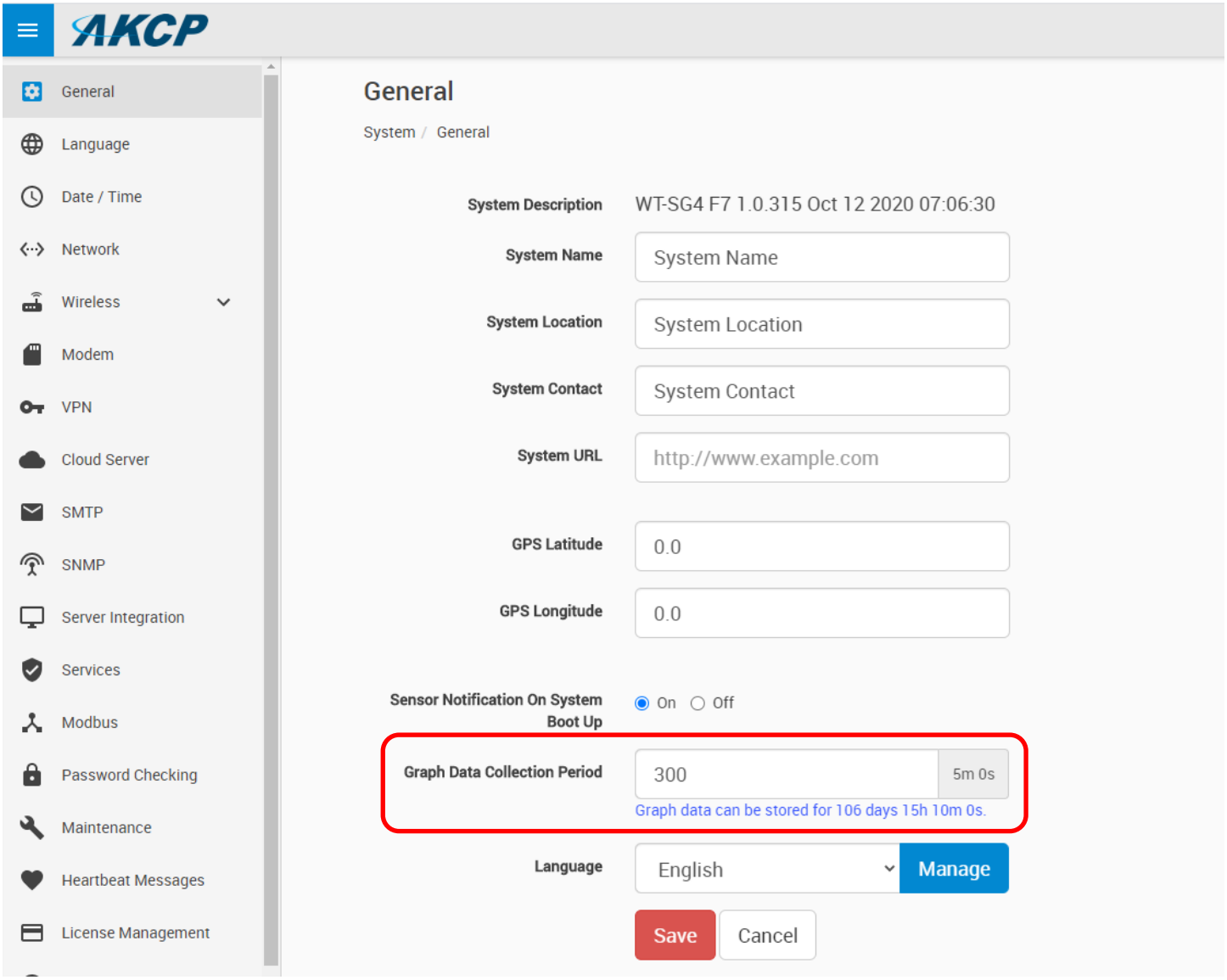


Note: after making changes, you will need to re-sync the wireless sensor and any existing graph data will be deleted!



Important: WTG supports up to 32 WTS sensors graph, including multi-sensor WTS. For example, on WTS-TH there are both Temperature & Humidity sensors.

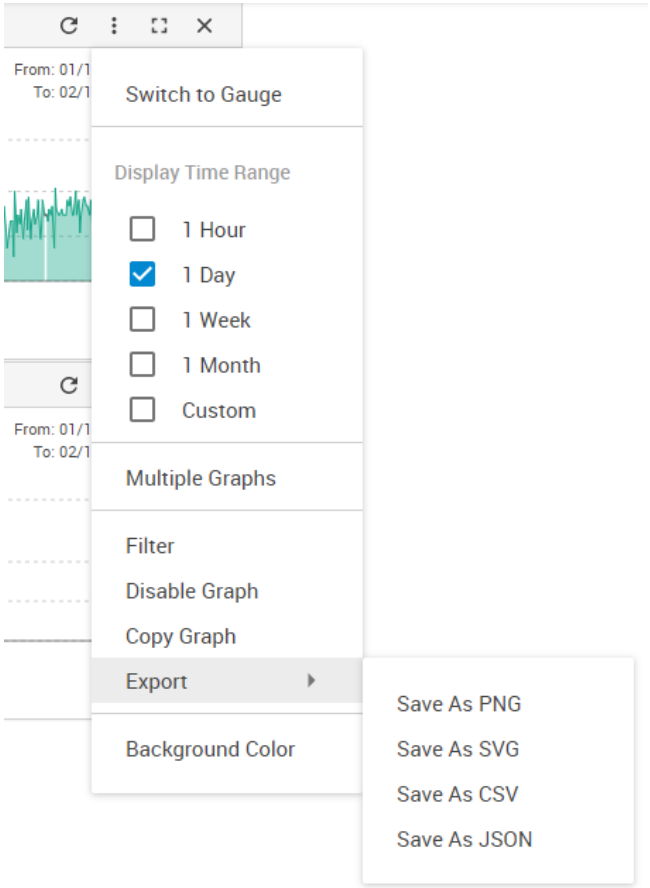
The virtual sensor graph collection period is set on the General page under the Settings menu:



Note: after making changes, any existing graph data will be deleted!

Important: WTG supports up to 14 virtual and wired sensors graph.

You can set further graph options for a sensor after opening the graph gauge and clicking the 3-dot menu in the top right corner.
Remember to export your graph data as it is not included in the backup.



Please contact support@akcp.com if you have any further technical questions or problems.

Thanks for Choosing AKCP!