Getting Started with STRIDE Wireless

This document focusses on creating and managing a Green-GO STRIDE wireless system using the Green-GO Control software.

Most of the things discussed in this document are also possible directly through the device's setup menu. Please check out the device's documentation for further information on how to setup your STRIDE system without software.

STRIDE vs WAA - What's' New?

Although the WAA and STRIDE antennas have much in common and use the same reliable DECT technology, some differences make the STRIDE antenna a much more versatile product. The main differences are:

True Seamless Roaming

There are no audible interruptions from one STRIDE antenna to another during the handover.

Unified Pairing Method

A STRIDE wireless system combines previous pairing methods (OTA, Software), making it much easier to administer and maintain your wireless system. In addition, the pairing process is now quicker and more intuitive.

More Clients per Antenna

When used with existing wireless belt packs, the Green-GO STRIDE antenna increases the possible simultaneous client connections from four to five.

DECT Monitoring

Each STRIDE antenna supports a monitoring mode, enabling the user to scan the DECT frequencies to better understand and analyze the utilization of the DECT spectrum.

User Interface

The user interface consists of a high-contrast E-Ink display and three buttons to allow for on-device configuration without requiring the Green-GO Control software. In addition, the E-Ink display indicates the last active configuration, even if the device is turned off.

IP53 Rating

The STRIDE antenna features an environment rating of IP53, allowing for better weather protection in outdoor installations.

Versatile Mounting

The STRIDE antenna offers a multitude of mounting options (⅜", M10, and VESA 100) to accommodate a wide variety of installations. Additionally, the metal back plate offers a fixation point for securing a secondary safety wire.

PTPv2 Based Synchronization

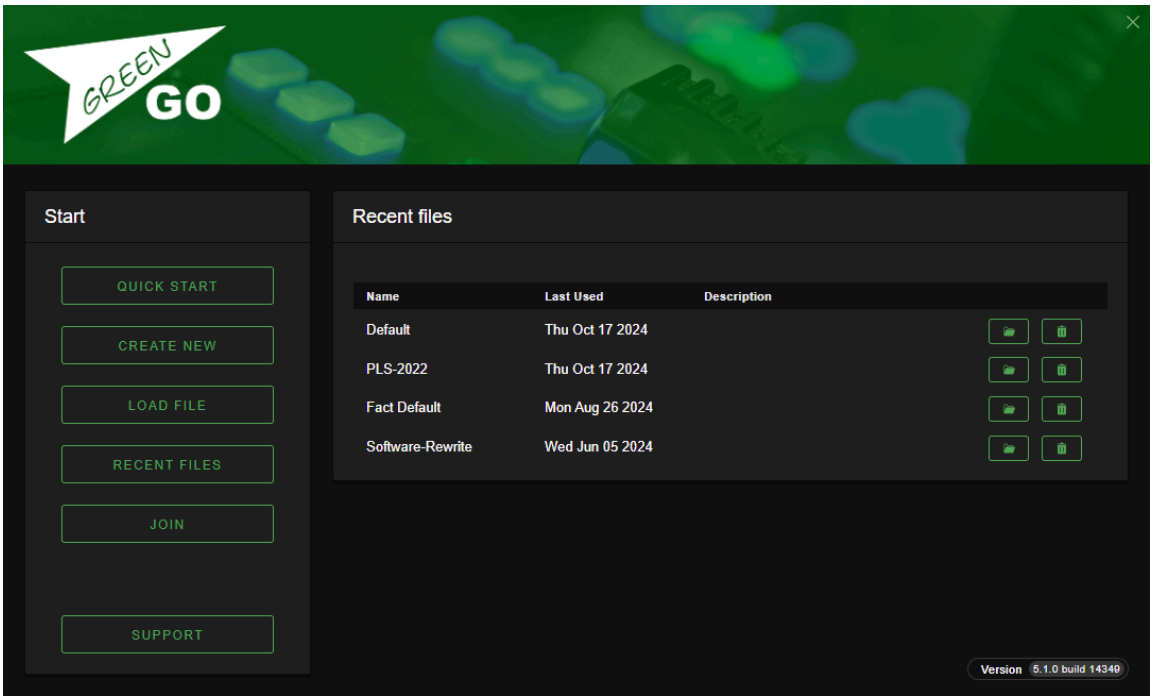
To better utilize the available spectrum and enable roaming, the Green-GO STRIDE antenna **requires** a PTPv2 network infrastructure.

Preparations

Before starting your STRIDE wireless experience, you should check and take care of a few things outlined in the following chapters.

Control Software

Configuring STRIDE antennas and pools with Green-GO Control requires at least version 5.1.0 or higher. You can find the currently used version of Green-GO Control in the bottom-right corner of the startup screen.



Alternatively, you can check the software version while using the application by locating and clicking the settings menu in the top-right corner and selecting the ABOUT option.

This will bring up a dialog box featuring the current software version:

Additional Information

Please check out this guide for further information about the installation or upgrade of Green-GO Control.

Device Firmware

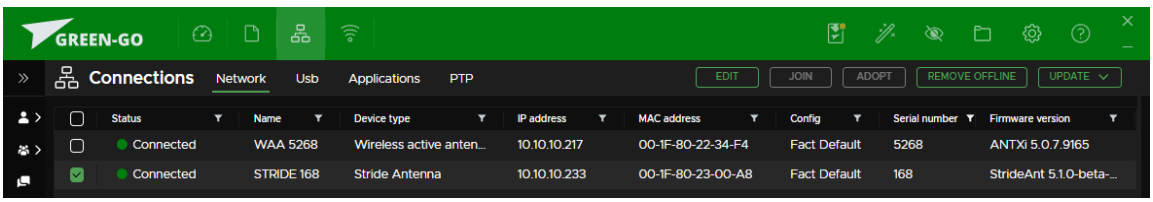
You must ensure that your STRIDE antennas **and** WBPX(SP) wireless belt packs are all running *at least* firmware version 5.1.0 or later.

Additional Information

Please read this guide for additional information on how to perform the firmware update.

Using Green-GO Control

To check a device's firmware version, switch to the `Network` tab in the connection view.



Here, the firmware version is shown in the column `Firmware Version` to the right.

Using a Green-GO device

You can check your device's firmware by entering the `Info` setup menu:

Setup Menu Guide

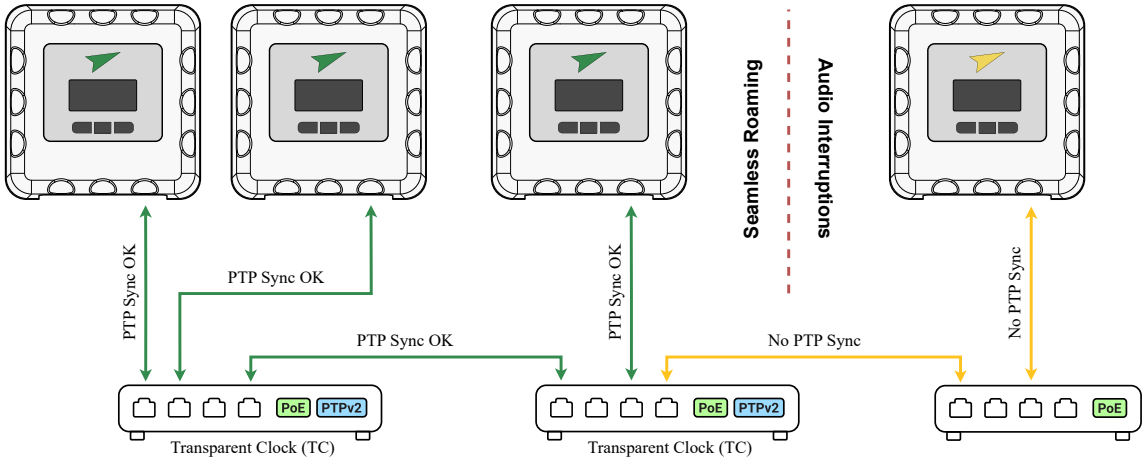
```
Setup Menu
└──> Info
    ├──> ...
    ├──> Firmware: WBPX 5.0.7.9165
    └──> ...
```

Important Information

It is **important** to remember to reset the memory cache of your devices after performing the firmware upgrade to guarantee a clean firmware installation or update.

Network Setup

Seamless roaming requires a very precise synchronization between all connected STRIDE antennas. Therefore, you need to ensure that all network switches connecting your STRIDE antennas are capable of and configured correctly for PTPv2 (IEEE 1588-2008).



While other Green-GO devices don't have any requirement for PTPv2, it is vital for optimal roaming performance to have continuous PTPv2 support for the network connection between all your STRIDE antennas.

With that said, Green-GO STRIDE antennas work with network switches capable of transparent- (TC) or boundary clock (BC), and there is no requirement for any external PTP master clock as each STRIDE antenna can serve that role.

Additional Information

As of now, connecting STRIDE antennas through network switches with no proper PTPv2 support will result in degraded handover performance, ranging from short audio interruptions to complete dis- and reconnects in worst cases.

List of supported (tested) PTPv2 network switches

Important Information

Please *avoid* using mixed PTPv2 implementations by different vendors, as doing so may introduce unexpected sync issues that may lead to interruptions on handovers.

The STRIDE wireless system delivers optimal performance when connected with network switches that provide full PTPv2 (IEEE 1588-2008) support.

Based on extensive testing, we've curated a selection of network switches that deliver good PTP performance and reliability. This list will be extended as we sucessfully test and validate other candidates.

FiberStore IES3110-8TFP-R

The FiberStore (FS) IES3110-8TFP-R was the cheapest option available at the time of testing that provided a good PTP performance. However, configuration and setup is not as comfortable as with other options.

- Requires an external power supply that is not included in the box.
- Offers support for both, transparent clock (TC) and bounday clock (BC).
- Configuration and manual tuning is done via command line (option for advanced users).
- Most cost effective option at the time of testing at a price point of ca. 200,- €.

Downloads

Tested FiberStore IES3110-8TFP-R configuration

Luminex Gigacore Series

The Luminiex Gigacore (i/t) Series includes a wide range of switches catered to the needs of the event industry. While not as cost-effective as others, Gigacore switches have been good match with Green-GO STRIDE.

- Testing and validation was done starting device firmware 1.3.1 and newer.

- Green-GO requires the use of the `E2E` PTP mode.
- Offers support for both, transparent clock (TC) and bounday clock (BC).
- Options with Neutrik EtherCON available.

Downloads

Tested Luminex Gigacore 14R configuration

Netgear AV-Line (M4250)

The Netgear AV-Line is a cost-effective solution that provides a good variety of hardware options that all provide support for PTPv2 with transparent clock (TC).

- Testing and validation was done using device firmware 13.0.4.26 and newer.
- Green-GO requires the use of the `AES67` PTP profile.
- Offers support for transparent clock (TC), but lacks support for boundary clock (BC).

Downloads

Tested Netgear AV-Line M4250 12M2XF configuration

Additional Information

Please check out this guide for further instructions on how to properly configure and set up your Netgear AV-Line network switch.

MikroTik CRS328-24P-4S+RM

The MikroTik CRS328-24P is a cost-effective solution that provides 24 ports with support for PTPv2 transparent clock (TC).

- Proper operation requires at least RouterOS version 7.16.1 or newer.
- PTP is only supported on the RJ45 Ethernet ports.
- Green-GO requires the use of the `AES67` PTP profile.

Downloads

Tested MikroTik CRS328-24P-4S+RM configuration

Important Information

Green-GO offers the Switch 6, which will provide PTPv2 support for use in conjunction with the Green-GO STRIDE antenna. At this time, other network switches in our catalogue **do not** provide support for PTPv2 and are therefore not compatible for seamless-roaming with the Green-GO STRIDE antenna.

Device Preparations

Prepare a STRIDE antenna

There are a few simple steps to get your STRIDE antenna up and running:

1. Connect a power source

Additional Information

The E-Ink display will always retain its last state, showing the same content as before it was last turned off. To check and verify the current device state, look at the two LED indicators for DECT and the device status.

You have two options to power your Green-GO STRIDE antenna:

1. Supply power via the network connection using a network switch or an inline injector with PoE (IEEE 802.3af) capabilities.
2. Connect the USB-C port to a USB power supply (5V, 3A).

Once powered, the antenna will take about 8 seconds to boot up and display the main UI. The bottom status LED indicates the status of the Green-GO Engine.

After booting, the Green-GO logo above the display will light up and indicate the status of the DECT module and PTPv2 synchronization. Making it easy to spot any potential problems with DECT or roaming performance.

Quick Tip

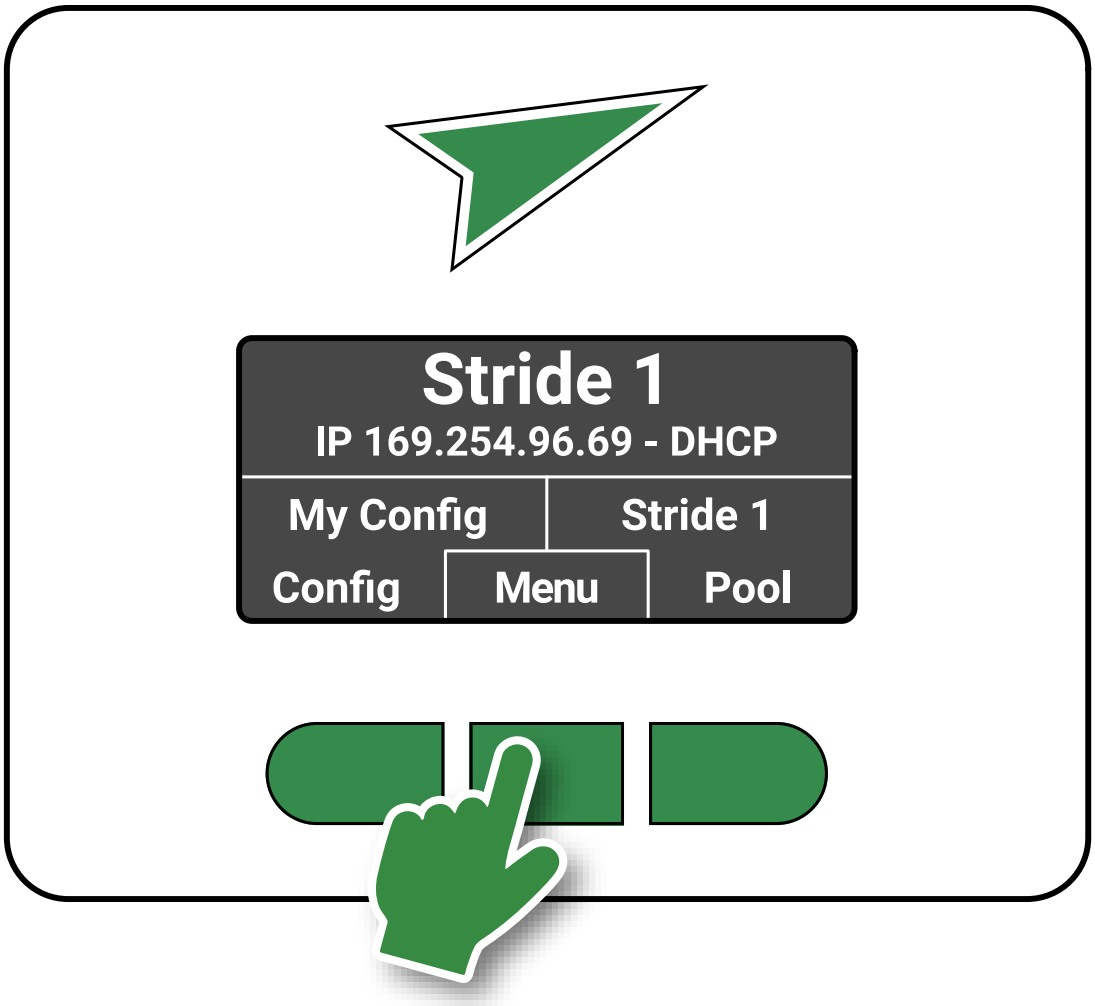
You can use both options simultaneously for redundant power supply to your STRIDE antenna. Alternatively, only using the `USB-C` port allows for a simple *"stand-alone"* setup without requiring any PoE hardware.

2. Configure the network connection

Additional Information

While it is possible to change a device's network configuration via the `Network` tab in the connection view, it is often easier to do this directly on the device, using the setup menu.

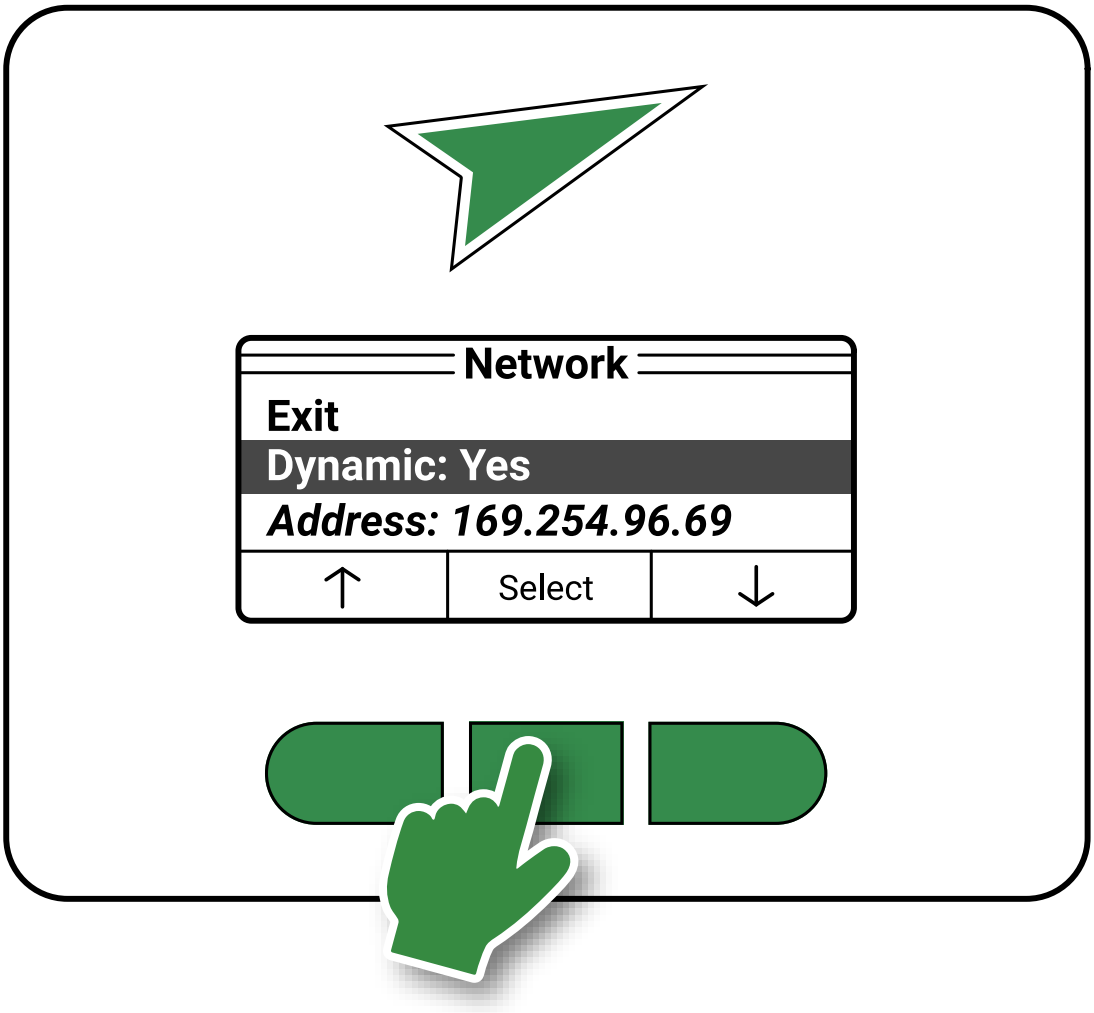
You may need to change the network configuration to connect your STRIDE antenna to the rest of your Green-GO system. To do this, press the center `Function Button` for approximately 1 second to enter the setup menu.



Next, use the right `Function Button` to navigate to the `Network` submenu, followed by a press of the middle `Function Button` to enter.

Here, you can either use the *default* mode `Dynamic: Yes` for auto-configuration via DHCP or link-local addresses or `Dynamic: No` for manual network configuration.

The latter provides configuration options for the `IPv4 Address`, `Netmask`, and `Gateway`.



Important Information

If using manual IP addressing with `Dynamic: No`, you must ensure all devices use the same subnet and netmask in their network configuration.

Setup Menu Guide

```
Setup Menu
└──> Network
    └──> Dynamic: No (1)
        ├──> Address (2)
        ├──> Netmask (3)
        └──> Gateway (4)
```

1. The setting `Dynamic: Yes/No` allows for switch between auto and manual network configuration.
2. If `Dynamic: No` is used, the `Address` option allows to assign a specific IPv4 address.
3. If `Dynamic: No` is used, the `Netmask` option allows to define the netmask, defining the local network.
4. If `Dynamic: No` is used, the `Gateway` option allows to define the local gateway.

3. Join a system configuration

Additional Information

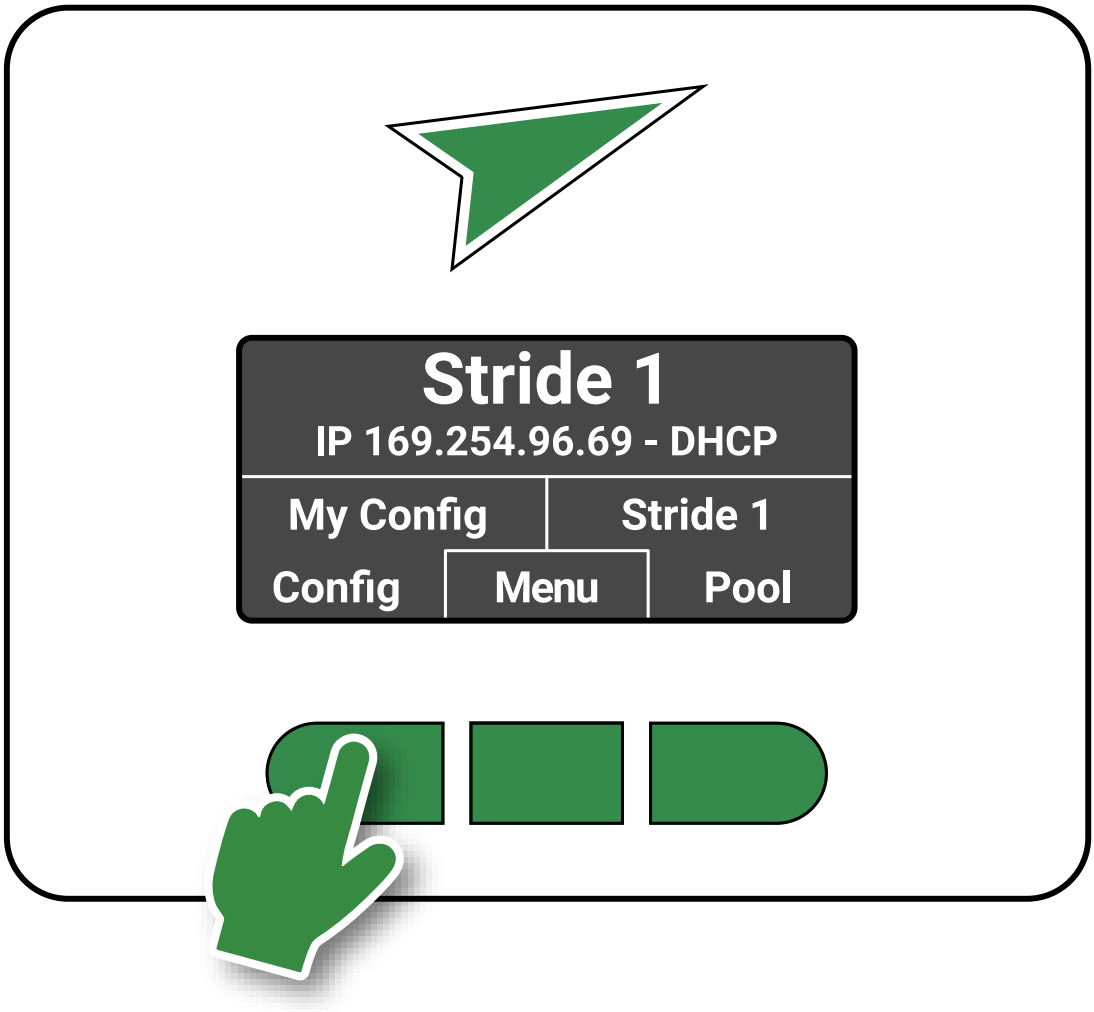
You can also *adopt* the antenna using the `Network` tab in the connection view of Green-GO Control.

Important Information

Be aware that all antennas **must use the same** system configuration to work correctly. Joining a different configuration will disconnect your antenna from the rest of any existing wireless system, making it impossible for client communications to traverse between your antennas.

A Green-GO communication system requires all devices to be members of the same system configuration. You can easily join any active configuration using a device's setup menu.

The left `Function Button` provides *quick* access to the respective `Config` submenu.



Here, you can either *reset* the device's configuration to the *factory defaults* or join any active configuration on the local network.

Additional Information

Please note that the `Join Config` submenu only shows configurations the device itself is not using.

Setup Menu Guide

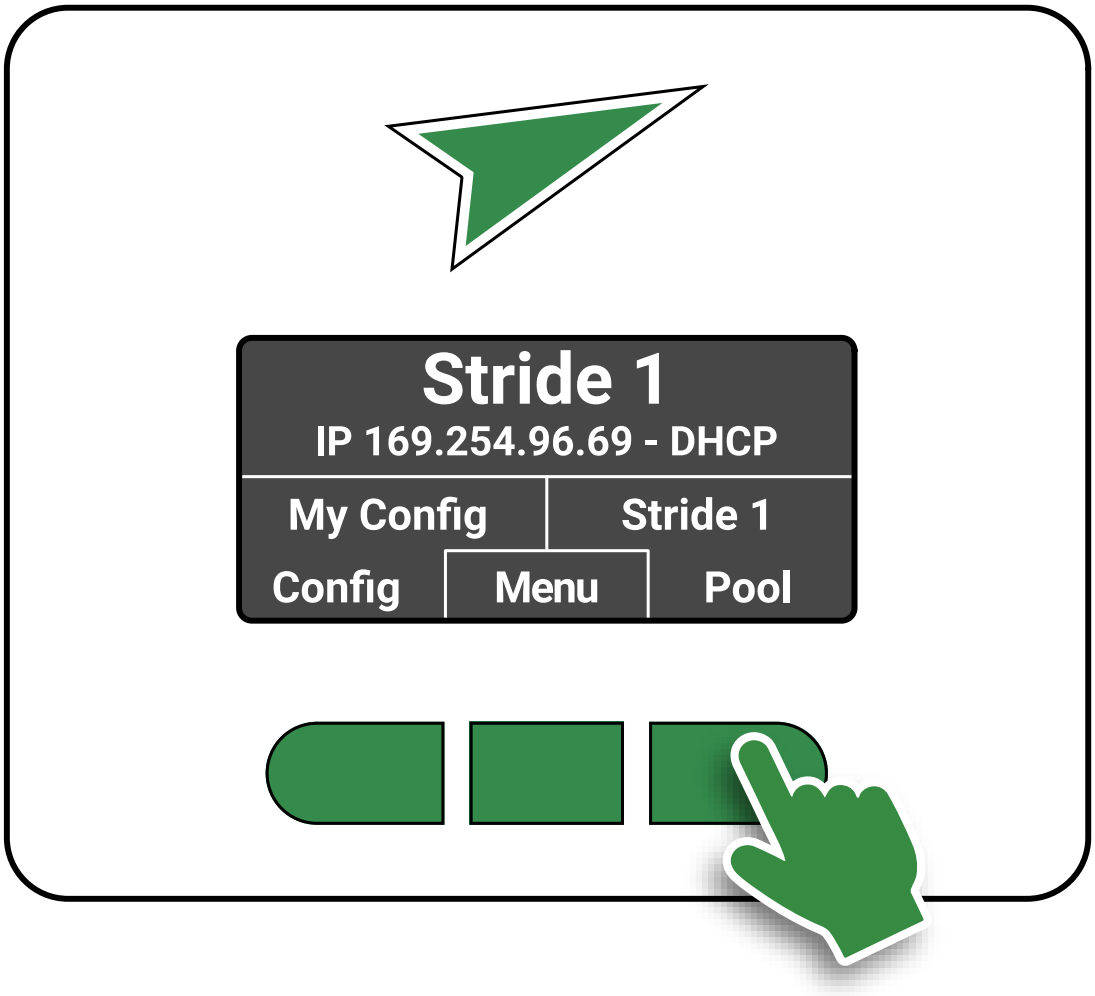
```
Setup Menu
└─> Config
    └─> Join Configuration (1)
        └─> Configuration Name (2)
```

1. This menu lists all system configurations active on the local network. These configurations are provided by other Green-GO devices connected to the same local network.
2. Selecting a configuration from this list will load and activate the configuration on the device.

4. (Optional) Clear the DECT module

Important Information

Executing the `Clear` function will remove all configuration from the DECT module, causing the device to close all current DECT related connections.



Sometimes, clearing the DECT module and starting anew can be beneficial for troubleshooting a potential problem better.

To do this, press the right `Function Button` labeled `Pool` for approximately one second.

This enters the `DECT Pool` setup menu, where the `Clear` function is located at its bottom.

After navigating, you can execute the `Clear` function by pressing the central `Function Button` labeled `Select`.

Setup Menu Guide

```
Setup Menu
└─> DECT Pool
    └─> Clear (1)
        └─> No (2)
        └─> Yes (3)
```

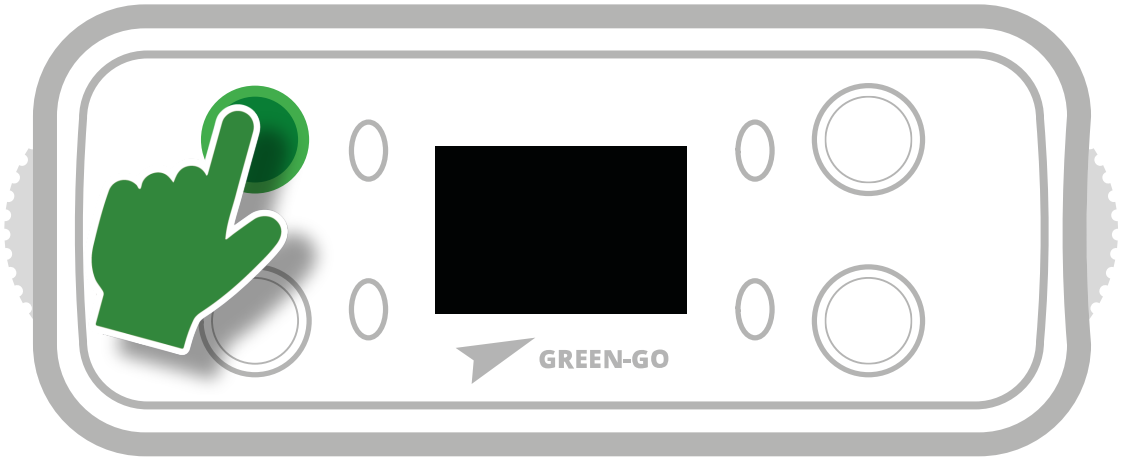
1. The `Clear` function *removes* any existing configuration from the DECT module.
2. Selecting `No` will do nothing and return to the previous menu.
3. Confirming to execute the `Clear` function will remove any configuration from the DECT module and drop any existing DECT client connection.

Prepare a WBPX belt pack

It is always a good idea to reset the DECT module and clear your wireless belt pack pairing before connecting it to your STRIDE wireless system.

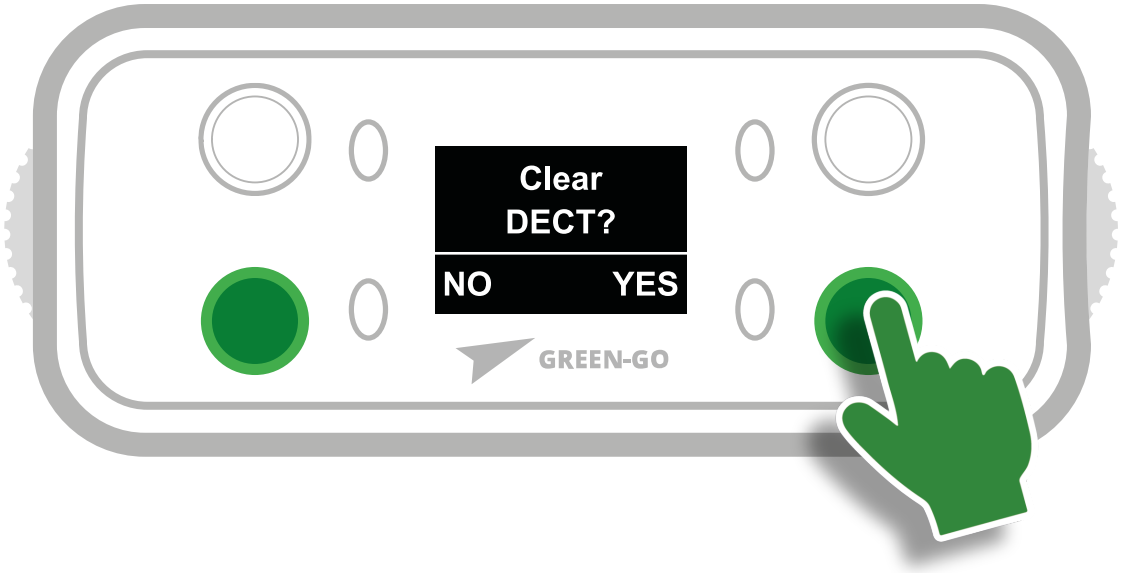
With a Green-GO WBPX or WBPXSP belt pack, there are two ways to do this:

1. Directly on device boot



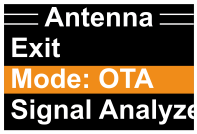
Starting with firmware version 5.1.0, a Green-GO WBPX or WBPXSP belt pack can be instructed to clear its DECT module on boot by pressing and holding the top-left `● Button` while powering on the device.

Doing so will start the device with a screen asking the user if the DECT module should be cleared. Pressing the bottom-left `● Button` (`NO`) will *cancel* the operation, and pressing the bottom-right `● Button` (`YES`) will continue, removing the paring and *resetting* the module.



2. Via the setup menu

You can clear the pairing of a client's DECT module via the `DECT` setup menu.



A `Mode` entry will be at the top of the menu if an existing pairing is present. Enter the respective Mode submenu and select the `Clear Pairing` function to remove the pairing.

Afterward, remember to exit the setup menu.

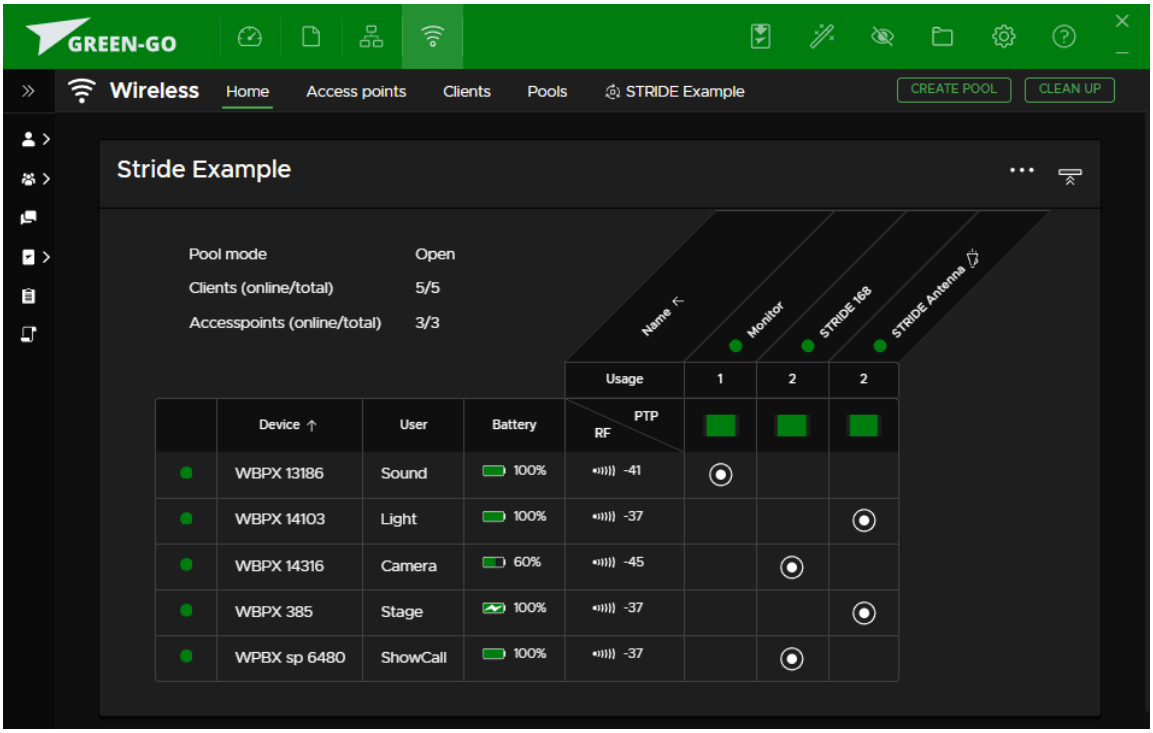
Setup Menu Guide

```
Setup Menu
└─> DECT
    └─> Mode: <Pool Mode> (1)
        ├─> ...
        └─> Clear Pairing (2)
```

1. This submenu either reads `Mode: OTA` (over-the-air) or `Mode: X-Pool`, depending on the pairing type currently used by the device.
2. The `Clear Pairing` function removes any pairing configuration from the DECT module.

Setup a STRIDE Wireless System

A STRIDE wireless system can be created and reconfigured from Green-GO Control by switching to the wireless view. Here, you'll notice some changes right away.



Starting with Green-GO Control version 5.1.0, the wireless view features additional tools to monitor your wireless system and devices, such as the new `Home` tab above.

However, you will first need to set up your own wireless system or Green-GO Pool. So, head over to the `Pools` tab to get started.

Additional Information

Please ensure you've checked *all* the prerequisites. The following is only possible if your antennas are part of the *same* system configuration the software uses.

Create a new STRIDE Pool

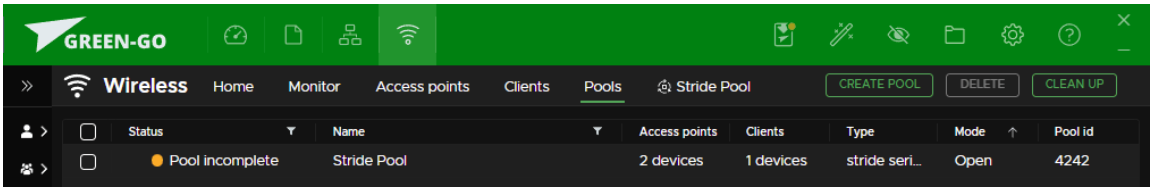
Youtube Video

Check out the short video introduction by Chad Phelps from our distributor Canford about setting up your first wireless Green-GO STRIDE system.

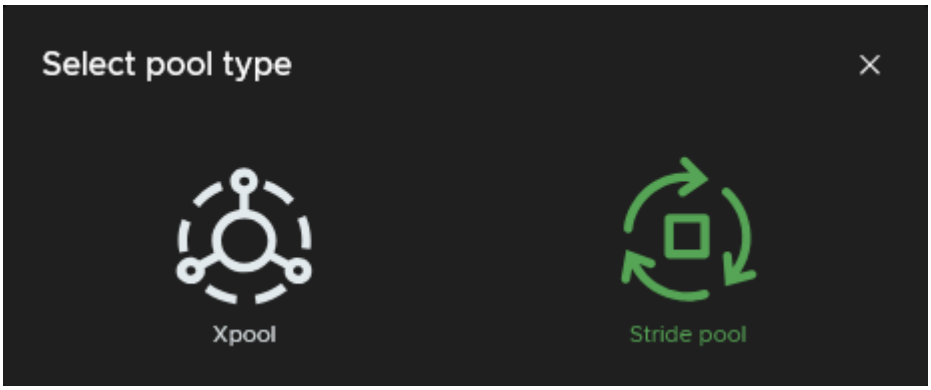
1. A new STRIDE pool

While the Green-GO STRIDE antenna comes prepared out of the box, this chapter focuses on creating your own STRIDE wireless system or pool from scratch.

To create a pool, head to the `Pools` tab and click the `CREATE POOL` button.



Doing so will bring up a dialog box, giving the choice to either create an X-Pool (WAA) or a STRIDE Pool.



Each option is only compatible with their respective antenna type, so click the symbol.

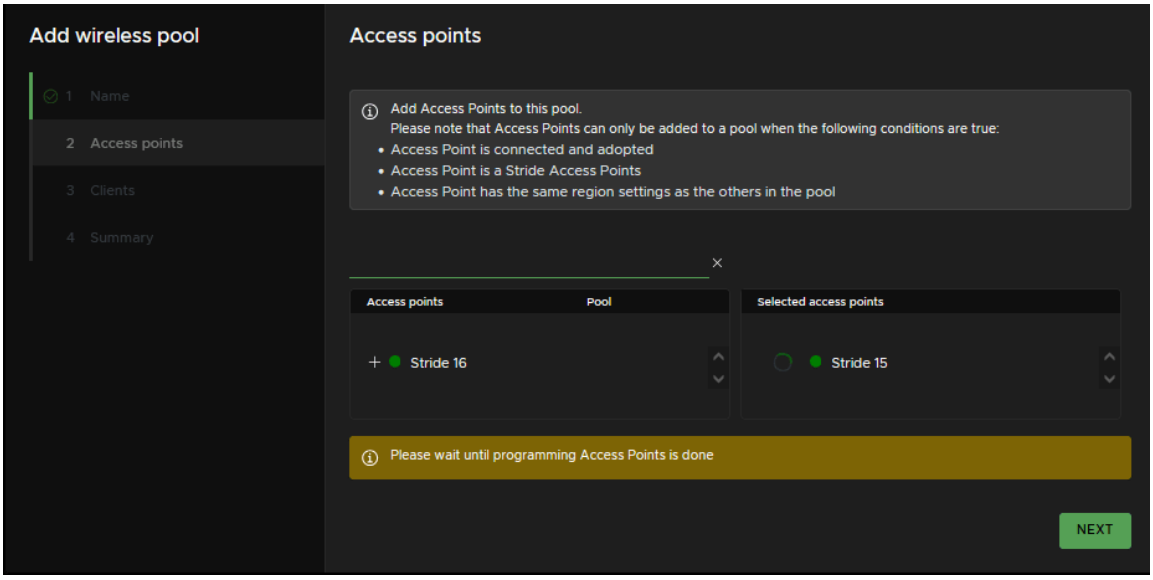
This will start the STRIDE pool wizard, which guides you through the process of adding antennas and clients.

Important Information

Be aware that it is **not possible** to change a pool's name; doing so will require you to create a new pool using the desired name and re-add all antennas and clients.

2. Add your STRIDE antennas

After providing a name for your STRIDE pool, you can add any STRIDE antenna connected to your network and part of your configuration by clicking the + in front of the device status and name.



Doing so will move the respective antenna to the right column, *directly* programming the antenna. Once added, you can remove an antenna by clicking the − symbol and move the antenna back to the left column.

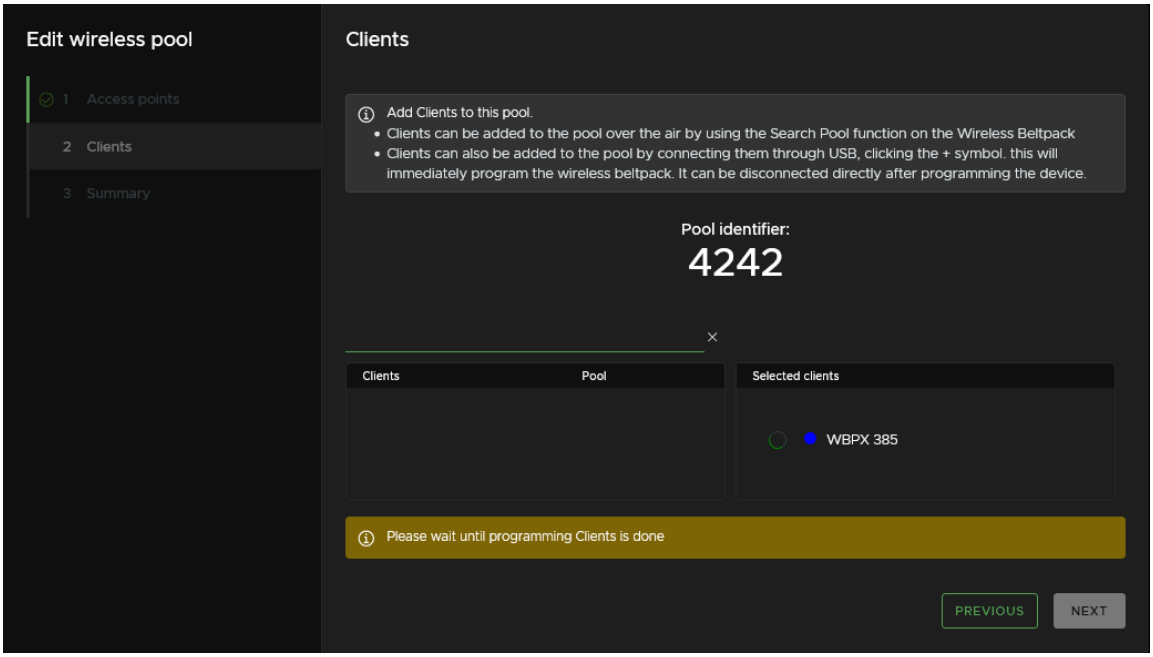
Additional Information

You can also join additional STRIDE antennas via the setup menu, removing any requirement for Green-GO Control.

3. Add your wireless clients

The last step is to add your wireless clients. You can do this either over-the-air or by physically connecting a wireless client via USB to Green-GO Control.

If connected via USB, the wireless client(s) will be listed in the left column, each providing a + symbol in front of the device status and name.



Similar to the previous step, clicking the + or − symbols in front of the device name will move the client to the right or left column, respectively. All actions have *immediate* effect, and *directly* program the pairing to the device.

Once the programming is completed, the NEXT button will become available, the warning message at the bottom will disappear, and the device will start trying to connect to an antenna.

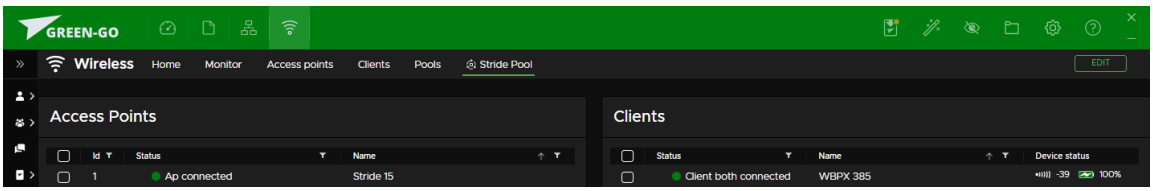
Additional Information

During this step, all STRIDE antennas previously selected will change their `Pool Mode` to `Discoverable`, allowing for over-the-air pairings. This is indicated by the green blinking Green-GO logo on your STRIDE antennas. Additionally, the displays of all antennas feature the `Pairing Identifier` also noted on top of the table.

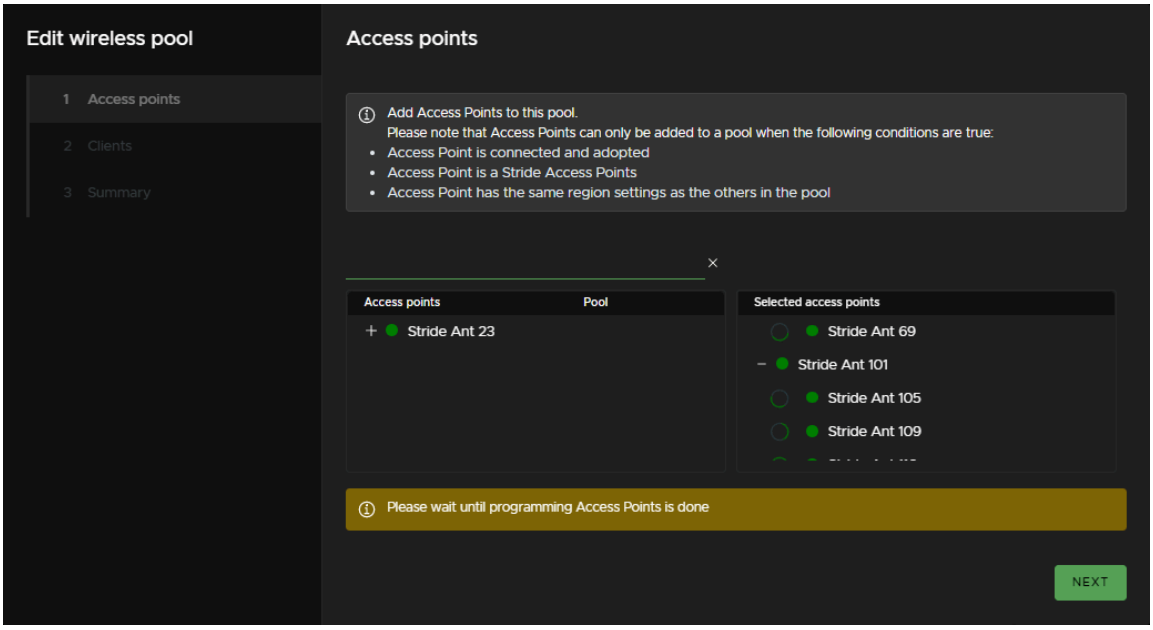
Once the wizard is completed and closed, the client registration will be disabled again (`Pool Mode: Open`).

Edit a STRIDE Pool

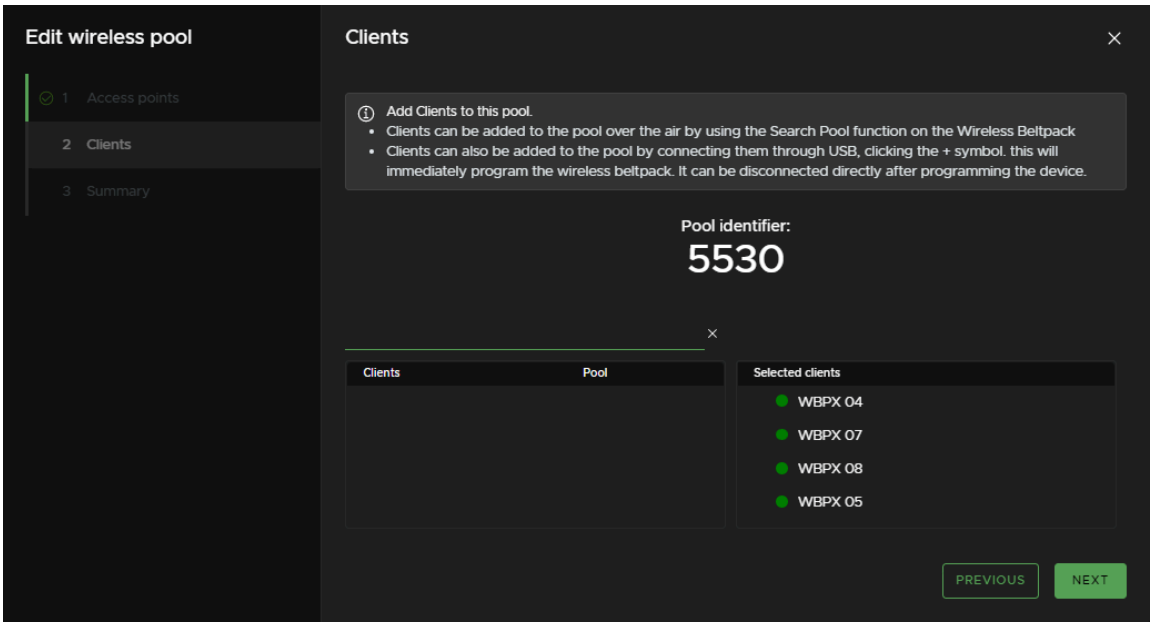
The Green-GO Control software enables you to change a STRIDE pool at any time. However, you have to switch to the respective `<Pool Name>` tab to do this.



Clicking the EDIT button in the navigation bar will bring back the previous STRIDE pool wizard, enabling you to add and remove devices.



Editing a pool allows you to add or remove antennas to adjust its client capacity or coverage.



Additionally, in a second step, adding or removing wireless clients connected via USB is possible. Both actions are immediate and are done by clicking the + or − symbols in front of the device names.

Additional Information

Please be aware that **all** antennas of your pool will enable over-the-air client registrations once you enter the second `Clients` step. The green blinking Green-GO logo on your STRIDE antennas indicates this. Additionally, the displays of all antennas feature the `Pairing Identifier`, which is also noted on top of the table.

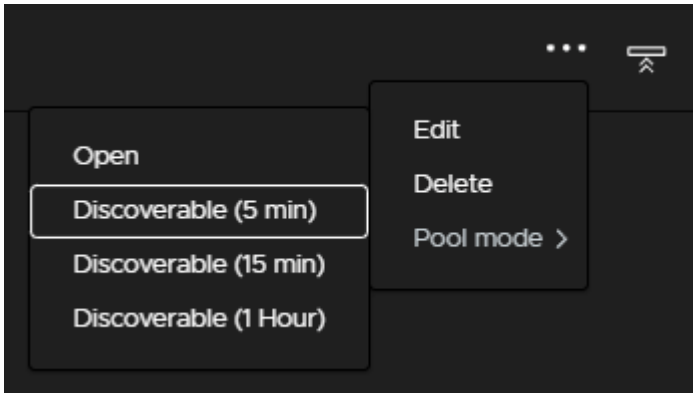
Once the wizard is completed and closed, the client registration will be disabled again (`Pool Mode: Open`).

Client Registrations (OTA)

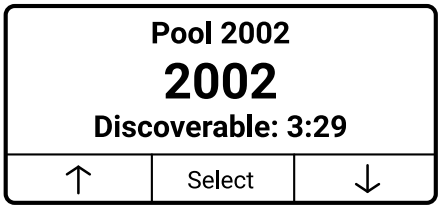
While it is possible to add or remove clients from a STRIDE pool by editing the pool and connecting the client via USB, the new STRIDE over-the-air method is often much quicker. Combined with the new start-up method for WBPX(SP) belt packs, the unpaired client will display a pairing offer that the user can accept to pair and connect the client *directly*.

However, to do this, you must change your wireless system's `Pool Mode` in either the `Home` or the `Pools` tab.

The `Home` tab features a card for every wireless system, each providing an ••• ellipsis menu that allows you to change the `Pool Mode` to `Discoverable`.



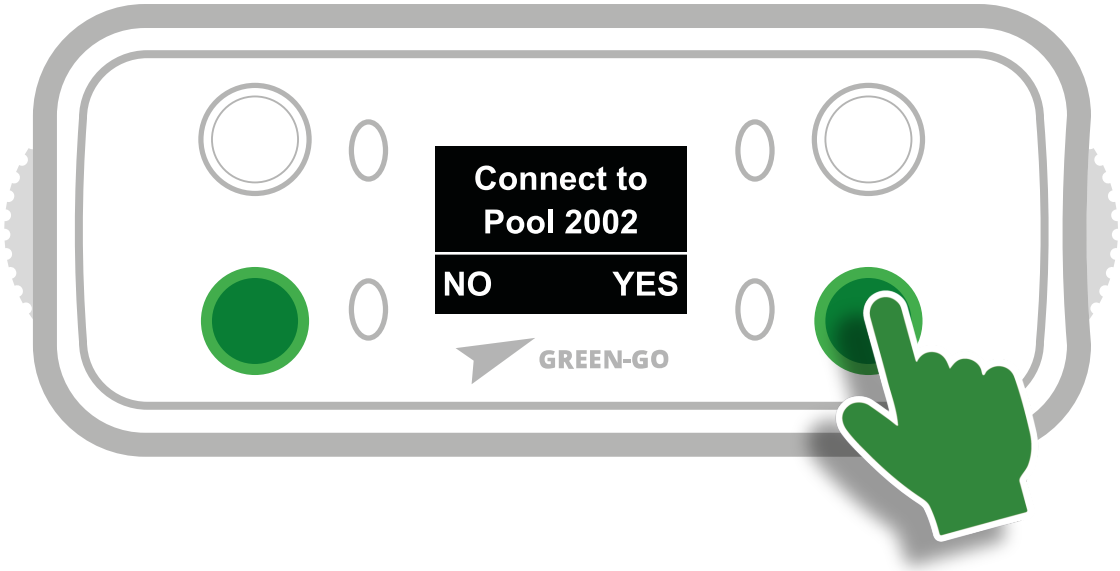
Alternatively, you can switch to the `Pools` tab and make a right-mouse click in the `Mode` column of your pool. This brings up a context menu featuring the same options.



After selecting one of the `Discoverable` options, **all antennas** in that pool will start broadcasting a discovery beacon for the chosen period of time, allowing unpaired Green-GO clients to connect automatically.

While the discovery is active, all antennas indicate this state by displaying the wireless system's `Pool Identifier` and a green blinking Green-GO logo.

During discovery, all currently *unpaired* wireless clients using at least firmware version 5.1.0 or higher will display a pairing offer showing the wireless system's `Pool Identifier`.



After verifying the `Pool Identifier`, you can proceed with the pairing by pressing the `Button` labeled `YES`. Once completed, the device will automatically try to connect to any antenna within reach, with at least one free slot for client connections.

You can disable the client registration for *all antennas* at any time by switching the `Pool Mode` to `Open`.

Additional Information

You can change the `Pool Mode` directly on any STRIDE antenna of your pool through its setup menu. As with the above workflow, all STRIDE antennas of the pool will follow your change to one.

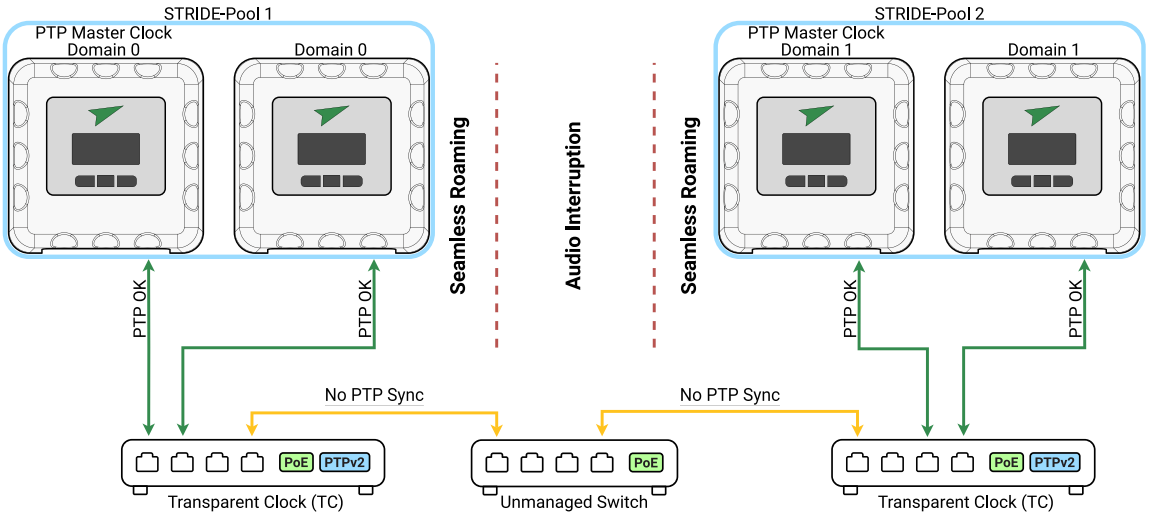
Configuring multiple STRIDE networks within a single configuration

To run two seperated STRIDE PTPv2 networks within the same configuration, we must adjust some settings to be able to have more than one PTP Master Clock. A PTP domain is a group of network devices that synchronize their clock using PTP.

To create a new group you can adjust the PTP domain within the settings of the STRIDE antenna.

Head over to the `Network` tab in the connection view and open the device settings of your STRIDE antenna by right-clicking it and selecting the `Edit` option from the context menu.

This brings up a dialog box showing the general device settings spread across multiple tabs. Locate and select the PTPv2 tab; here, you will find the `Domain` value that lets you seperate PTP configuration.



Additional Information

It is not possible to use a single STRIDE pool wizard over multiple PTP domains. This is because all antennas should be synchronized to ensure seamless-roaming. Since the antennas are unable to synchronize, each domain will need their own STRIDE-pool.

Important Information

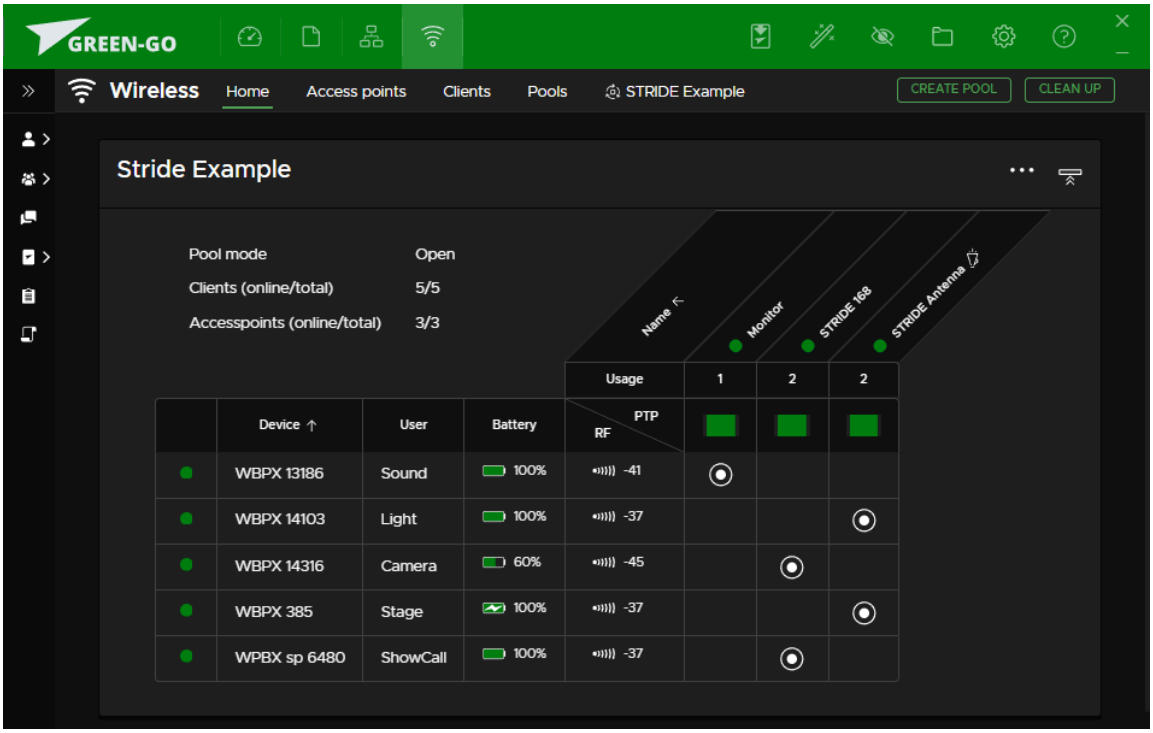
If multiple PTP domains are no longer necessary, make sure to `load the default PTPv2 configuration` to make sure the STRIDE antenna will synchronize correctly in its next deployment.

Monitor Your System

The Home Tab

The `Home` tab, located in the wireless view, is a convenient alternative to a dashboard providing a detailed overview of all your wireless systems.

Each card displays a detailed overview of the system and its devices. The top-right ••• ellipsis menu on each card provides options for further control over client registration.



The layout for each card consists of a table that lists all clients along the x-axis, displaying statistics about the connection and access point used. The antennas are on the y-axis, indicating their respective client count, PTPv2 state, and the state of its synchronization.

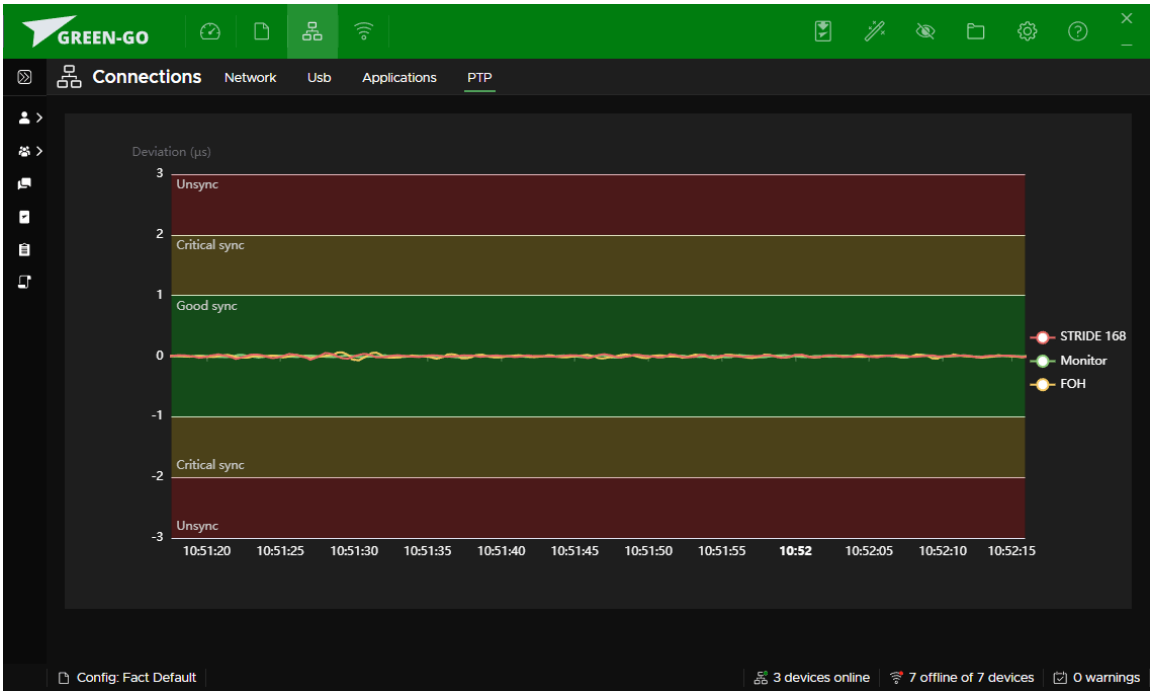
PTPv2 Connection Status

Starting with version 5.1.0, Green-GO Control provides real-time monitoring of the PTPv2 timing synchronization between STRIDE antennas and the PTP master clock. This synchronization is *crucial* for seamless roaming functionality across multiple antennas.

To monitor the PTPv2 synchronization of your STRIDE antennas, open the Green-GO Control software, navigate to the connection view, and select the `PTP` tab.

> **Additional Information**
>
> The `PTP` tab only becomes available once at least one Green-GO STRIDE antenna is *discovered* by Green-GO Control.

The tab displays a real-time PTP timing offset graph that visualizes timing deviation measurements between the local clock of your STRIDE antennas and the system's PTP master clock over time.



The horizontal (x) axis shows the time progression over the last 60 seconds, while the vertical (y) axis displays the deviation between the clocks measured in microseconds (µs).

The visualization includes three colored zones (green, yellow/brown, and red) to indicate different quality thresholds of synchronization performance.

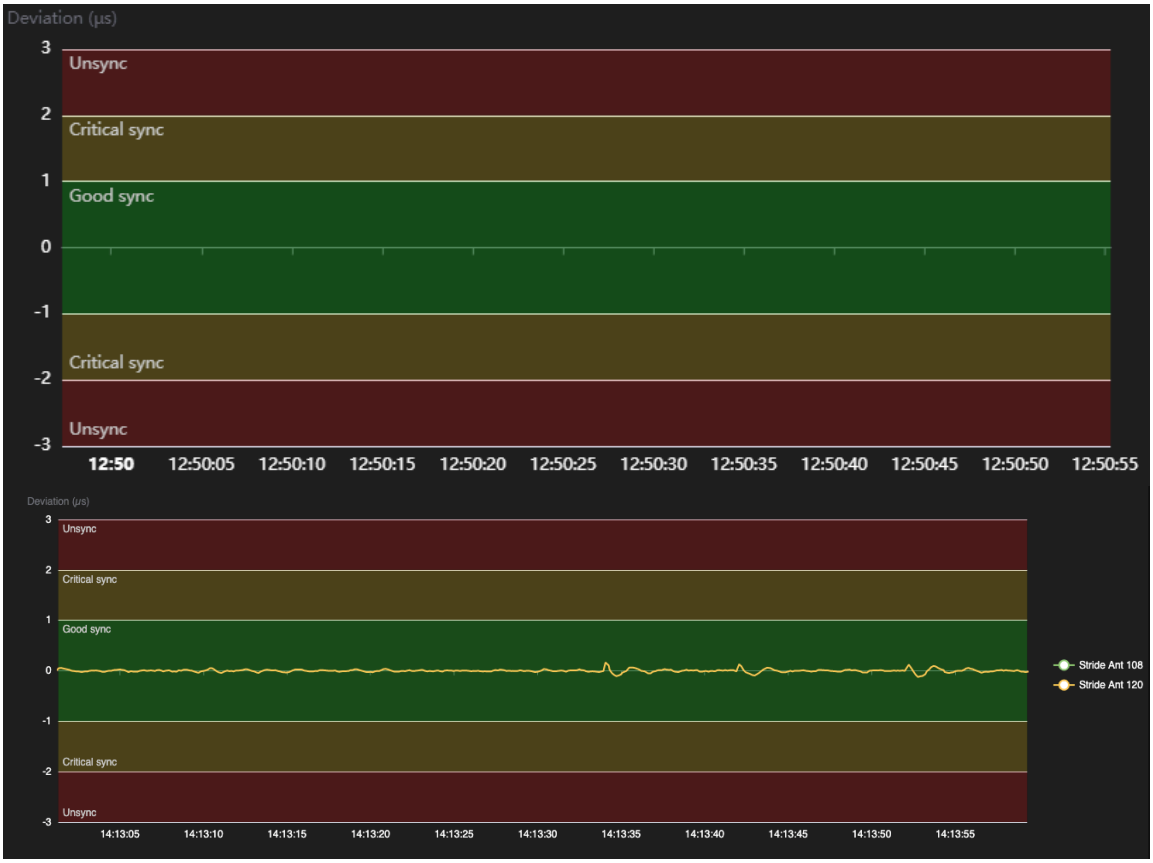
> **Additional Information**
>
> The legend to the right lists all PTP *slave clocks* and allows toggling individual antennas to hide or show their timing deviation measurements in the line graph plot.

Interpreting the Results

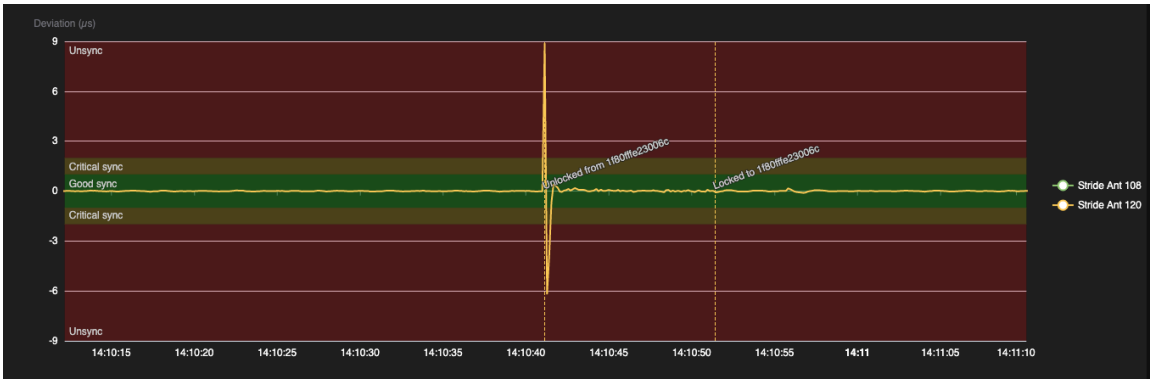
The PTP timing offset graph displayed in the `PTP` tab uses three distinct zones to indicate synchronization quality:

- Green: `Good sync` (max. ±1 µs)
- Yellow: `Critical sync` (max. ±1-2 µs)
- Red: `Unsync` (max. >±2 µs)

A well-functioning system maintains a stable line within the green zone, indicating less than one microsecond of timing deviations. This level of synchronization ensures seamless roaming between antennas without audio interruptions.



Once the measurement line enters the yellow zone, the potential for problems with seamless roaming increases, mainly causing minor interruptions during handovers between antennas. Short spikes could occur with *natural events*, such as a switchover to a different PTP master clock.



However, if these excursions into the yellow zone persist over a more extended period or are constantly occurring, an investigation of your network infrastructure is recommended.

Poor synchronization manifests as an erratic pattern with frequent excursions into the red zones.

The example above shows large timing deviations well exceeding the recommended limit of ±2 µs, which will cause noticeable audio interruptions and increase the potential for client disconnects during handovers.

Such a state of PTP synchronization heavily impedes your system's roaming performance and is most likely the result of missing PTP switch compatibility or network misconfiguration.

Troubleshooting

My antennas don't get a good PTP synchonization

If you're experiencing unreliable PTP synchronization, you should start by verifying the following:

- All network switches *between* your STRIDE antennas fully support PTPv2 (IEEE 1588-2008).
- Your switches are correctly configured for either transparent- (TC) or boundary clock (BC) *end to end* (`E2E`) operation.
- Avoid mixing PTPv2 implementations from different vendors, doing so could lead to unexpected timing issues.

✅ Load the *factory defaults* for the PTP configuration of all your STRIDE antennas.

Additionally, consider the complexity of your network topology – fewer network hops between antennas generally result in better synchronization performance. High network loads or interference can also impact timing precision, so monitoring these factors may help identify the root cause of synchronization issues.

How to load PTP default configuration

To load PTP default configuration, you can either use the device's setup menu, or use Green-GO Control switching to the 🖧 connection view where you can edit the device's PTPv2 configuration.

On Device

Pressing the middle `■ Function Button` labeled `Menu` for approximately 1 second will enter the setup menu.

Afterward, use the function buttons to navigate down and enter the `PTP` menu. Here you can select and execute the `Load Defaults` function.

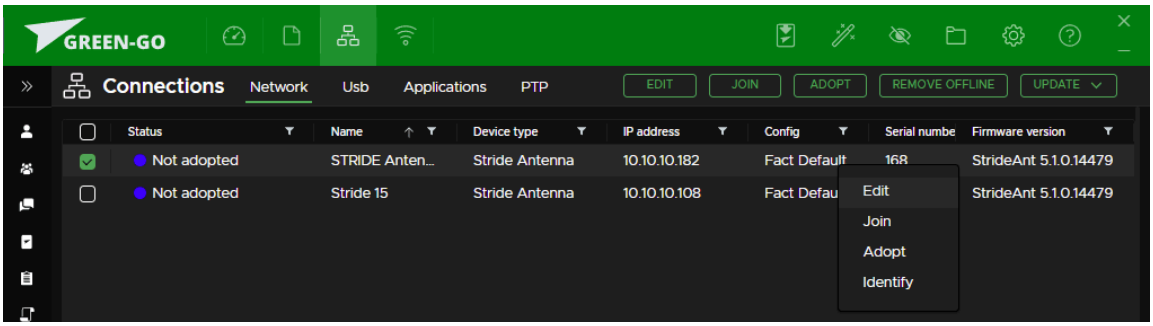
Setup Menu Guide

```
Setup Menu
└─> PTP
    └─> Load Defaults: No (1)
        ├─> No (2)
        └─> Load (3)
```

1. This setting will always show `No`.
2. Selecting `No` will cancel loading the defaults. Choosing this option will not change any current PTP configuration.
3. Selecting `Load` will populate the default configuration and overwrite any custom PTP configuration.

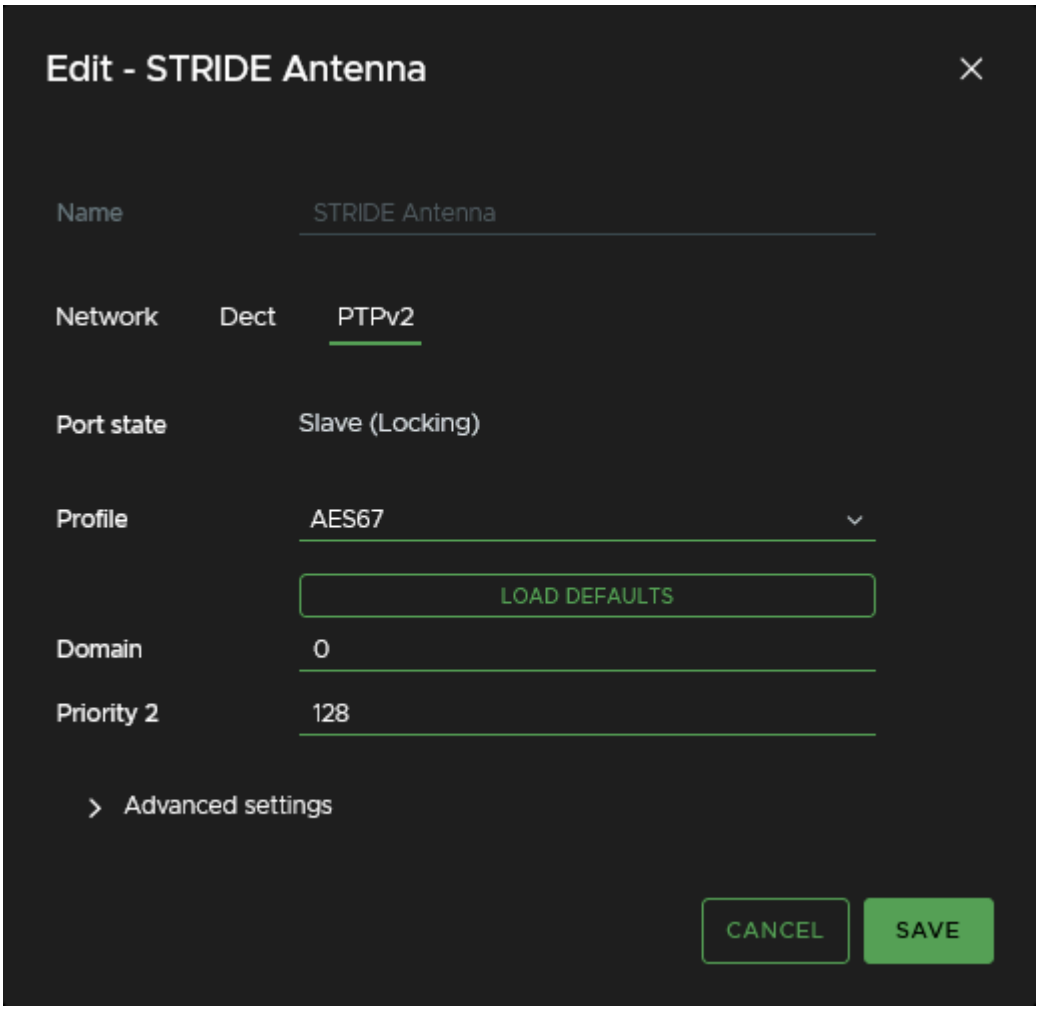
Pressing both, the left `■ Function Button` and right `■ Function Button` at the same time will completely exit the setup menu.

Using Green-GO Control



To load the PTP defaults using Green-GO control, you need to head over to the `Network` tab in the connection view and open the device settings of your STRIDE antenna by right-clicking it and selecting the `Edit` option from the context menu.

This brings up a dialog box



showing the general device settings spread across multiple tabs. Locate and select the `PTPv2` tab; here, you will find the `LOAD DEFAULTS` button that lets you load the default PTP configuration.

After clicking the button, your `Domain` and `Priority 2` should be set as shown.

Finally, click the save button to save your changes to the device and close the dialog box.

One of my STRIDE antennas uses an incorrect PTP master clock

If you experience a problems with PTP master clock negotiations, you may want to check and verify the following:

- ✅ All STRIDE antennas use the same `PTP Domain` in their PTP configuration.
- ✅ Your network infrastructure does not limit, slow down, or block any traffic between any of your STRIDE antennas.
- ✅ Load the *factory defaults* for the PTP configuration of all your STRIDE antennas.

I get a "hard" disconnect instead of roaming seamless

Such an issue should only arise if consistently bad PTP synchronization is present or an *unexpected power loss* occurs with a Green-GO STRIDE antenna actively serving clients.

Please verify the device's cable connection and the stability of the PoE supply to the device.

Why is the E-Ink display flickering?

The "flickering" is a *side effect* of the E-Ink technology used for the display. The "flickering" usually occurs after two major screen changes (e.g., entering and exiting the setup menu) and needs to occur to *refresh* the display's pixels and avoid any *ghosting* of previous display content shining through.

How can I change the PTP master clock device?

The election of the PTP master clock happens during boot time and is influenced by the device's MAC address and its PTP configuration. A re-election usually only occurs on network splits and/or a disconnect of the currently locked master clock.

To *force* a specific STRIDE antenna to act as PTP master clock, you can configure the PTP `Priority 2` in the device's network settings. Afterward, a power-cycle of the current master clock ensures proper re-negotiation.

August 8, 2025 December 16, 2024 Jeroen Snoeijen, Timo Toups