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How Shelly battery-powered devices work and why some users complain about the speed at which devices connect to the home network and respond.

1. How they work ?

All battery devices are actually turned off all the time. They have a second ultra-low power processor that takes care of measuring the sensors, the battery and the buttons. In the event of a change, this processor wakes up the main CPU to transmit the information over the Wi-Fi network.

2. How does the device connect to the Wi-Fi network quickly?

There are 2 ways to connect to the Wi-Fi network. The standard way is to scan all channels, finding the strongest signal if there are multiple access points (APs). This usually takes about 6-10 seconds.

To make this happen faster, in less than 3 seconds, the battery device remembers which channel, MAC address of the access point was connected during the initial setup. Then it does not scan all the channels and does not look for the strongest signal but tries to connect to the stored settings. In case it fails to connect, it does a full scan and remembers the new one. But even if the signal of the first who is remembered is weaker, it has an advantage.

3. Why do some users still have connection speed issues?

If during installation the battery device has memorized another AP because it was in place its signal is stronger and then moved to a new location but this AP is still visible, it will try to connect always to him. And although it takes more time, he will not change it because he will never scan for a new network.

Users who use only one AP, do not have repeaters or mesh network always have report in less than 3 seconds.

How do I set the device to connect quickly each time?

1. First rule - always set the Wi-Fi network of the device where it's will be located. In this way it will remember the AP, with the strongest signal at this place and will always connect to it. If you have set it up elsewhere, it is best to reset it when you put it where it will work and set it up Wi-Fi network again.

2. Add a static IP address. To wake a device from sleep mode, it takes about 300 milliseconds to connect to an already stored AP, it needs another 700 milliseconds with a good signal. If you do not have a static IP address, it is likely to wait for it from the router for 3-5 seconds, otherwise this time is just 500 milliseconds.

If you follow point 1 and point 2 after 1.5 seconds the device will start transmitting the information and will fall asleep again by the 4th second. Which safe alot's of battery. 3. If you have completed steps 1 and 2 but the device still connects slowly, c**heck the signal strength** at the location of the device. You can see this while it is awakened in setup mode, which lasts 3 minutes. Then reset it and remember the Wi-Fi network again.
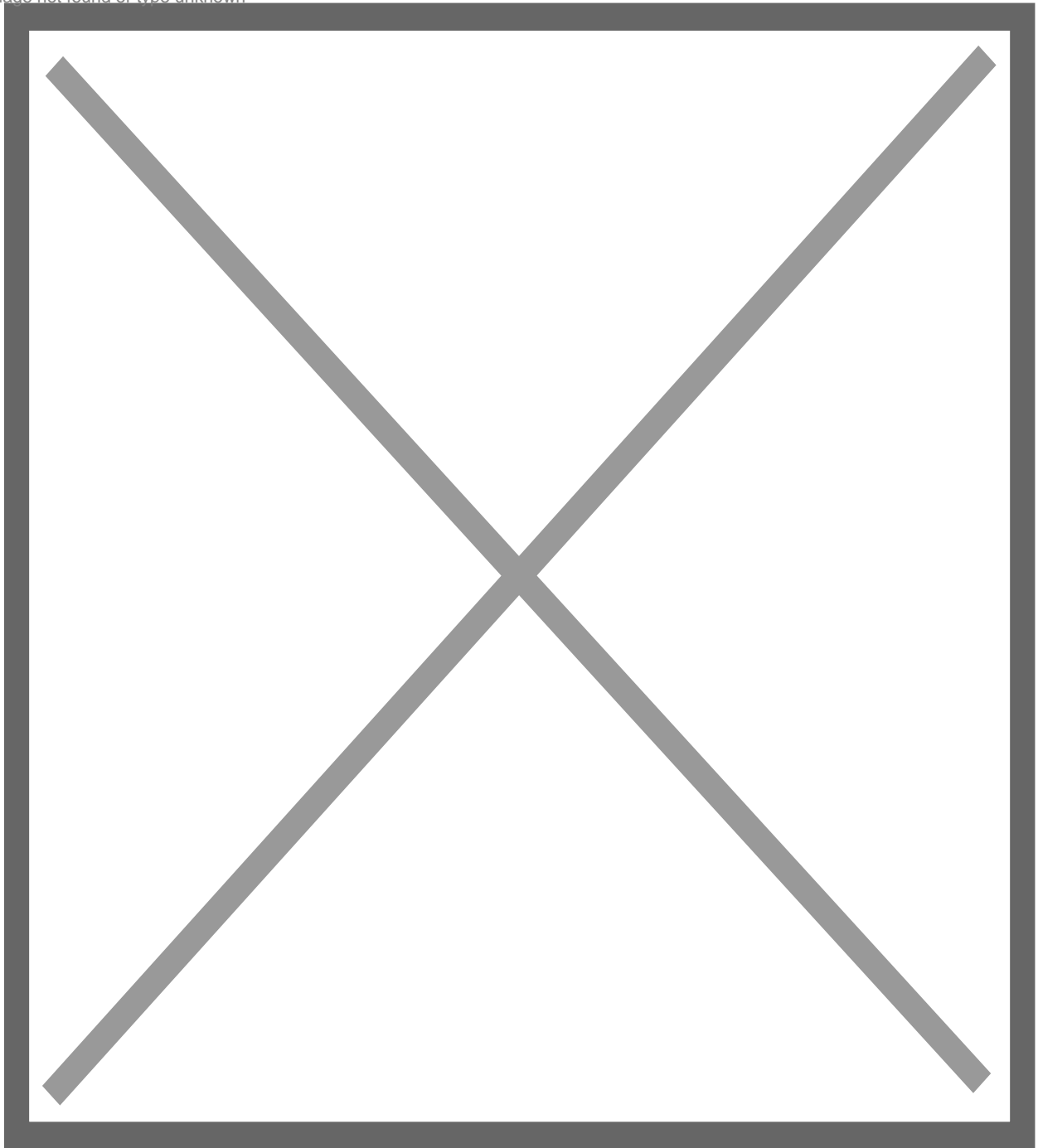
What are we working on to improve speed:

1. From the next version of fw, we will add a command with which the user to make the device find and remember the strongest signal. (we can do that also with Hot-fix when is ready).

2. If the connection time takes more than 4 seconds, the battery device will scan all channels again to check if there is no other AP with the same name and password but with a stronger signal.

3. Works on technology that will allow continuous connection of devices in the Wi-Fi network without them consuming energy. Don't ask us what it is, we won't tell you, for now!

Source:

https://www.facebook.com/groups/ShellyI…78797322219613/