LinkPower 1 OTA Guide v1.5

1. Note

At this moment, the OTA APP is under development, you may need a general BLE tool to assist, like "nRF Connect".

NOTE: Ensure the power supply is stable - either the battery is fully charged or the device is plugged into a USB-C PD power source.

NOTE: Keep your phone as close to the device as possible during the process.

WARNING: Do not cancel the OTA process, as doing so may cause the device to become unresponsive or permanently bricked.

2. OTA process

The OTA process has three main steps:

1. Switch the device to OTA mode
2. Use the PK-OTA app to update the firmware
3. Once the update completed, the device automatically reboots to apply the new firmware

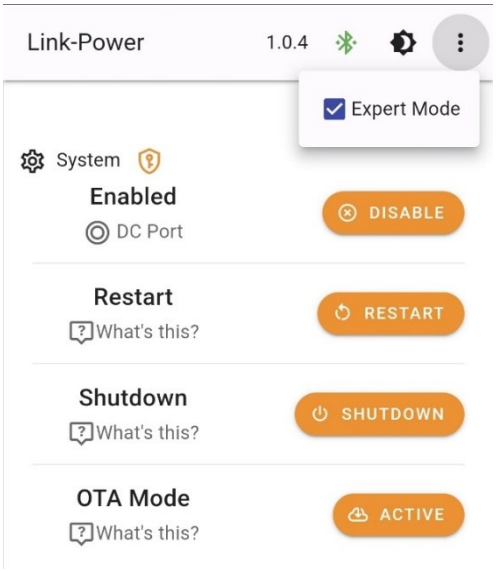
2.1. Switch to OTA mode

NOTE: The device named "Link-Power-1" when it runs in APP mode.
NOTE: The device named "PeakDo-OTA" when it runs in OTA mode.

This can be done in one of following two ways:

- Use Link-Power Web App to switch to OTA mode
- Use third-part BLE tool, like "nRF Connect"

2.1.1.Use Link-Power Web App



1. Connect to device with web app
2. Enable Expert mode by tap three-dots menu then tap Expert Mode
3. The OTA Mode option will display
4. Tap the Active button to switch to OTA mode. You may be prompted to input PIN code to pair with the device. The default PIN code is "020555".

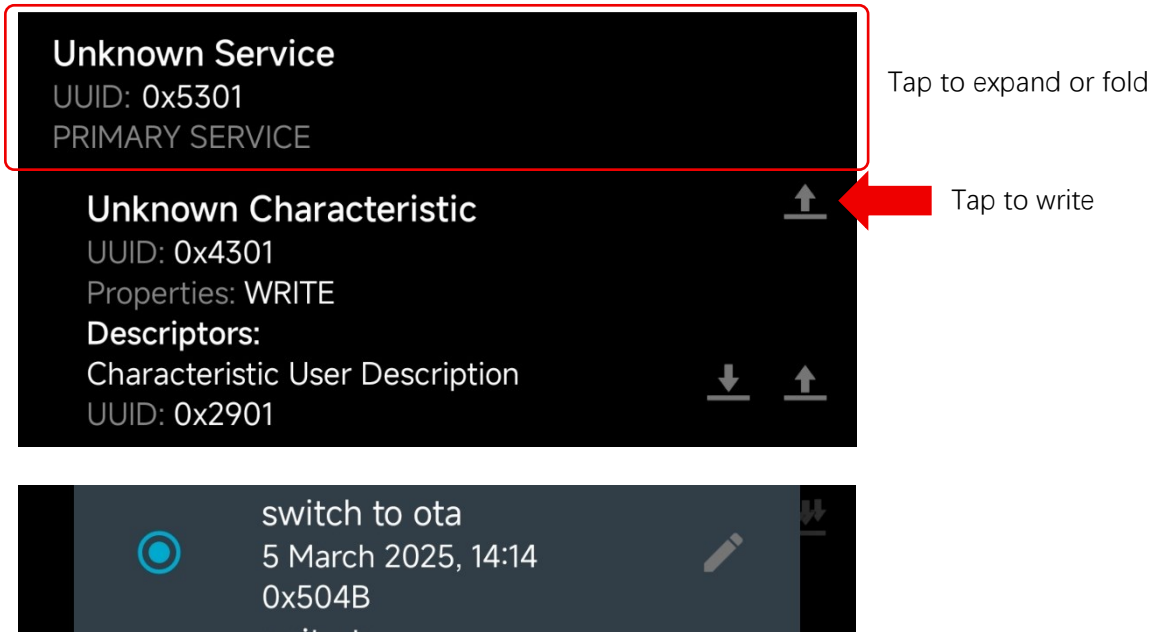
2.1.2.Use nRF Connect App

First, use nRF Connect to connect to the device.

The device has a service 0x5301, which has a characteristic 0x4301.
You might need tap the service's name to expand or fold the characteristic list.

Type the Write button to open Write Value dialog, input a value 0x504B (two bytes, the first one is 0x50 and the second is 0x4B) to the characteristic.

The device will restart and switch to OTA mode.



2.2. Upgrade the firmware

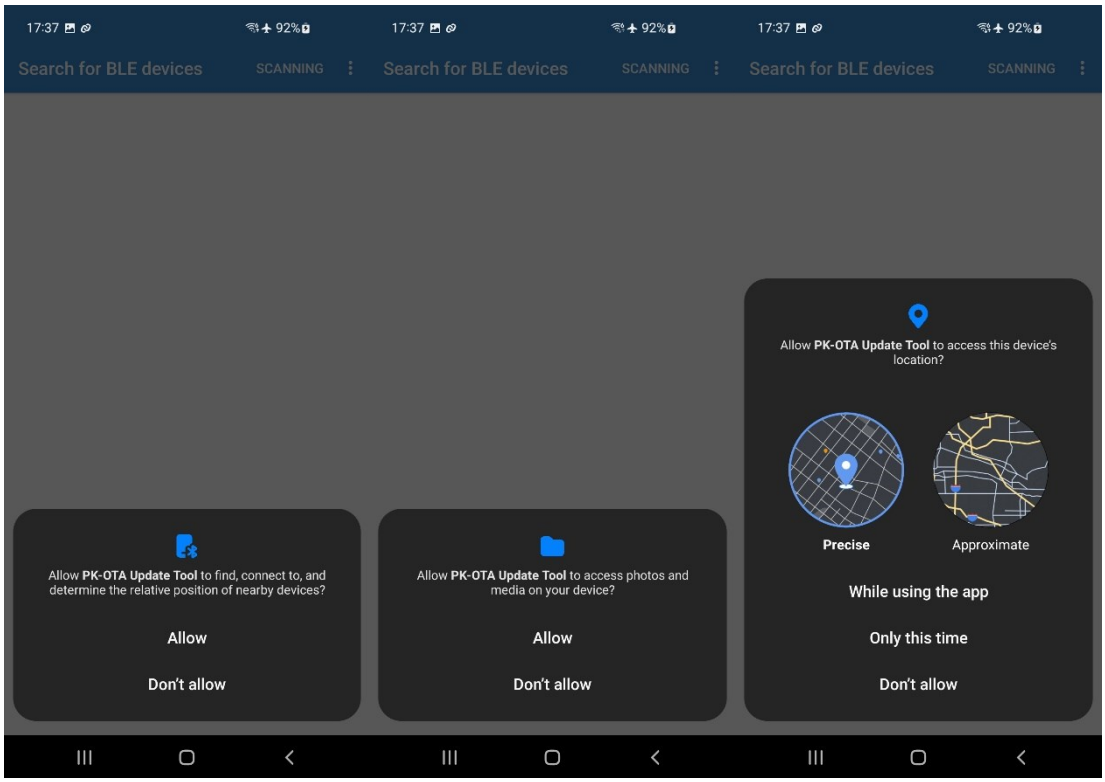
NOTE: Ensure the power supply is stable - either the battery is fully charged or the device is plugged into a USB-C PD power source.

NOTE: Keep your phone as close to the device as possible during the process.

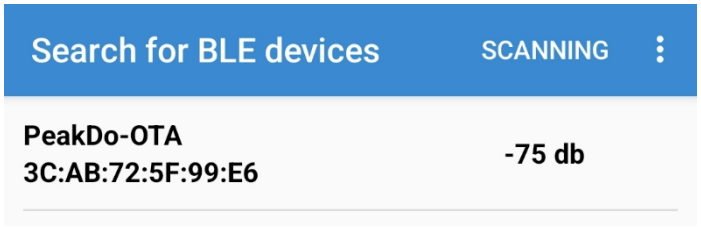
WARNING: Do not cancel the OTA process, as doing so may cause the device to become unresponsive or permanently bricked.

Launch the PK-OTA app.

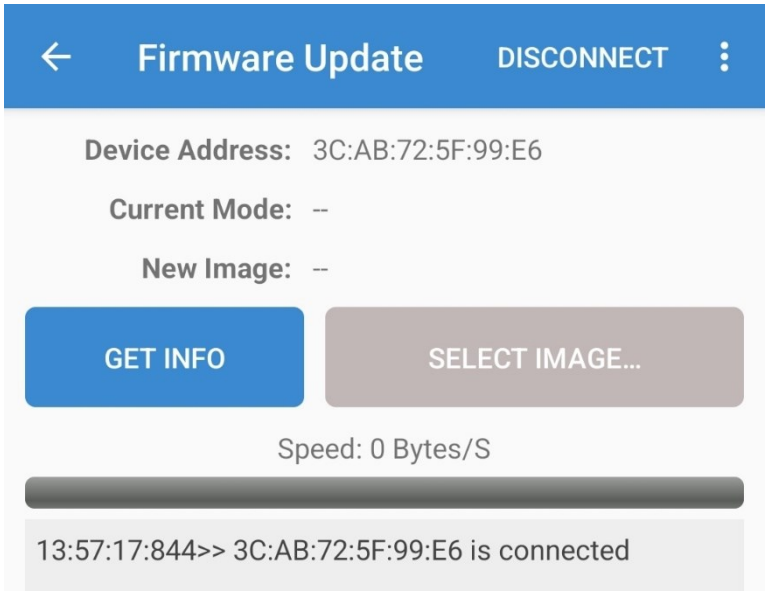
You may be asked for grant permission:



2.2.1.Scan and connect devices

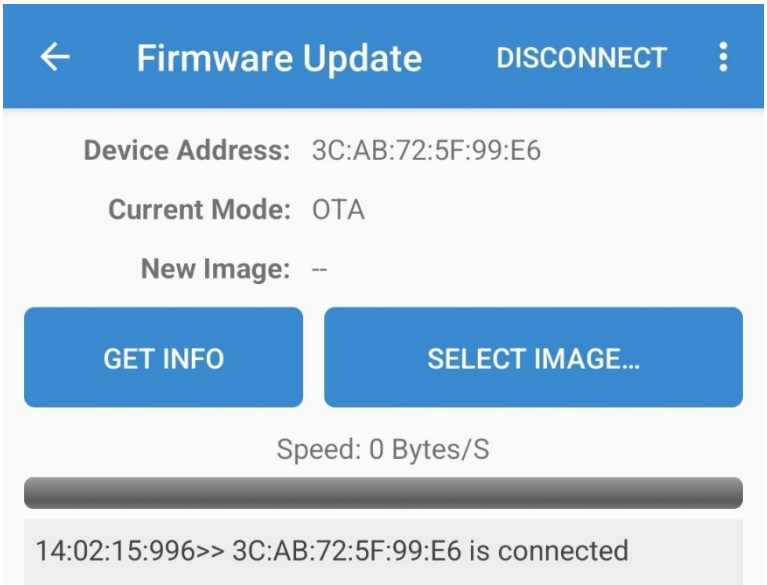


Tap on the device name to start the connection



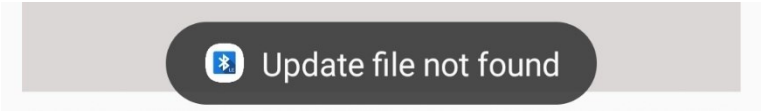
2.2.2.Get device information

Tap GETINFO to get the device/firmware information.

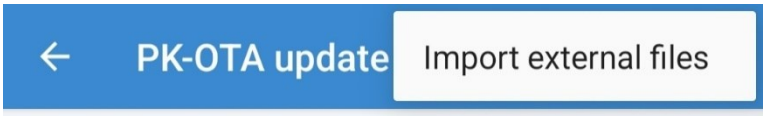


2.2.3.(Optional) Import the firmware

If you don't currently have firmware, you'll need to import it first.



Click on the three vertical dots in the upper right corner and select "Import external files" in the menu:

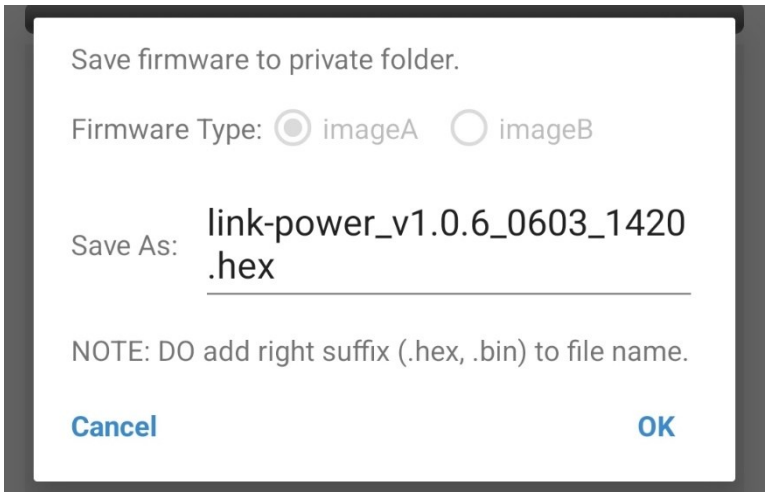


Then select the files you need to import.

Once the file is selected, you'll need give the file a name to import.

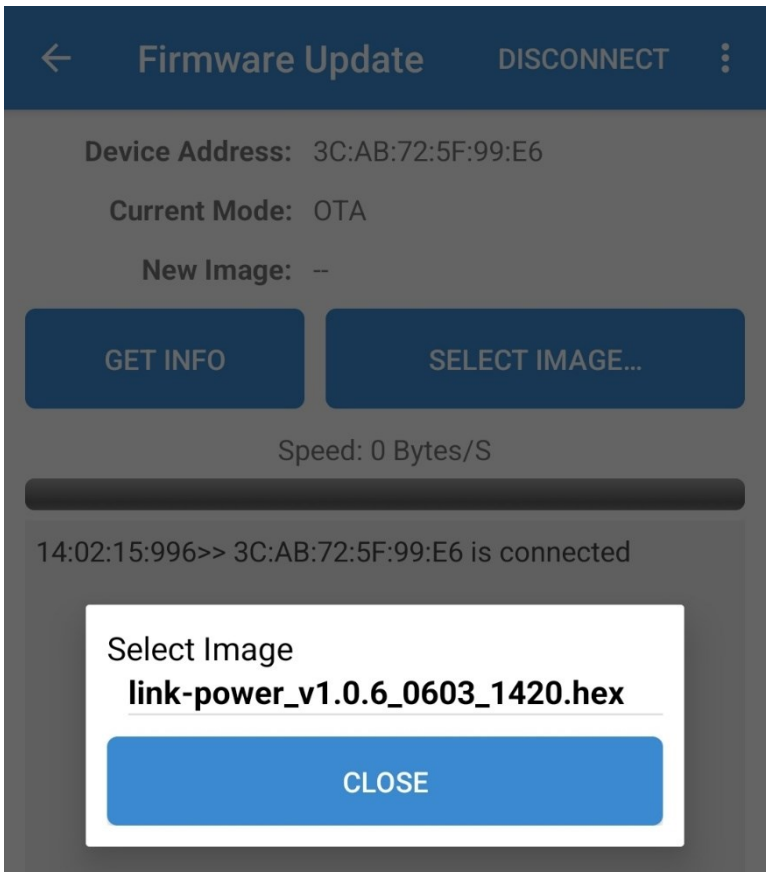
Note: The type of the APP firmware is A, and the type of the OTA firmware is B.

Note: Make sure to use the correct file extension: ".hex" or ".bin". The upgrade process will behave differently depending on the file type. In most cases, you should stick with the original extension provided.

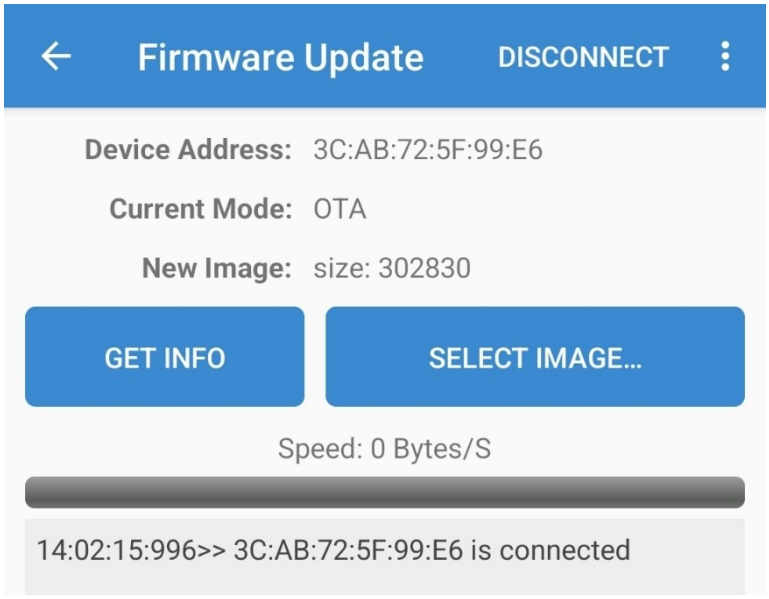


2.2.4.Select Firmware and Update

Tap the "Select IMAGE" button and select the firmware from the imported firmware list:

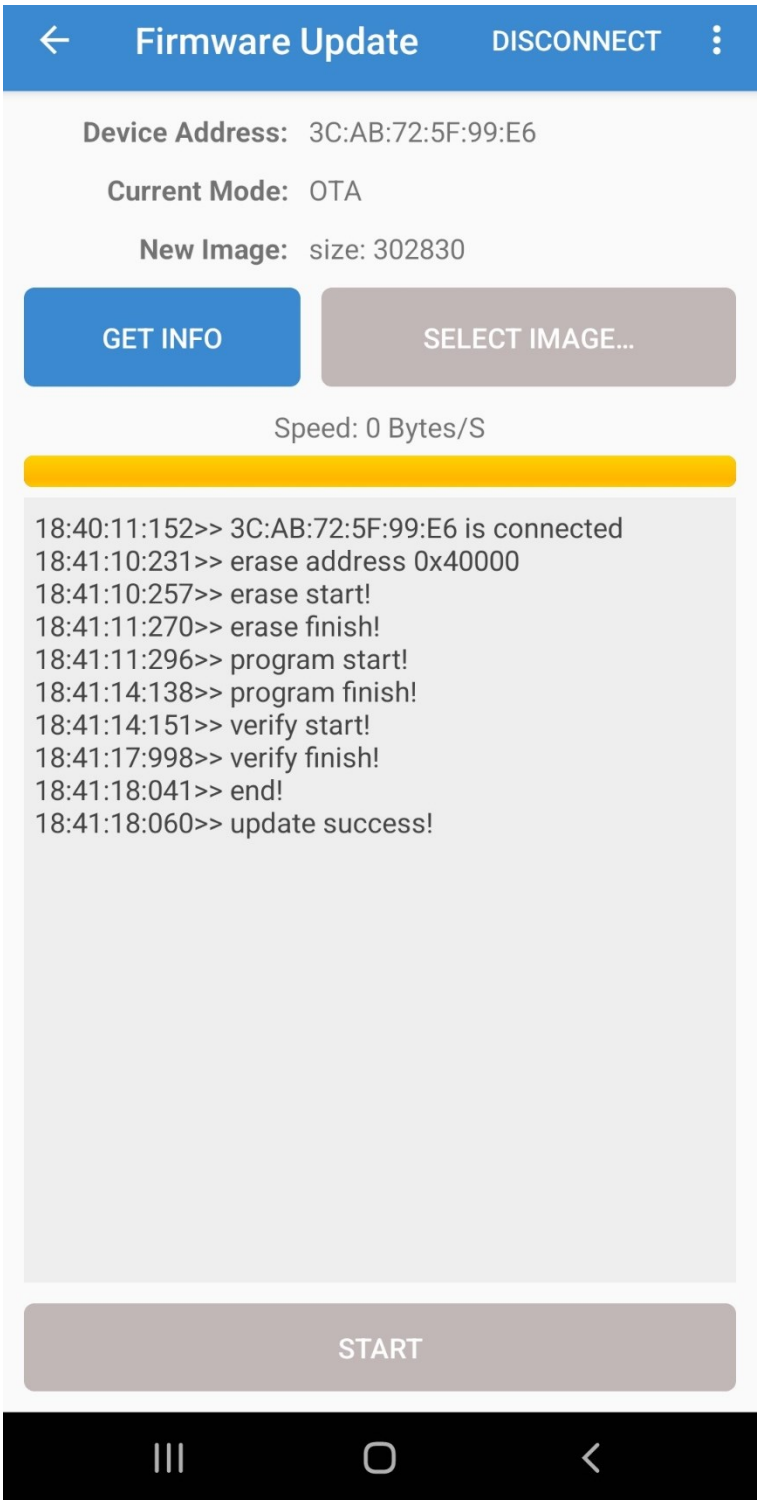


Note: after selecting the firmware, the size of the new image is displayed:



2.2.5.Start the upgrade

Tap the START button at the bottom to start the update:



Once update is completed, the device will reboot and switch to APP mode.

2.3. FIX "cannot connect error" after OTA

You may cannot connect to the device with the Web App after OTA, this is because of the mechanism so call "BLE Services Cache" (not an official name, I just make it up).

Windows will cache all BLE services of a device after connect to it. However, we have switched device to OTA mode which has different BLE services, thus after device switch back to APP mode, Windows may still keep those BLE services from the OTA mode.

The Web App has no way to refresh BLE services, so we need other tools to do so.

2.3.1.Use PeakDo OTA app

You already used PeakDo OTA app updated the firmware, you can use it to refresh BLE services.

To do so, launch OTA app or back to "Search for BLE devices" page, scan nearby devices, select your device and connect to it.

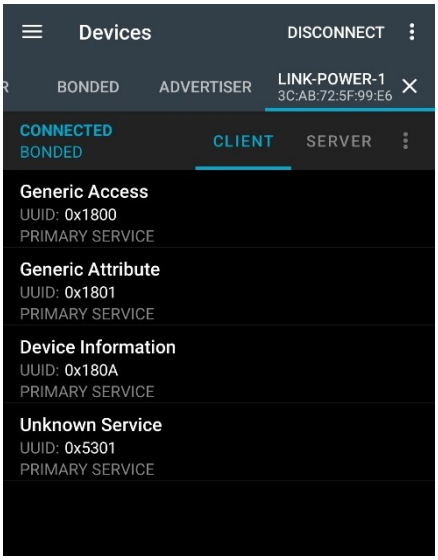
After OTA app connected to your device, it will refresh BLE services automatically. Then you just disconnect from the device.

Back to the Web App and try connect to it again.

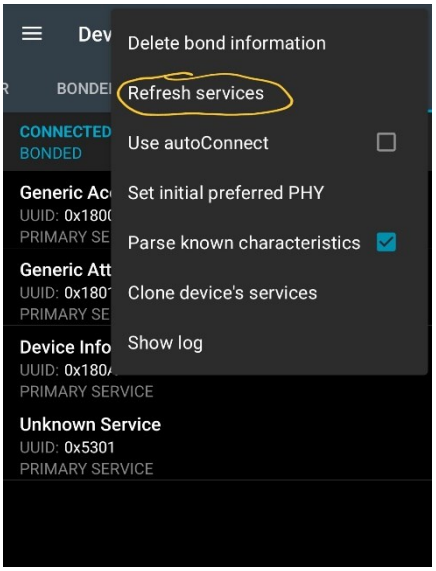
2.3.2.Use nRF Connect

Search and connect to your device

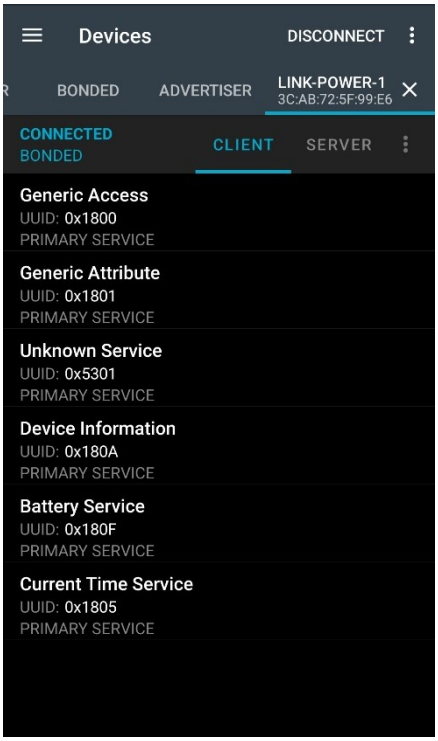
You may notice the device has just few services:



Select "Refresh services" from the three dots menu.



After refresh, you'll see full services list as following:



Back to the Web App and try connect to it again.

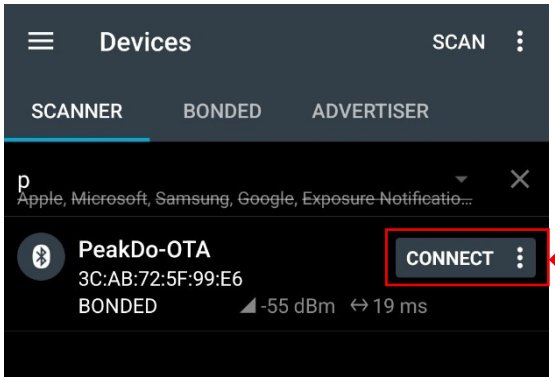
3. Switch from OTA mode to APP mode

WARNING: If any OTA action has been performed (such as erasing or programming), do not switch to APP mode directly, or the device may become bricked.
To prevent this, always complete the OTA process using the PK-OTA app before switching modes.

You'll need a general BLE tool to assist, like "nRF Connect" or "nRF Connect for Mobile".

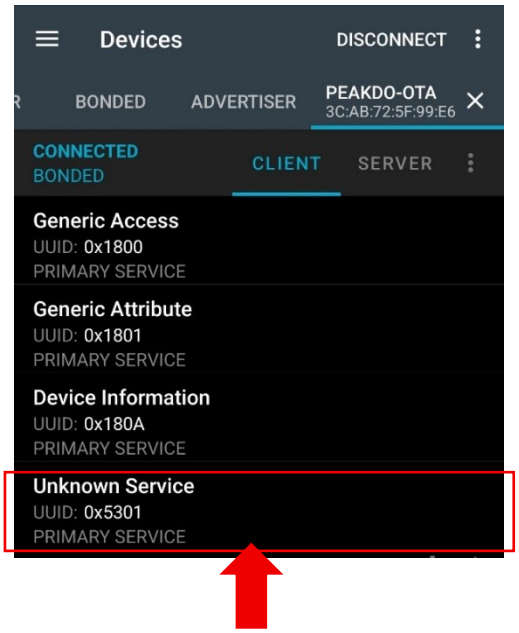
3.1. Use "nRF Connect"

Scan device, the name of device is "PeakDo-OTA".

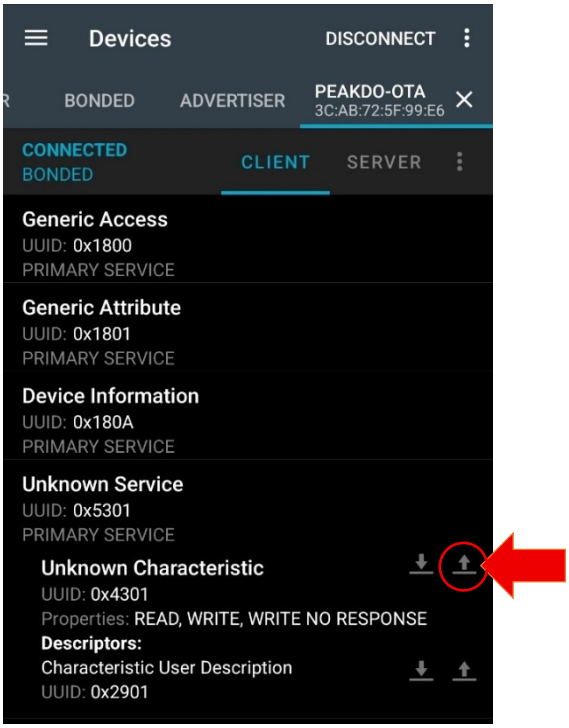


Tap to connect

Tap the "Connect" button to connect to the device. Once connected, you'll see the services and characteristics as following (left one):

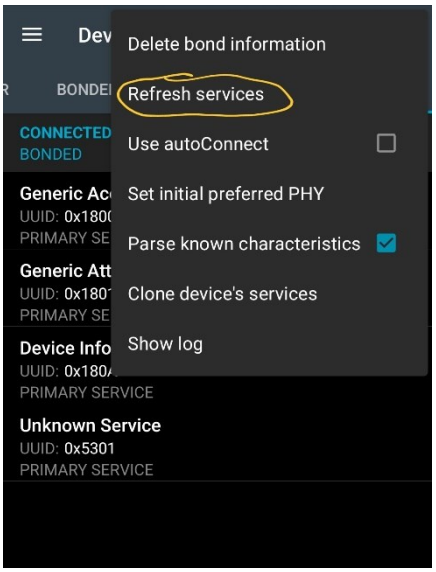


Tap to expand or fold

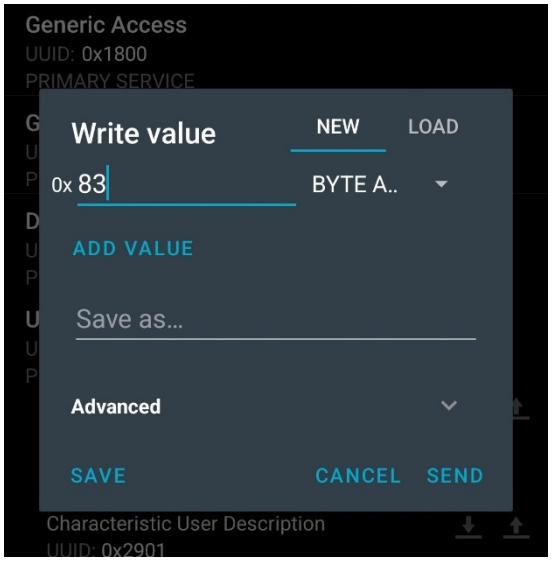


You might need tap the service's name to expand or fold characteristic list.

Find the characteristic with UUID 4301 (which under the service 5301). **Please note the characteristic 4301 is the only one under the service 5301**. If there're other characteristics under the service 5301, you'll need refresh the service list by select "Refresh services" from the three dots menu.



Tap the "Write" button ( ) indicated by circle and arrow, a "Write value" dialog will show up as following:



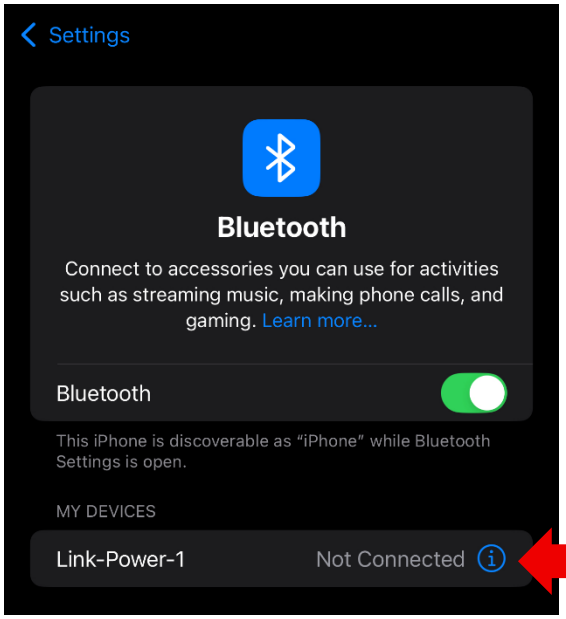
Input exact "83" as value then tap the "Send" button, this will send the reboot command to the device.

The device will reboot and switch to APP mode.

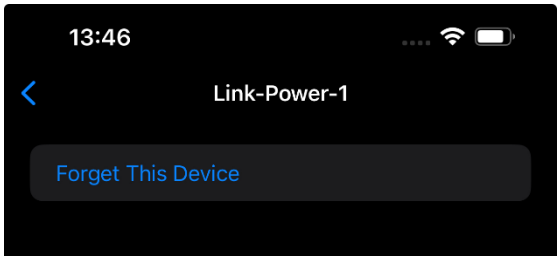
3.2. Use "nRF Connect for Mobile"

First, forget the device if you already paired with it.

To do so, go to Settings → Bluetooth, and look for the device in the MY DEVICES list. The device name may appear as “Link-Power-1” or “PeakDo-OTA”.

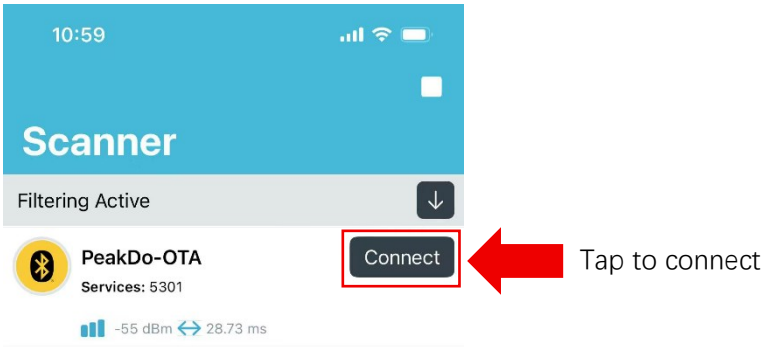


Tap the Info icon besides the device’s name to go to the "Forget This Device" screen as following. Tap the "Forget This Device" button then confirm to forget.



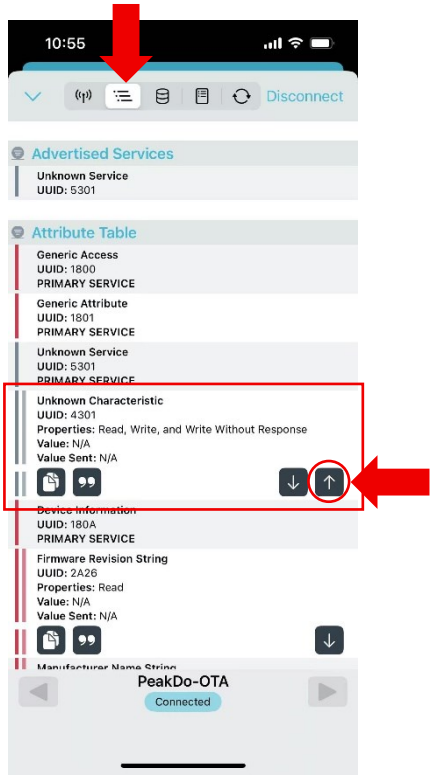
This step makes sure system removed the cache of Bluetooth services and characteristics.

Launch "nRF Connect for Mobile" app, then scan device, the name of device is "PeakDo-OTA".



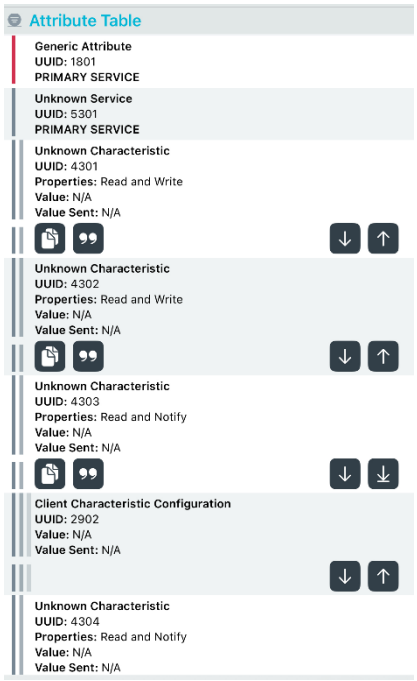
Tap the "Connect" button to connect to the device.

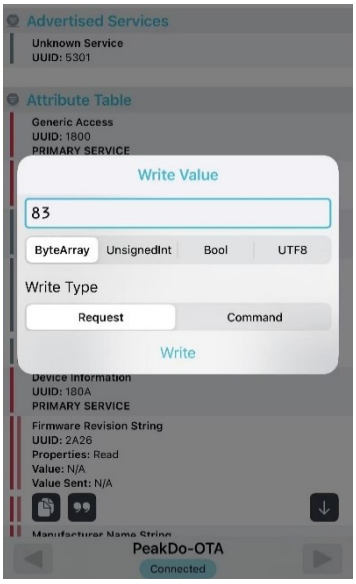
Once connected, switch to the second tab to show the Attribute Table:



Find the characteristic with UUID 4301 (which under service 5301). **Please note the characteristic 4301 is the only one under the service 5301.**

If you find multiple characteristics (like 4302, 4303 as following) under the service 5301, this means the system still cached services and characteristics. Refer to first step to remove the cache.





Tap the "Write" button (↑) indicated by circle and arrow, a "Write value" dialog will show up as above right one.

Input exact "83" as value then tap the "Write" button, this will send the reboot command to the device.

The device will reboot and switch to APP mode.

3.3. FIX "cannot connect error"

You may cannot connect to the device with the Web App after switch to APP mode. To fix the error, please refer to the FIX "cannot connect error" after OTA section.