

mistywest

[WW02] - Device Configuration and Updating Firmware over BLE

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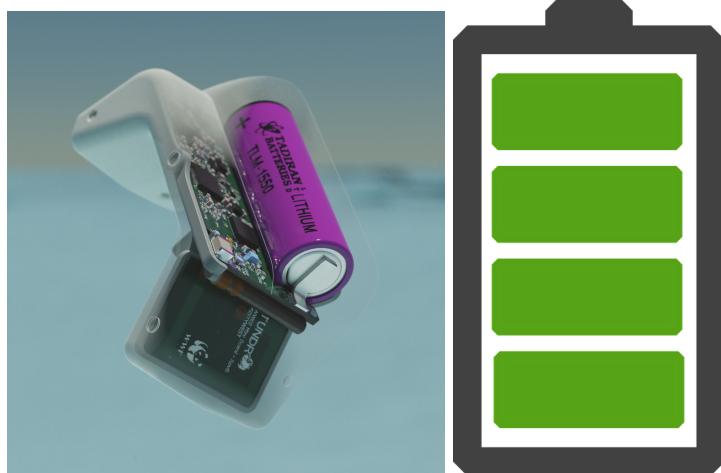
Overview

As of Hardware Revision V2.0.1, and Firmware Version 1.17+, devices are set by default in a BLE-idle state. This means it can be connected over Bluetooth LE, but no other functionality is enabled. The device consumes ultra low power while in this mode.

Connecting and Configuring Devices

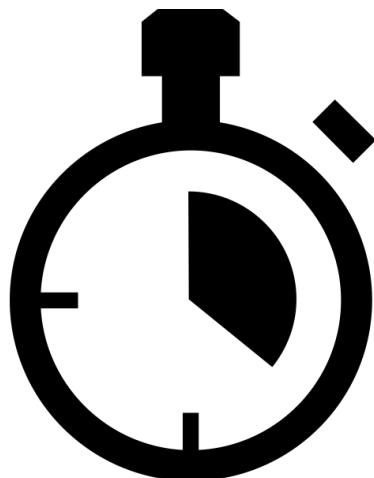
Devices operating essentially as a stop-watch. In **Idle mode** this Stop-watch is off. When the “Stop-watch” is enabled, the device enter **Tracking Mode** mode and will count down a configurable amount of time. At time-out, the device will enter a **Argos Transmission mode** and Transmit collected data over ARGOS once every 45 seconds for just over 30 mins. At which point the device returns to **Tracking mode** and the Stop-watch reset to its original time.

Idle Mode



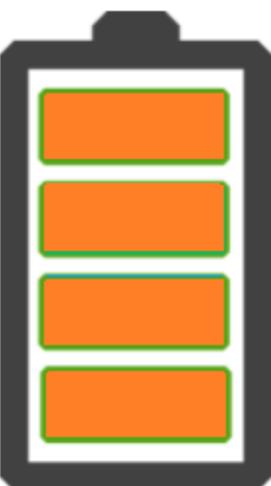
Ultra-Low Power Consumption

Tracking Mode



Low Power Consumption

Argos Transmission Mode



High Power Consumption

Transmits once every 45 seconds, x45 repetitions

Configure Tracking Mode

Download the App

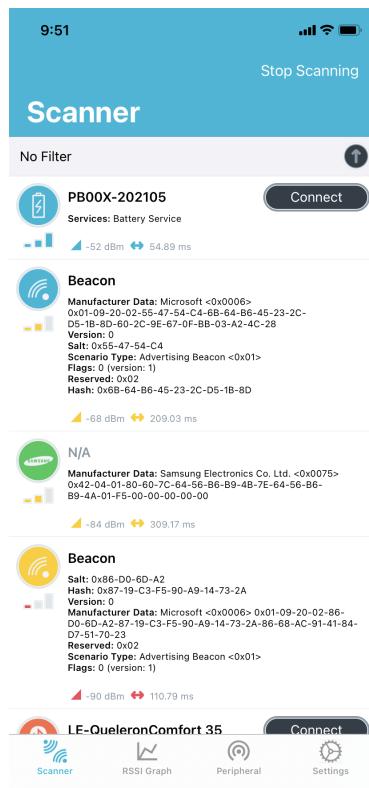
These instructions will focus on updating with an iPhone. The instructions are almost identical for Android. Search the App Store for the **nRF Connect** app



nRF Connect App

Open the App

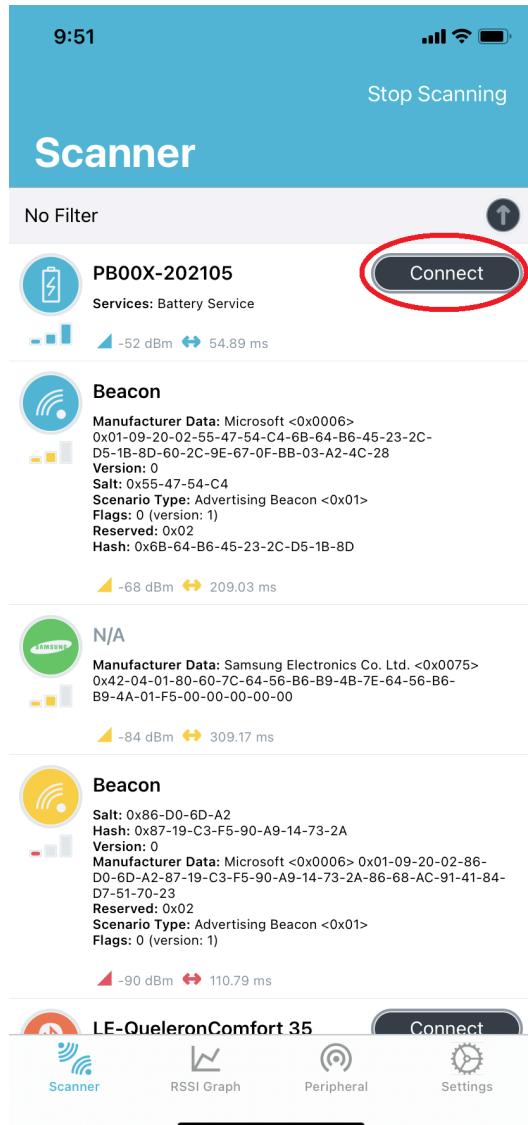
Opening the App, the Phone will immediately start scanning for Bluetooth devices. Look for devices named **PB00X-202105** The **x** will be an identifying number 1-20



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Connect to the Device

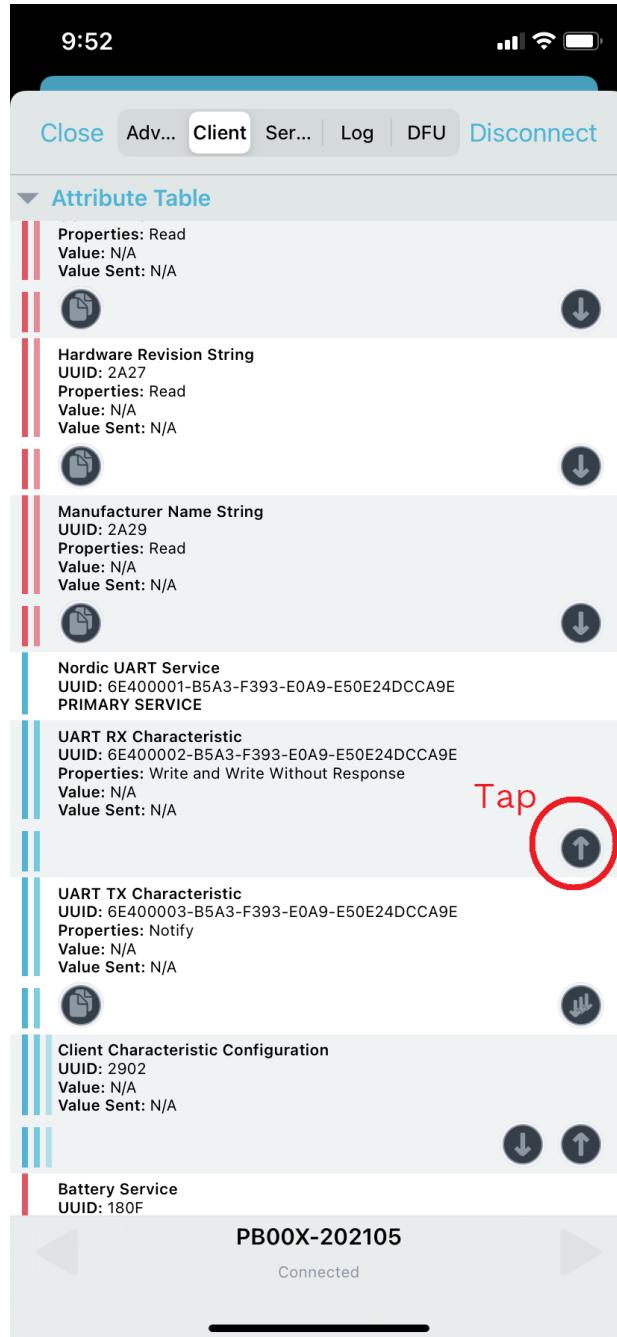
When you find the Device based on the displayed name, tap on **Connect**



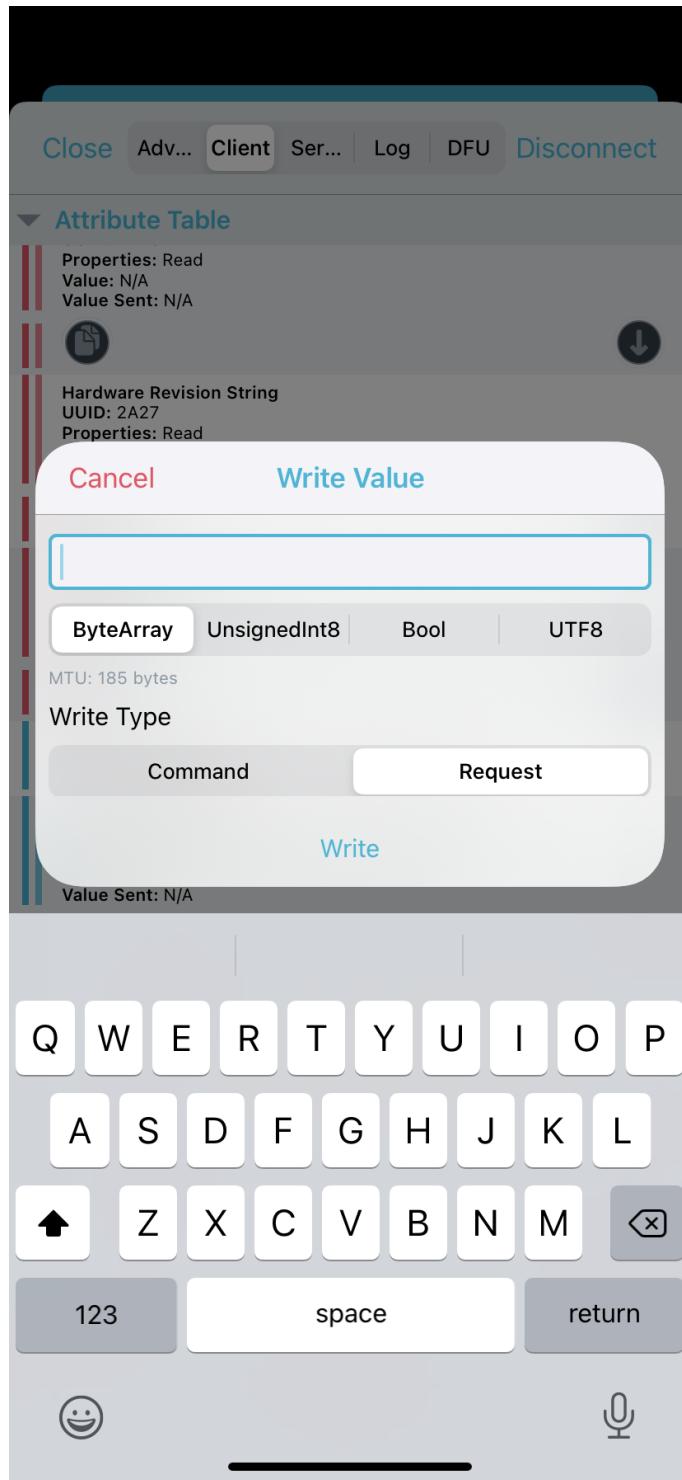
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Controlling the Device

Once Connected to the device, several tabs will appear, tab on the **Client** tab
Tap on the upwards Arrow in the section titled: **UART RX Characteristic**



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The values entered in this field are commands to control the device. Enter the desired configuration value and Tap **Write**. See the table below

Value	Control Function
AA00	Idle Mode - No Satellite Activity
AA01	Device will transmit once per 7 days
AA02	Device will transmit once per 3 days
AA03	Device will transmit once per 2 days
AA04	Device will transmit once per 1 day
AA05	Device will transmit once per 12 hours
AA06	Device will transmit once per 6 hours
AA07	Device will transmit once per 4 hours
AA08	Device will transmit once per 2 hours
AA09	Device will transmit once per 1 hour
FA	Device Enter Update Mode - See Updating Software Section

Updating Device Software

Updating the device's software, or DFU as its known, allows a device to update wirelessly. In order to do this, the device must be placed in DFU Mode. Once in this mode the device will connect and allow its Application firmware to update and start. These instructions will focus on updating with an iPhone. The instructions are almost identical for Android.

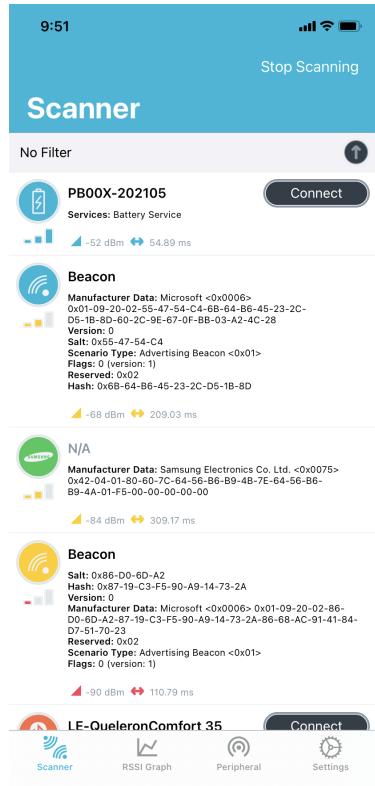
To use this feature, you must download the iOS app nRF Connect



nRF Connect App

Open the App

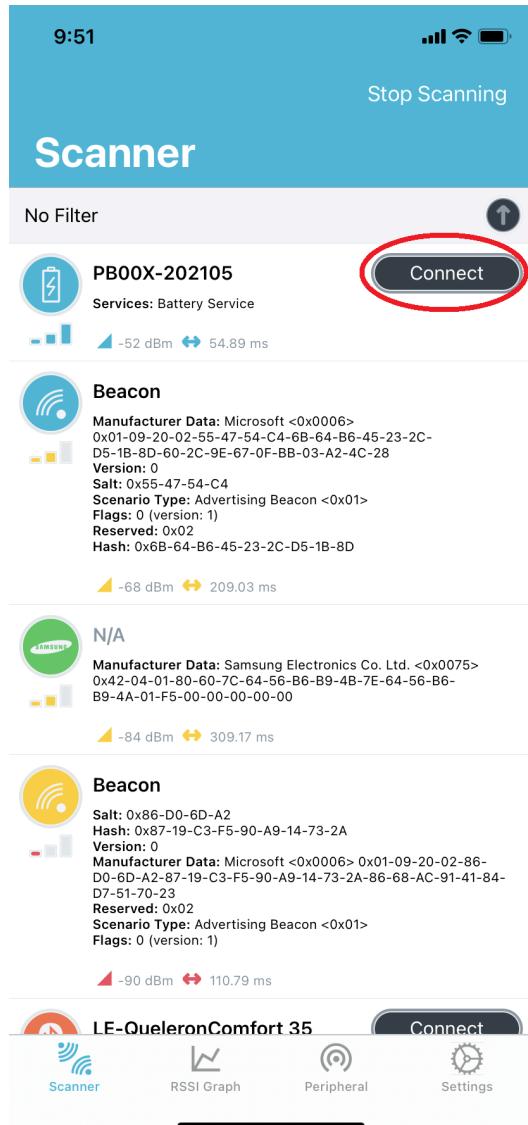
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Connect to the Device

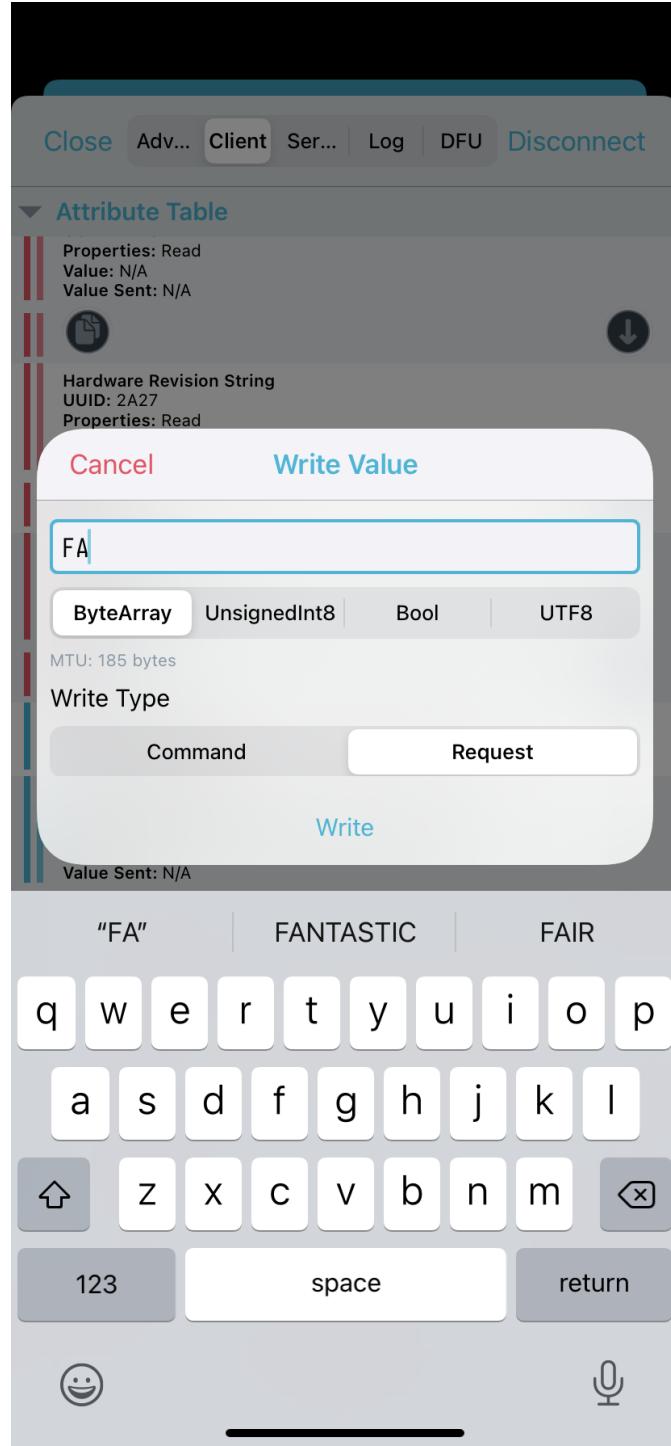
When you find the Device based on the displayed name, tap on **Connect**



Controlling the Device

Once Connected to the device, several tabs will appear, tab on the **Client** tab
Tap on the upwards Arrow in the section titled: **UART RX Characteristic**





Enter the value **FA** and Tap **Write** to issue the command. This will place the Device in DFU Mode. This will cause the device to Disconnect and Reboot in **DFU Mode**. Its device name will also change to **WWF_DFU**. Navigate back to the App's home page and Pull down the list to start a new scan for devices.

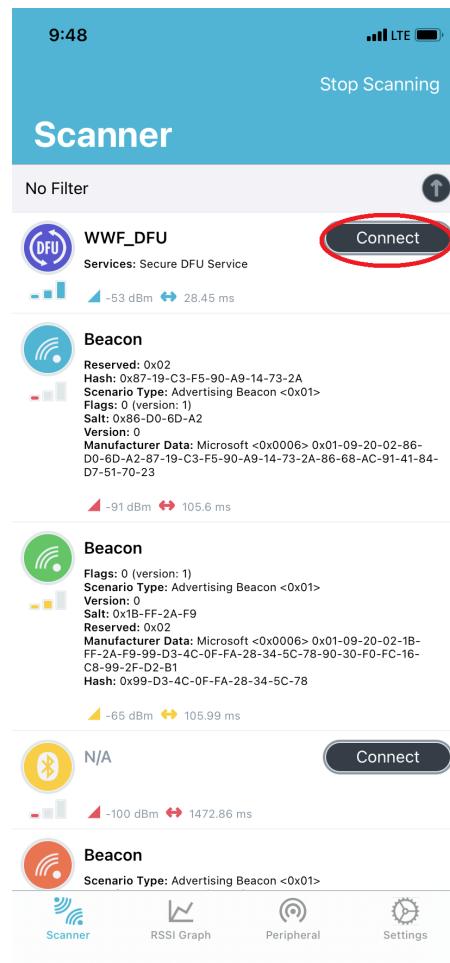
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DFU Mode

The Device is now in DFU Mode and the Red LED should be solidly on.

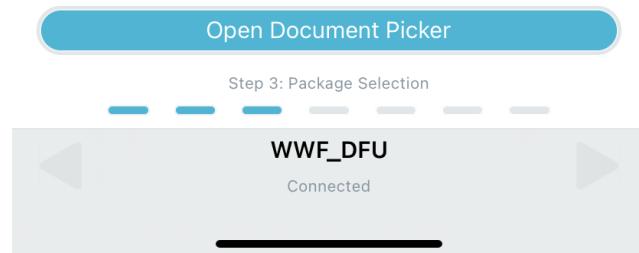
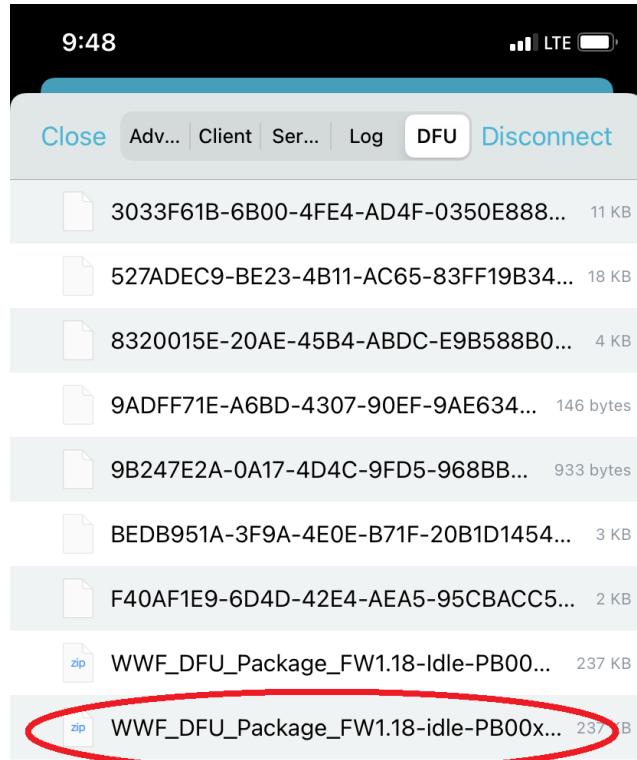


We'll need to be reconnected to the Phone. Go back to the home screen of the App and Pull-down the list to start a new scan. The Device will now appear as **WWF_DFU**. Tap **Connect** to connect to the Device



DFU Update

A similar screen will appear once connected to the **WWF_DFU** device. Tap on the **DFU** tab (recall previously we'd tapped on **Client**). Here Files that have been placed in the nRF Connect folder in the iOS Files App will appear. Tap on the DFU Image you wish to use. For this example we chose/tap on **WWF_DFU_Package_FW1.18-idle-PB00x.zip**



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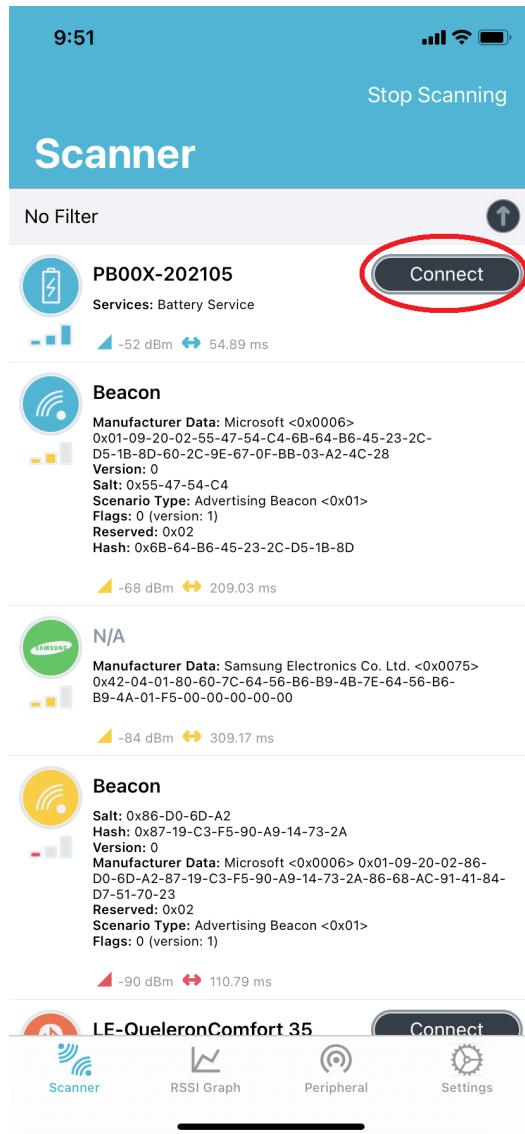
Tap **Start** and observe the Update Progress Bar



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Verify Device Update

Once the Device has been successfully update, it will Disconnect and Reboot into its new Software Version. The LED will flash indicating the reboot. You should be able to return to the Home screen of the App and search for the Device which will return to its application Device name, in this example **PB00x-202105**

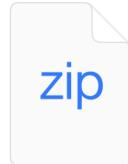


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Getting the Software Update File

MistyWest will send/email the updated Software file. On your iPhone you need to place this file in the **nRF Connect** folder section of the **Files** app on your iPhone

In your Gmail App, Tap on the Attachment file which is the Software Update sent. Tap on the Top-right corner as shown below



WWF_DFU_...e-PB00x.zip

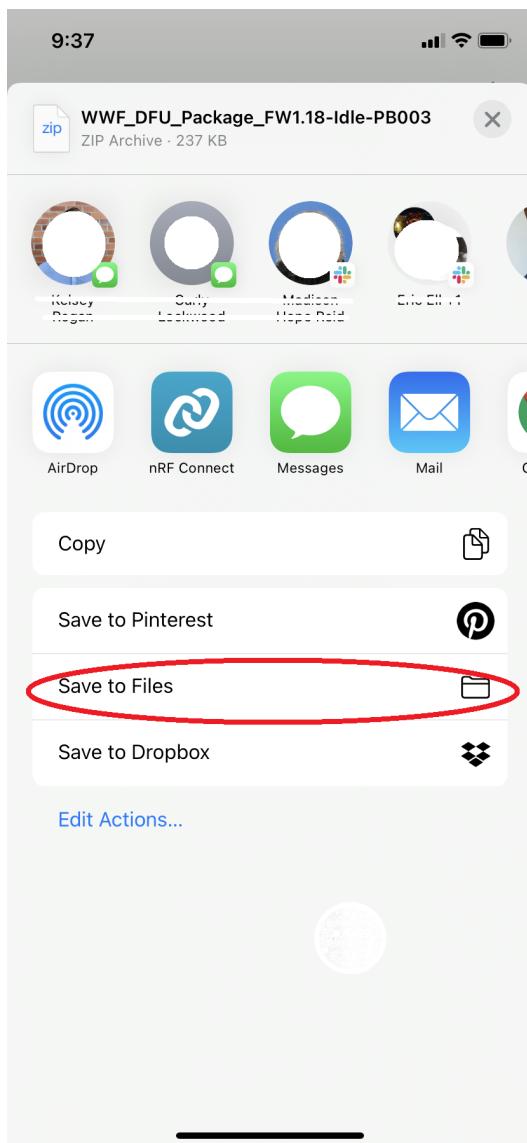
237 KB

3 files

[Preview Content](#)

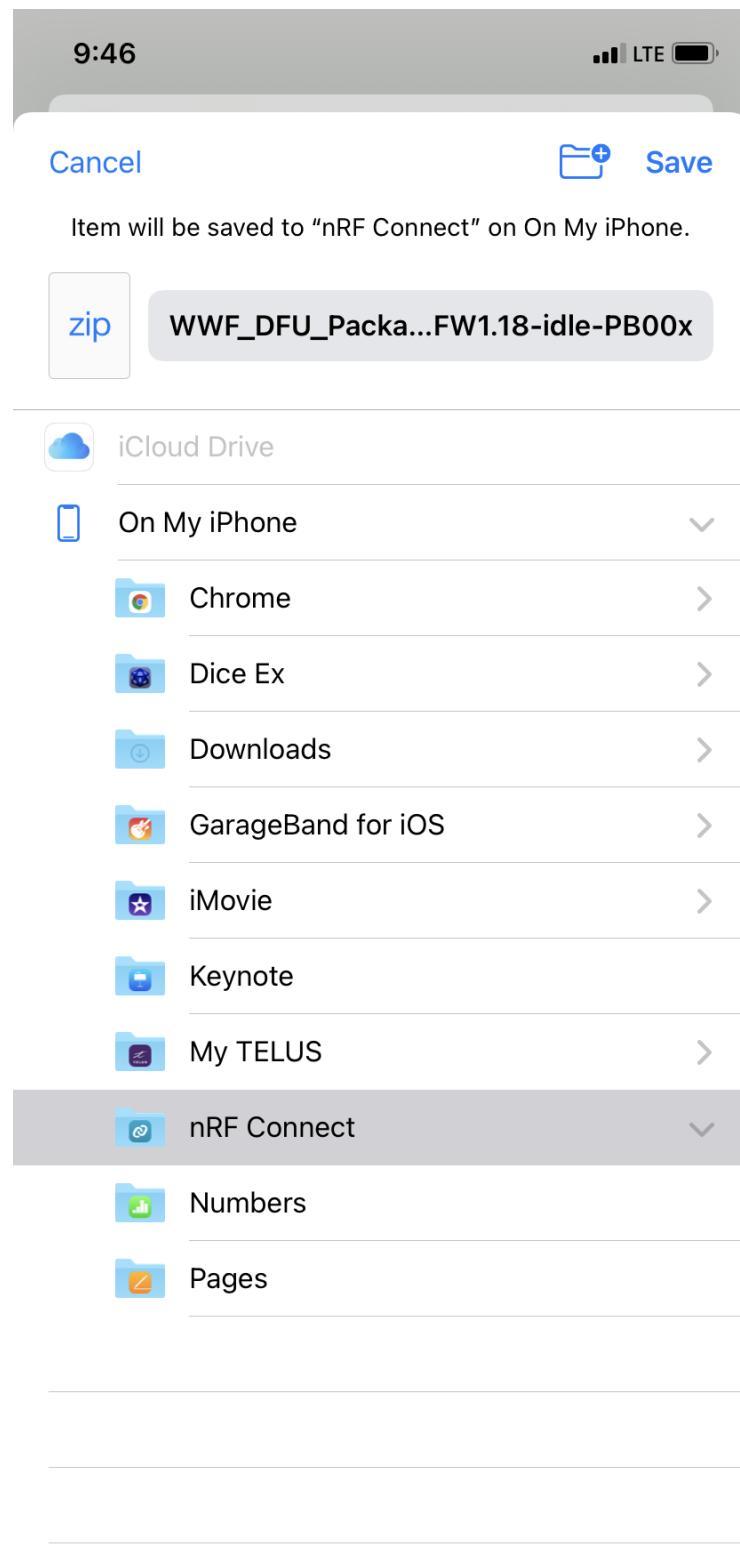
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Tap on the **Save to Files** section



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Tap on the **nRF Connect** section of the **Files** app. This will place the Software Update zip file in the Correct Section for future use. Tap **Save**



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