



# User Manual

for nRF Connect(iOS)

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## CORE FUNCTIONS

nRF Connect (iOS) scans nearby devices that are equipped with Bluetooth low energy wireless technology.

### Scanning

Once the app starts up it will enter "scanning mode". After 30sec it will stop scanning. You can change the interval in Setting page. The screen stays at last scanning results.

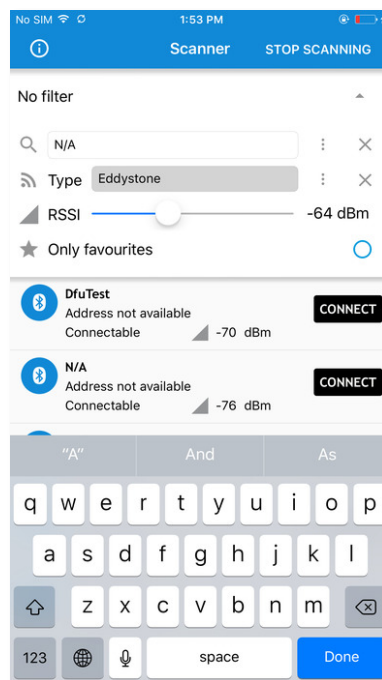
### Advertising Interval

On scanning page it gives advertising interval. The value is measured according last received packet. It allows 5 milliseconds differences. To get accurate data, users are required to stay close to the peripheral, and take multiple measurements. Pull down scanning screen to refresh interval.

### Advertisement detail

By default, the raw advertising data is shown. For some specific device, for example, nRF beacons and Eddystone, beacons format are supported.

### Device Filter



There are 4 types of filters provided. User can filter devices in both scanning mode and non-scanning mode.

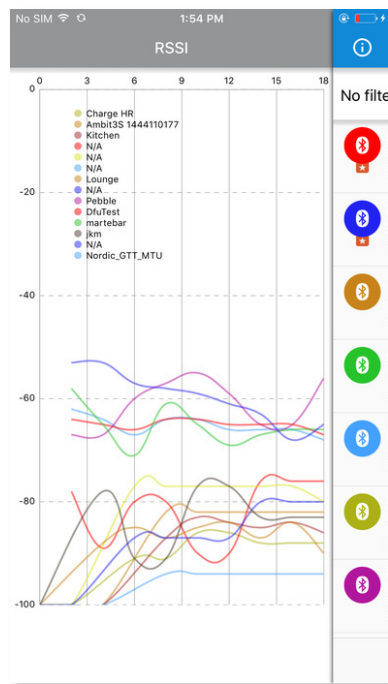
**Name:** User can search a device that contains a specific string in device name.

**Type:** It returns specific type of BLE device, however iBeacon can not be found using the app, due to the using of different api.

**RSSI:** All received signals that are stronger or equal that a specific value will be shown.

**Favourite:** User can track a specific device by tapping the blue icon.

## RSSI Chart

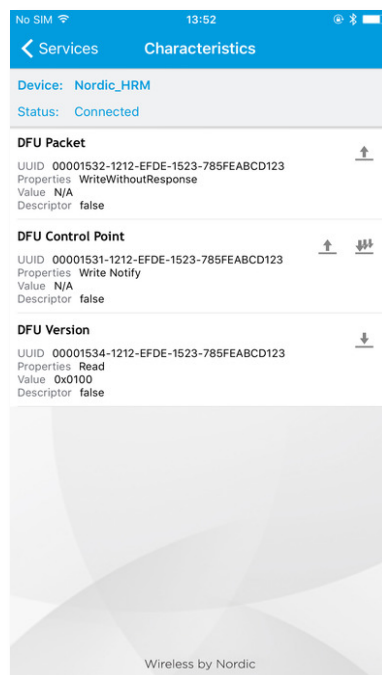


*(An updating chart while scanning)*

The chart gives a straight view of changing RSSI received from nearby devices. The linear curve describes relative distance between a phone/tablet and peripheral\*. RSSI values smaller or equal than -100 are considered as out of reach. The calculation will be more precisely, if Tx power is provided by peripheral.

*\*Signal strength is affected by environment, Tx power, etc.*

## Operations



*(Example of characteristic view)*

nRF Connect

**write, read:** User can perform write(outbound arrow icon) to a characteristic, if write permission is granted. Currently, the input format is hex value. An input value will be validated before it accepted by the app. The app will automatically choose a write type for user. After the write procedure is complete, you might need to read (inbound arrow icon) to have the new value updated on view.

**subscribe:** User can subscribe(three inbound arrows icon) to a characteristic and receive new values automatically. Tap again to unsubscribe.

## LOGGER

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Logging will start when connecting to a peripheral. User can track all activities between phone/tablet and peripheral. When a subscription is made to a characteristic, user will get informed for new updates if the log view is on presenting. Log can be downloaded via iTunes(in File Sharing) or shared via "Airdrop" within the app.

**Debug:** system action

**Verbose:** user interaction

**Info:** result

**Application:** data usage

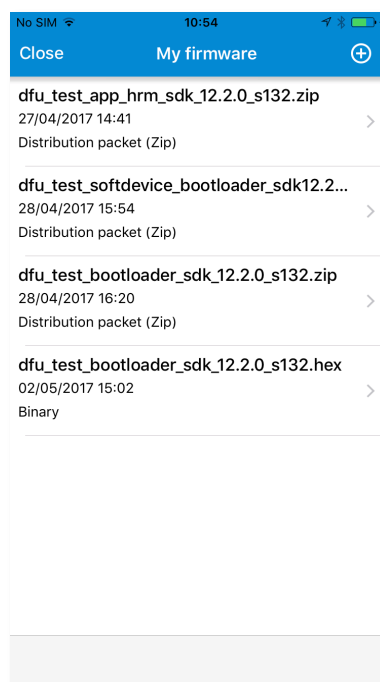
**Warning:** system validation

**Error:** system error

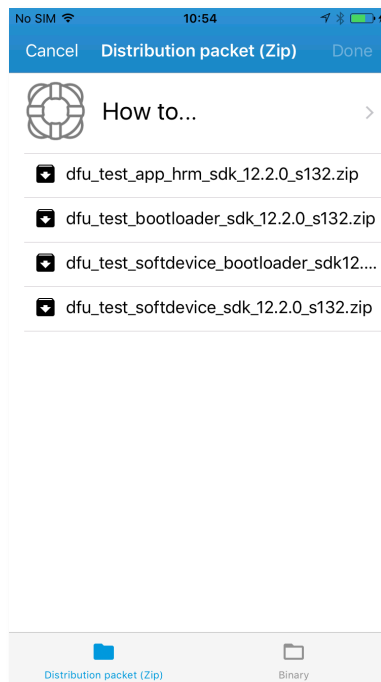
## DEVICE FIRMWARE UPDATE (DFU)

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"DFU" is available only when a connected device provides **Nordic DFU service UUID** [Appendix A-1]. A suggested distribution packet would contain either "softdevice", "bootloader", "application", "softdevice + bootloader", "softdevice + application" or "softdevice + bootloader + application", other combinations might lead to updating failure.



(The app will save a list of used firmware reference. Swap left to remove)

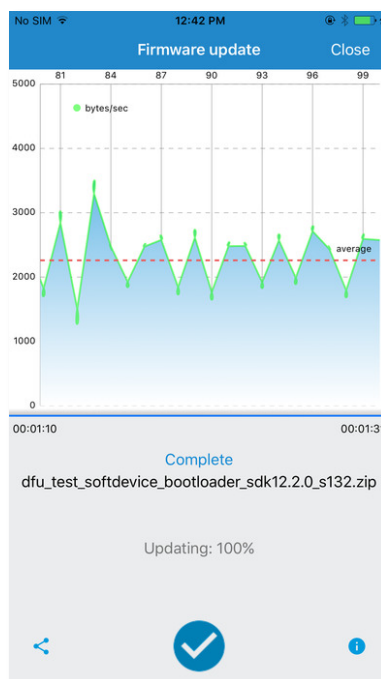


(There are two views to help prepare a distribution packet. All imported zip files are showing here)

**Distribution packet(Zip):** All zip files will fall into this category. Those packet are ready\* for updating.

**Binary:** Single hex file is grouped into this category, to make a distribution packet, user might also need to provide a .dat file and choosing a firmware type.

\*The file will be validated while updating. Kindly check compatibility of the firmware that you are going to upload.



(Example of a complete update)

**Chart** gives three information, current bytes per second(green spot), average speed(red line), done percentages(X-axis).

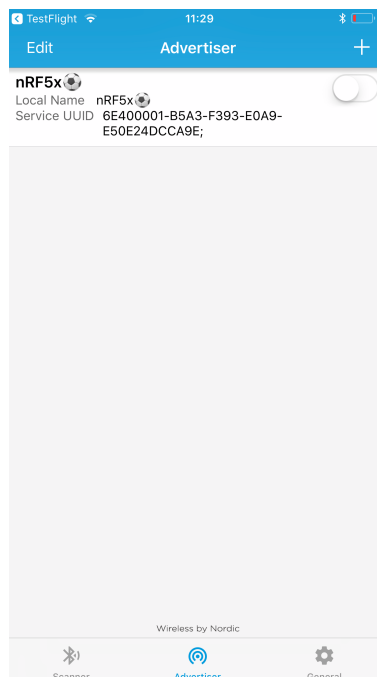
**Progress bar** shows time consumed, and estimated time.

**Console panel** gives current status, packet name, updating percentages, control button(pause, resume, complete), share log button(down-left), show firmware information button(down-right).

## Advertiser

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Advertiser function allows iPhone/tablet to advertise as a peripheral. Users can include a supported service into advertisement packet. The advertisement packet can be affected by its total size, see more details on apple developer [site](#).



*(Example of an advertiser)*

# APPENDIX

## Part A

[1], Legacy DFU service UUID: "00001530-1212-EFDE-1523-785FEABCD123"; Security DFU service UUID: "0xFE59"; Experimental Buttonless DFU Service UUID: "8E400001-F315-4F60-9FB8-838830DAEA50"