RIoT_Monitor Application Manual for RIOT-001

Ver.1.1

Jan 8, 2020

Contents

Getting Started

Overview

This RIoT_Monitor is an application to receive the Bluetooth Low Energy (BLE) data with using the RIOT-001.

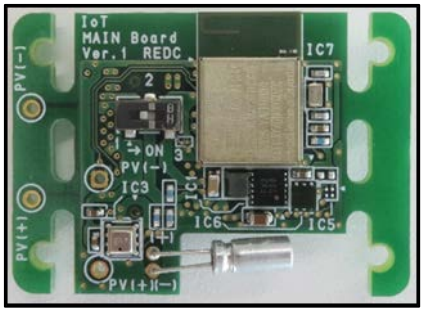

Figure 1 RIOT-001

RIoT_Monitor Requirements

To run this application, the following items are required.

Table 1

Items	Descriptions
Android Tablet	Android OS 7.0 or later and Bluetooth 4.1 or later recommended
USB Memory	A USB memory for tablet to install the APK file
USB Conversion Cable	The cable connects between the tablet and the USB memory for the USB interface (micro-B, Type-C) on your tablet.
APK File	Application installation file provided by REDC (Size: 20 MB)

REDC tested the application operation with using the following two kinds of tablets.

- LAVIE Tab E TE510/HAW PC-TE510HAW (NEC)
- MediaPad M3 Lite 10 Wi-Fi Model (Huawei)

Initial Setup

Follow the steps below to install the RIoT_Monitor app; here are the descriptions with using the HUAWEI MediaPad M3 Lite 10 Wi-Fi model.
Note: Actual display contents may vary depending on the using tablet.

Preset the followings before installation of the RIoT_Monitor app.

1. **Open Settings.**
   Go to **Settings** > **Security & Privacy** > **Other Settings** (**Settings** > **Security**) and touch **Unknown sources** to allow installation of non-official apps, as shown in Figure 2.

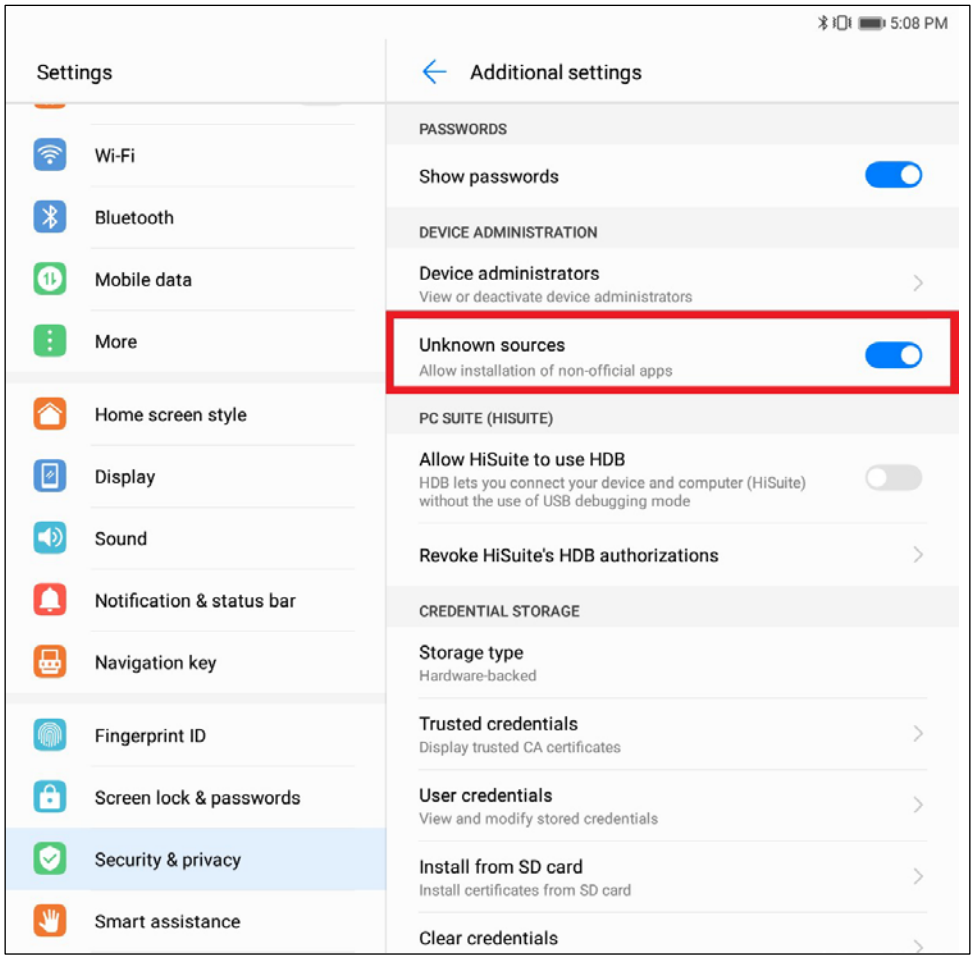

Figure 2 Setting of non-official apps

2. Copy the .apk file provided by REDC to a USB memory to install the app.

If RIoT_Monitor in an old version has already been installed, go to **Settings** > **Apps** > **RIoT Monitor** and touch **UNINSTALL** to delete it, as shown in Figure 3.

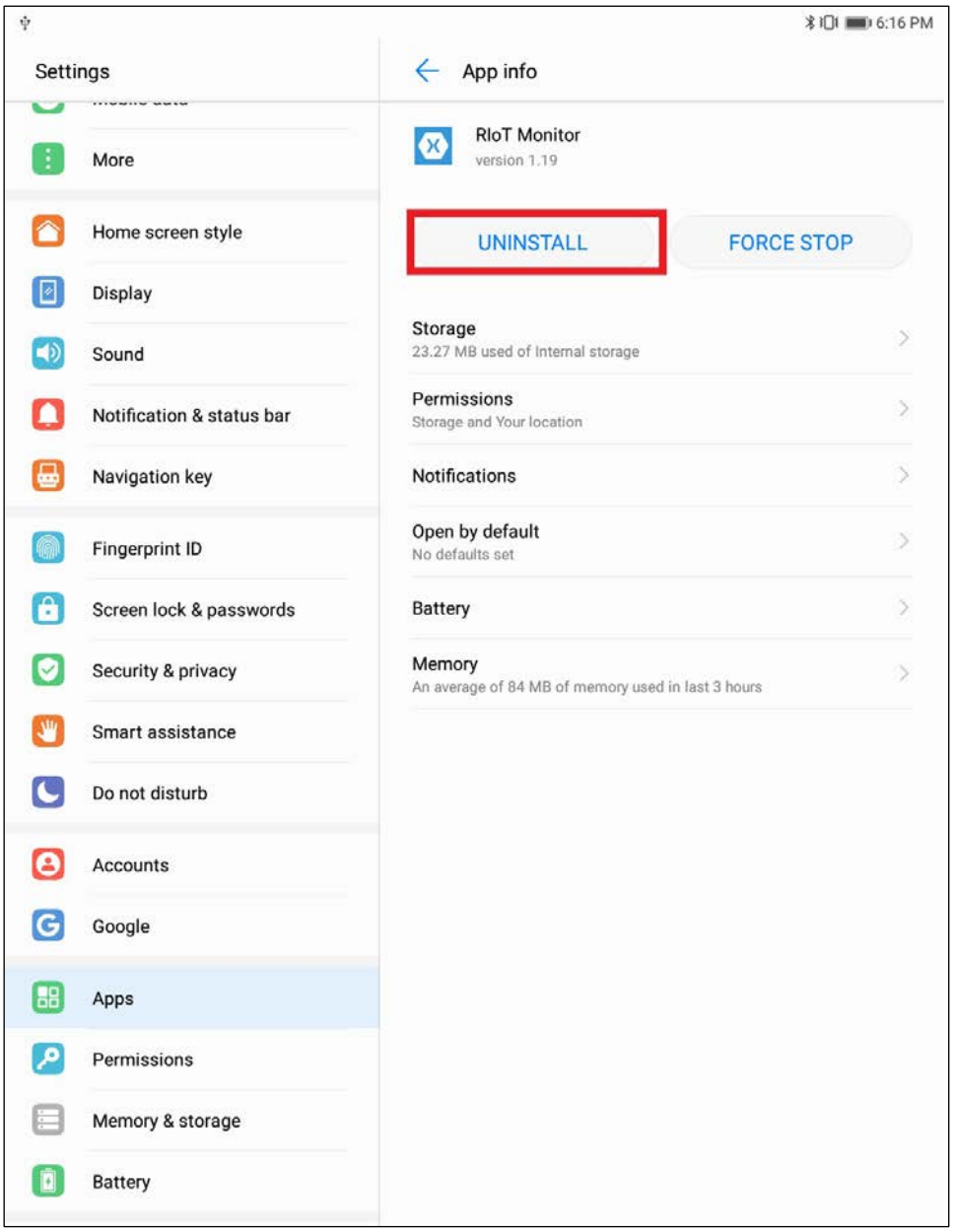

Figure 3 Uninstall button

Installing the RIoT_Monitor Application

1. Connect between the tablet and the USB memory with a USB cable.
2. Touch the app icon of **Files** on the home screen to view files in the USB memory.

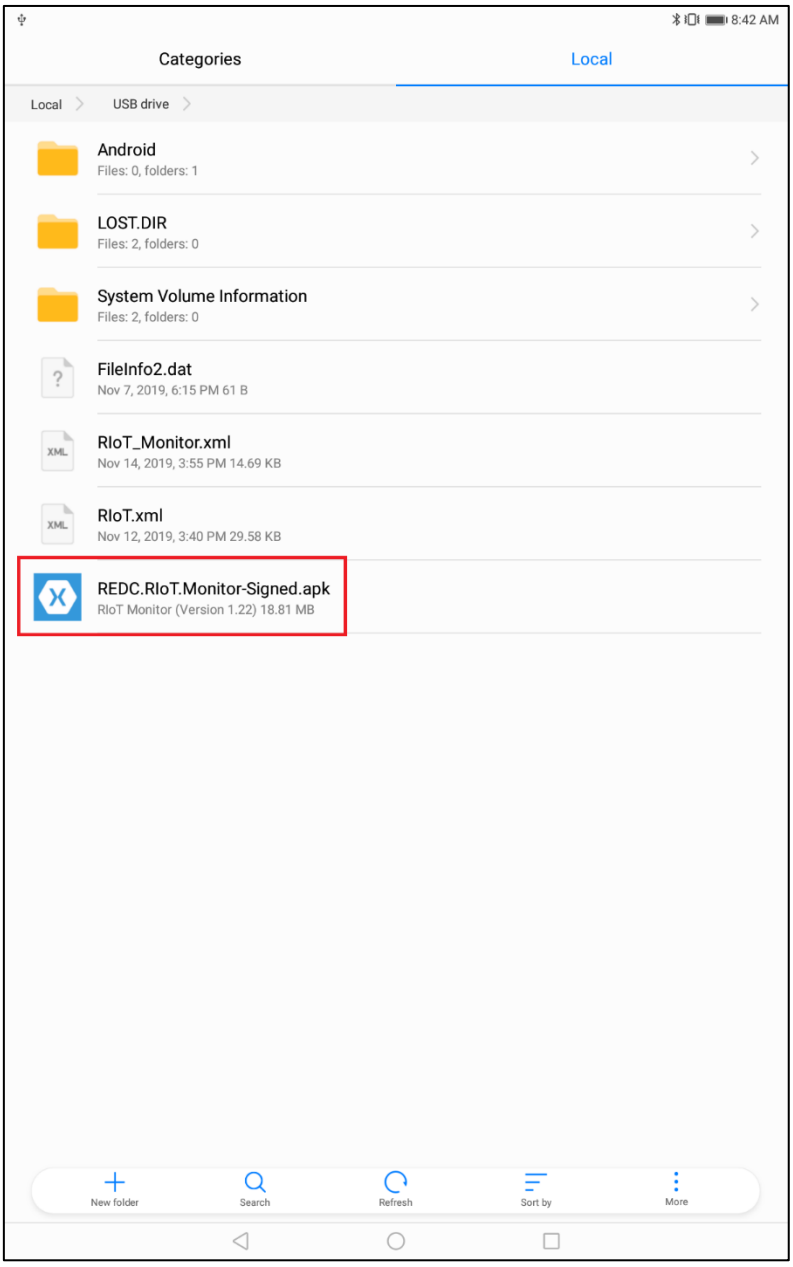

Figure 4 Files view in USB memory

3. Touch REDC.RIoT.Monitor-Signed.apk on the screen as shown in Figure 4, and touch **INSTALL** on the screen as shown in Figure 5.

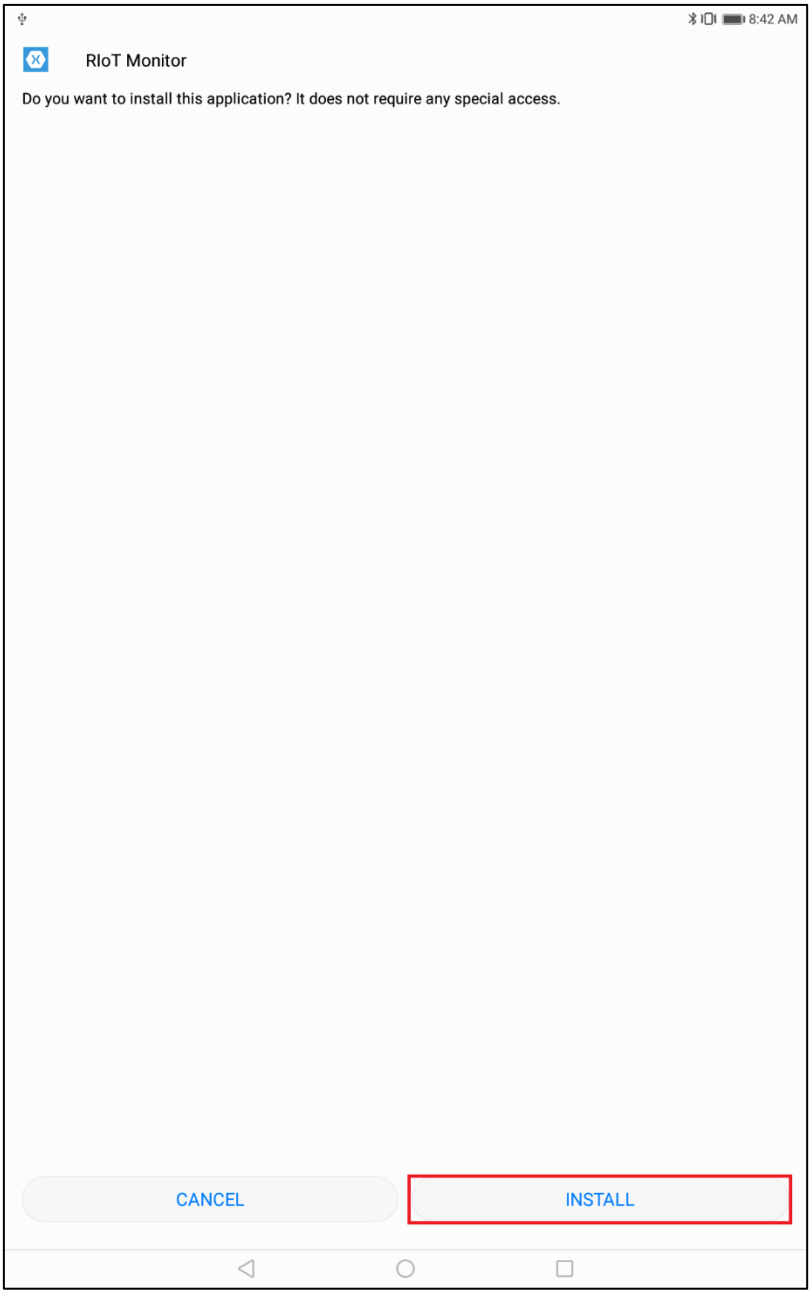

Figure 5 Install button

4. After "**App installed.**" displayed on the screen, touch **DONE** to complete the installation, as shown in Figure 6.

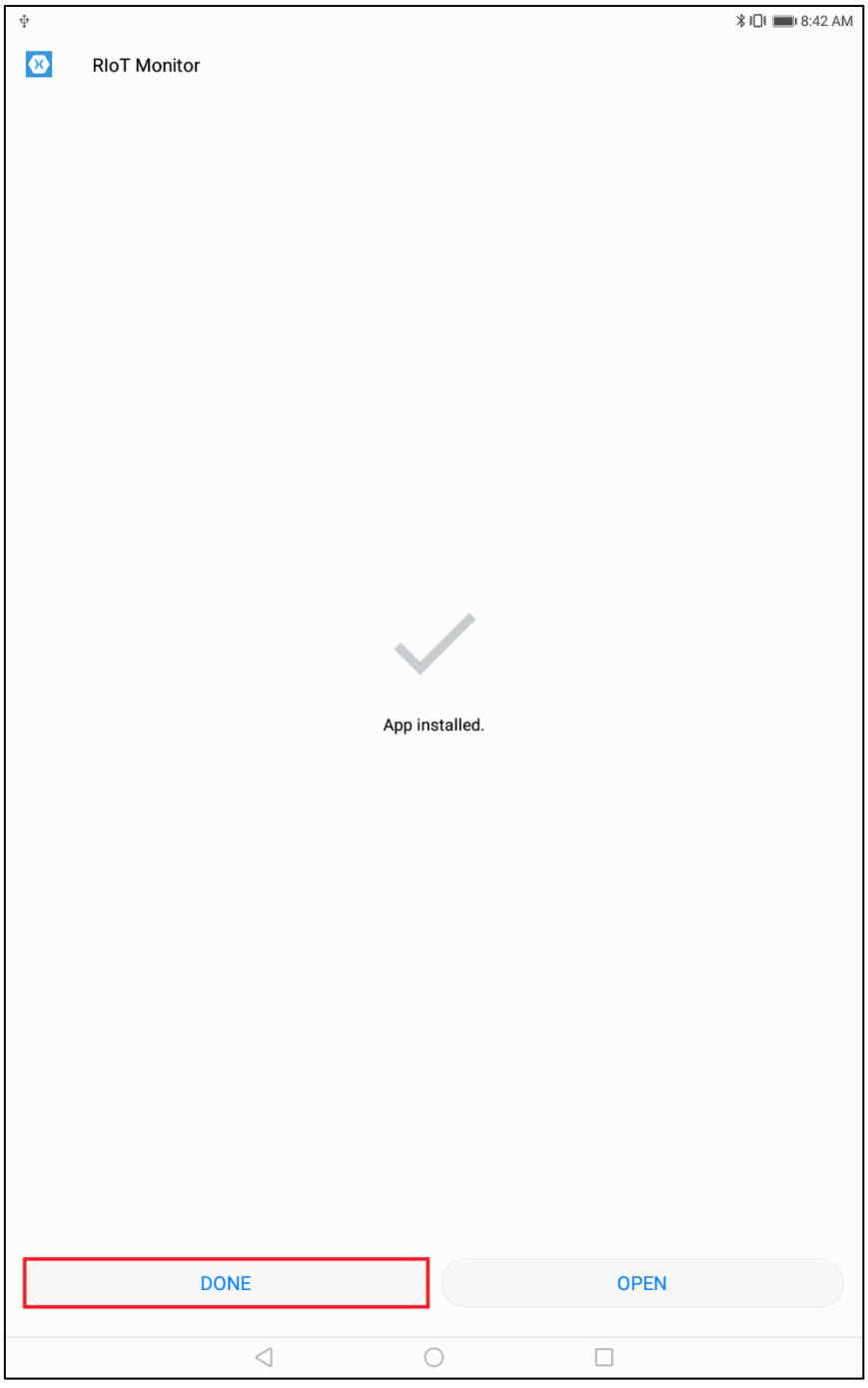

Figure 6 Install completed

5. On the home screen, you can see a new icon of **RIoT_Monitor,** as shown in Figure 7. The app installation has completed.

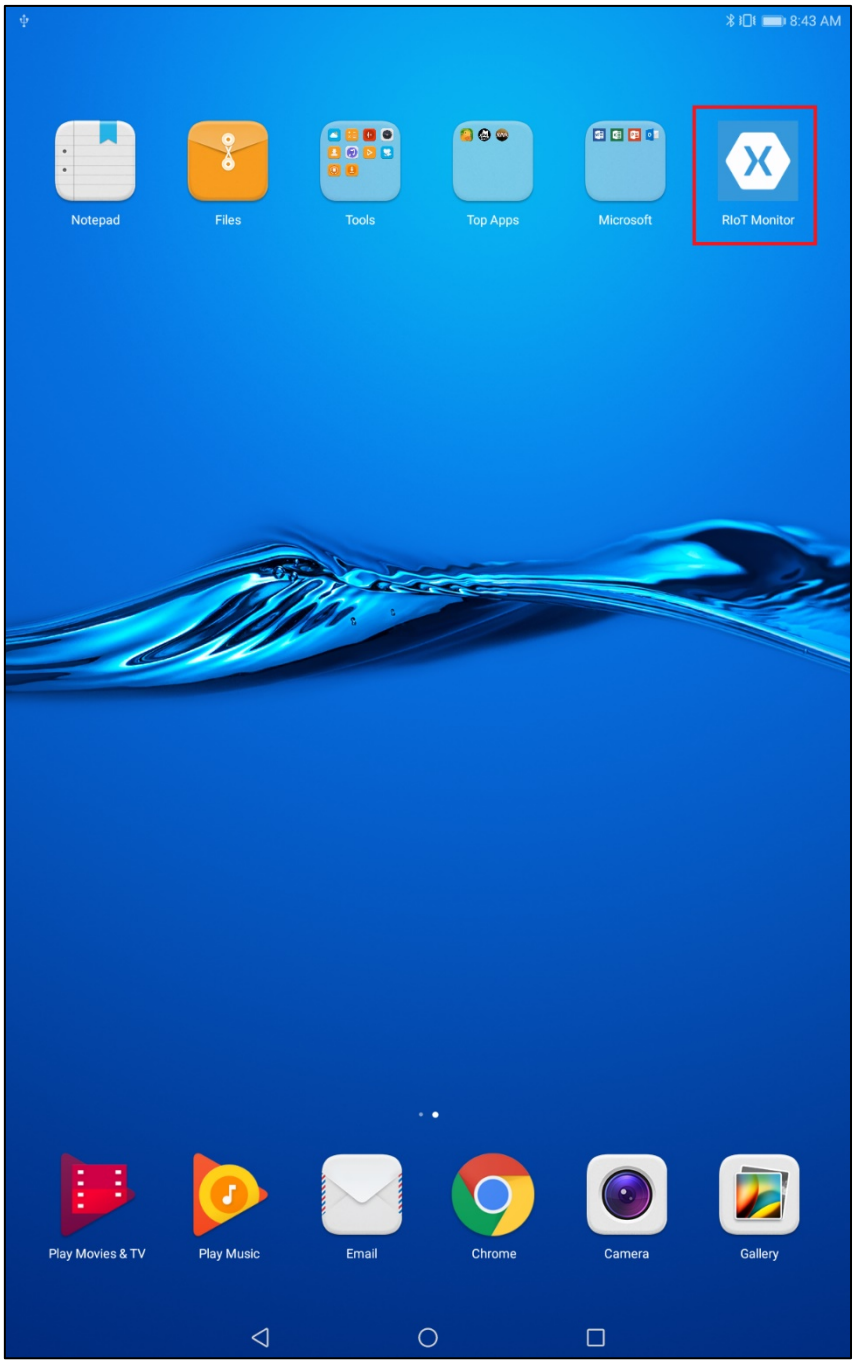

Figure 7 Icon of RIoT_Monitor app

Start up and Exit of RIoT_Monitor Application

Starting up RIoT_Monitor

To start up the app of RIoT_Monitor, touch the icon of **RIoT_Monitor** on the home screen, as shown in Figure 7. Then, touch **ALLOW** to permit accessing the location information, as shown in Figure 8.

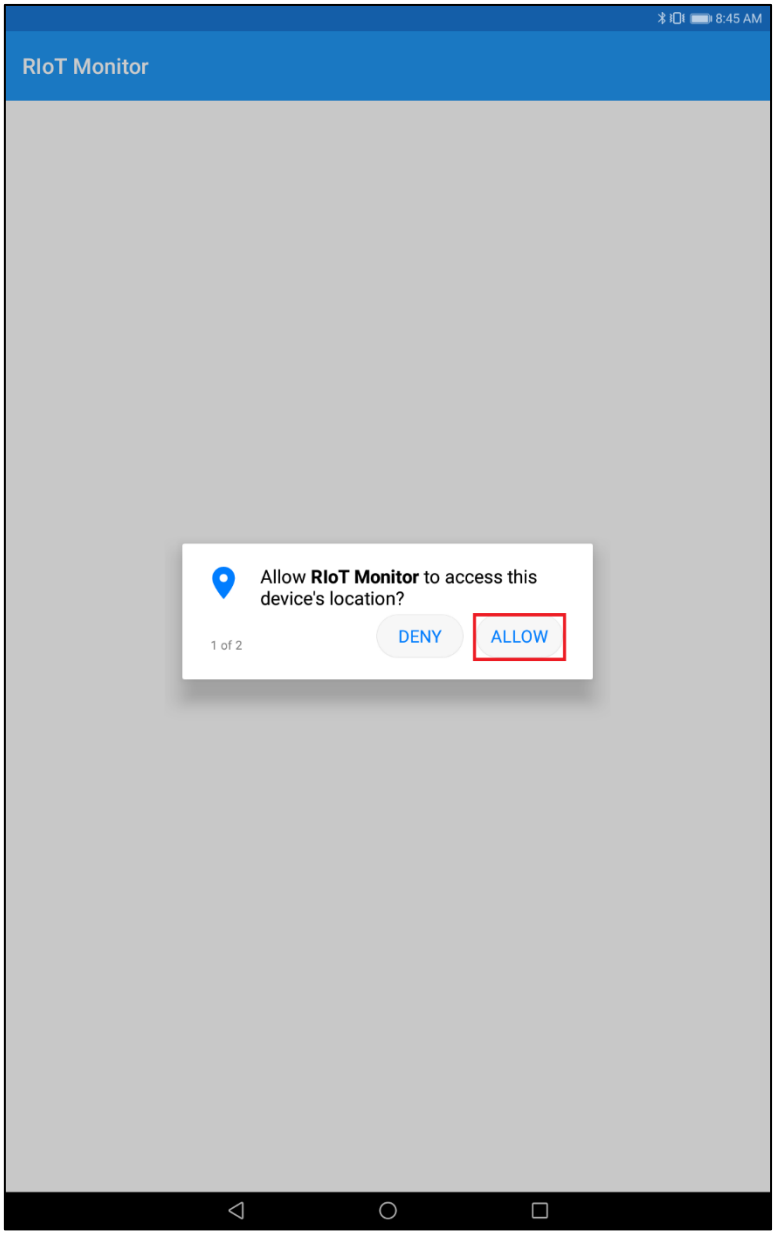

Figure 8 Confirmation message 1

And, touch **ALLOW** to permit accessing files on your tablet, as shown in Figure 9.

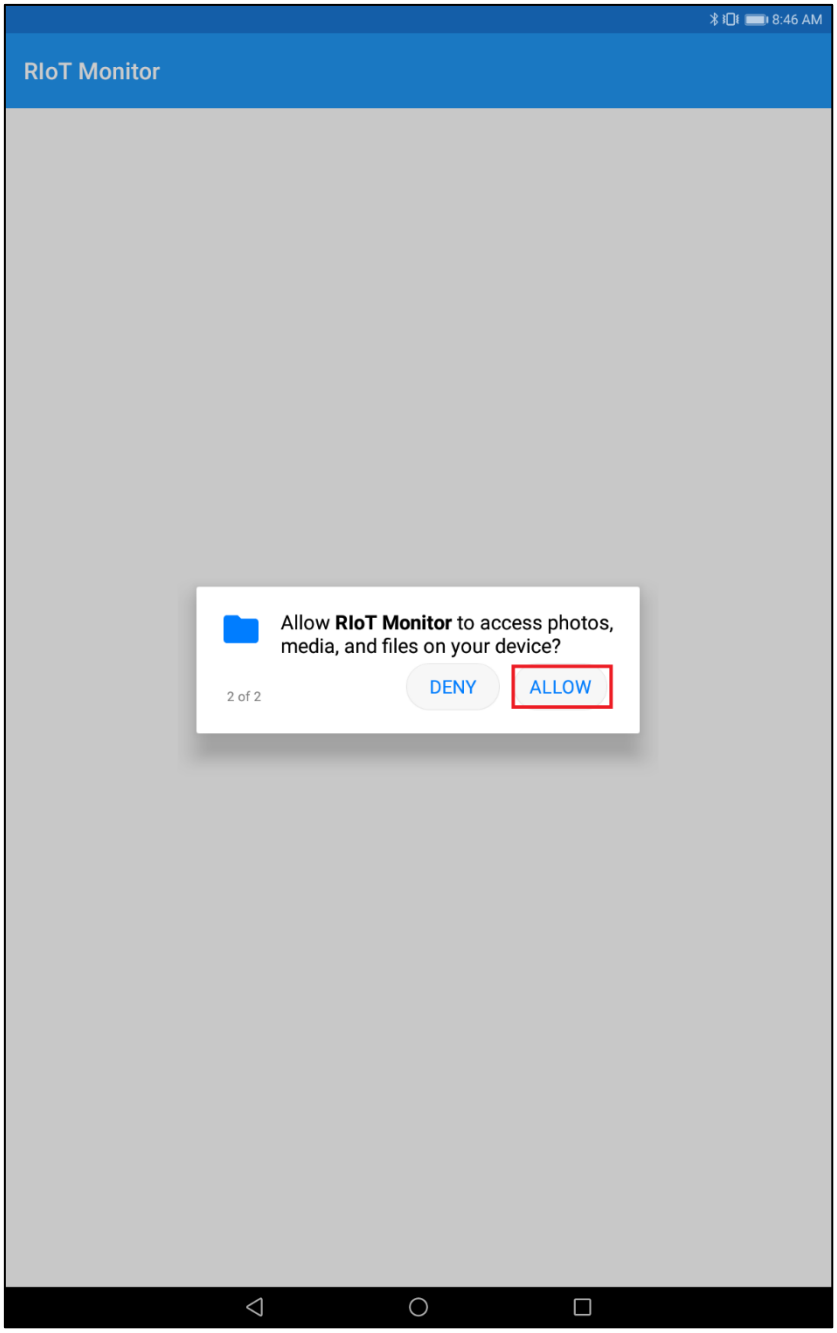

Figure 9 Confirmation message 2

After the confirmation messages, the app starts to receive the BLE data, as shown in Figure 10.

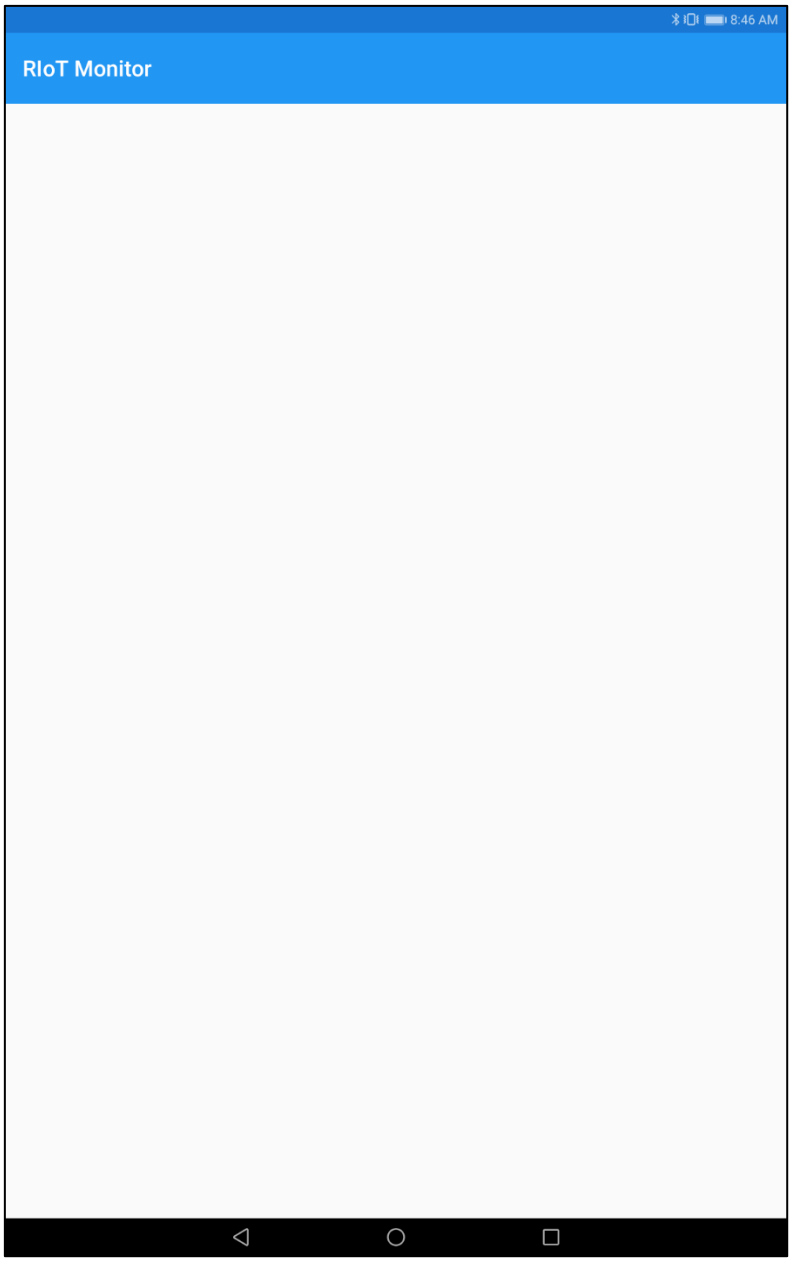

Figure 10 Startup screen of RIoT_Monitor

Exiting RIoT_Monitor

To exit the app, touch a history button (□) in the lower of the application screen as shown in Figure 11.

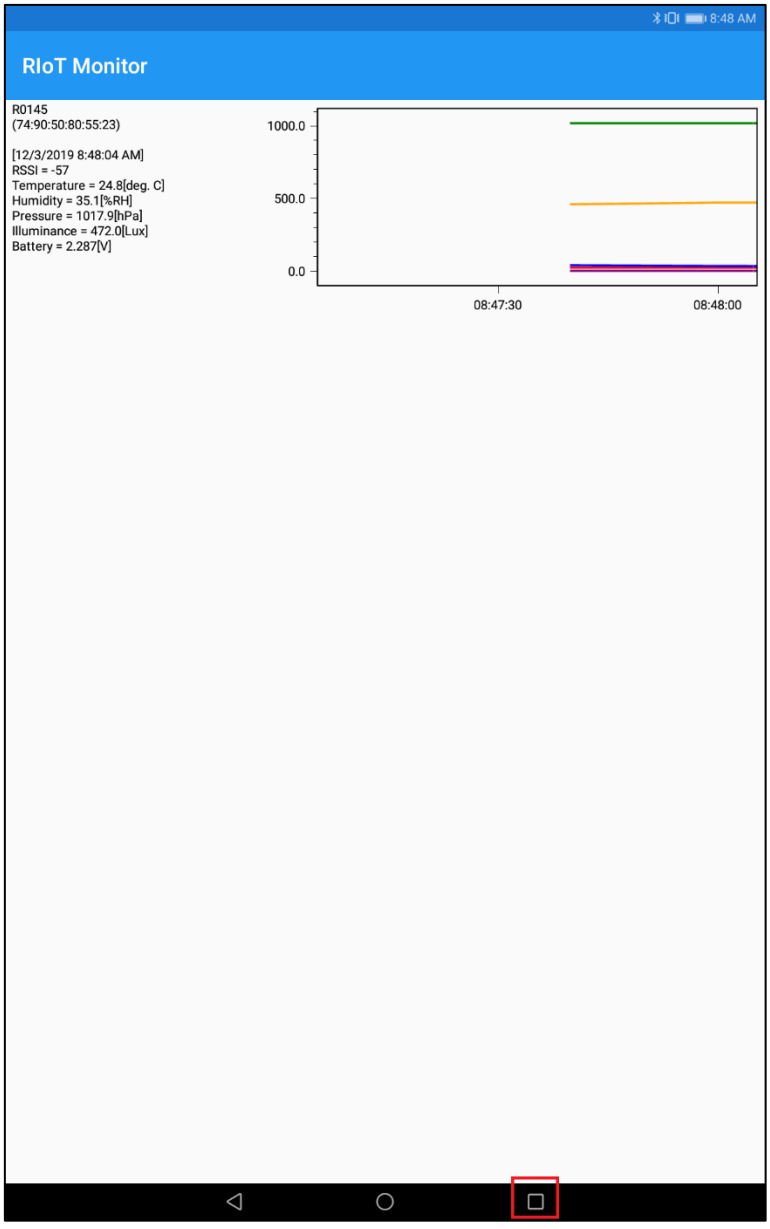

Figure 11 History button

After that, touch an exit button (X) on the higher-right of the screen or swipe across the screen to either one of the right or left side, as shown in Figure 12.

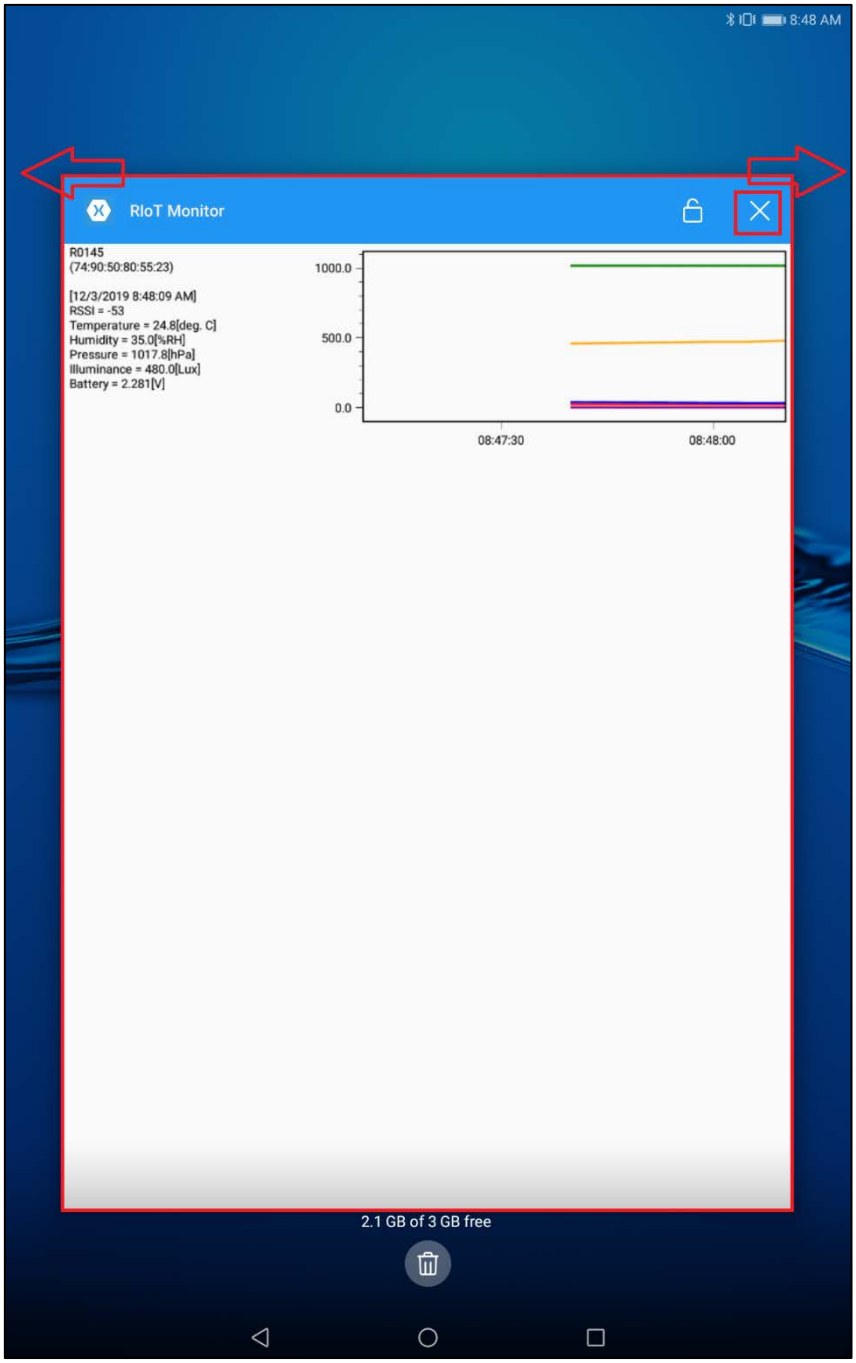

Figure 12 Exit screen of RIoT_Monitor

Application Screen of RIoT_Monitor

RIoT_Monitor has three screens of “Main Display”, “Individual Display”, and “Log Display” as shown in Figure 13. The following pages detail these screens.

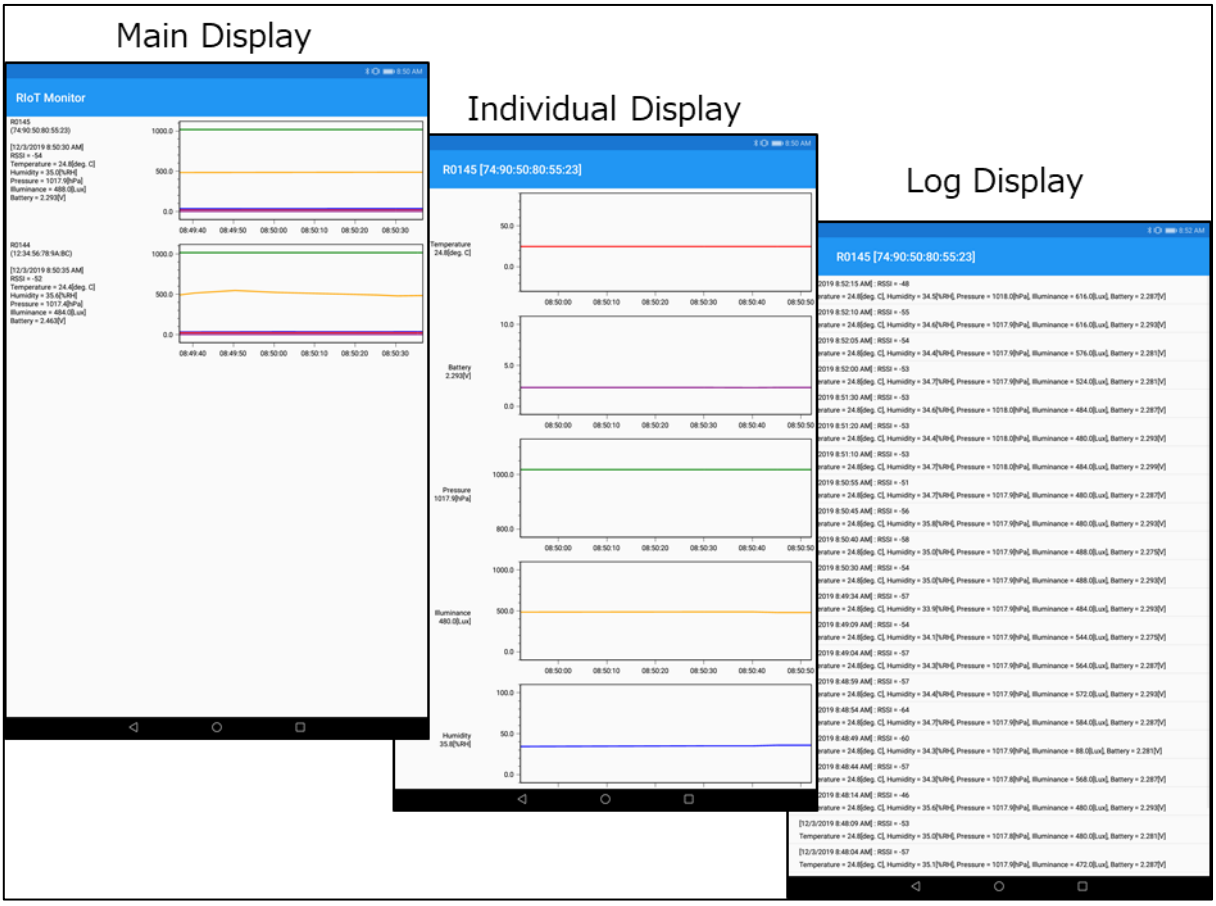

Figure 13 Three screens of RIoT_Monitor

Main Display Screen

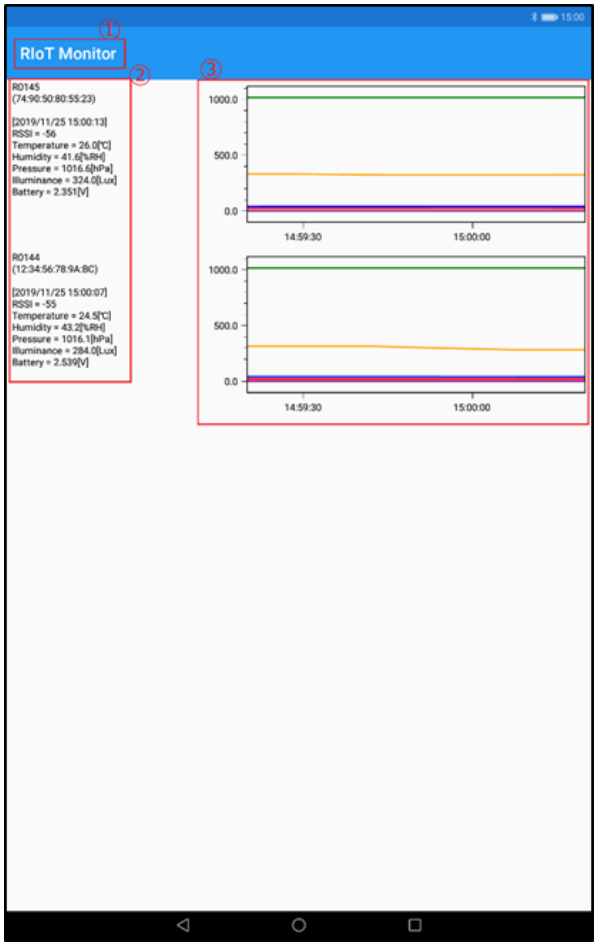

Figure 14 Main Display screen of RIoT_Monitor

① : Display an app title.

② : When receiving a BLE data from the RIOT-001, the following items of the board unit appear on the screen. The displayed RIOT-001 information is, from top to bottom, Device Name, Bluetooth Device Address, Received Date, RSSI, Sensor Information (Temperature, Humidity, Pressure, and Illuminance), Battery Voltage. Touch each item to move into an individual display screen.

③ : The sensor information and the battery voltage appear in graph form. The display time range is 60 sec period by default.

Individual Display Screen

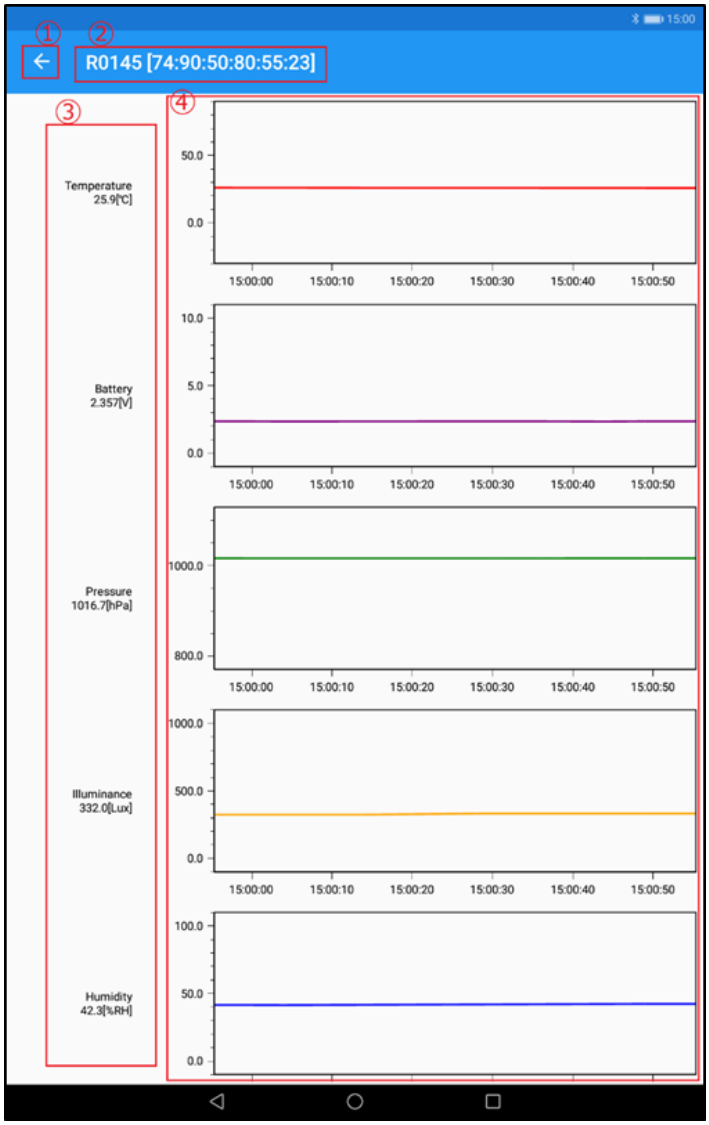

Figure 15 Individual Display screen of RIoT_Monitor

① : Touch the arrow to go back to the main display screen.

② : Indicates the device name and the Bluetooth device address of the RIOT-001.

③ : Indicates the latest data of the sensor information (Temperature, Humidity, Pressure, and Illuminance) and the battery voltage that are received from the RIOT-001. To view the log display screen, touch each item.

④ : Indicates the latest data of them in graph form. The default range of the display time is 60 sec. In addition, the display range (Min./Max.) of each item is set as shown in Table 2.

Table 2 Display Range (Min./Max.)

Item [Unit]	Min.	Max.
Temperature [degC]	-20	80
Humidity [%RH]	0	100
Pressure [hPa]	800	1100
Illumination [lux]	0	1000
Battery [V]	0	10

Log Display Screen

Figure 16 Log Display Screen

① : Touch the arrow to go back to the individual screen.

② : Indicates the device name and the Bluetooth device address of the RIOT-001.

③ : Indicates the BLE data of the sensor information (Temperature, Humidity, Pressure, and Illuminance) and the battery voltage that are sent from the RIOT-001. The received BLE data is stored as a csv file in the "RIoT_Monitor" folder of the internal memory in every date.

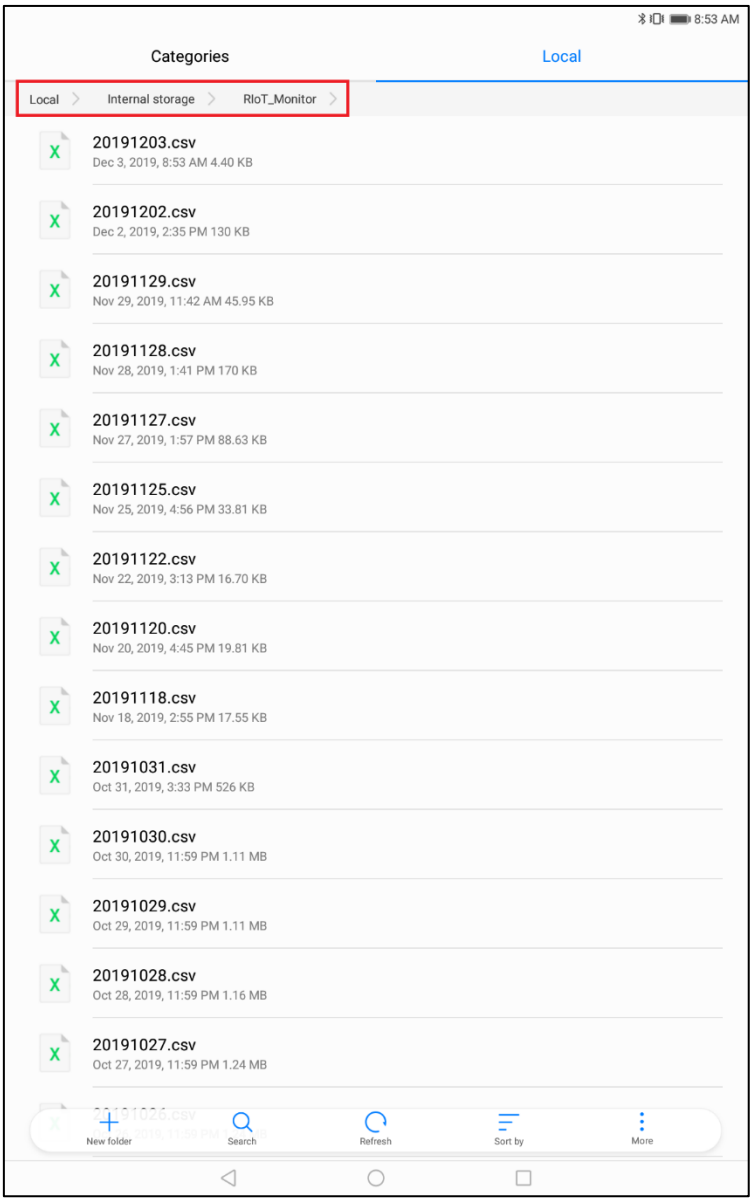

Figure 17 Storage location of Log files

Editing of App Setup Contents

Change settings of the RIoT_Monitor app as desired.

Limiting the RIOT-001

Take an example of changing the settings of the RIOT-001 to receive only the BLE communication of “R0144”.

1. Open the “RIoT.xml” file provided by REDC on your PC.
2. Edit “Target Name” as follows.

```
(Before)
<RIoT>
  <!--
  <Target Name ="RXXXX" />
  -->

(After)
<RIoT>
  <Target Name="R0144" />
```

3. Store the edited file in a USB memory.
4. Connect between the tablet and the USB memory with a USB cable.
5. Copy the “RIoT.xml” file in the USB memory to the “RIoT_Monitor” folder, as shown in Figure 17.
6. Exit the app once, and restart it.

If two or more RIOT-001 are set, add new “Target Name” as the above into the .xml file.

Changing the Display Time Range

Take an example of changing the settings of the display time range to 10 min (600 sec).

1. Open the “RIoT_Monitor.xml” file provided by REDC on your PC.
2. Edit “**DisplayedPeriod”** as follows.

(Before)
<Global DisplayedPeriod=”60” UpdateInterval="10" UpdateIntervalType=”…

(After)
<Global DisplayedPeriod="600" UpdateInterval="10" UpdateIntervalType=”…

3. Store the edited file in a USB memory.
4. Connect between the tablet and the USB memory with a USB cable.
5. Copy the “RIoT_Monitor.xml” file in the USB memory to the “RIoT_Monitor” folder, as shown in Figure 17.
6. Exit the app once, and restart it.

Changing Minimum / Maximum Value of Graph

Take an example of changing the minimum and the maximum values of graphs for the sensor information (Temperature, Humidity, Pressure, and Illuminance) and the battery voltage.

1. Open the “RIoT_Monitor.xml” file provided by REDC on your PC.
2. Edit the minimum and the maximum values of each item to suit your specifications as follows.

```
<DeviceType Name ="RIoT-001">
  <Graph Unit="V" Minimum="0" Maximum="10" />
  <Graph Unit="deg.C" Minimum="-20" Maximum="80" />
  <Graph Unit="RH" Minimum="0" Maximum="100" />
  <Graph Unit="hPa" Minimum="800" Maximum="1100" />
  <Graph Unit="Lux" Minimum="0" Maximum="1000" />
</DeviceType>
```

3. Store the edited file in a USB memory.
4. Connect between the tablet and the USB memory with a USB cable.
5. Copy the “RIoT_Monitor.xml” file in the USB memory to the “RIoT_Monitor” folder as shown Figure 17.
6. Exit the app once, and restart it.

Additional Information

- BLE data is sent from RIOT-001 every 5 seconds, but the RIoT-Monitor may not receive this data depending on the radio wave conditions and internal processing of the app.
  The reception result can be confirmed by the Log display screen (Figure 16).

- As the RIoT_Monitor app automatically handles to turn the Bluetooth ON, the app must be terminated to turn it OFF. The app also controls not to turn the screen OFF when the app screen is ON.

- It is recommended to select “small” for the font and the display sizes in order to display much more information on a screen. If changing these sizes, go to **Settings** > **Display** and select **Small** as shown in Figure 18.

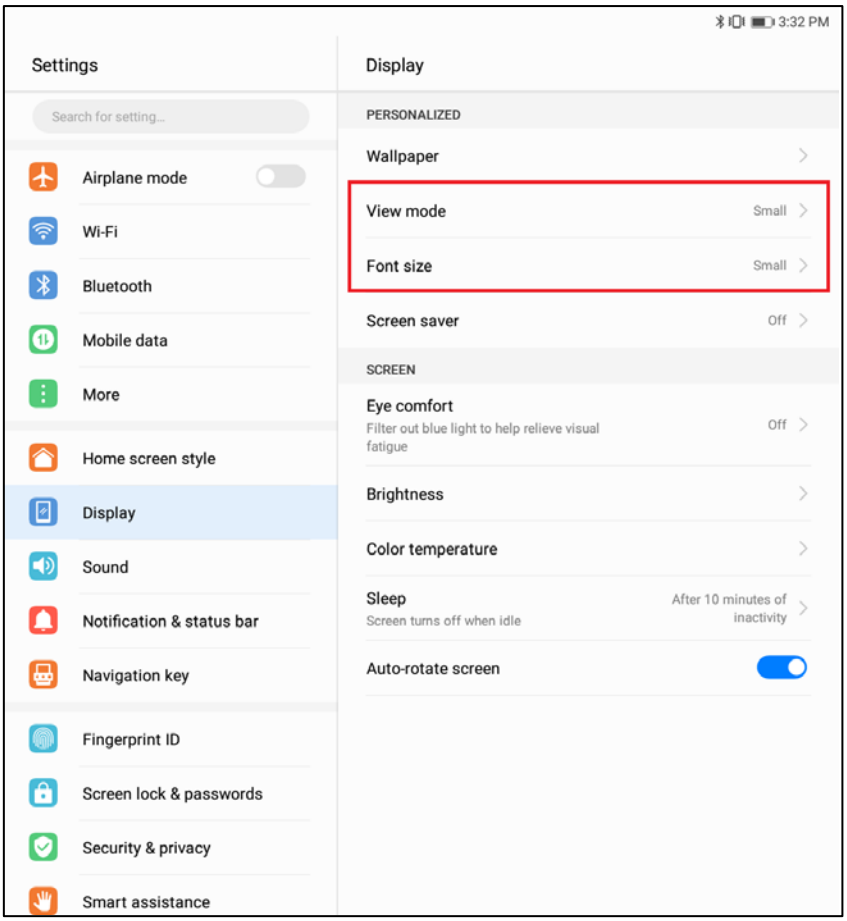

Figure 18 Display Settings

RICOH RICOH ELECTRONIC DEVICES CO., LTD.

Official website
https://www.e-devices.ricoh.co.jp/en/
Contact us
https://www.e-devices.ricoh.co.jp/en/support/