



The Sollatek **FFM-B** Phone App

User Instructions

Important: This manual contains important safety instructions.
Keep this manual handy for reference.

- Before using this product please read all instructions carefully.
 - Keep these instructions for future reference.
- All specifications are subject to change without prior notice.



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1. Purpose

To understand the operation and the basic functionality of the Sollatek FFM-B Device.

2. Scope

Useful for tester and final user.

3. Definition(s) and Abbreviation(s)

Name	Abbreviation
DFU	Direct Firmware Upgrade
BLE	Bluetooth Low Energy

4. Reference(s)

Document No	Title

5. Document History

Version	Date completed	Written by	Reviewed by	Approved by
1.0	27 th February, 2017	Bipin Patel		
	➤ Initial Version			
1.1	9 th March, 2017	Bipin Patel		
	➤ Configuration data display for FFA added in "FFA" tab ➤ Screen Shot Updated as per new phone app			
1.2	13 th March, 2017	Bipin Patel		
	➤ FFA Configuration data setting added in "FFA" tab ➤ Serial# and MAC change feature added ➤ Virtual Hub for event data upload added.			
1.3	14 th March, 2017	Bipin Patel		
	➤ Virtual Hub for event data upload added. ➤ Removed Cooler Serial# from Scanning screen.			
1.4	17 th March, 2017	Bipin Patel		
	➤ Added Cooler Serial# in scan response so it is visible on scanning screen.			
1.5	13 th April, 2017	Bipin Patel		
	➤ FFA Configuration data GUI updated. ➤ Total Event logged changed to 13056 from 13568 as we have change event/configuration storage method			

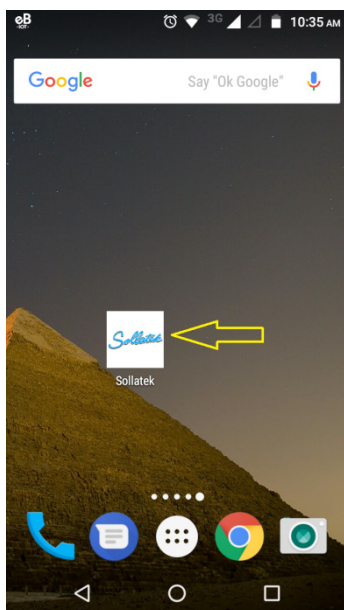
6. Introduction

1. Sollatek FFM-B is BLE enabled so as to make connection with the FFA module to allow you to see instantaneous real time data on your phone screen. It also logs temperature, voltage, power events, operation status change, and relay status.

7. Installation of Sollatek FFM-B Phone App

1. Install APK received via email onto your android phone
2. Click on "Sollatek" application icon. It will launch application.

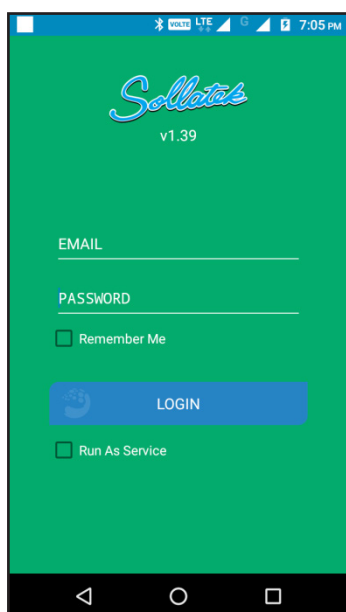
Note: Before you launch of App, please ensure Bluetooth & Internet connection (via Mobile Wi-Fi or Mobile Data) is enabled on your Phone.



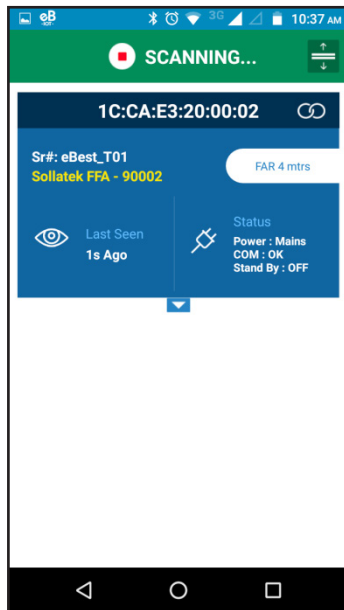
3. When you log in for the first time it will ask for your Email (User id) and password. Use the Email and password received in email for login.

Note:

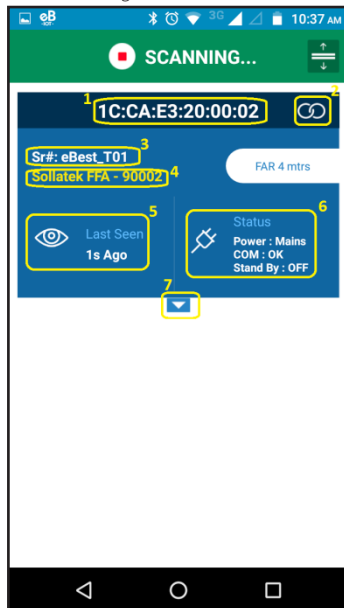
1. Internet connectivity must be available during login otherwise login will fail.
2. Don't tick "Run As Service" right now.



4. After successful login, application will direct to BLE scanning screen as shown below.

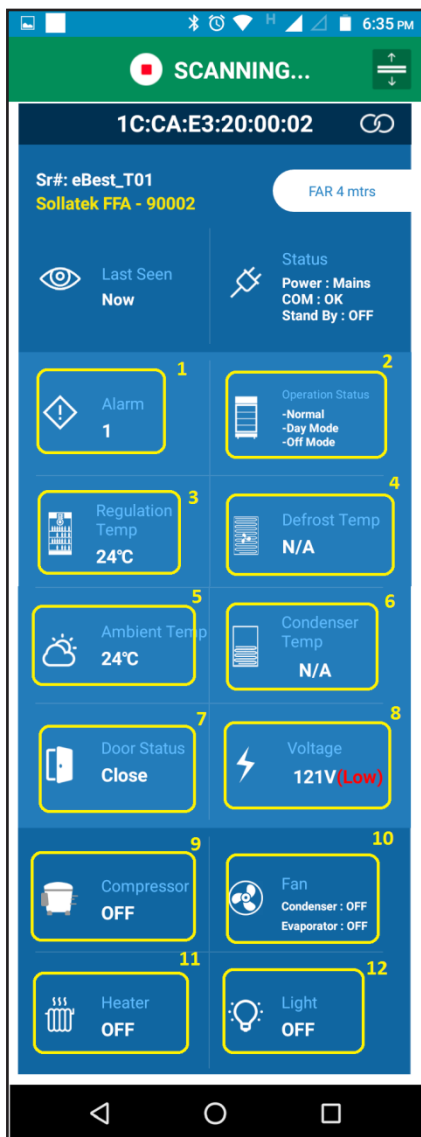


5. Scanning screen will show available FFM-B device list. You can now identify a particular device by its MAC address or serial number.



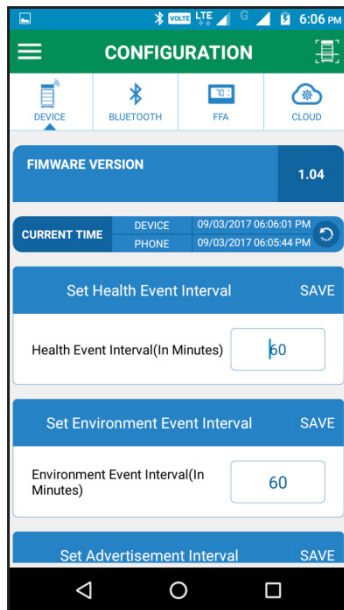
- P1: FFM-B MAC Address
- P2: To make connection with device
- P3: Serial# of Cooler attached with FFA. If it shows "NA" then it means no Serial# entered for cooler or FFM-B doesn't communicate with FFA.
- P4: Device Type with FFM-B Serial#
- P5: Last Seen: When phone app has last seen device
- P6: Status of device which includes following:
 - Power Status: Mains/Battery
 - UART Communication: OK/Not OK (If it is OK, then it will confirm that the device communicates with FFA properly)
 - Standby Mode: ON/OFF (When it is ON, device will not communicate with FFA)
- P7: To expand parameters screen. Parameter screen will not expand if device is in (Battery mode)/ (communication is not OK)/ (Standby is ON).

6. After expansion of screen, the following screen will appear. Screen parameters description is as below:




- P1: Total Number of Alarm set bit(s) available in AISt1 and AISt2
- P2: Operation Status (OpSt1)
- P3: Regulation Probe Temperature. If bit#0: Regulation probe faulty is high in AISt1, it displays "Faulty". If Regulation Probe Temperature is not configured, it displays "NA".
- P4: Defrost Probe Temperature. If bit#1: Defrost probe faulty is high in AISt1, it displays "Faulty". If Defrost Probe Temperature is not configured, it displays "NA".
- P5: Condenser Probe Temperature. If bit#2: Condenser probe faulty is high in AISt1 it displays "Faulty". If Condenser Probe Temperature is not configured it displays "NA" there. If bit#3: Condenser High Temperature is high in AISt2 it displays "High" with temperature value. If bit#4: Condenser Low Temperature is high in AISt2 it displays "Low" with temperature value.
- P6: Ambient Probe Temperature. If bit#3: Ambient probe faulty is high in AISt1 it displays "Faulty" there. If Ambient Probe Temperature is not configured it displays "NA".
- P7: Door Status. If bit#5: Door Alarm is high in AISt1 it displays "Alarm" also. If bit#6: Door Malfunction is high in AISt1 it displays "Malfunction".
- P8: Average Input voltage (IpVAv). If bit#0: High Voltage or bit#1: Low Voltage is high in AISt2 it displays "(High)" and "(Low)" respectively with value of voltage.
- P9: Compressor Relay Status (bit#0 in RISt)
- P10: Condenser and Evaporator Fan Relay Status (bit#1 and 2 in RISt)
- P11: Heater Relay Status (bit#4 in RISt)
- P12: Light Relay Status (bit#3 in RISt)

- After connection with device, the following screen appears first which shows configuration parameter of FFM-B.



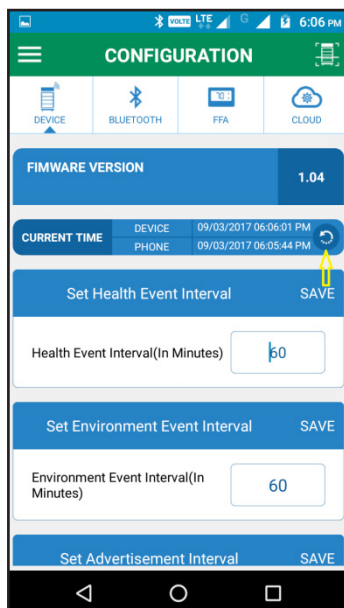
8. Sollatek FFM-B Configuration Parameters

After connection, under  Tab, you can set the following parameters for FFM-B:

- Set Date Time
- Set Health Event Interval
- Set Environment Event Interval
- Set Advertisement Interval
- Standby Mode ON/OFF
- Restart Device
- Factory Reset Device
- Put in Deep Sleep

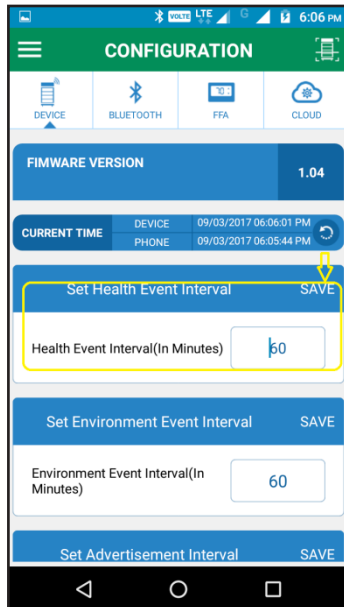
8.1 Set Date Time

- Click on the symbol shown in icon by yellow arrow to set current date time in FFM-B.



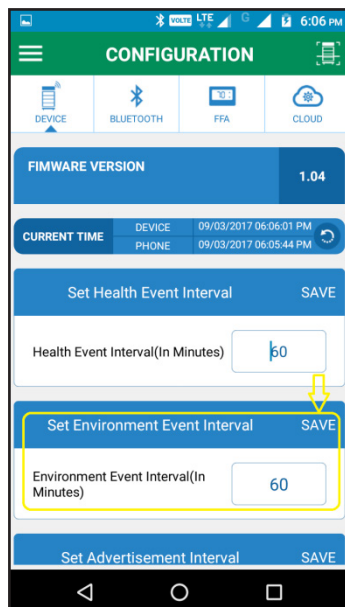
8.2 Set Health event Interval

1. You can set Health event Interval in minutes ranging from 1 to 240 minutes.
2. Health event logs Regulation temperature, Defrost temperature and Condenser temperature of cooler.
3. After changing value, click on save button to save it.



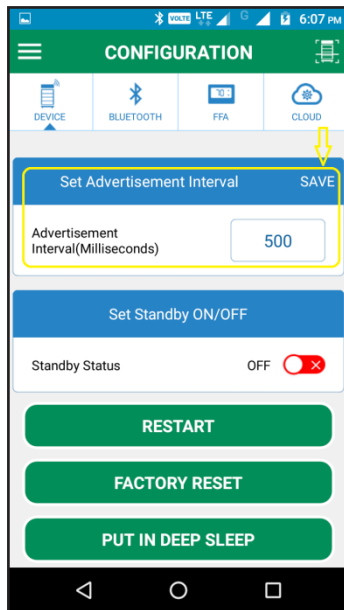
8.3 Set Environment event Interval

1. You can set Environment event Interval in minutes ranging from 1 to 240 minutes.
2. Environment event logs ambient temperature and cooler Voltage.
3. After changing value, click on save button to save it.



8.4 Set Advertisement Interval

1. You can set BLE Advertisement Interval in milliseconds ranging from 20 to 10000 msec.
2. After changing value, click on save button to save it.

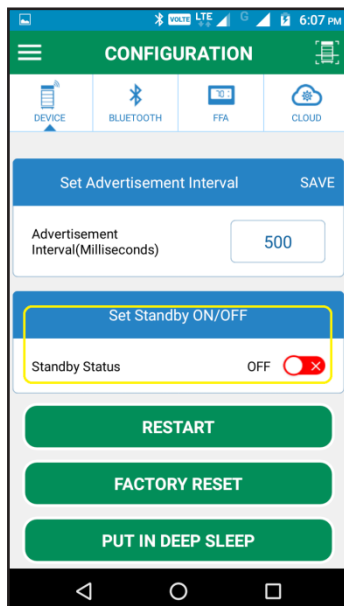


8.5 Control Standby mode

FFM-B can be operated into **standby mode** or **normal mode**.

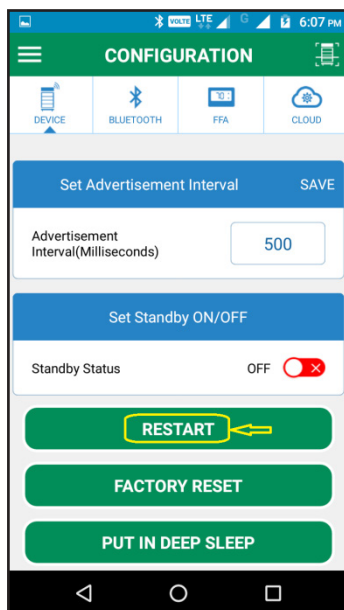
To Enable/Disable Standby mode

1. You can ON/OFF standby mode here
2. When standby mode is successfully enabled in device, it will stop event logging in memory and also disable UART to stop taking data from FFA module.
3. If you disable (OFF) standby mode then it will start logging event and taking data from FFA again. This is called normal mode.



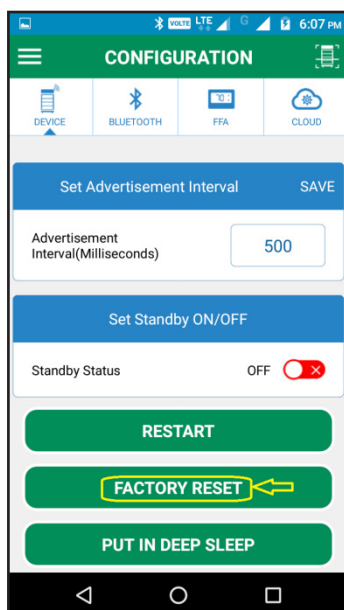
8.6 Restart CMD

1. You can restart (power cycle) FFM-B module by clicking on RESTART button as shown below.



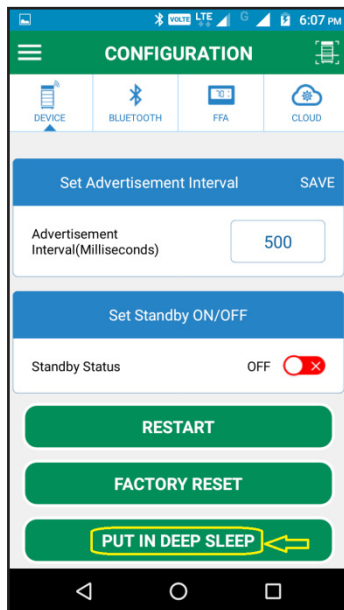
8.7 Factory Reset CMD

1. You can restore all settings to factory default by clicking on FACTORY RESET as shown below.
2. After FACTORY RESET, all logged event data will be erased and device will start event logging from Initial.



8.8 Deep Sleep CMD

1. When the FFM-B is in deep sleep mode, it will not communicate. Deep sleep will disable automatically when mains supply is restored to the FFM-B. The device will then resume communication.



9. Logged Event Types

FFM-B can store up to 13056 events in memory. After that it will overwrite on old event space. It logs the following events:

9.1 Health Event

Health event contains Regulation temperature, Defrost temperature and Condenser temperature of FFA at a predefined interval.

9.2 Environment Event

Environment event contains ambient temperature and cooler Voltage at a predefined interval.

9.3 Power Event

Power event logged with data time when switching occurs from mains power to battery and vice versa.

9.4 Door Event

Door Event is logged when door open and close is sensed.

Door Event also contains Door timeout event if door remains open for more than 2 minutes.

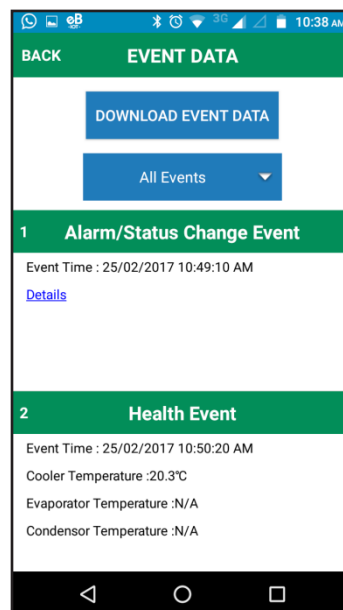
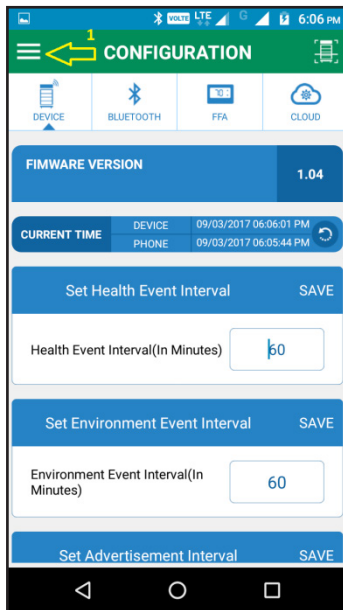
9.5 Alarm log Event

This event logged with any change in Alarm1 bits, Alarm2 bits, Operational bits and Relay Status.

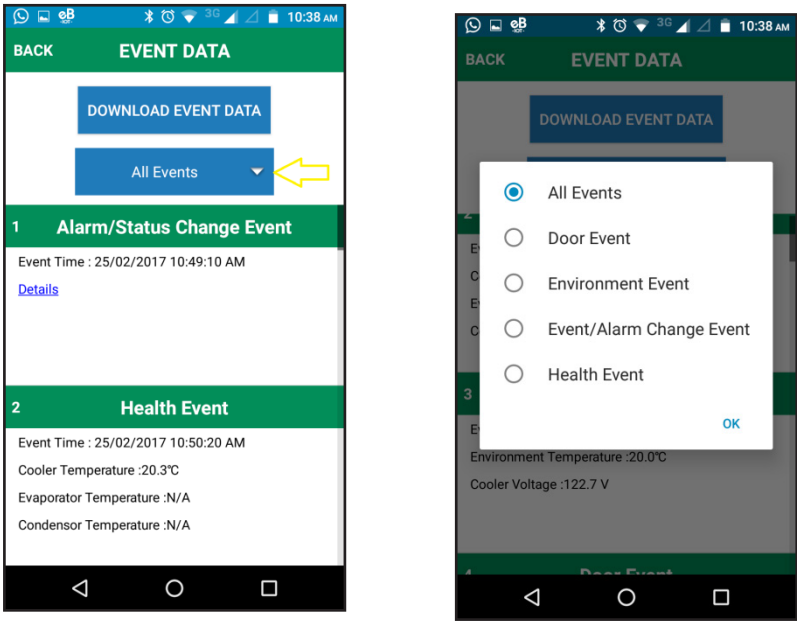
9.6 Error log Event

This event logged when UART communication failure occurs between FFA and FFM-B.

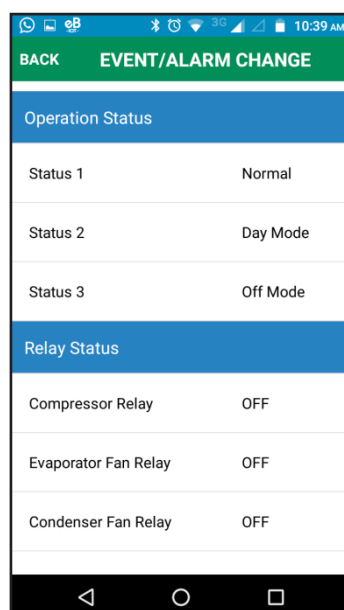
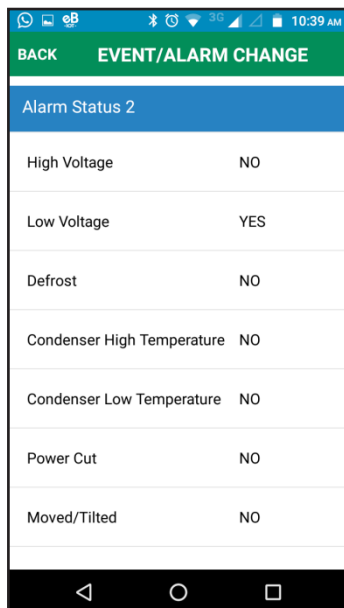
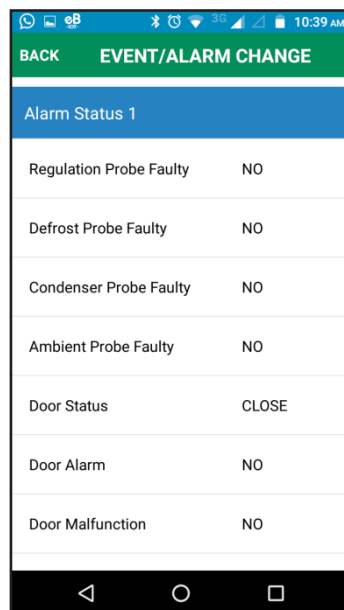
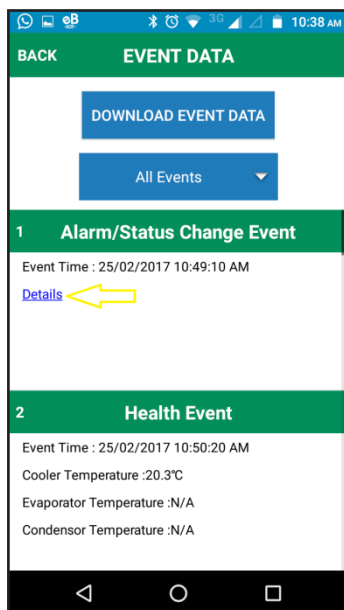
You can view logged events by clicking on following screen sequence:



You can filter different event by clicking on following option:

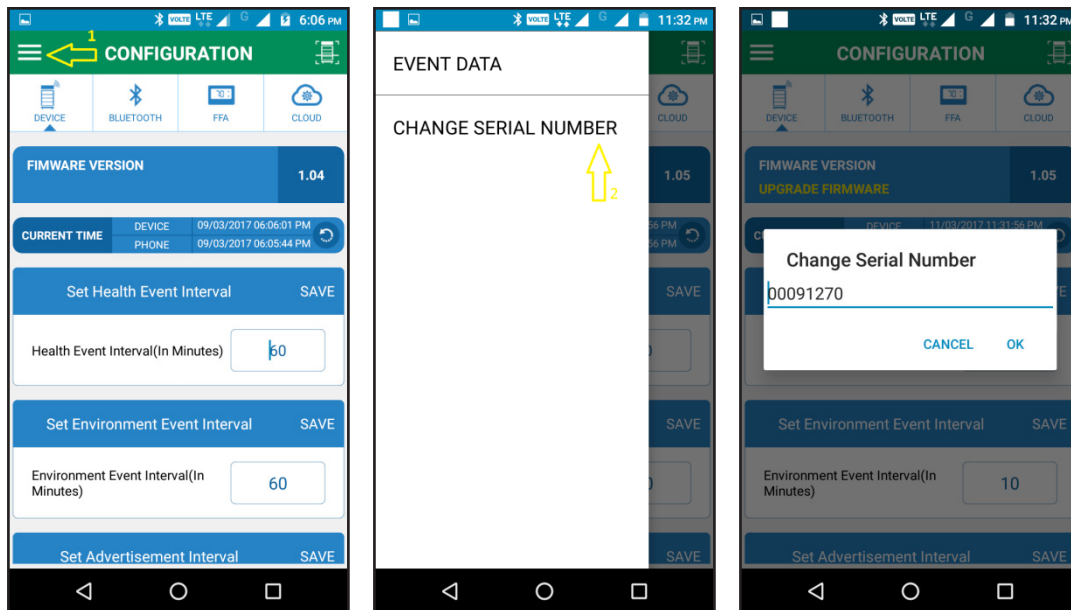


In Alarm/Status changes, there is a Detail link where you can see status of Event and Alarm bits as shown below:



10. Change of Serial# and MAC of FFM-B device



- You can change Serial# and MAC of the FFM-B device by clicking on following screen sequence:

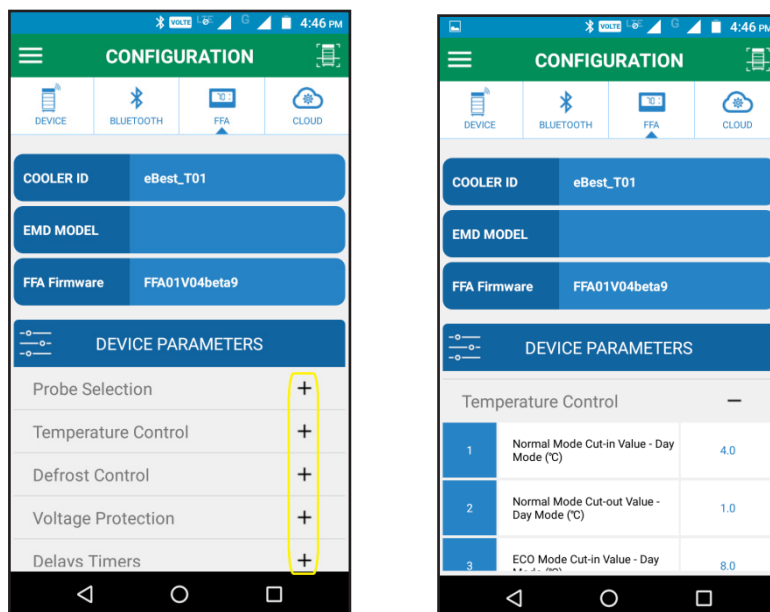


- You only need to change Serial# of FFM-B which is 8 byte long maximum. MAC address will change automatically with change of Serial#.
- After changing Serial#, press on OK button.
- Check modified Serial# and MAC on scanning screen after disconnection.

Note: This is only for prototype and demo purpose. Don't use this for a production and installation.

11. FFA Configuration Parameters

- After connection, under  FFA Tab, you can see FFA configuration parameters.
- When you switch to FFA tab, Phone app first reads all configuration parameter from FFA and displays grouped format as below. You need to expand parameters list by clicking on '+'.

- If FFA is not connected then it will show Error message.

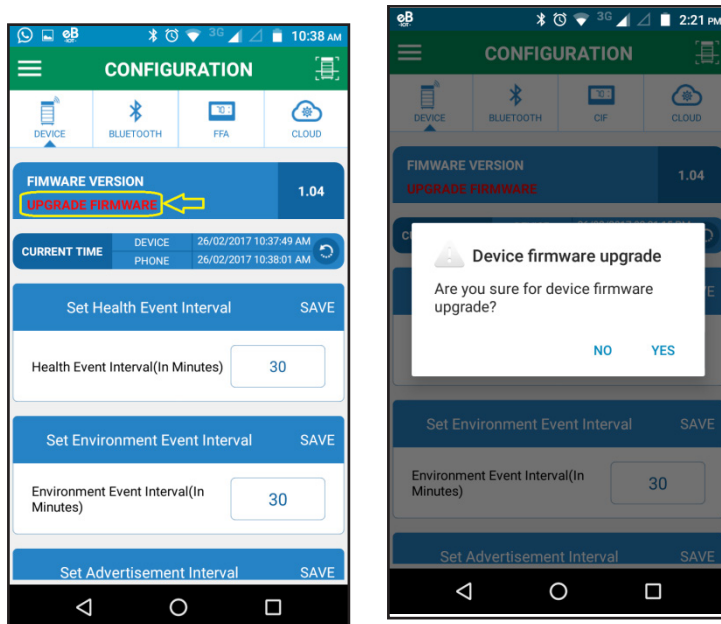


- You can change any parameter by clicking on that parameter. After changing the desired value, click on Set tab.

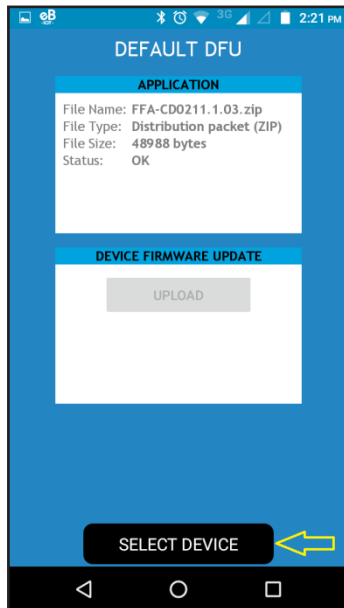


12. Firmware Upgrade Over the air (DFU)

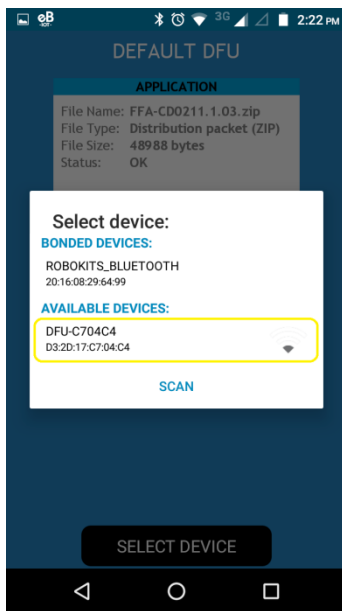
- Whenever you connect to FFM-B, the Phone app will check its firmware version with latest firmware on the cloud. If new firmware is available the app will suggest for you to upgrade firmware with latest one as per below figure. You will need to tap the text to start DFU.



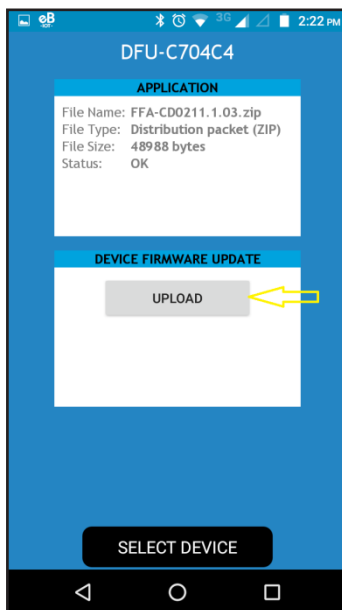
2. After allowing for DFU, you will see following screen in which phone app will load the latest firmware directly from the cloud. You will need to select device from "SELECT DEVICE" button as per arrow2.



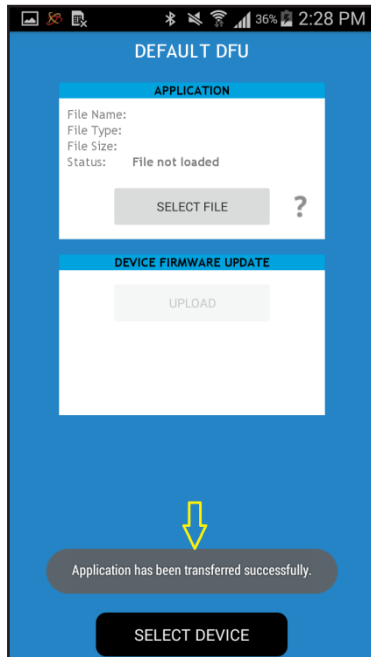
3. You will need to select device from AVAILABLE DEVICES as per below figure. Device which starts from DFU-XXXXXX where XXXXXX is a unique Last 3 bytes of BLE stack MAC address.



- Now Click on UPLOAD button to start firmware upgrade.



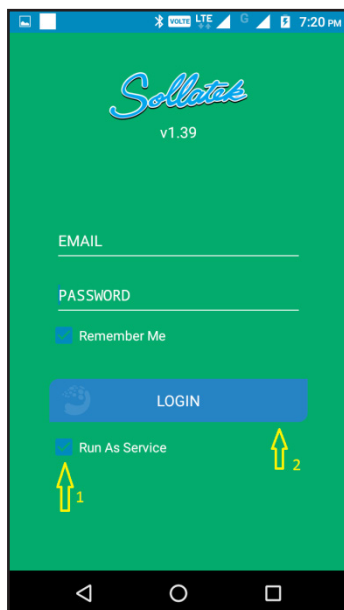
- After a successful upgrade, the following screen will appear.



6. You can verify latest firmware upgrade by making connection to FFM-B again and checking for firmware version.

13. Run Virtual Hub for event data upload on cloud.

1. Virtual Hub is a service to upload event data on the cloud logged in FFM-B device.
2. In Phone application login screen, tick "Run as Service" and log in with valid credential.



3. Phone app will start scanning available surrounding FFM-B devices and list them on screen.
4. In the list, FFM-B devices appear as "Sollatek FFA - xxxxx" where xxxxx is serial# of FFM-B device. Below it is MAC address as shown in above figure.
5. After successful event data uploading of that device, "Data Downloaded and Clock Set" message will appear on the right side.



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