
Getting started with the STBLEStarNet application for Android and iOS

Introduction

STBLEStarNet application is available for Android and iOS and allows viewing the data exported by a BLE gateway connected to a network of devices (for example, in the [STM32Cube FP-NET-BLESTAR1](#) or [FP-NET-6LPBLE1](#) function pack deployment scenario).

The app connects to a star network master node and displays data sent by the slave nodes.

For each slave node in the network, the app shows a set of sensor data (e.g. temperature, pressure and humidity) measured by the slave and read by the master node.

If supported, for each node the LED status is also displayed. From the app it is also possible to change the LED status, since the related command is forwarded to the correct node by the master node.

All data received by the app can be logged in CSV files and exported by e-mail.

1 References

Table 1. STBLEStarNet references

Order code	Description
BlueST-SDK-Ipa	BlueST-SDK library iOS version which allows easy access to the data exported by a Bluetooth low energy (BLE) device implementing the BlueST protocol.
BlueST-SDK-Aar	BlueST-SDK library Android version which allows an easy access to the data exported by a Bluetooth Low Energy (BLE) device implementing the BlueST protocol.
STBLEStarNet-iOS	iOS demo application compatible with BlueST-SDK for FP-NET-BLESTAR1 function pack.
STBLEStarNet-Android	Android demo application compatible with BlueST-SDK for FP-NET-BLESTAR1 function pack.
FP-NET-BLESTAR1	STM32Cube function pack providing application-layer bridge between a Bluetooth LE network and a Wi-Fi network.
FP-NET-6LPBLE1	STM32Cube function pack for connecting 6LoWPAN IoT nodes to smartphones via BLE interface .
FP-SNS-MOTENV1	STM32Cube function pack for Bluetooth low energy and sensor software expansion for STM32Cube.
FP-SNS-ALLMEMS1	STM32Cube function pack for Bluetooth low energy and sensor software expansion for STM32Cube.
FP-SNS-FLIGHT1	STM32Cube function pack for Bluetooth Low Energy, sensors and NFC tag.

2 Acronyms and abbreviations

Table 2. List of acronyms

Acronym	Description
CSV	Coma separated values
SDK	Software development kit

3 Setup

The setup includes an [STM32 Nucleo](#) development board and the expansion boards needed to run the [FP-NET-BLESTAR1](#) firmware version 1.2 or above or the expansion boards needed to run the [FP-NET-6LPBLE1](#) firmware version 2.0 or above.

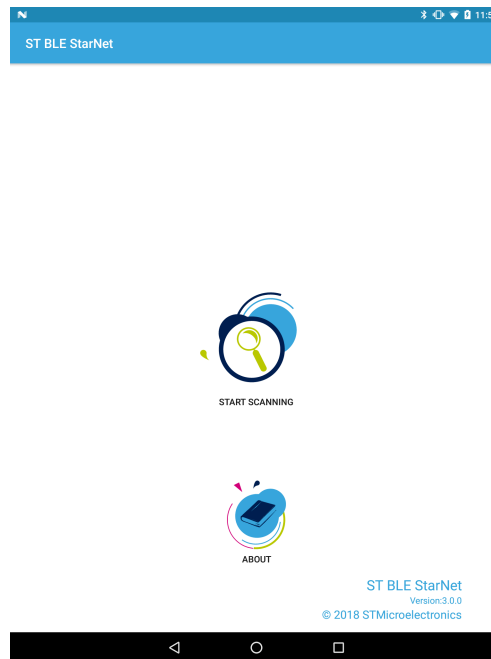
iOS 9 or above devices are supported by the application at [STBLEStarNet-iOS](#).

Android 4.4 or above devices are supported by the application at [STBLEStarNet-Android](#).

4 Mobile application

The application initial view provides an info button and a **[Start Scanning]** button: by pressing it, the application starts searching for a compatible BLE node nearby.

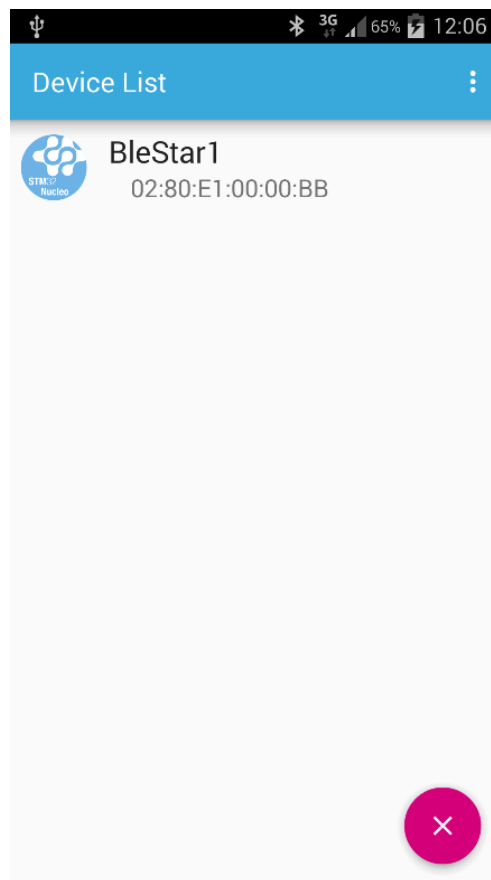
Figure 1. Application main view



In particular, the scanning searches for a device running the firmware of [FP-NET-BLESTAR1](#) or [FP-NET-6LPBLE1](#). The node running the firmware collects information from the slave nodes (running the compatible firmware) and transmits their data to the application.

Note: *In Android 6.0 and above, the application prompts for permission to access the device position. This information is not used by the application itself but is requested by the system to start a Bluetooth scanning.*

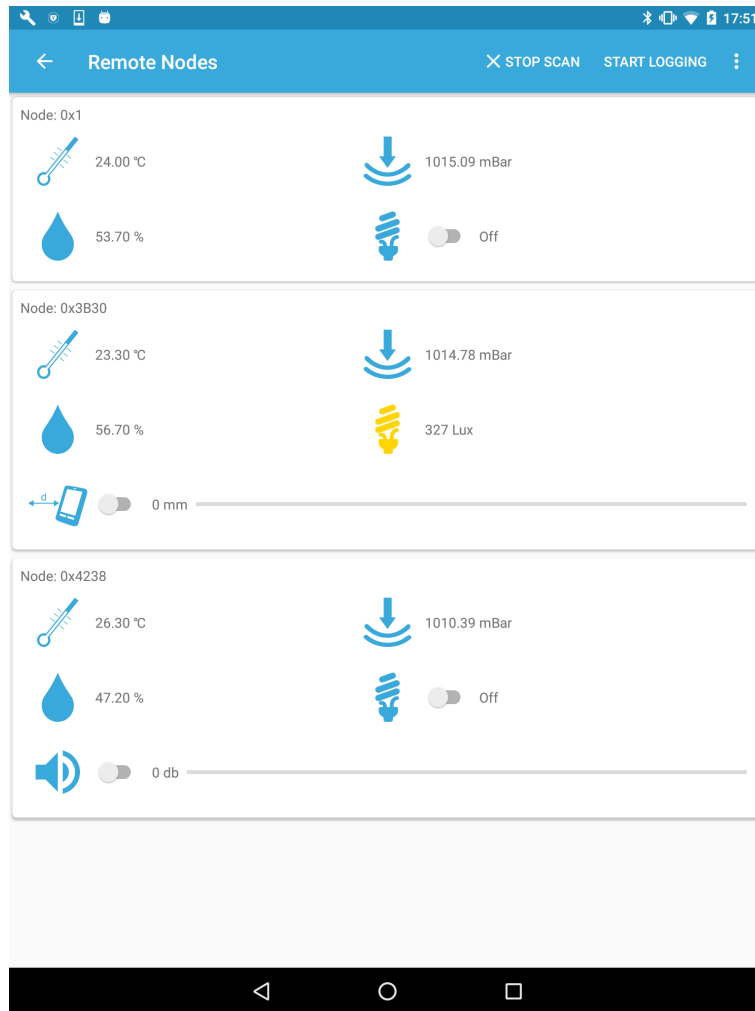
Figure 2. List of compatible devices



Clicking a list item opens a connection with the master node.

4.1 FP-NET-BLESTAR1 node

Figure 3. Application connected to a master node with three slave nodes



Afterwards the application shows a row for each slave device connected to the master node. Each slave node has a 16-bit name (represented as a hexadecimal value) that corresponds to the last 2 bytes of the MAC address.

All the rows will show:

- temperature
- humidity
- pressure
- if the [LSM6DS3](#) accelerometer is present, the last time the board detects a wake up event.

Other data are shown according to the node type.

In a node that runs the [FP-SNS-MOTENV1](#) firmware, a switch (near the LED icon) will appear to change the board LED status.

The icon changes accordingly once the master node receives the notification of the new LED status from the slave node.

Figure 4. Example of FP-SNS-MOTENV1 node output



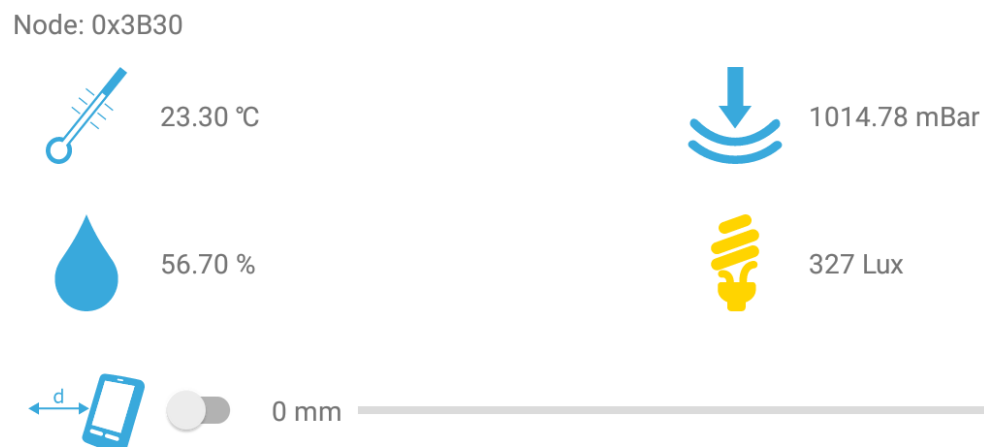
A node that runs the [FP-SNS-ALLMEMS1](#) firmware will show a switch to change the board LED status and a switch to enable the transmission of the sound level detected from the on-board microphone. When the microphone is enabled the other data are not updated.

Figure 5. Example of FP-SNS-ALLMEMS1 node output



A node that runs the [FP-SNS-FLIGHT1](#) firmware will show the detected luminosity and a switch to enable the transmission of the distance measured by the proximity sensor. The possible range values are between the 0 and 255 mm. When range detection is enabled, the other data are not updated.

Figure 6. Example of FP-SNS-FLIGHT1 node output



Clicking the **[Start Logging]** button, the application logs all data received into a CSV file that can be sent by e-mail once the logging session has stopped.

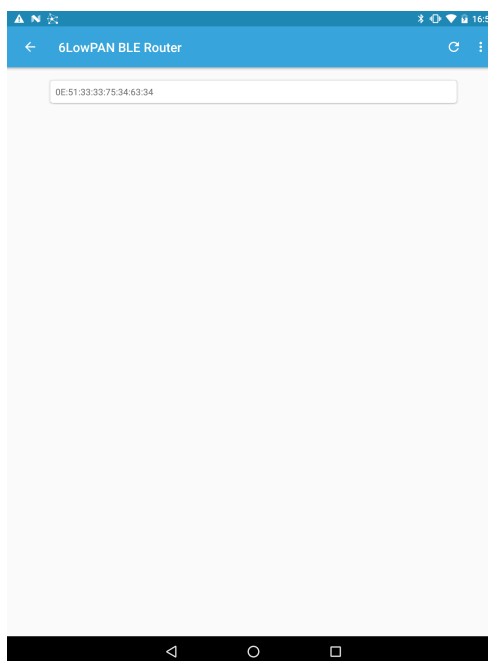
4.2 FP-NET-6LPBLE1 node

When the application connects with a board running the **FP-NET-6LPBLE1** firmware, it shows a list of devices detected in the 6LoWPAN network, showing the last 8 bytes of the node address.

The node list will refresh automatically every 8 seconds.

To force refreshing, press the **[Refresh]** button in the menu.

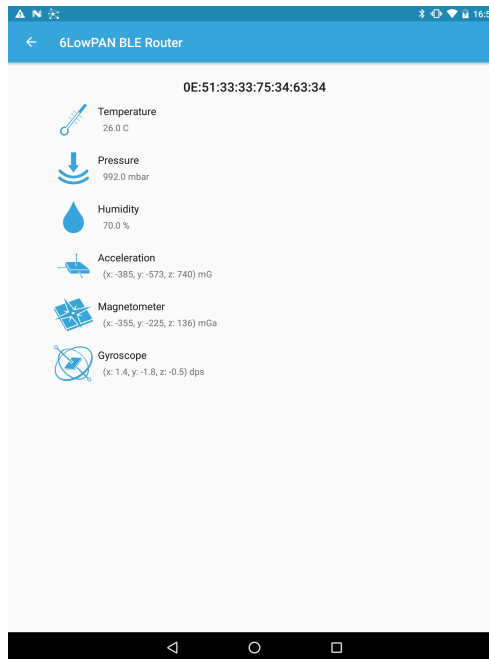
Figure 7. Example of network status



When a node is selected, the app shows the sensor information exported by the specific node.

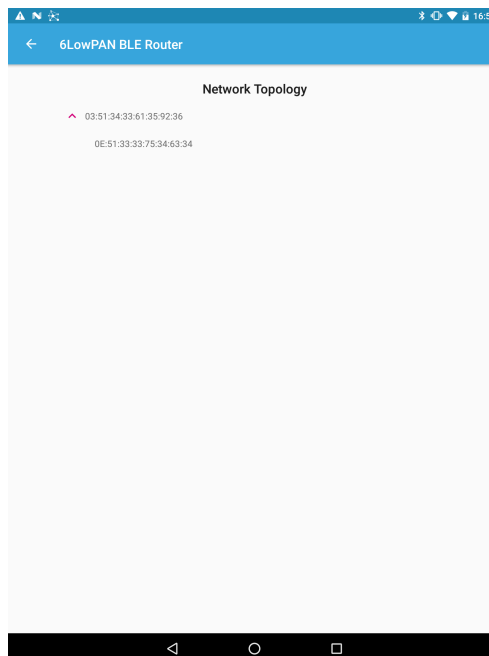
The node data are refreshed automatically every 2 seconds. If the selected node runs the lighting node firmware with the **X-NUCLEO-LED61A1** expansion board, the app will show also a command to change the LED dimming value.

Figure 8. Example of node status



From the [Device list]>[Show topology] menu, a view for the node organization in the network is displayed. By clicking one node, the application shows all the nodes that need to send messages through the selected node to reach the gateway node.

Figure 9. Example of network topology



Revision history

Table 3. Document revision history

Date	Version	Changes
24-Oct-2018	1	Initial release.

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