USER MANUAL

Smarteh BLE Mesh Provisioning Tool 1.0.0

Version 1

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USER MANUAL
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Index

Smarteh BLE Mesh Provisioning tool

1 ABOUT THIS DOCUMENT

This document descibes in detail how to setup, use and navigate through **Smarteh BLE Mesh Provisioning tool**.

1.1 Who should read this document

This document is the main source of informations for users of **Smarteh BLE Mesh Provisioning tool**.

You should read this document if you are new to Smarteh BLE Mesh Provisioning tool.

For more information call *+386 (0)5 388 44 00* or send an e-mail to *support@smarteh.si*.

1.2 Content of document

This document consists of the following chapters:

- **Chapter 1,** "About this Document": Provides an introduction to the purpose and usage of this document.
- **Chapter 2,** "Description of Smarteh BLE Mesh Provisioning Tool": Offers insight into the usage of the Smarteh BLE Mesh Provisioning Tool, providing basic knowledge for new users along with examples.
- **Chapter 3,** "General BLE and Bluetooth Mesh Description": Contains fundamental information about BLE and Bluetooth Mesh standards and their applications.
- **Chapter 4,** "Installation": Covers essential information about the installation procedure for the Smarteh BLE Mesh Provisioning Tool.
- **Chapter 5,** "Smarteh BLE Mesh Provisioning Tool Tutorial": Presents the software screens, content, and a basic tutorial on how to use the application correctly. This chapter also includes descriptions of each function on a page and introduces the local database of the application. Completion of this chapter should enable users to utilize most of the application functions.
- **Chapter 6,** "Standard Procedures for Using This Application": Offers a quick presentation of the standard procedures for application use, outlining the typical workflow of application usage.
- **Appendix A**, "Compatibility". Informs you about the system requirements for the application.
- **Appendix B**, "Error Reporting": Provides guidance on what to do if an error is encountered and invites users to share ideas or suggestions for future improvements to the application.
- **Appendix C**, "Changes": Lists all the changes that were added to newer versions of the Smarteh BLE Mesh Provisioning Tool Tutorial.

2 DESCRIPTION OF SMARTEH BLE MESH PROVISIONING TOOL

2.1 About Smarteh BLE Mesh Provisioning tool

The Smarteh BLE Mesh Provisioning Tool is primarily designed for provisioning Smarteh BLE devices and sensors into Bluetooth Mesh networks. Additionally, the tool is used for managing the networks and customizing their settings.

This tool provides the freedom to create your own Bluetooth Mesh networks by generating their network keys, enabling the provisioning of scanned Smarteh BLE devices or sensors into them. With a simple and user-friendly interface, it caters to both normal day-to-day users and advanced users.

The device where this application operates must support the Bluetooth 5.0 protocol and be equipped with a Bluetooth module/card (commonly found in laptops) or a Bluetooth adapter/dongle (for personal computers). The software has been tested on both laptops and personal computers. The tool can function as a standalone portable Windows application or be installed and used like any other Windows-based application.

Example: *After successfully setting up several Smarteh BLE devices or sensors in your building, you can seamlessly integrate them into a Bluetooth Mesh network using the Smarteh BLE Mesh Provisioning Tool. This tool allows you to add these devices to their designated networks and, additionally, provides control over their behavior and communication within the network, all through a single user-friendly interface.*

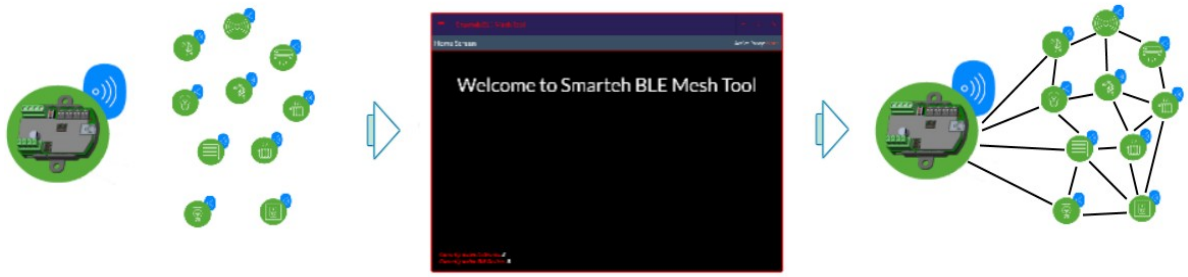

Figure 1: Simplified Use Case of Smarteh BLE Mesh Provisioning Tool

The user interface of the tool encompasses various functions. You can edit or delete already created networks, scan for unprovisioned Smarteh BLE devices, provision the found devices, configure settings for already provisioned Smarteh BLE devices, or delete devices. The tool also supports importing or exporting network and BLE device files, scanning for active Mesh Proxy devices, and configuring them, among many other features.

Additionally, the setup offers portability. For instance, if you wish to use Bluetooth Mesh networks and BLE devices created on one PC, you can export them to .json or .csv files or utilize your favorite cloud-based database. Then, you can easily import these files on another PC or share them with others.

Figure 2: Smarteh BLE Mesh Provisioning Tool's Home Screen with the App Drawer Open

The user interface of the tool is easy to maneuver and offers quick and understandable actions. It provides feedback information to the user when needed and is divided into 5 main screens and 6 different secondary screens, offering advanced actions that will be covered in the next chapter. The interface also includes more advanced settings, such as manually creating a network or a BLE device .json or .csv file, importing existing networks or devices from a local file or cloud-based database, and configuring Bluetooth Mesh and BLE device parameters.

Furthermore, the application uses a persistent local database for the current user session, ensuring that the data (Networks, BLE Devices) are stored locally and automatically loaded into the tool whenever it is started.

An important note is that if the application window becomes small enough, the entire surface of the window becomes scrollable in some screens with more elements. Moreover, if the application window area is large enough to accommodate all components, only some of them become scrollable, as described in upcoming sections, such as the Log Console.

3 GENERAL BLE AND BLUETOOTH MESH DESCRIPTION

Bluetooth Low Energy, or BLE, devices initiate their operations in an unprovisioned mode, indicating that they are not part of any network. In this mode, devices broadcast an advertisement message. Our PC serves as a provisioner device, utilizing the Smarteh BLE Mesh Provisioning Tool to scan for these advertisement messages. Subsequently, appropriate messages are sent to provision the unprovisioned node into a pre-established network.

Within a Bluetooth Mesh network, three types of devices exist. Plugged-in devices, typically relay nodes, can relay messages to other BLE devices within the same network or group. The other two types include Low Energy devices, which do not relay messages, and Mesh Proxy devices, acting as proxies for transmitting messages to other receiving devices. A Mesh Proxy device belonging to the correct network must be present to facilitate message transmission using the Mesh protocol.

Once devices are part of a network or group, they automatically exchange messages based on their configured Publish and Subscription addresses. Each device can be associated with one or more application keys, specifying the group of devices to which it belongs. For example, a device may have a network key named "First Floor" and a further specified application key "Kitchen," instructing it to operate and communicate exclusively within the set of devices in the kitchen on the first floor. When a device has an application key bound to its vendor model, users can send vendor-specific messages to it via the Mesh Proxy device. These vendor-specific message types vary from device to device.

To remove a device from the active network, it must be unprovisioned, returning it to its original state.

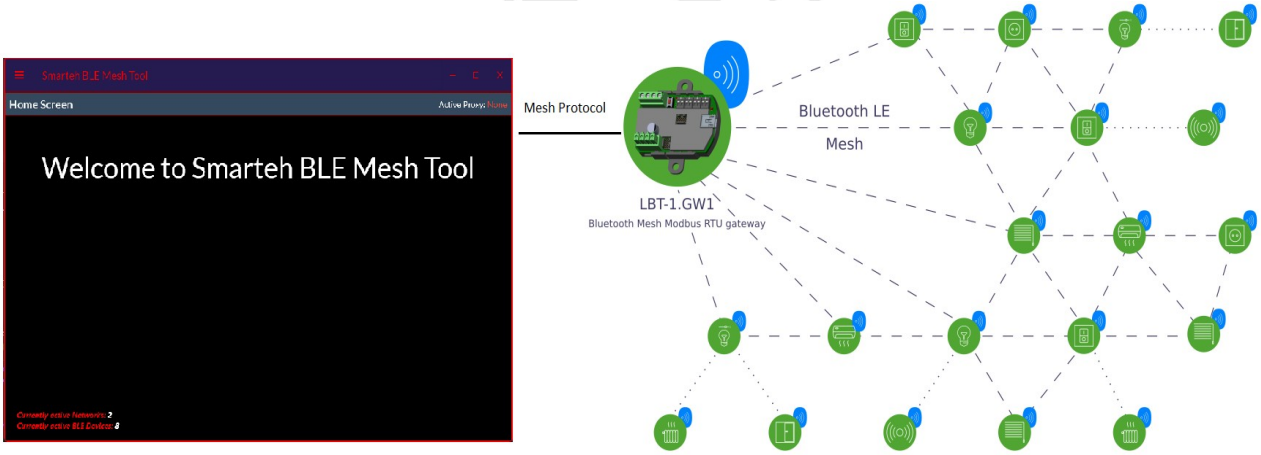

Figure 3: Example of a Bluetooth Mesh Network and Smarteh BLE Mesh Provisioning Tool

4 INSTALLATION

4.1 Prerequisites

The Smarteh BLE Mesh Provisioning Tool currently supports devices running the Windows operating system exclusively. For personal computers lacking built-in Bluetooth modules/cards, we highly recommend utilizing a high-quality USB Bluetooth 5.0 dongle that supports the Bluetooth Low Energy protocol (GAP profile). We suggest considering the Sandberg USB Bluetooth 5.0 Dongle, equipped with the Realtek RTL8761b chipset, and using the appropriate driver. This dongle demonstrated excellent performance during the development and testing phases of the tool.

4.2 Smarteh BLE Mesh Provisioning Tool installation

The installation of the Smarteh BLE Mesh Provisioning Tool is a straightforward process. Just follow the instructions provided below.

4.2.1 Smarteh BLE Mesh Provisioning tool installation as a Portable Application

If you want to use the Smarteh BLE Mesh Provisioning Tool as a portable application, you can simply copy the setup folder (containing SmartehBleMeshTool.exe) to the desired PC or laptop. No special folder or path for the setup is required; you can just launch the SmartehBLEMeshTool.exe, and you are good to go. Double-click the executable (SmartehBleMeshTool.exe) and follow the instructions:

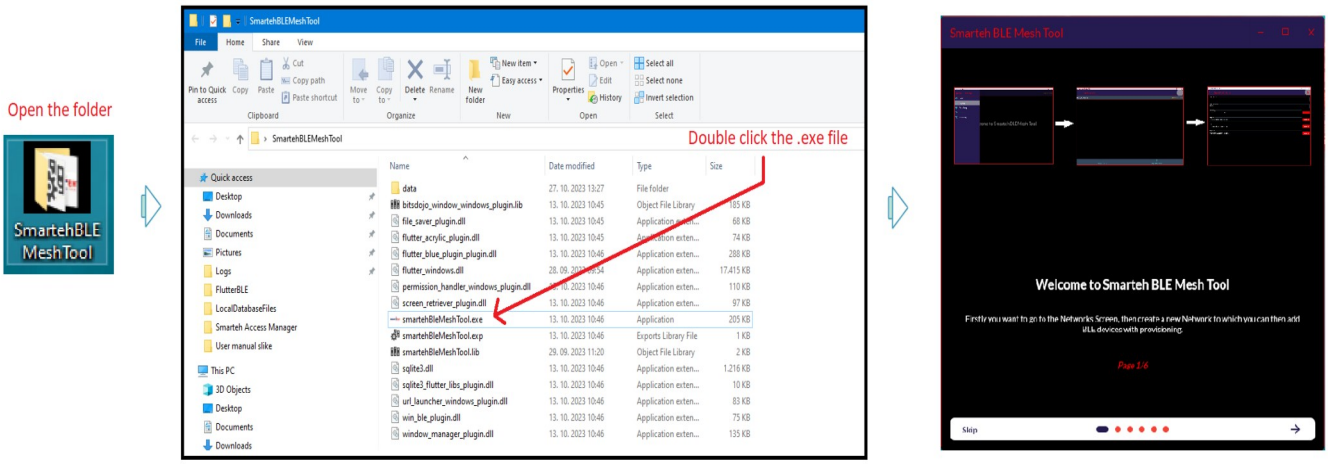

Figure 4: Procedure to Run the Smarteh BLE Mesh Provisioning Tool as a Portable Application

4.2.2 Smarteh BLE Mesh Provisioning Tool installation as a Standalone Application

If you want to use the Smarteh BLE Mesh Provisioning Tool as a standalone Windows application, you must first install the appropriate certificate (SmartehBleMeshToolCertificate.pfx) to your local certificate store.

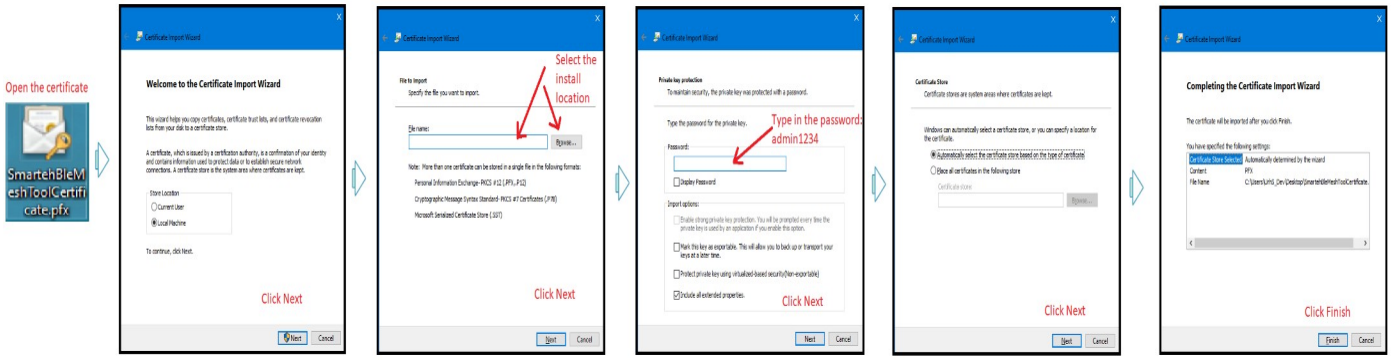

Figure 5: Procedure to Install the Smarteh BLE Mesh Provisioning Tool's Certificate

After the certificate installation, launch the .msix installer package (SmartehBleMesthTool.msix) and follow the installation procedure. Double-click the .msix installer (SmartehBleMeshTool.msix) and adhere to the provided instructions below:

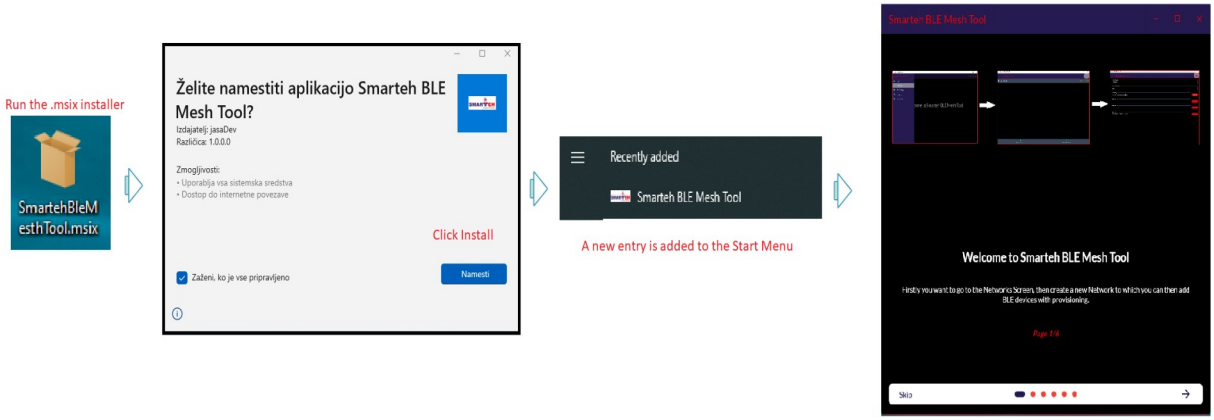

Figure 6: Procedure to Install the Smarteh BLE Mesh Provisioning Tool as a Standalone Application

5 SMARTEH BLE MESH PROVISIONING TOOL TUTORIAL

5.1 The Introduction Screens

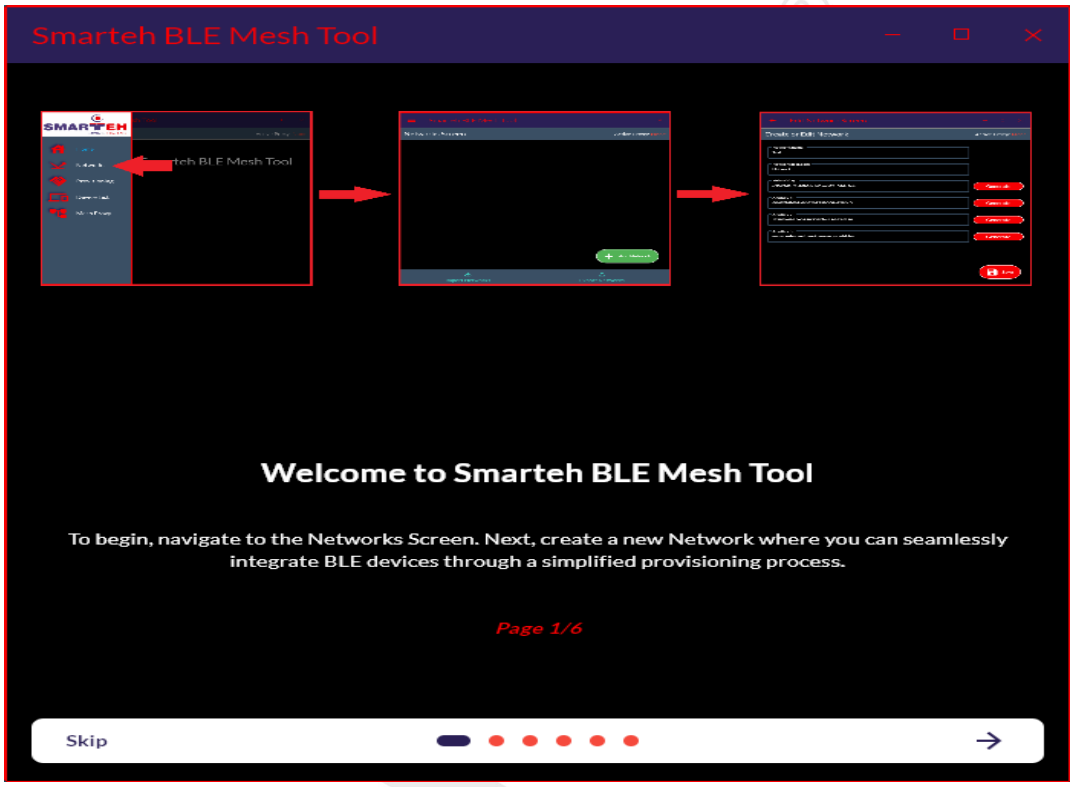

Figure 7: Smarteh BLE Mesh Provisioning tool Introduction Screen

The Introduction screens consist of:

- Six pages, navigable using the bottom dots or the right arrow button.
- An option to skip the Introduction screens is available.

The Introduction screens provide a quick tour of the application and its usage to the user. Each screen explains a usability component offered by the application, guiding the user through the most common workflow for provisioning BLE devices into Mesh Networks and configuring them. It is highly recommended that new users go through these screens to gain basic knowledge about using this application, facilitating their subsequent interaction with the tool.

5.2 The Home Screen

The Home Screen is the initial interface of this application, serving as the central hub. This screen displays the current Proxy device in the upper right corner, a feature shared by all other screens. Additionally, it provides information about the current number of active devices and Mesh Networks stored in the ongoing application session.

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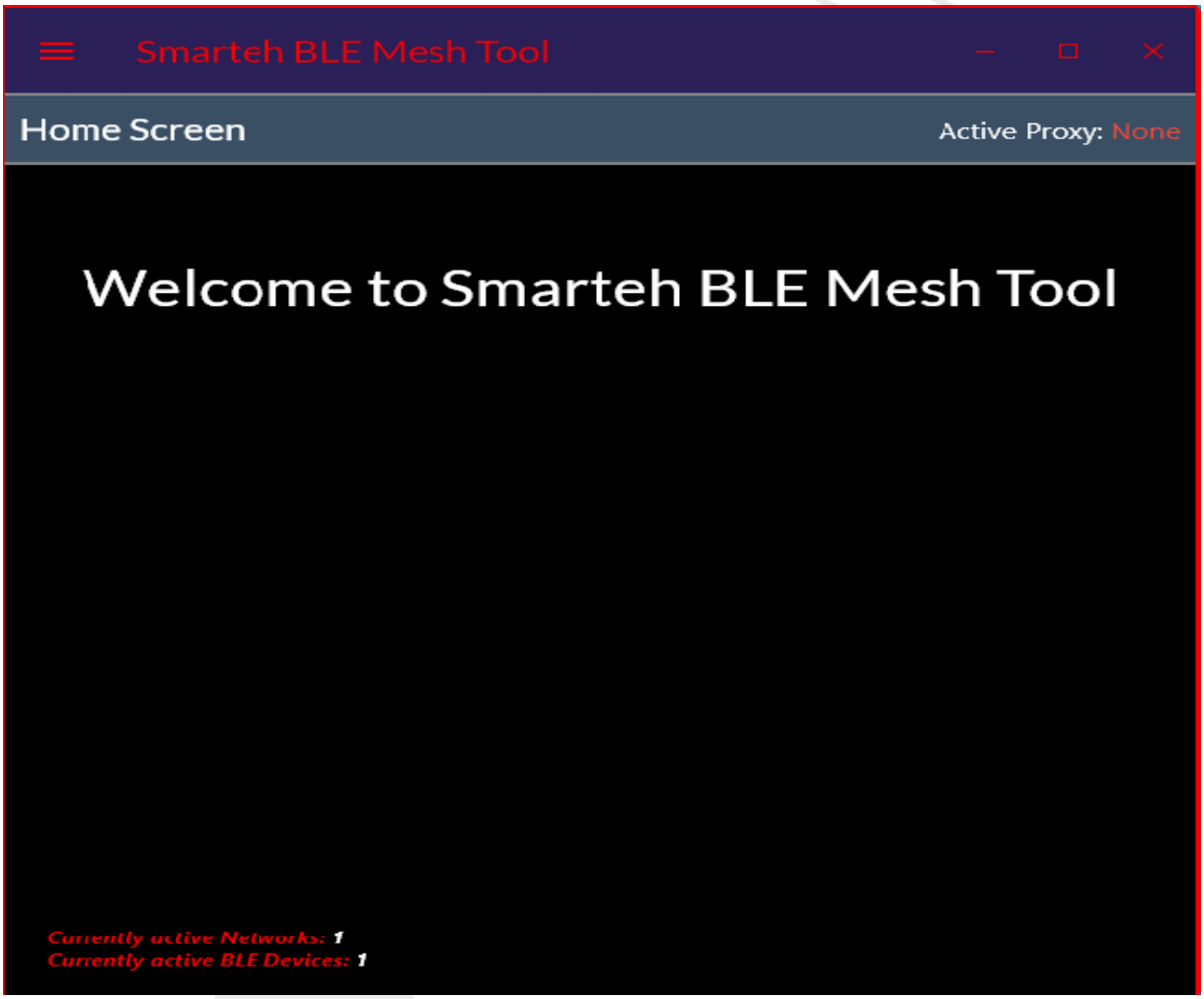

Figure 8: Smarteh BLE Mesh Provisioning Tool Home Screen

From this screen, we can navigate further through the application by using the application drawer accessible through the handle in the upper-left corner.

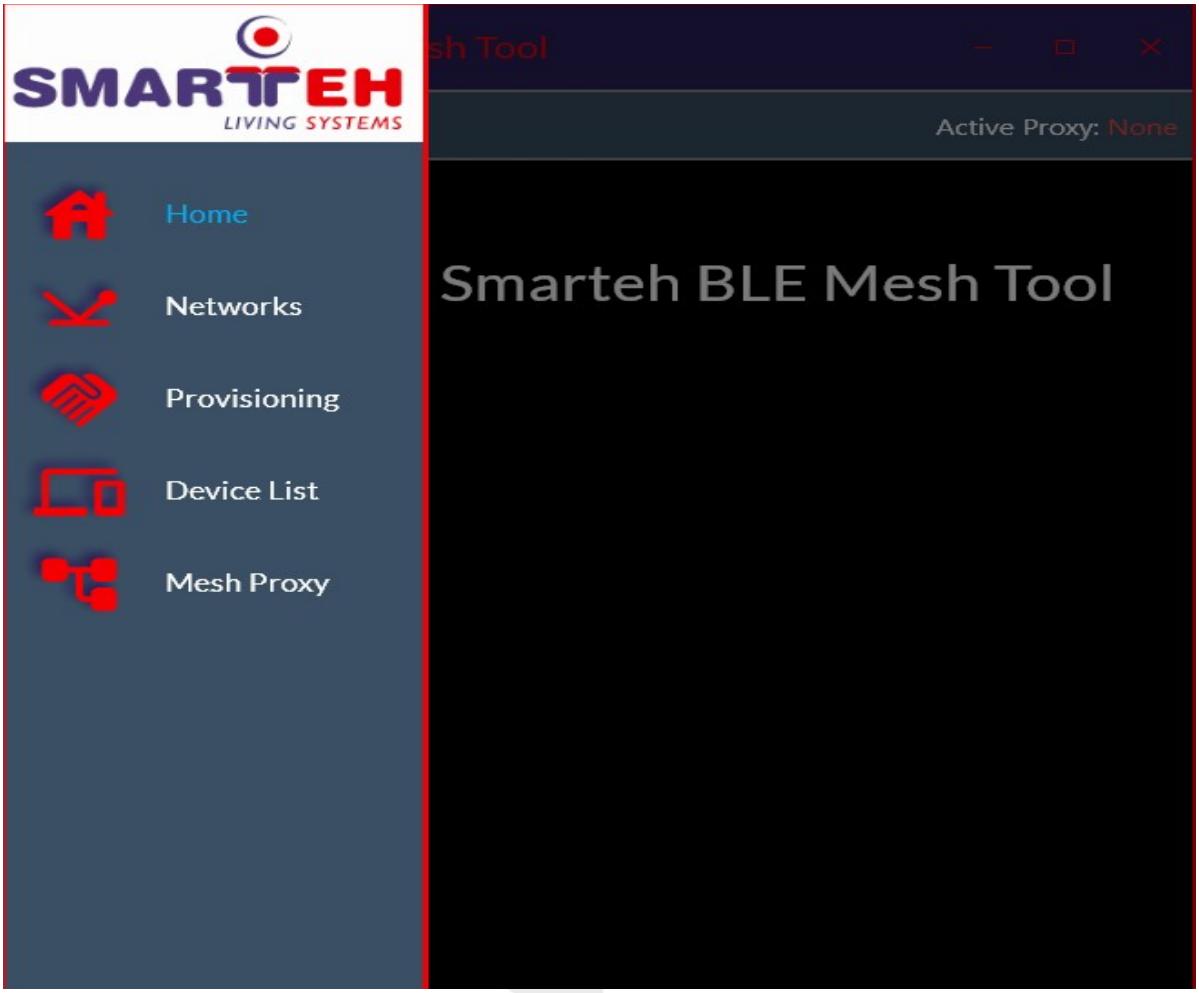

Figure 9: Smarteh BLE Mesh Provisioning Tool App Drawer

From the App Drawer we can acces all the screens in this application, therefore navigating throught the application.

5.3 The Networks Screen

The Networks Screen is utilized to present all the created Mesh Networks in the active session in a list, serving as the central hub for Network management in this application. The user can proceed to add a new network from this screen or delete all existing networks, with both actions accessible through the floating buttons in the bottom right corner. Additionally, the user can configure each of the Mesh Networks individually and also delete each of the networks individually. At the bottom of the screen, one can access the pages to import or export networks to the active application session through the buttons on the bottom navigation bar. When the user wants to add a new network, they are directed to the Create Networks screen. Furthermore, when the user wants to configure the existing network, they are directed to the Edit Networks screen.

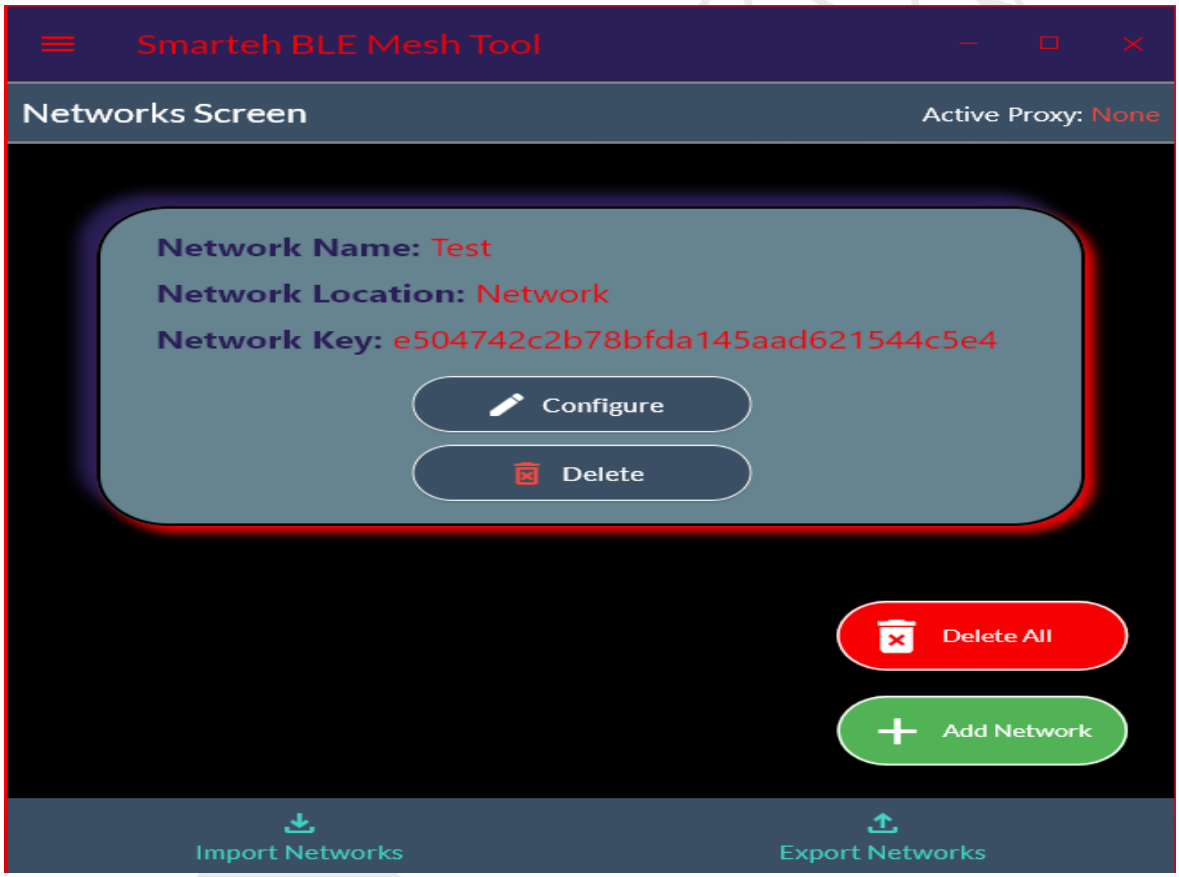

Figure 10: Smarteh BLE Mesh Provisioning Tool Networks Screen

If the user decides to delete all networks, a warning pop-up is displayed, prompting the user to confirm their desired action. Each of the network items has its Network Name, Location, and Key listed on its tile, with the Configure and Delete buttons as described before.

5.4 The Create Networks Screen

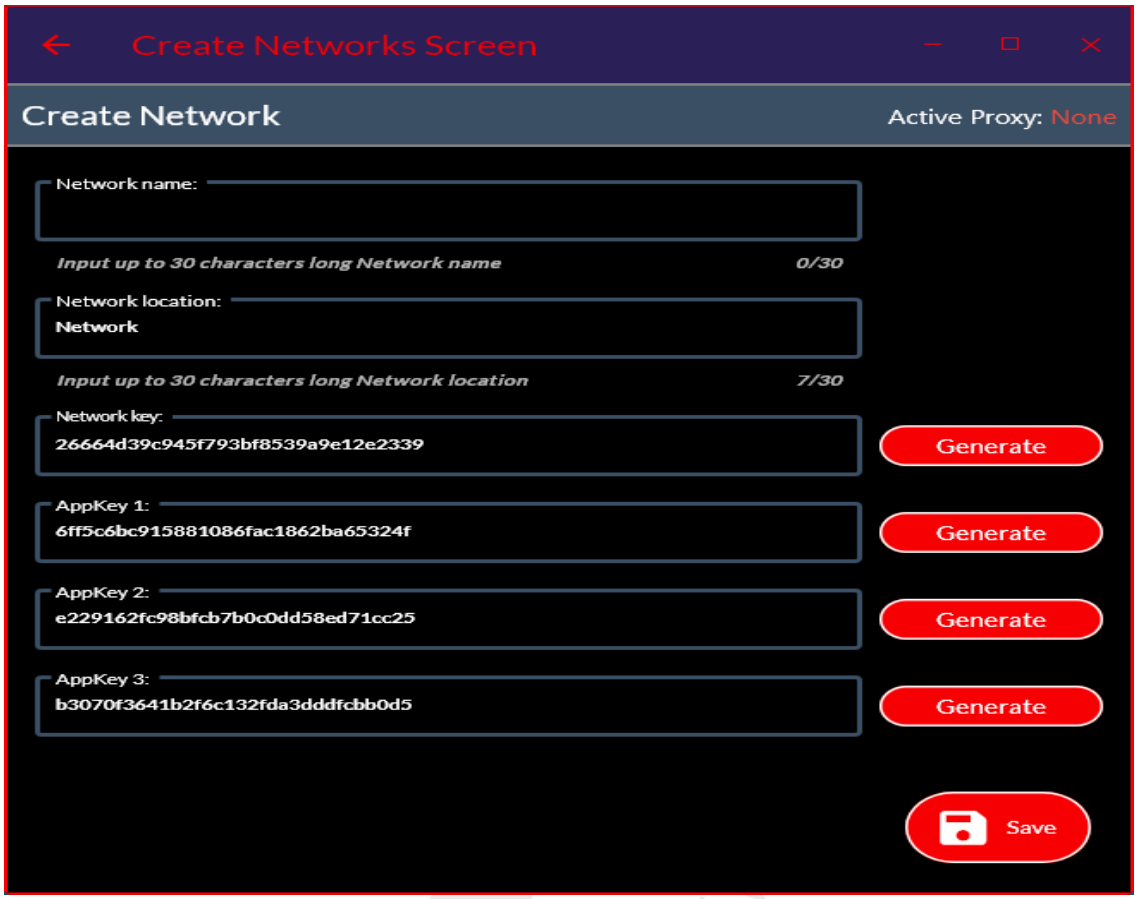

Figure 11: Smarteh BLE Mesh Provisioning Tool Create Networks Screen

The Create Networks screen is straightforward. Firstly, the user needs to input a desired Network name and Network location. Secondly, the user needs to generate the Network Key and all of the Application Keys. After that, the user can save the newly created Network. Furthermore, if the user leaves the screen without saving, they are also presented with a warning pop-up that prompts the user to confirm their desired action.

5.5 The Edit Networks Screen

The Edit Networks Screen functions similarly to the Create Networks Screen. The user can modify the selected network's name, location, and all of the keys for existing networks. Furthermore, if the user wants to modify the Network key or any other Application key, they are presented with a warning pop-up if any of those keys are already bound to some active device or if any of the active devices are already tied to this Network key.

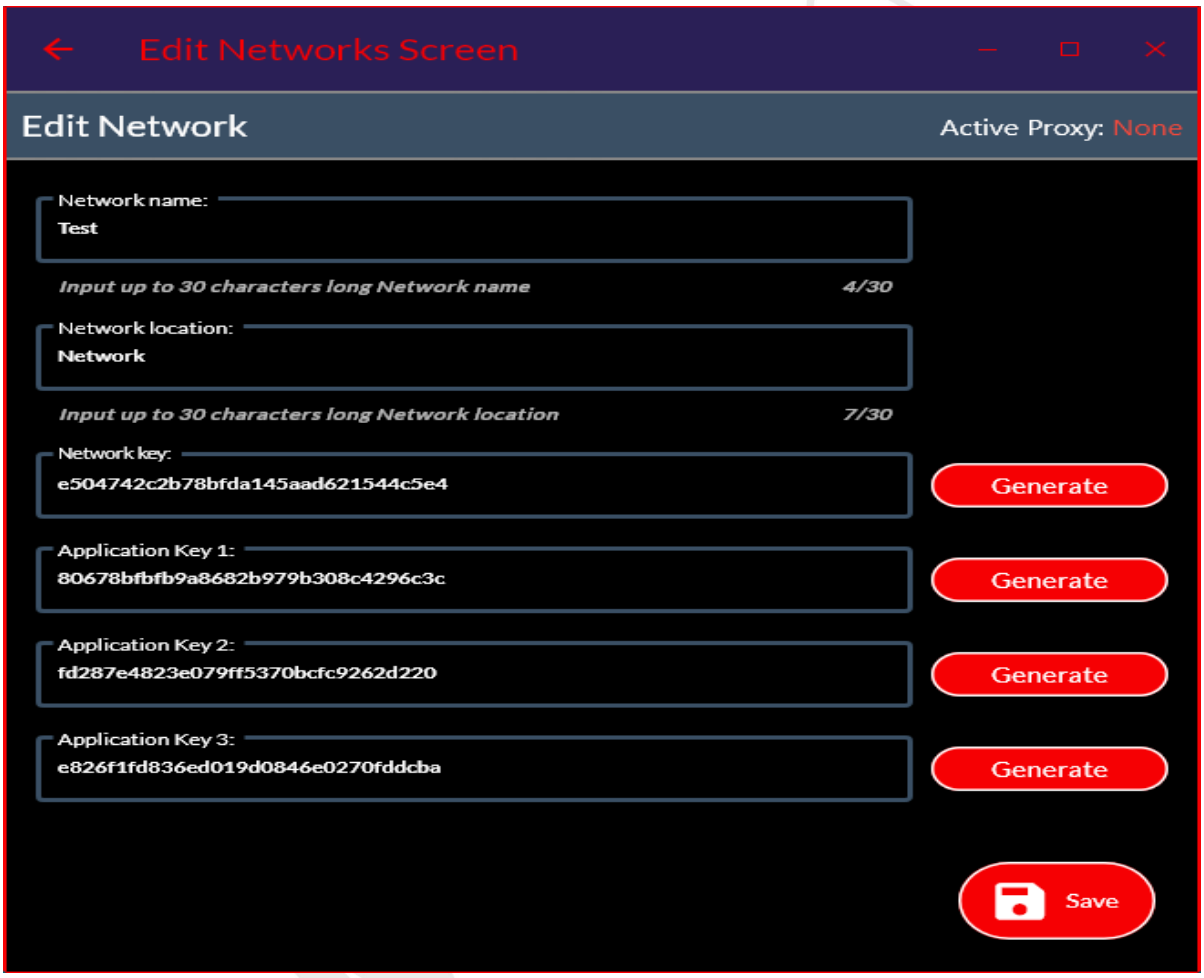

Figure 12: Smarteh BLE Mesh Provisioning Tool Edit Networks Screen

5.6 The Import Networks Screen

The Import Networks Screen is used to import existing networks from a .csv file or a Firebase Realtime Database. When a user creates networks on one device, they can then store them to a .csv file through the Export Networks Screen or store them in their Firebase Realtime Database.

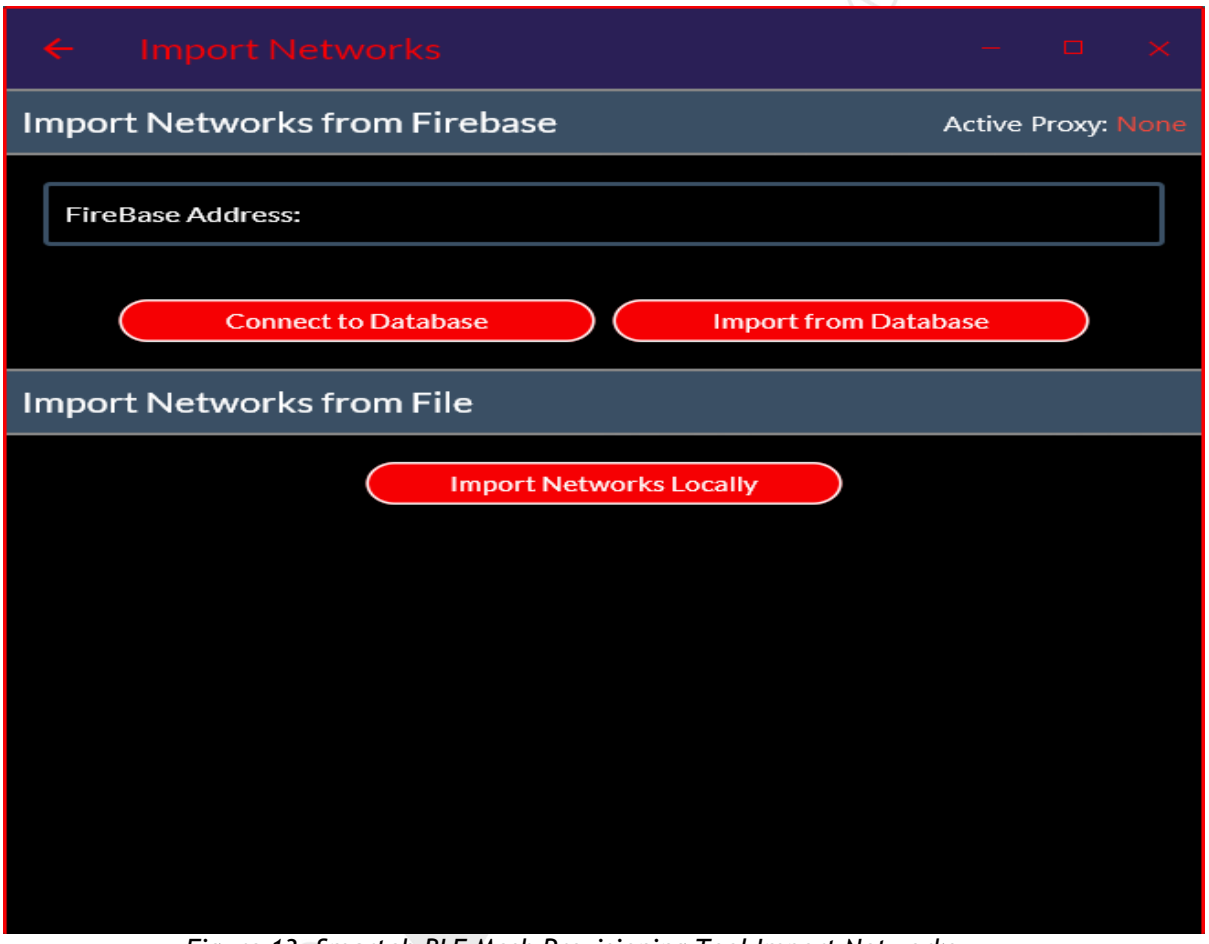

Figure 13: Smarteh BLE Mesh Provisioning Tool Import Networks Screen

When the user wants to import network files from their Firebase Realtime Database, they must paste the Firebase connection address into the "Firebase Address:" input field. After that, they need to press the "Connect to Database" button to establish a connection to the database. Finally, by pressing the "Import from Database" button, they can ensure that the network files are imported into the active application session.

When the user wants to import networks from a local .csv file, they can do so by pressing the "Import Networks Locally" button and later selecting the correct file from a pop-up file explorer window.

5.7 The Export Networks Screen

The Export Networks Screen is the exact opposite of the Import Networks one. Here, a user can export existing networks from the current application session to a local .csv file or a Firebase Realtime Database. When a user creates networks during their active session, they can later store them to a .csv file or store them in their Firebase Realtime Database through this screen.

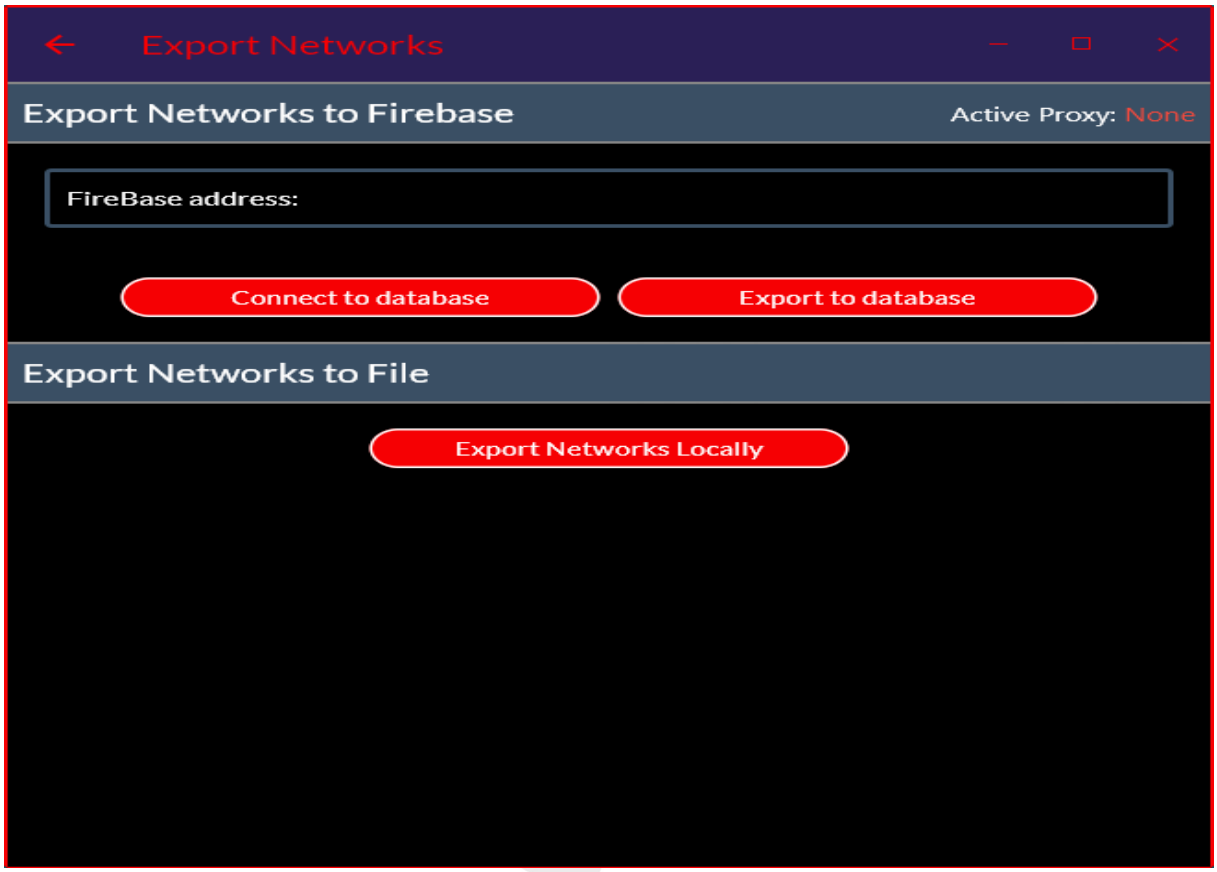

Figure 14: Smarteh BLE Mesh Provisioning Tool Export Networks Screen

When the user wants to export created networks to their Firebase Realtime Database, they must paste the Firebase connection address into the "Firebase Address:" input field. After that, they need to press the "Connect to Database" button to establish a connection to the database. Later, by pressing the "Export to Database" button, they can ensure that the network files are exported to their Firebase Realtime Database.

When the user wants to export the networks to a local .csv file, they can do so by pressing the "Export Networks Locally" button and later selecting the desired save location and save file name from a pop-up file explorer window.

5.8 The Provisioning Screen

The Provisioning Screen is where a user can provision new devices into previously created or existing Mesh Networks. In the top center of the screen, the user can filter the scanned devices by type. The types of devices consist of Unprovisionable – indicating the device is already provisioned or cannot be provisioned, Provisionable – denoting that the device is ready to be provisioned, or All Devices,

which includes both of the previously mentioned types.

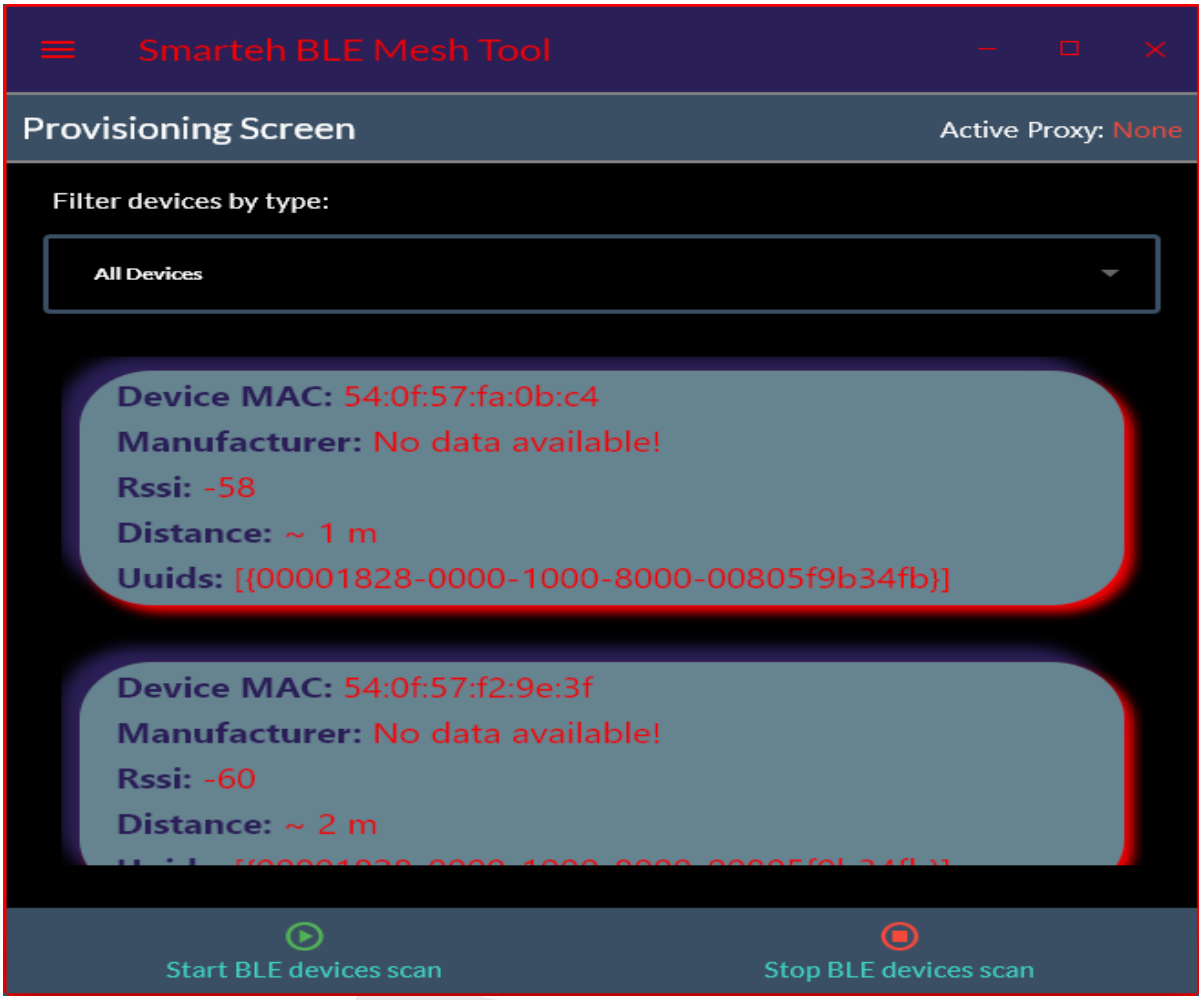

Figure 15: Smarteh BLE Mesh Provisioning Tool Provisioning Screen

In the bottom navigation bar, the user can either start or stop the scan for nearby BLE devices. Each of the scanned device items is presented with the Mac Address, Manufacturer data (if available), RSSI, approximate distance to the device calculated by the RSSI value, and the UUIDs that the device possesses.

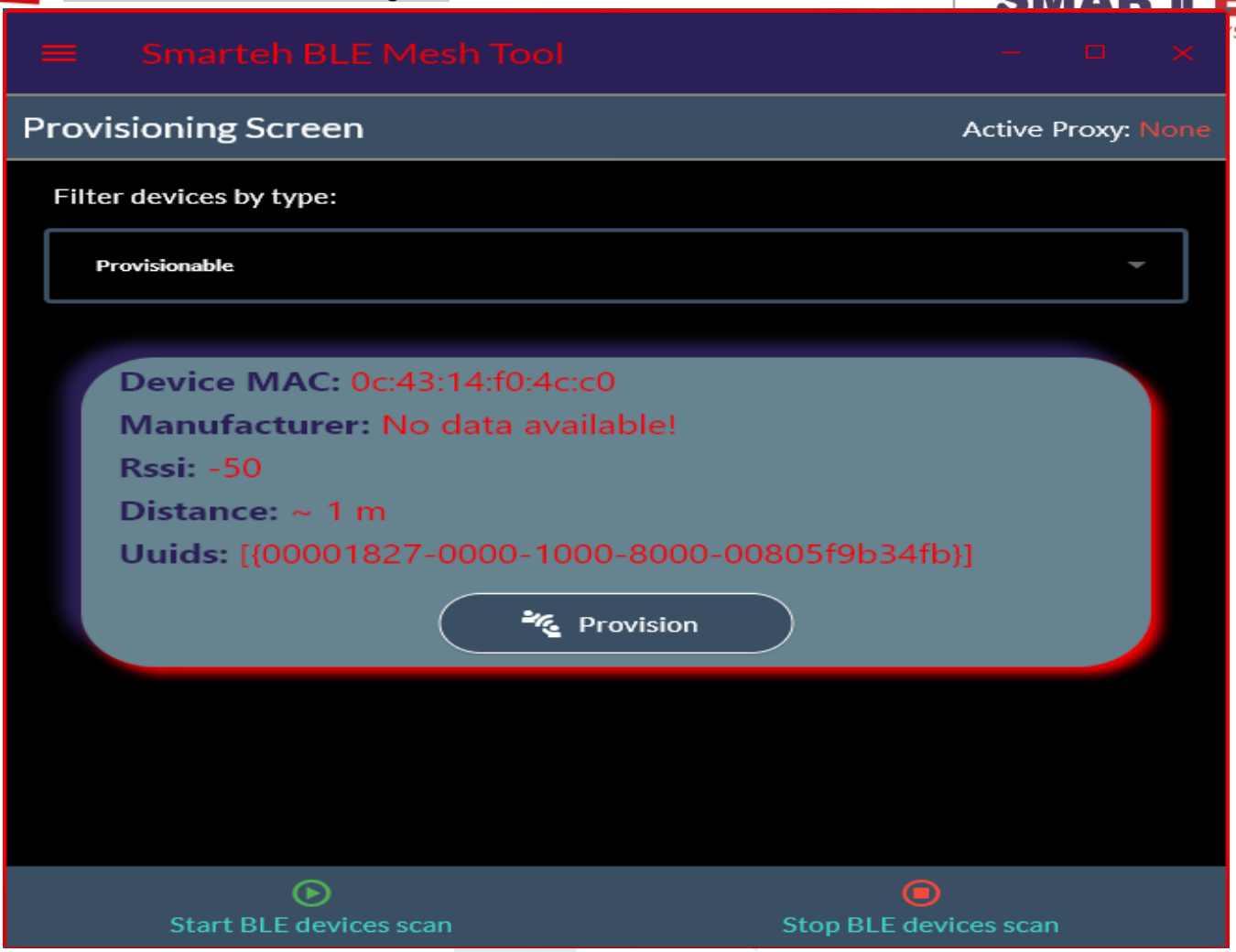

Figure 16: Smarteh BLE Mesh Provisioning Tool Provisioning Screen

When a new Provisionable device is found, a "Provision" button appears on its tile. Clicking this button navigates the user to the Provision Device Screen, where they can provision the selected device into the desired network with the desired configuration.

5.9 The Provisioning Device Screen

The Provision Device Screen is where a user can connect/disconnect to the device with the appropriate radio button, provision a device into an existing Mesh Network, or retrieve information from the device, such as Device Name, Characteristics of the device, and Services of the Device.

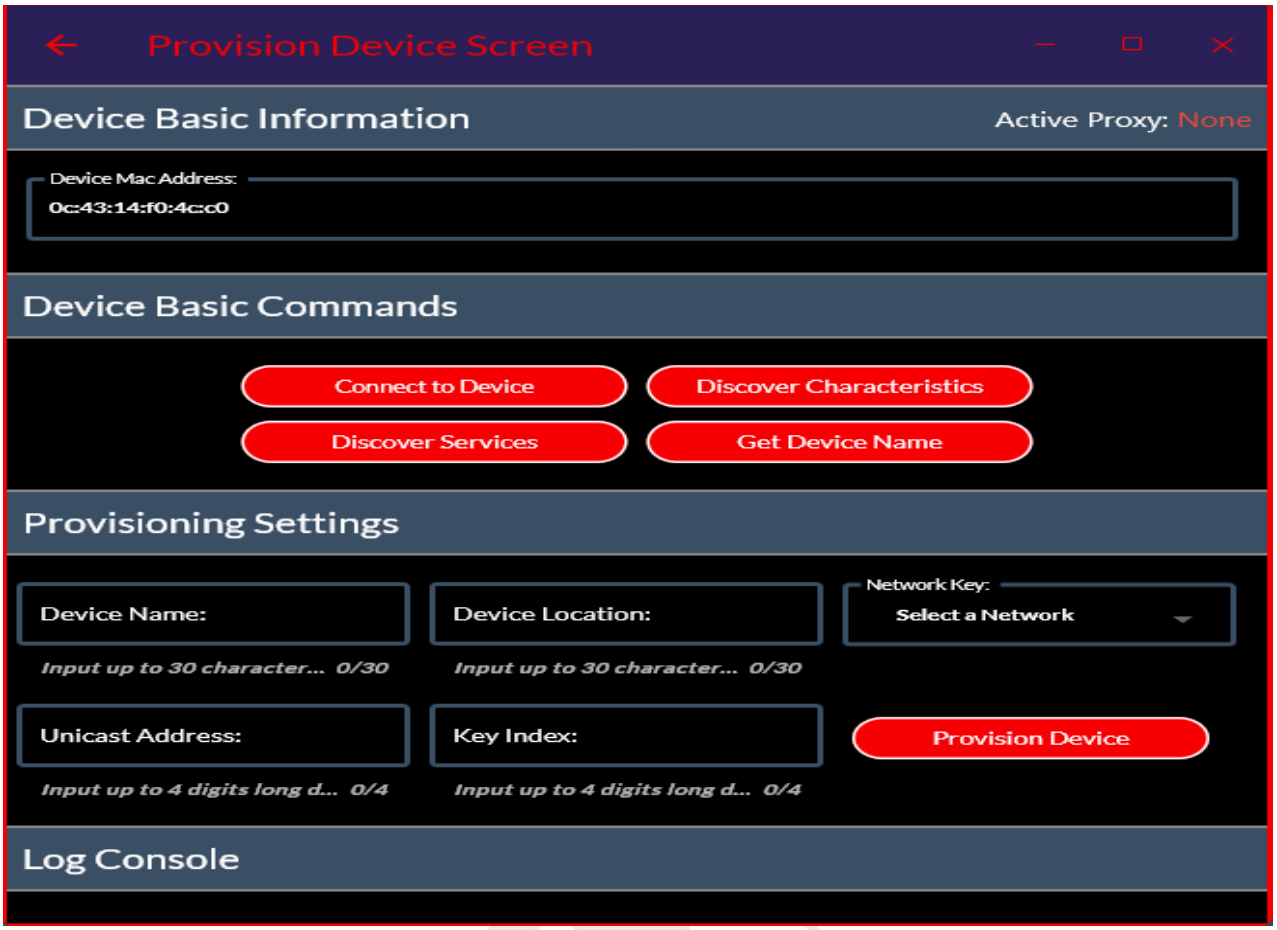

Figure 17: Smarteh BLE Mesh Provisioning Tool Provision Device Screen

All the logs of the actions and alerts are displayed in the Log Console at the bottom of the screen.

If the user just wants to get some information from the device, they must firstly connect to the device and then perform one of the actions from the Device Basic Commands section. The user can either Discover device Services, Discover Device Characteristics, or just get the Device Name. The Device Name command helps in identifying the models of the devices nearby. If the user wants to leave the screen after getting some basic information, they must firstly disconnect from the device; otherwise, a warning pop-up is displayed to inform the user of this.

If the user wants to provision the device into a network, they must input the desired Device Name, Device Location, select the desired Network from the Network Key dropdown field, and then input the desired Unicast Address in decimal numbers. Additionally, the user needs to input the Key Index, which is preferably set to 0. If the Unicast Address is already taken in the desired network, the user is alerted and must change that setting. The user must then press the "Provision Device" button. All of the input fields and the "Provision Device" button are located in the Provisioning Settings section.

After the provisioning procedure is started, all of the events of the provisioning and logs are presented in the Log Console. When the "Provision Success" message is displayed, the user must wait

a few moments so the tool disconnects from the device and saves the acquired settings to the local database. If the provisioning is not successful, the user should wait a few moments and repeat the procedure, preferably with the same parameters.

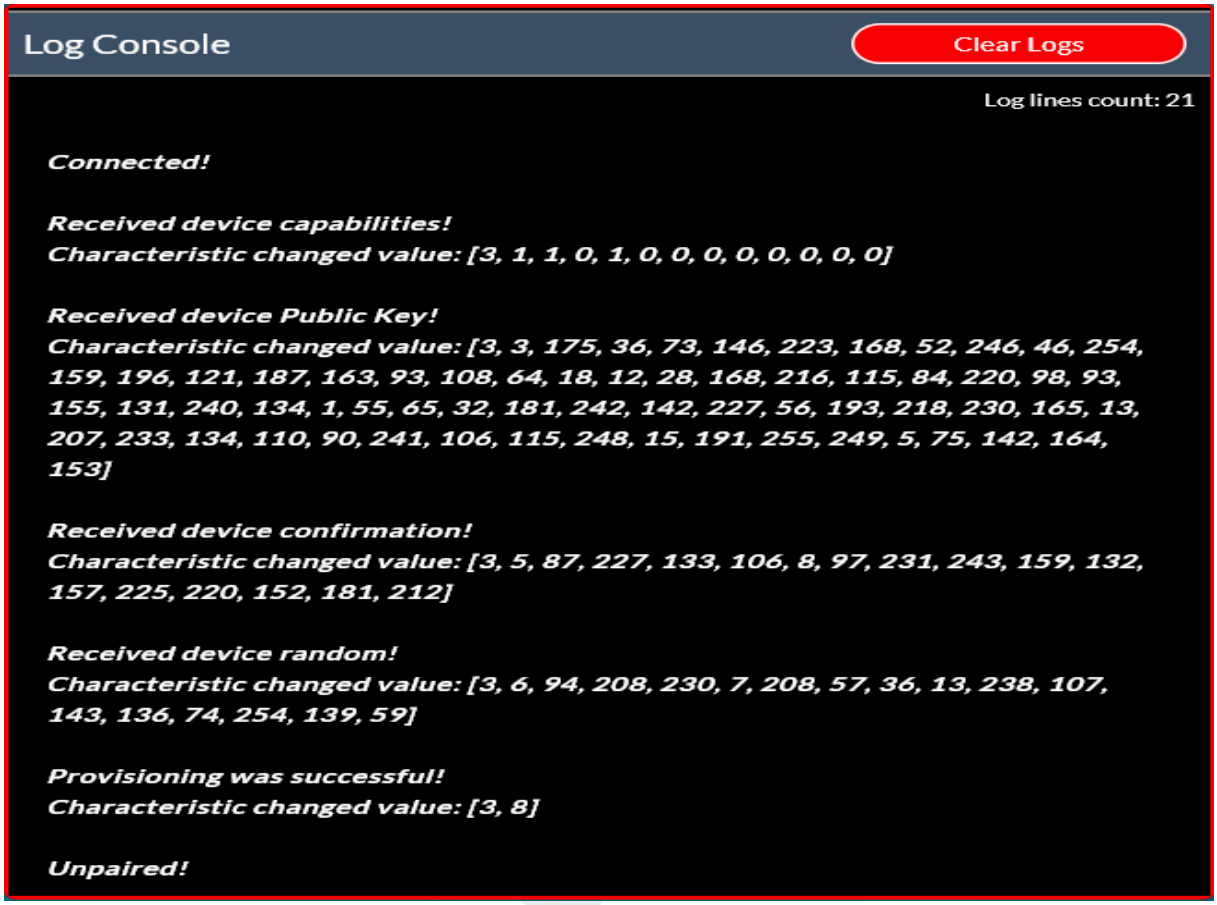

Figure 18: Smarteh BLE Mesh Provisioning Tool Successful Provisioning Procedure Logs

The Log Console also has the "Clear Logs" button in the top right corner to clear the current log messages. Underneath, the log lines count is displayed, which helps the user better understand how far they are into the provisioning procedure or how many messages they have received or sent to the device.

An important thing to notice is that when the user is connected to an active Proxy device, they must firstly disconnect from it, as seen in the figure below, and then initiate the Provision Device procedure. If the user fails to disconnect from the active Proxy before, a warning pop-up is displayed reminding them to do so.

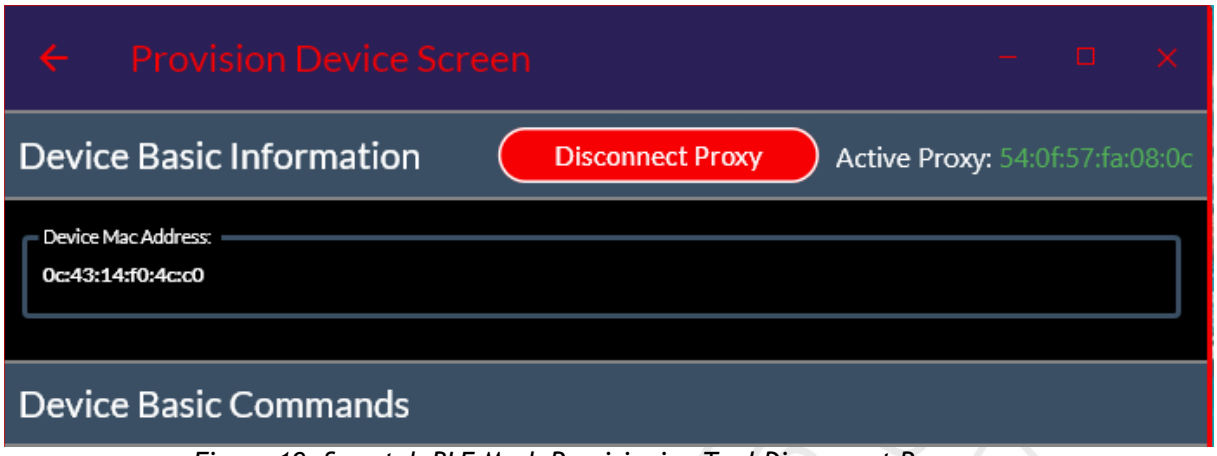

Figure 19: Smarteh BLE Mesh Provisioning Tool Disconnect Proxy Button on Provisioning Device Screen

After the user completes all desired actions, they can return to the Provisioning Screen with the arrow button in the top left corner of the screen.

5.10 The Mesh Proxy Screen

The Mesh Proxy Screen is used to connect to an available Mesh Proxy device. The only Smarteh device that has the Proxy Service available out of the box is the LMP-1.BT1.GW or the Gateway device. Others can be manually set to expose the Proxy Service to users, but we advise users not to do so if they are unaware of the operational mode of Mesh Proxy devices. A Mesh Proxy device is always needed to configure other BLE devices in the same network. The user firstly needs to have an active connection to the Mesh Proxy device to be able to later modify other BLE devices from the same network.

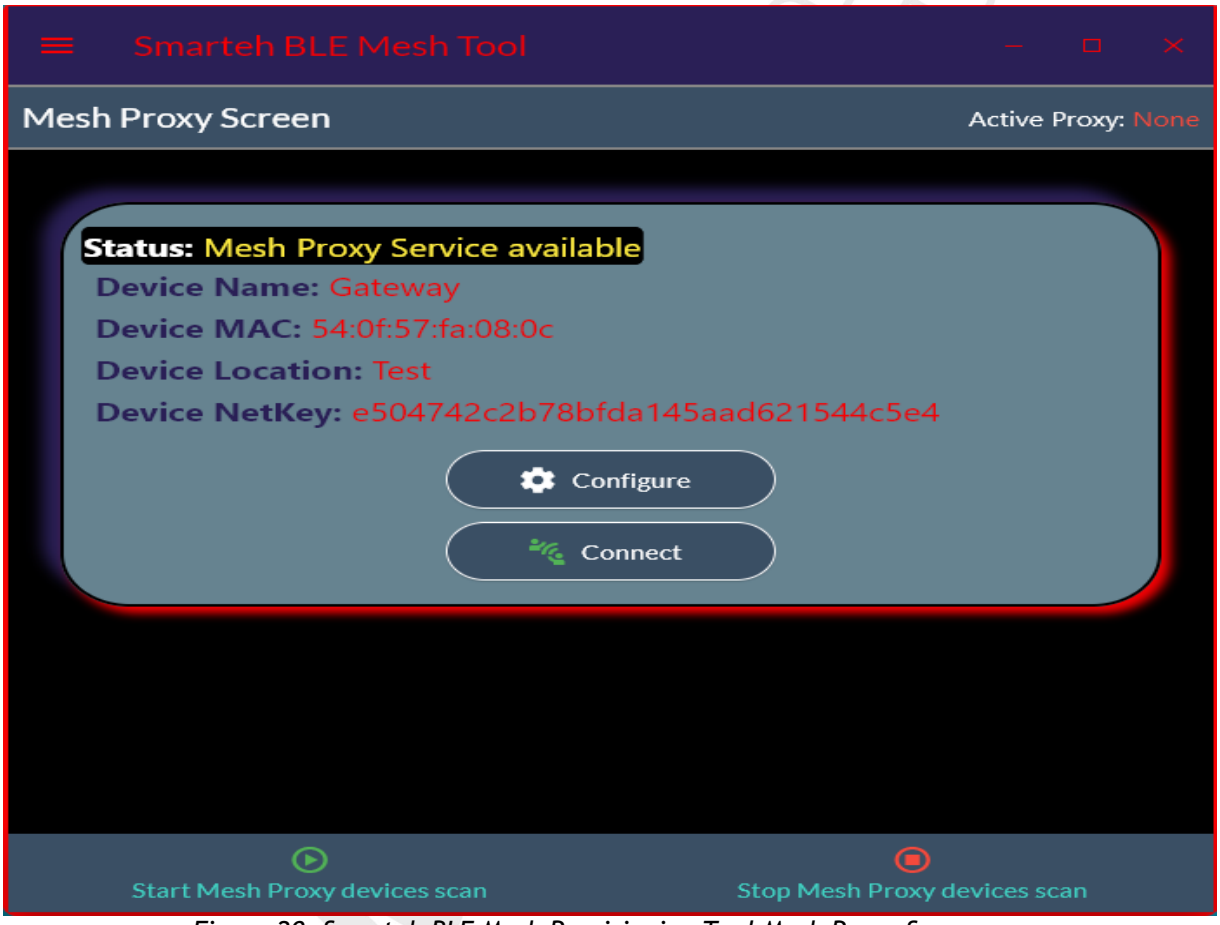

Figure 20: Smarteh BLE Mesh Provisioning Tool Mesh Proxy Screen

The user must firstly start a Mesh Proxy device scan with the button in the bottom navigation bar, where they can also stop the scan afterward with the appropriate button. When a nearby Mesh Proxy device is found, its tile is created. The first item on the tile is the status message that tells the user what is happening with the device. The tile also consists of Device Name, Device Mac address, Device Location, and the Device Network key. Furthermore, two buttons are displayed below: the Configure button, which takes you to the Mesh Configuration Screen, and the Connect/Disconnect radio button, which lets you connect or disconnect from the Mesh Proxy device.

Afterward, the user can directly connect to the Mesh Proxy device by pressing the "Connect" button. Subsequently, the current Active Proxy device is displayed in the top right corner of the user interface, a feature common to all screens.

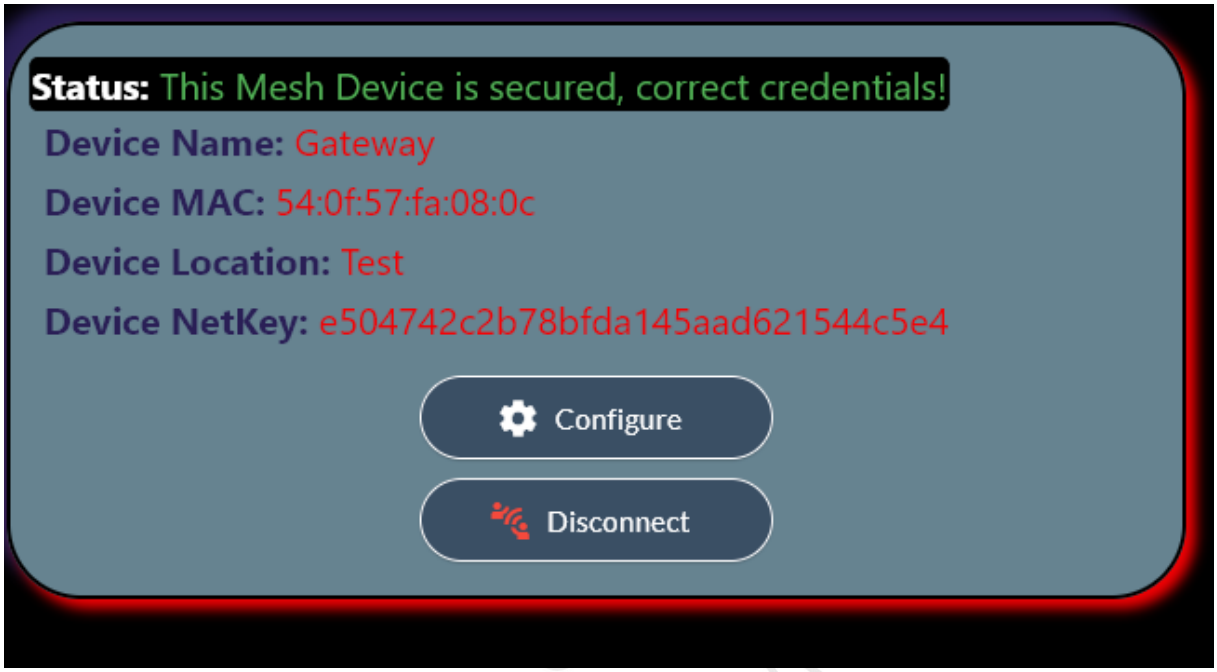

Figure 21: Smarteh BLE Mesh Provisioning Tool Mesh Proxy Tile

After the user successfully connects to the Mesh Proxy device, the Status field on the tile changes. If the established connection to the device is secured and the appropriate credentials are correct, then the status is the same as displayed in the figure above. However, if the credentials are not right, the status displays the “Device is not Secured” message, and the Mesh Proxy device will not be able to communicate with the other nodes in the Mesh Network.

If the user wants to further configure or interact with the Mesh Proxy device, they can press the "Configure" button on the appropriate device tile, which then takes them to the Mesh Configuration Screen.

5.11 The Mesh Configuration Screen

The Mesh Configuration Screen is intended for more advanced users. Here, a user can see basic information about the selected Mesh Proxy Device, connect to the device, subscribe to the device's Proxy Service, or just get the Device Name.

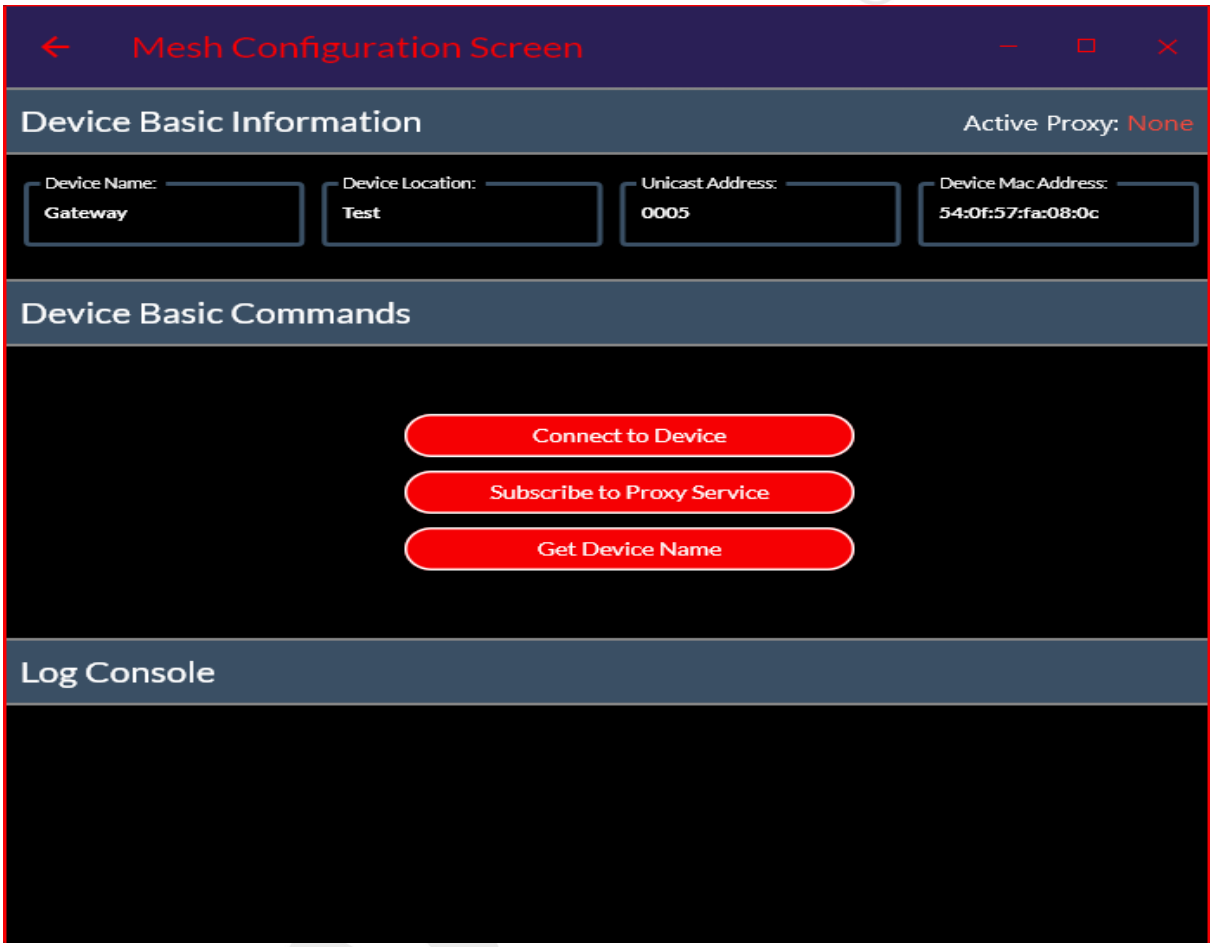

Figure 22: Smarteh BLE Mesh Provisioning Tool Mesh Configuration Screen

The selected device information is displayed in the Device Basic Information section. Below is the Device Basic Commands section where the user can Connect to Device, Subscribe to Proxy Service manually, or just acquire the Device Name.

All the actions are logged below in the Log Console section. If the user connects to the Mesh Proxy device from this screen, they must also disconnect from it before leaving the screen after finishing all the desired actions. If the user fails to disconnect from the Mesh Proxy device, a warning pop-up is displayed prompting them to do so.

5.12 The Device List Screen

The Device List screen is where all the provisioned BLE devices are displayed. They are grouped into their coresponding network. In the top centre of the screen we can filter the devices by network. We can filter by each of the available networks or just show All devices from All networks together.

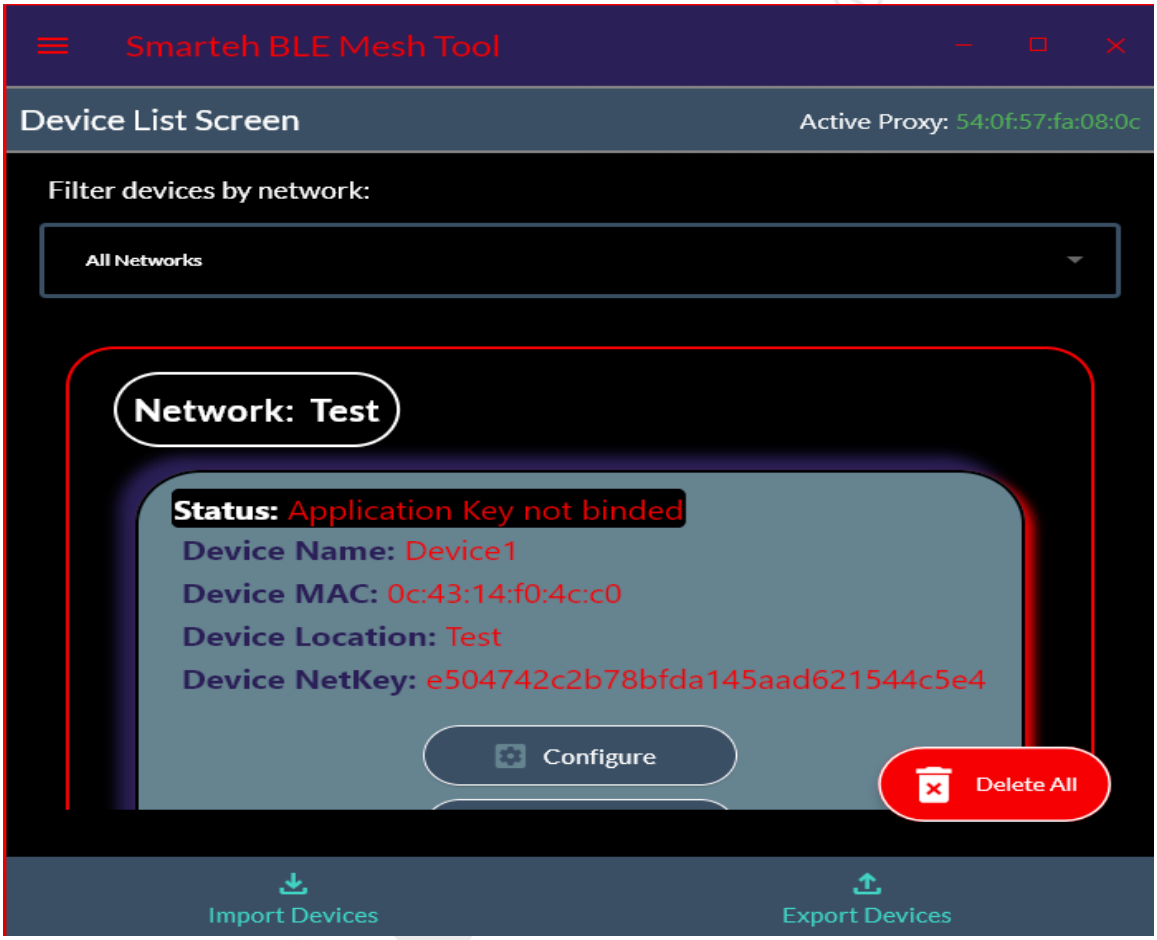

Figure 23: Smarteh BLE Mesh Provisioning Tool Device List Screen

Each of the BLE devices has its own tile, which consists of a Status message that tells the user the current state of the device. Furthermore, it has the Device Name, Device Mac address, Device Location and Device Network Key displayed below. On the bottom of the tile are the two buttons that can be used to configure the device, which leads to the Device Configuration screen, or delete it. A warning pop-up is displayed when the user wants to delete the device, alerting him of his action, which he must confirm.

In the bottom right corner, there is also a floating button that lets the user delete all the devices. Here the warning pop up is also displayed which alerts the user of his action which he must confirm.

In the bottom navigation bar, the buttons that lead to the Import Devices or Export Devices screen are also present.

5.13 The Device Configuration Screen

The Device Configuration Screen is used to set the provisioned device settings, modify its information, or further set up the device.

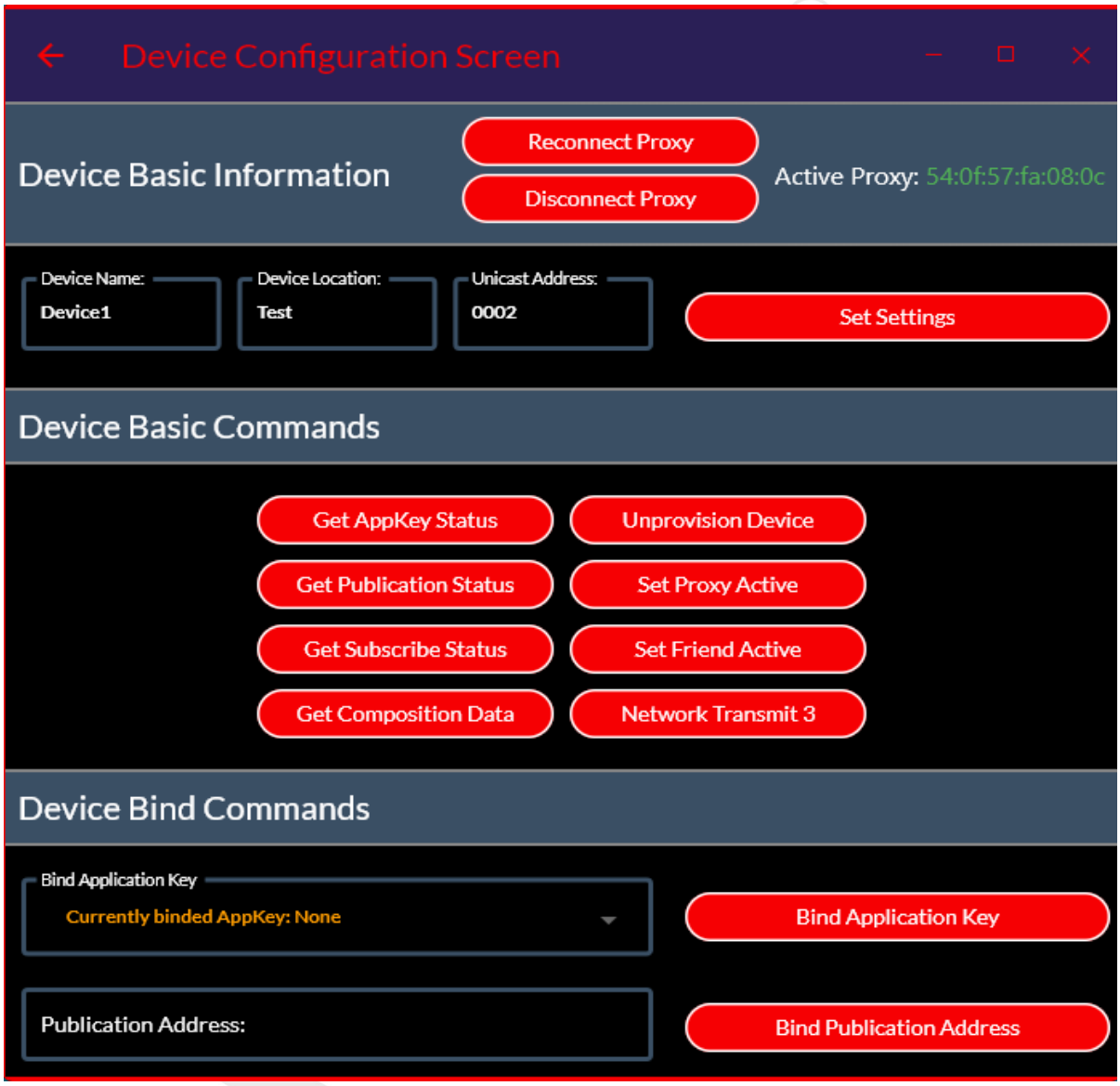

Figure 24: Smarteh BLE Mesh Provisioning Tool Device Configuration Screen Upper Part

The first section on this screen is the Device Basic Information section, where the user can see the device information and even change it by inputting it into the input fields and then pressing the Set Settings button.

Below is the Device Basic Commands section. It consists of multiple buttons: Get App Key Status gets the application keys status of the device. The Get Publication Status button gets the status of the Publication addresses bound to the device. The Get Subscribe Status gets the status of the Subscription addresses bound to the device. The Get Composition Data function gets all the composition data of the device. The Provision Device button command unprovisions the device, but only if the

The application key is already bound to the device. The Set Proxy Active/Not Active command is a radio button that enables or disables the Proxy Service of the device. The Set Friend Active/Not Active command is a radio button. The button enables the friend feature of the device If the device supports it. The Network Transmit button is also a radio button. When set to 3 it sets the Network Retransmit to 3 packets, and its opposite sets the Network Retransmit to 1 packet (the default is 3).

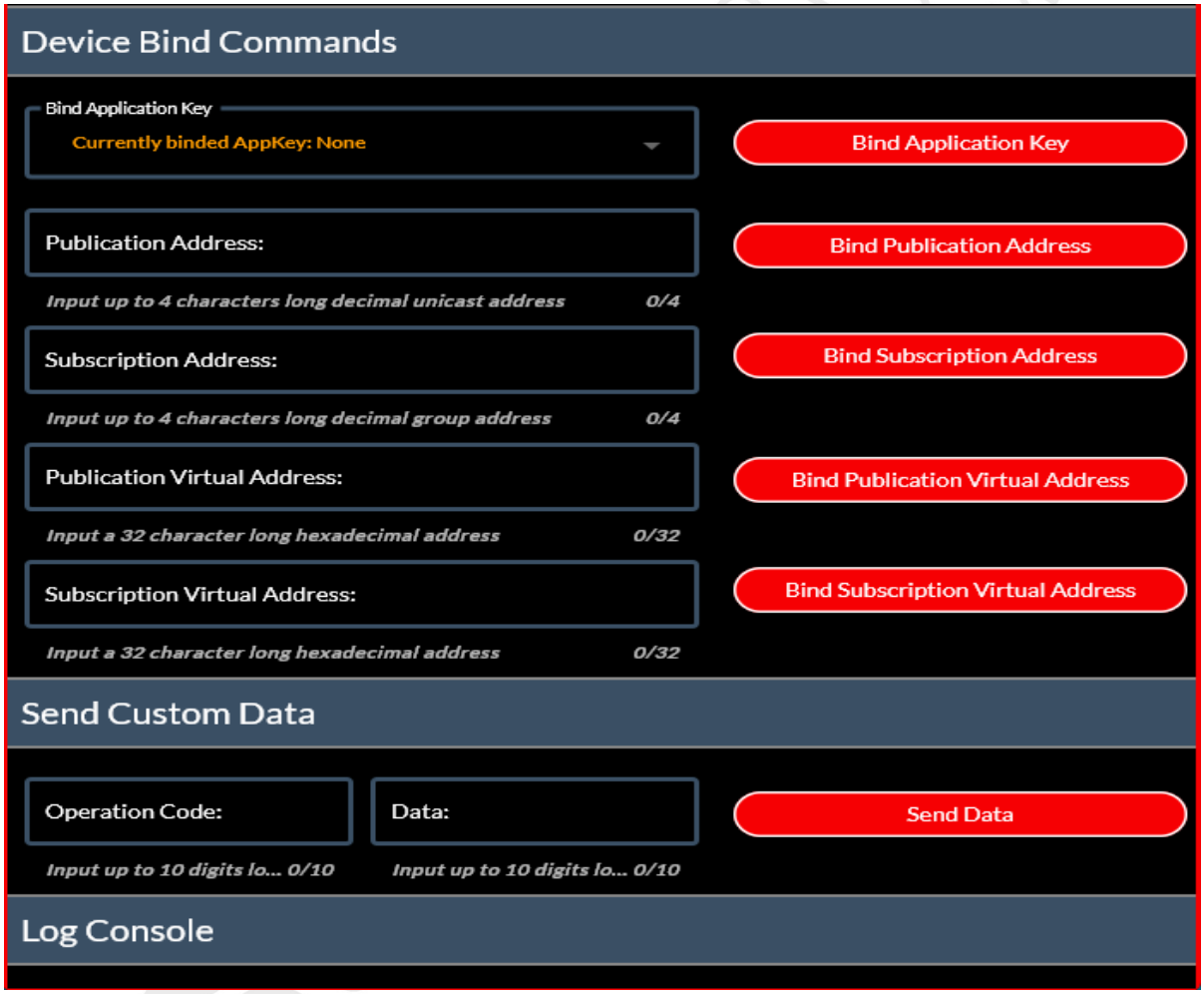

Figure 24: Smarteh BLE Mesh Provisioning Tool Device Configuration Screen Lower Part

In the Device Bind Commands section, we can then bind the appropriate Application Key to the

device. The application Key is in the drop-down field, which consists of all three of the Application Keys of the Network that the device is bound to.

Below, the user can also bind the Publication address to the device. If the user enters the address in the format “c0xx” the address is the group address. Also, the user can enter a decimal address to an unicast address of the device in decimal value.

Below, the user can also bind the Subscription address in decimal form, because the Subscription address is always a group address, so the “c0” header is added automatically.

Below are also the commands for binding the Publication Virtual and Subscription Virtual addresses, which are meant for more advanced users.

Below, users can then communicate with all the Smarteh BLE-capable devices through the Opcodes provided in the appendix for the Opcode commands below. The Custom Data commands work only if the device has an Application Key bound to it.

All of the alerts and logs are displayed in the Log Console section below.

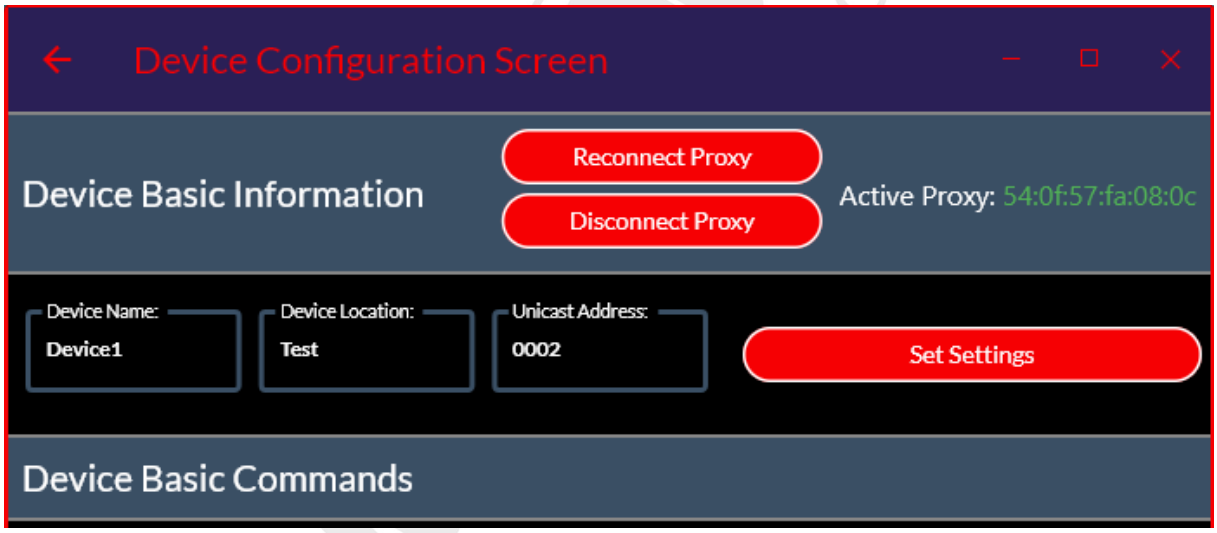

Figure 25: Smarteh BLE Mesh Provisioning Tool Device Configuration Screen Proxy Connection Buttons

If the users were connected to a Mesh Proxy device during the active session, they could reconnect to it again or disconnect from it and then reconnect to it directly with the use of the buttons in the top right corner, which become visible If a user was connected to a known Mesh Proxy during the latest active session.

5.14 The Import Devices Screen

The Import Devices Screen is used to import existing BLE Devices from a .csv file or a FireBase real-time database. When a user provisions Devices on one computer, he can then store them to a .csv file using the Export Devices Screen or store them in their FireBase real-time database.

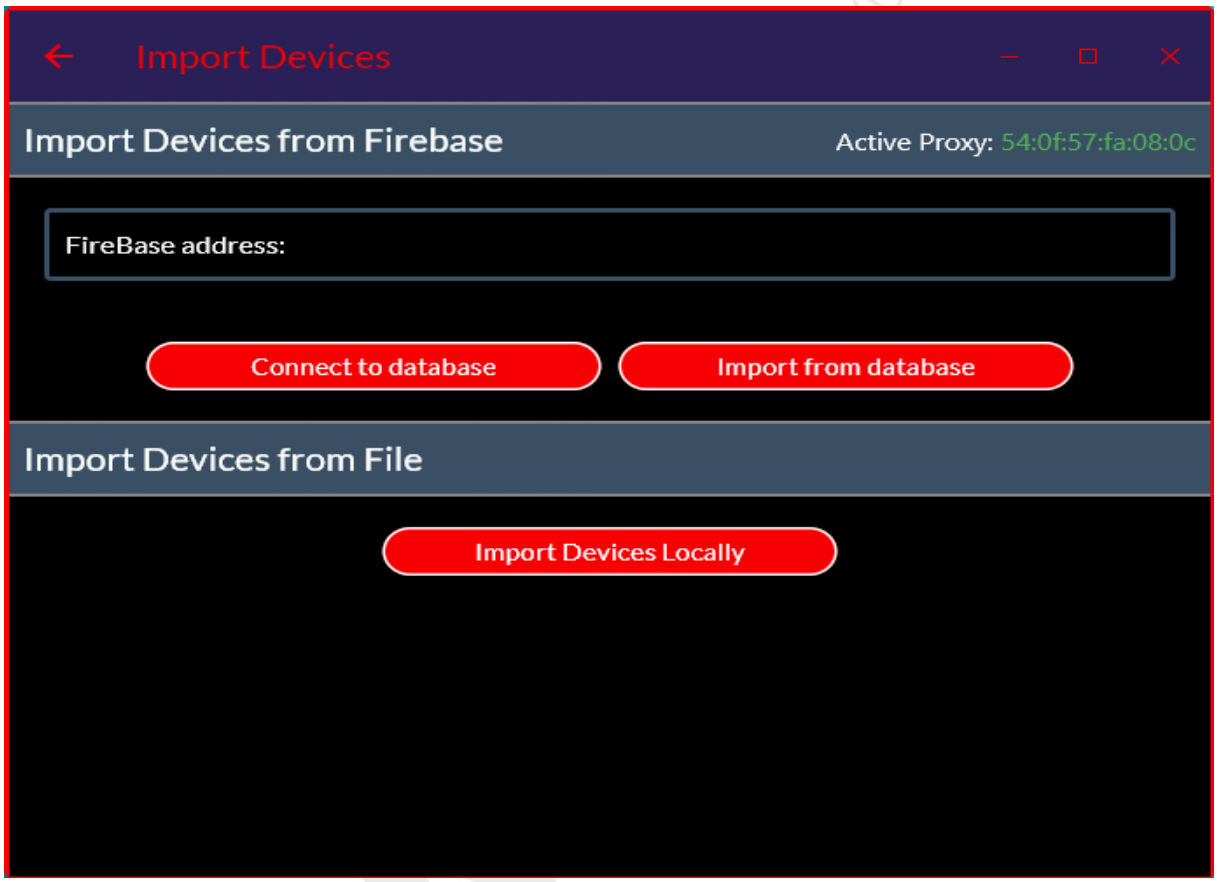

Figure 26: Smarteh BLE Mesh Provisioning Tool Import Devices Screen

When the user wants to import BLE Devices file from his FireBase real-time database, he must paste the FireBase connection address to the “FireBase Address:” input field and then firstly press the Connect to Database button to establish a connection to the database and then later by pressing the Import from Database button, ensure that the BLE Device files are imported to the active application session.

When the user wants to import the BLE Devices from a local .csv file, he can do so by pressing the Import Devices Locally button and later selecting the correct file from a pop-up file explorer window.

5.15 The Export Devices Screen

The Export Devices Screen is an exact opposite to the Import Devices one. Here, and user can export existing BLE Devices from the current application session to a local .csv file or a FireBase real-time database. When a user provisions Devices during their active session, he can later store them to a .csv file or store them in their FireBase real-time database using this screen.

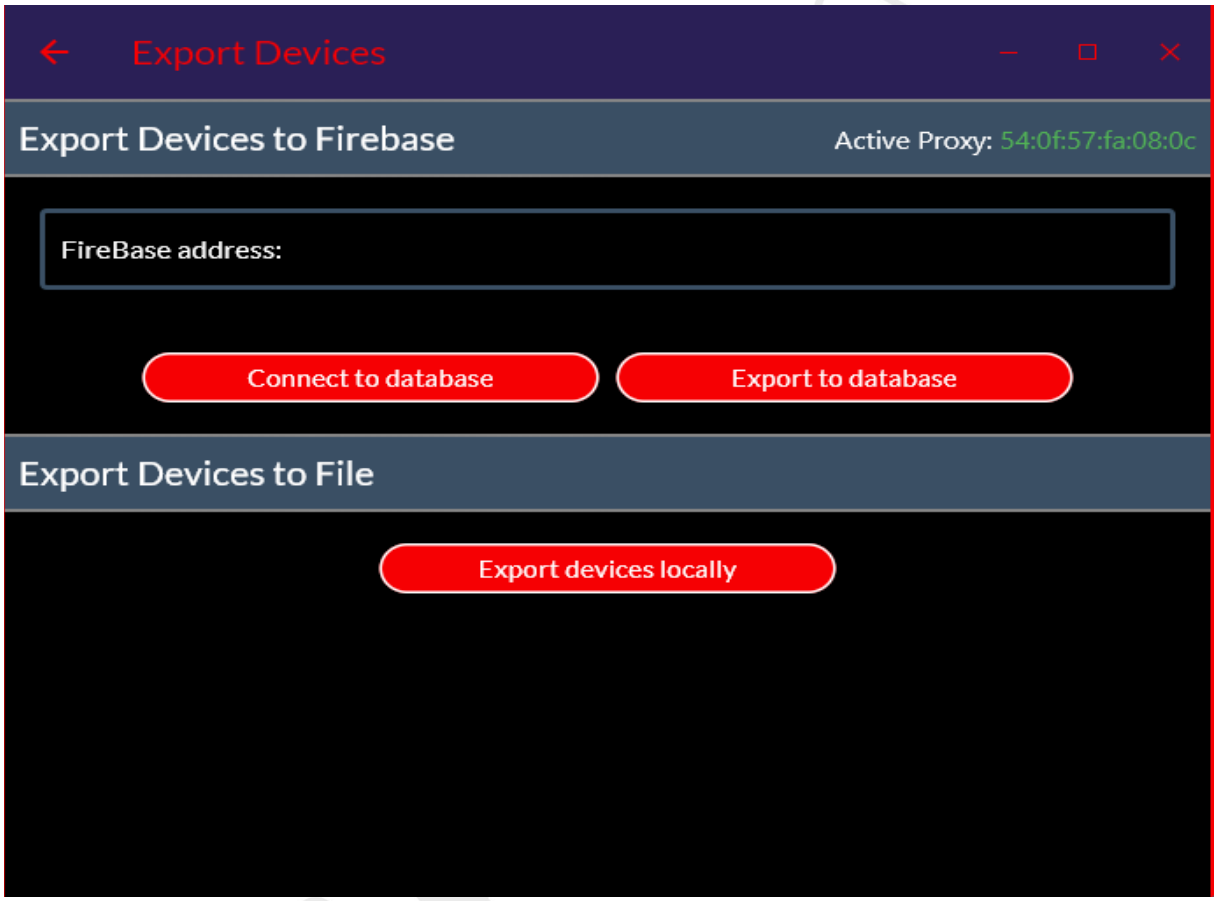

Figure 27: Smarteh BLE Mesh Provisioning Tool Export Devices Screen

When the user wants to export BLE Devices to his FireBase real-time database, he must paste the FireBase connection address to the “FireBase Address:” input field and then firstly press the Connect to Database button to establish a connection to the database and then later by pressing the Export to Database button, ensure that the BLE Devices are exported to their FireBase real-time database.

When the user wants to export the BLE Devices to a local .csv file, he can do so by pressing the Devices Networks Locally button and later selecting the desired save location and save file name from a pop-up file explorer window.

5.16 The Alerts and Warnings pop ups

During the usage of this tool the user can encounter different types of warning, status and alert pop-ups and messages.

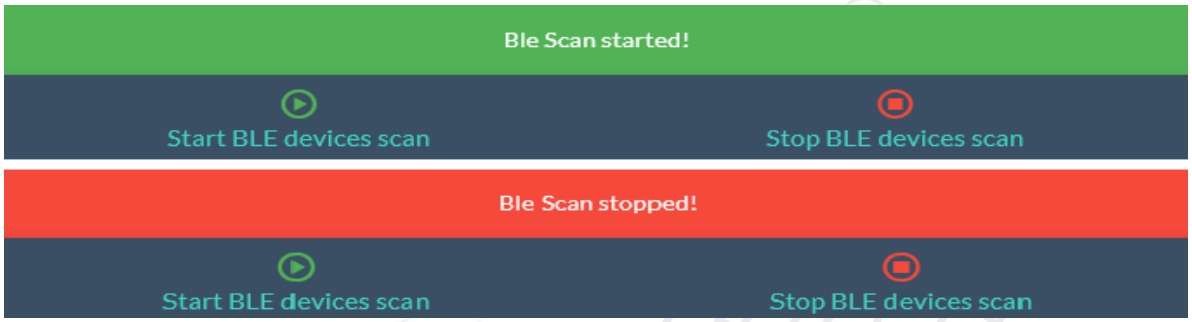

Figure 28: Smarteh BLE Mesh Provisioning Tool Bottom Status Message

The Bottom Status Messages are shown in the figure above, it is usually displayed to inform a user of a successful or an unsuccessful action when he is navigating the application.

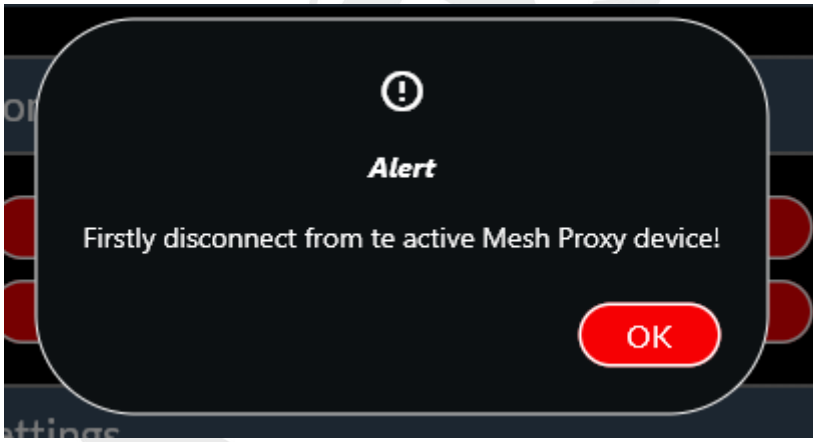

Figure 29: Smarteh BLE Mesh Provisioning Alert Dialog

The Alert Dialog is shown when a user commits an action that is not allowed or interferes with another command. The user is always kindly alerted to roll back the action or to perform another action to correct the previous one.

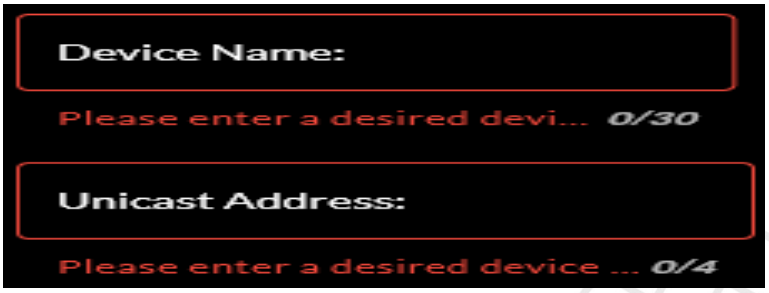

Figure 30: Smarteh BLE Mesh Provisioning Input Field Error Message

If the user inputs an incorrect input in the input field or the user leaves a crucial input empty before performing an action, an error message is displayed under the appropriate input field.

6 STANDARD PROCEDURES FOR USING THIS APPLICATION

When using this tool, the standard procedure is already displayed on the Introduction page, which was described in section 5.1.

Firstly the user should navigate to Networks Screen and create a new Network with desired Network Name and Location Name, furthermore the user needs to generate the Network Key and all the Application Keys.

Secondly, the user needs to head to the Provisioning Screen and start a scan for Devices that are Provisionable. After an appropriate device is found, the user can provision it with appropriate data. When the device is successfully provisioned, the user must also have a Mesh Proxy device (LMP-1.BT1.GW) Gateway device present and provisioned into the same network to be able to communicate to devices in the Network using the Mesh Proxy protocol.

Thirdly, the user needs to head to the Mesh Proxy Screen, scan for Mesh Proxy devices and later connect to an appropriate device which was discovered. When the connection is successful and the device credentials were verified, the user can head to Device Screen.

In the Device Screen the user can see all the devices which were provisioned into all the Networks and from there the user can enter the Device Configuration Screen for each of the devices.

All further and advanced actions are described on each of the pages describing the appropriate Screen.

APPENDIX A - Hardware and Software Requirements

Minimum Requirements:

- **Operating System:** Windows 10/Windows 11
- **Bluetooth:** Built-in Bluetooth Adapter or a Windows compatible Bluetooth Dongle (Realtek RTL8761b chipset, etc.)

If you run the program as an executable, it should be run with Administrator privileges because of the access to the Bluetooth driver.

Appendix B – Error Reporting

For all the error reporting, please send and email with as much information about the error and possibly with screenshots to *support@smarteh.si*.

APPENDIX C – Changes

- **Version 1.0.0** : First deployed version.