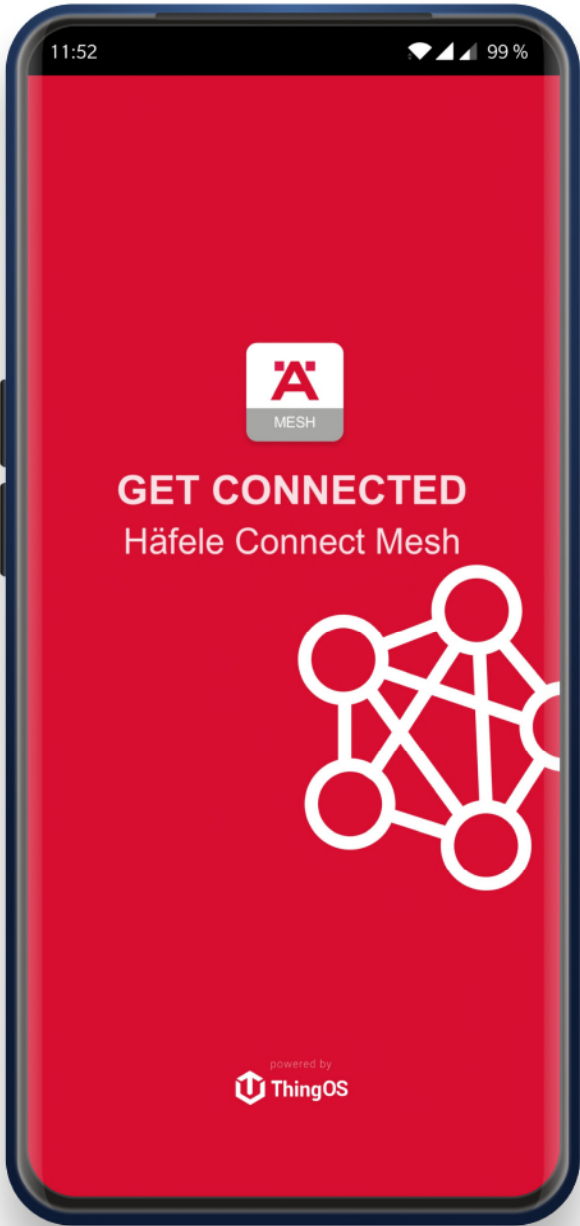


Connect Mesh App

Technical Documentation – Version 1.0

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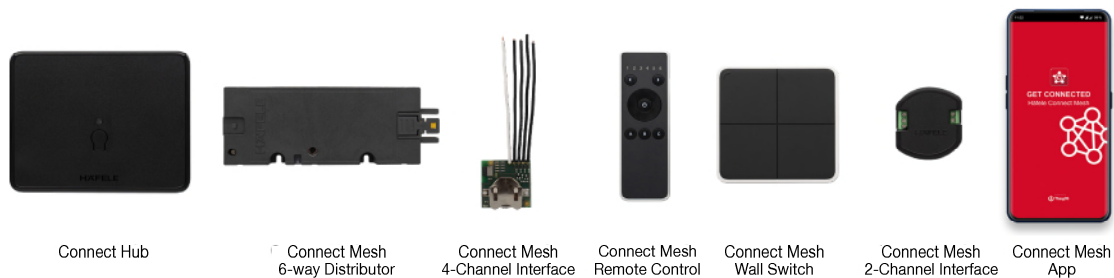
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3. Häfele Connect Mesh

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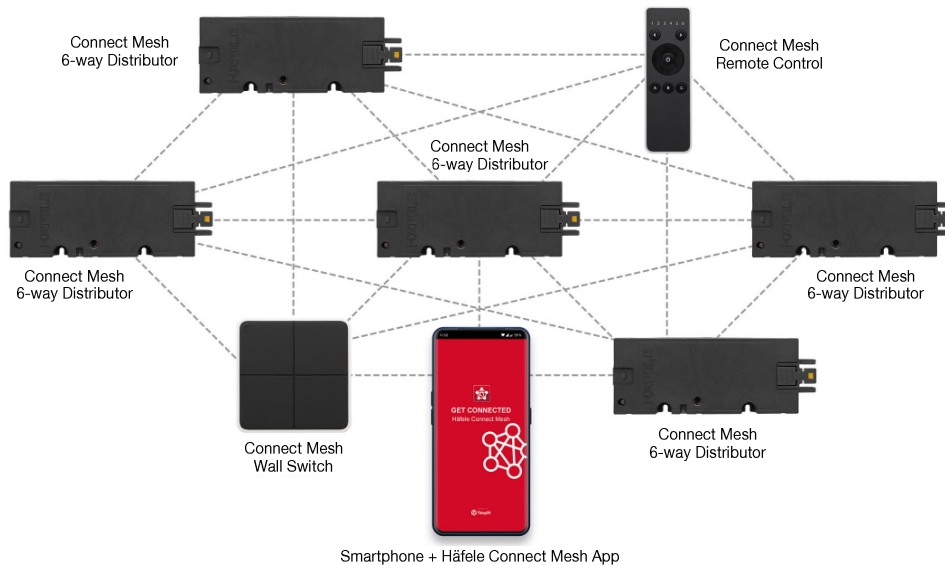
Häfele Connect Mesh is an ecosystem of smart devices (such as light controllers, wall switches, remote controls) that is built on top of the Bluetooth Low Energy Mesh (BLE Mesh) standard.



[image 3.1]

3.1. What is BLE Mesh?

BLE Mesh is a wireless communication protocol that extends the functionality of classic Bluetooth Low Energy (BLE) by the capability that BLE Mesh devices can now communicate with *each other* instead of only with smartphones. Devices in reach of each other can now create a dynamic network – a smartphone or tablet is not required for daily operation anymore but usually for the initial setup. The more BLE Mesh devices are deployed in the environment, the bigger the range of the network and its robustness becomes.



[image 3.1.1]

3.2. How does BLE Mesh work?

BLE Mesh devices work in *networks*. The first mandatory step is always to create a new network for a physical environment such as 'My Kitchen' or 'Office'. This step can be most easily done by using a smartphone with a BLE Mesh capable App such as the *Connect Mesh App*. The process of adding new BLE Mesh devices to a network is called 'Provisioning' and the device that is used for this process is called 'Provisioner'. During the provisioning process, often a 'secret' needs to be exchanged between the new device and the smartphone App to ensure authenticity and initialize a secure, encrypted communication (e.g. the BLE Mesh devices blinks 3 times, so the number 3 is selected as the secret in the smartphone App).

3.3. Why is a secure, encrypted communication important?

A secure provisioning process and encrypted communication, such as the one used in BLE Mesh, is important to protect end users' home devices from external intruders and attacks. It ensures the security of wireless devices and the privacy of its users.

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3.4. How do different BLE Mesh devices work together?

After different devices are added to the same network, they can be combined by putting them into the same *group*. This is comfortably done via the Connect Mesh App. For instance, when a LED-Light 1 is put into the same group named 'Kitchen Light' as Wall Switch 1, then Wall Switch 1 will automatically turn all lights in the same group on or off when pressed. A user can add or remove more lights or other devices into the same group anytime or simply create other groups. The group concept offers users a simple but powerful mechanism to configure the desired behaviour for BLE Mesh devices.

3.5. What are the benefits of BLE Mesh?

Compared to other recent technologies, BLE Mesh offers the following benefits:

- **With or without smartphone:** BLE Mesh devices can be controlled from any smartphone or tablet device but can also be operated without.
- **Larger Range:** Many BLE Mesh devices can form a BLE Mesh network with a much larger range than classic BLE devices could (classic BLE: 5-10 m).
- **No additional infrastructure needed:** A BLE Mesh network automatically grows with the number of devices. No access point, gateway, bridge or other additional infrastructure as necessary for WiFi, ZigBee or Z-Wave is needed.
- **Secure:** Encrypted communication provides a very high level of security and privacy for a user's wireless BLE Mesh devices.
- **Standardized:** BLE Mesh is a standardized protocol. This will ensure that BLE Mesh devices from different vendors can be used together.

4. Connect Mesh App

The Connect Mesh App is the main tool for setting up and configuring BLE Mesh networks and devices. It is currently available for iOS and Android smartphones and tablet devices. It is obligatory for setting up a new BLE Mesh network, adding new devices and configuring how they should work together. After this is done, the App is not mandatory anymore but can be used in parallel to other devices such as wall switches or remote controls to control actuator devices (e.g. lights, motors, etc.).

The Connect Mesh App can be freely downloaded from iOS App Store or Google Play store as described below.

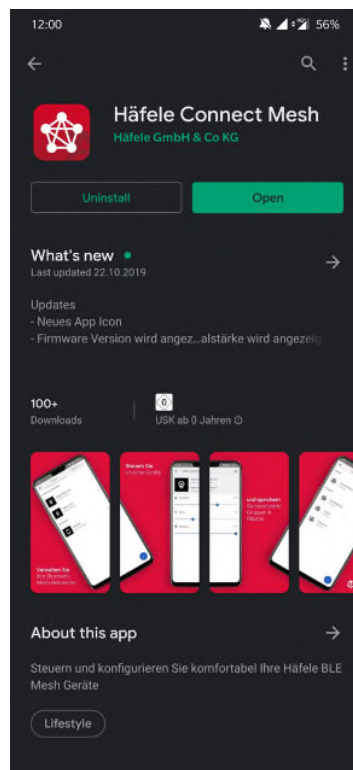
4.1. Downloading and Starting the App

Android

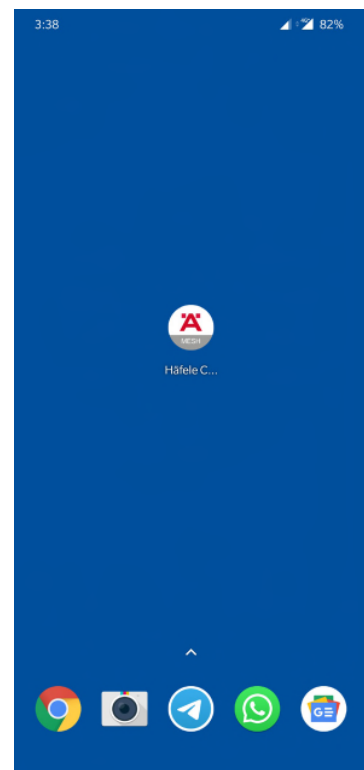
Download the current version of the Häfele Mesh Connect App from the Google Play store. Go to the Play Store App and search for '**Häfele Connect Mesh**' or scan the QR-code below. After the download is complete, you can start the App by pressing the App icon on your homescreen or App drawer.



[image 4.1.1]



[image 4.1.2]



[image 4.1.3]

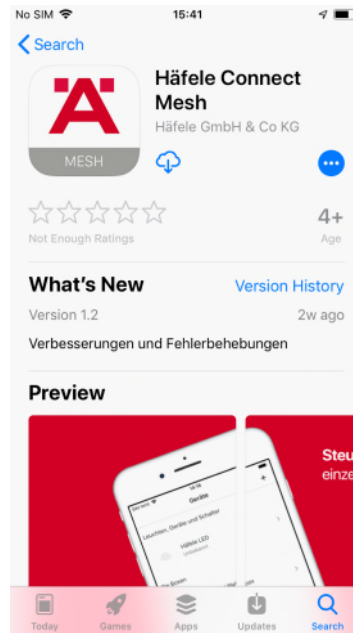
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Download the current version of the Häfele Mesh Connect App from the Apple App store onto your iOS device. Go to the App Store App and search for 'Häfele Connect Mesh' or scan the QR-code below. After the download is complete, you can start the App by pressing the App icon on your homescreen.



[image 4.1.4]

[image 4.1.5]

[image 4.1.6]

4.2. Networks

4.2.1. General information

As described earlier BLE Mesh devices work in networks. Every BLE Mesh device can be in one network at the time. The Connect Mesh App enables the user's smartphone or tablet to function as part of a BLE Mesh network, e.g. as a remote and managing device. However, it can anytime switch into another network. In the Connect Mesh App, the user is able to manage those networks and the devices within. It is also possible to manage several networks and switch between them, e.g. the user's home network and the company's office network. Since every network has an individual encryption many networks with many devices inside can be run in parallel at the same location.

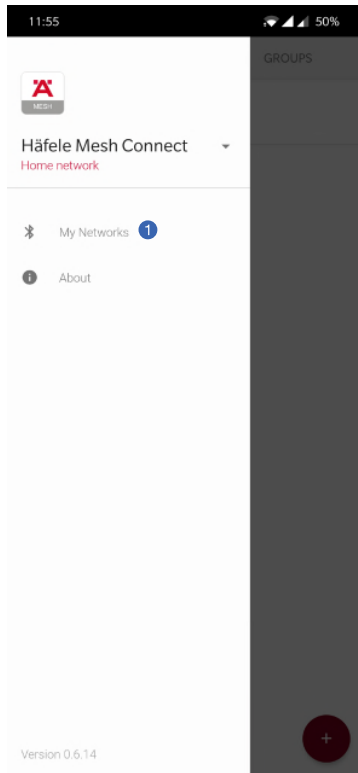
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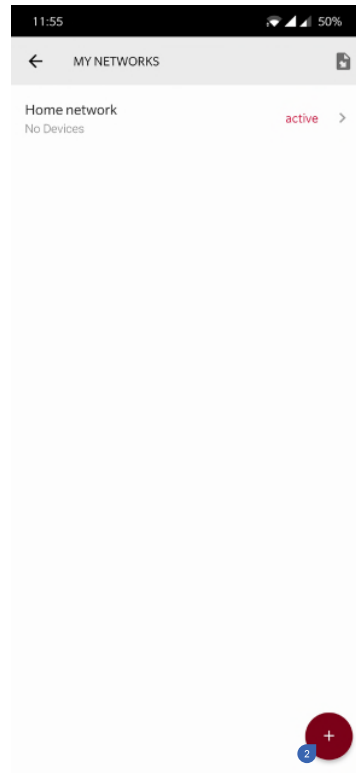
4.2.2. Creating a new Network

Android

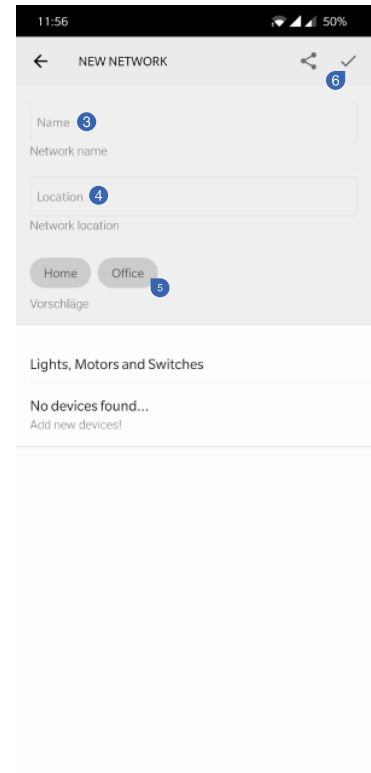
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[image 4.2.1]



[image 4.2.2]



[image 4.2.3]

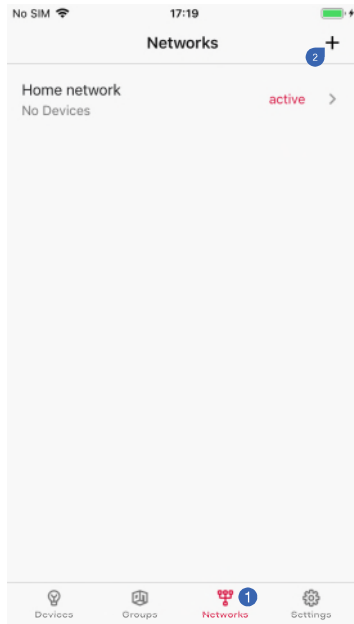
To create a new network, navigate to the “My Networks” ¹ menu item. In the Android App, it’s the first item of your side menu. Press the “+”-Button ² to add a new network. In the next step, enter a name for your network ³ and a location ⁴. You can also use the suggestions beneath as a shortcut ⁵. Create the new network by clicking on the tick in the upper right corner ⁶.

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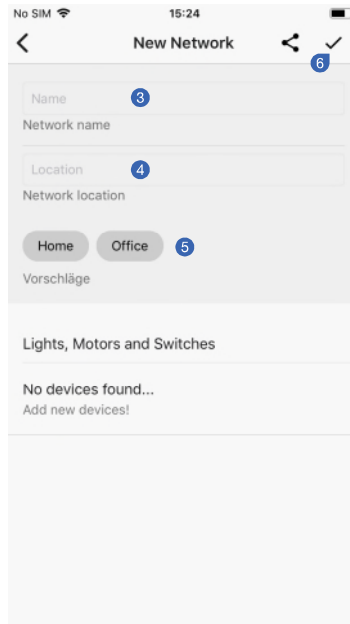
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iOS

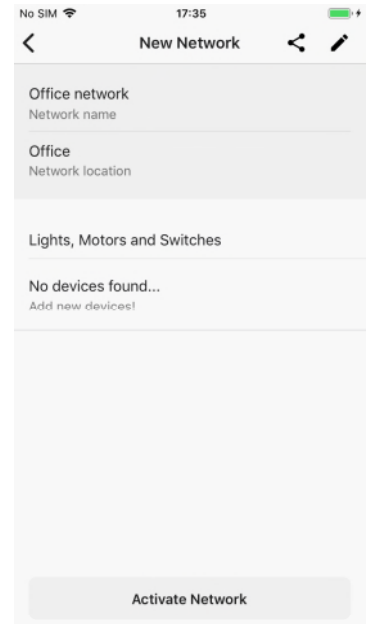
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[image 4.2.4]



[image 4.2.5]



[image 4.2.6]

To create a new network, navigate to the “My Networks” ① menu item. In the iOS App, it’s the third item of your main menu. Press the “+”-Button ② to add a new network. In the next step, enter a name for your network ③ and a location ④. You can also use the suggestions beneath as a shortcut ⑤. Create the new network by clicking on the tick in the upper right corner ⑥.

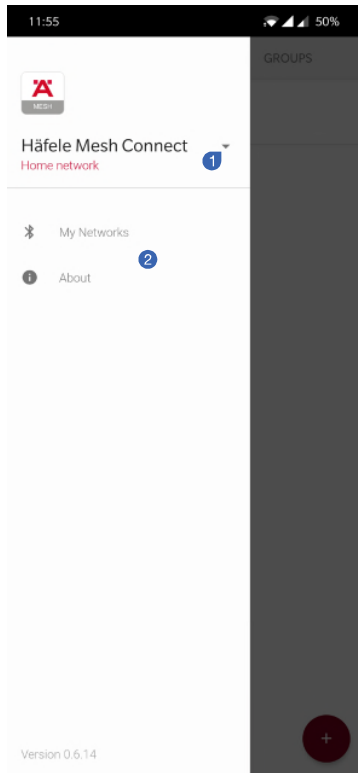
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4.2.3. Activating a Network

Android

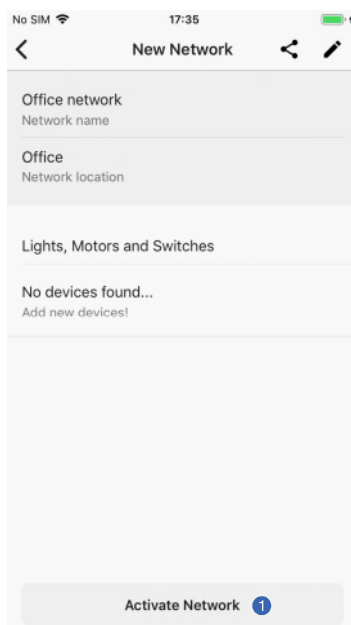
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After creating a new BLE Mesh network, it has to be activated if you want to use it right away. In order to do this, open the side menu. The red network name underneath the app name “Häfele Mesh Connect” shows the current network. Tap on the small arrow 1 on the right side of the name to see a list of your networks. Choose the network 2 you want to activate. In addition, you can do it the same way as described for iOS devices.

[image 4.2.7]

iOS



After creating a new BLE Mesh network, it has to be activated if you want to use it right away. In order to do this, tap on the blue button 1 on the bottom of the network details of the network you want to activate.

[image 4.2.8]

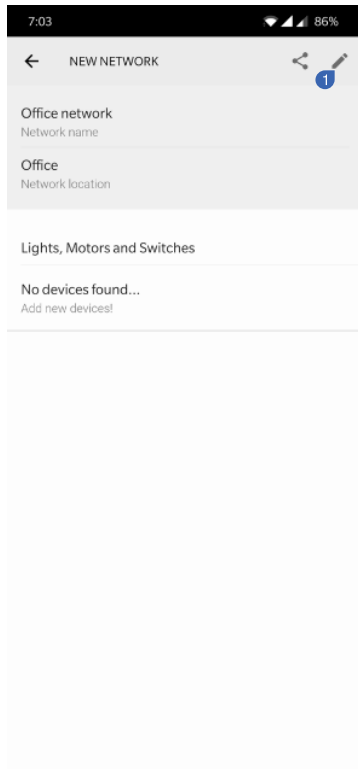
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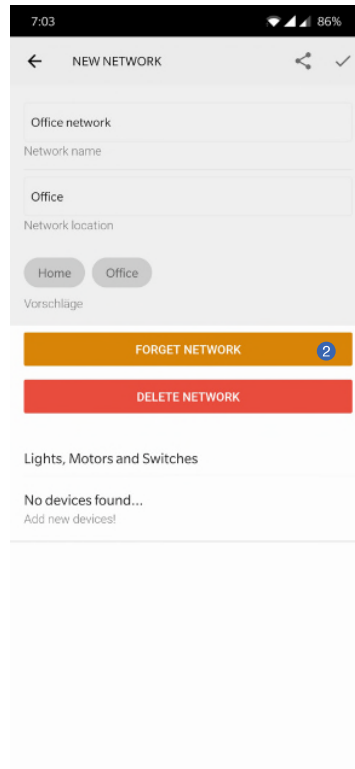
4.2.4. Deleting an existing Network

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Android



[image 4.2.9]



[image 4.2.10]

To delete an existing BLE Mesh network, go to “My networks” and choose the network you would like to delete. Inside the network overview, tap on the edit button ① in the upper right corner of the screen. You will enter the network settings, where you can forget ② the network by pressing the red button.



IMPORTANT

You can **export** network settings before deleting the network to save your settings for a later import!

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