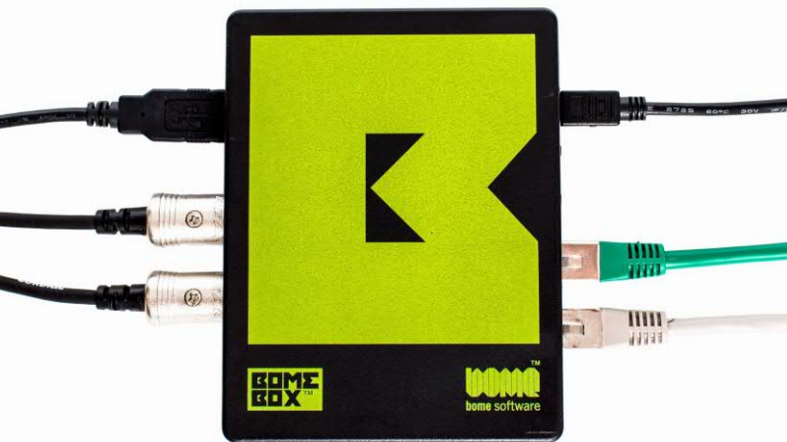


# BomeBox™ Instructions

The Bome Team appreciates your purchase of the BomeBox, a versatile MIDI and network connection and translation box.

Thank you very much!



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## Important Safety Instructions

Before using the BomeBox, thoroughly read the following instructions for important information needed for setting up and using your BomeBox safely. Keep this document in a safe place for further reference.



This symbol is intended to alert you to the presence of important operating and maintenance instructions in the literature accompanying the product.



This symbol is intended to alert you to the presence of uninsulated dangerous voltage inside the enclosure that may cause personal injury.



**WARNING:** To reduce the risk of fire or electric shock, do not expose the device to rain, moisture, dripping or splashing liquids. No objects filled with liquids, such as drinking glasses, shall be placed on the device.



**CAUTION:** When using the device, make sure that connected cables cannot cause a trip hazard.

## Safety Instructions

- o Make sure you understand and follow these instructions.
- o Do not expose the BomeBox to water or moisture.
- o Only clean the BomeBox using a soft, dry cloth.
- o Never keep the BomeBox near any heat sources (e.g., radiators, stoves, amplifiers). Avoid direct exposure to sunlight.
- o After exposure to cold temperatures, let the BomeBox warm up slowly to room temperature before use.
- o Before moving the BomeBox, remove power and all connected cables.
- o Refer all servicing to qualified personnel. Do not open the BomeBox or attempt to disassemble or modify any internal parts.
- o Do not use excessive force on buttons and connectors.
- o Do not place heavy objects on top of the BomeBox.

## Assistance

We won't leave you alone! If you ever get stuck, or you have a question related to our products, please:

- 1) Consult our support team in the Q&A discussion forum:

<https://www.bome.com/support>

- 2) Or contact us directly:

<https://www.bome.com/contact>

## Before you get started...

### Video Tutorials

We provide a growing collection of video tutorials for using the BomeBox. Please visit our YouTube channel and select the *BomeBox Tutorials* playlist:

<https://www.youtube.com/bomesoftware>

In particular, the tutorial *BomeBox Unpacking and Initial Setup* should get you started quickly.

### Bome Network Tool

The Bome Network Tool is an application for Windows and macOS, which allows you to connect to a Bome-Box (Network MIDI) and to invoke the Web Config directly. It is a free download here:

<https://www.bome.com/products/bomenet>

After installation, it appears as a green icon in the tray (Windows) or menu bar (macOS). Clicking on the icon shows the drop down menu.



### Web Config

The BomeBox is configured via the Web Config. Just use a standard Internet browser like Safari, Firefox, Edge, or Chrome to access the Web Config from a computer, smartphone, or tablet. The Web Config allows you to set name and password; configure Ethernet and WiFi operation; setup MIDI ports and MIDI routes; connect it to other BomeBoxes; upload/manage/start MIDI Translator Pro projects to be executed on the BomeBox; create and restore backups; load new firmware.

## Power Up!

There are multiple ways to power your BomeBox.

### Micro USB

The port marked *USB Power* allows you to use the included micro USB cable to power the BomeBox.



The Micro-USB connector is used for **power only** and does not allow for data transfer between the BomeBox and a computer or another USB host.

Sources for Micro-USB power include:

- o a powered USB hub
- o an external cell phone power battery pack
- o a Micro USB cable connected to a computer
- o a standard cell phone charger



Quality of cell phone chargers and powered USB hubs vary a lot. If the BomeBox restarts on its own, or does not properly power an attached USB device, please try with a different power source. As a rule of thumb, the higher the output current, the better the quality (e.g., 2A).

Fast charge ports on USB hubs often do not provide consistent power and should generally be avoided.

### Power over Ethernet (PoE)

With a Power over Ethernet (PoE) source like a PoE Ethernet Switch or a 48V PoE Injector, you can power the BomeBox via the **PoE In** port. PoE is **more stable** than Micro-USB.



Note: the *PoE Out* port will provide power to another BomeBox via daisy chaining (see page 11).

# Initial Configuration

## Web Config via WiFi

For configuring your BomeBox for the first time, the easiest approach is to use WiFi to access the Web Config:



1. Press the WiFi button to enable the BomeBox wireless LAN.
2. Once the WiFi LED is on, use a laptop, tablet, or smart phone to connect: go to WiFi settings and select the HotSpot "BomeBox" (SSID).
3. Then, if you are on a computer with Bome Network installed (see above), click on the green B icon and in the menu, select Web Config → BomeBox - Net.
4. Otherwise, start a web browser like Safari, Chrome, or Firefox, and enter **192.168.153.1** in the address bar to connect to the Web Config (you can bookmark it).
5. Now you should see the login page of the Web Config in the web browser. Proceed with the chapter *Web Config Password* below.

## Web Config via Ethernet

For configuring the BomeBox via a cabled Ethernet connection, follow these steps:



1. On your computer, install and start the Bome Network tool (as explained above).
2. Plug an Ethernet Cat-5 cable into either PoE Out or PoE In.
3. Plug the other end of the Ethernet cable in an unused port of your Internet router. Make sure that your computer is connected to the Internet router via Ethernet or via WiFi.
4. Or, if you don't have one, you can also try to plug the Ethernet cable directly into your computer.

5. On the computer, click on the green B icon of the Bome Network tool and in the menu, select Web Config → Bome-Box – Net.
6. Now you should see the login page of the Web Config in the web browser. Proceed with the next chapter.

## Web Config Password

Now that you see the Web Config login page, look at the bottom of your BomeBox: on the sticker, the **serial number** is the default password. Enter it with all leading zeroes.

You can reset it to the serial number using a special procedure, as outlined in the section *Password Reset* on page 29.



It is important to not remove the serial number sticker from the bottom so that you can look up the serial number if you need to know the default Web Config password again. Registering your BomeBox (see page 10) will also allow you to retrieve your serial number in your account.

## Web Config Settings

After you log into the Web Config, you see the overview page with general status information. At top, the main menu allows you to access all pages of the Web Config. To access the Settings, invoke the settings menu item from the main menu.

We recommend these settings:

1. One of the first things you should do is to **name your BomeBox**. When using multiple BomeBoxes, you will only be able to connect them if they have different names. The name is also the name of the WiFi HotSpot.



2. **Select your country** from the WiFi regulation drop-down menu. This makes sure that the built-in WiFi follows your country's regulation and, maximizing performance.
3. **Change the Web Config password.** We recommend to change the Web Config password to prevent unauthorized or even malicious access to your BomeBox. Make sure to use a password which is not easy to guess, but which you don't forget. This is the password required to administer and change the settings of your BomeBox and is not the same as the WiFi password discussed later.
4. If you're on a computer, click on the *Password Reset File* button to download a small file which will allow you to re-set the Web Config password if you ever forget it.
5. Click on the *Save* button at bottom.
6. Now you may need to log into the Web Config again – this time with the new password. Also, if you've changed the name and you're connected via WiFi, you'll need to re-connect to the BomeBox' WiFi HotSpot, which now appears under the new name.

## WiFi Password

We also recommend to set the WiFi password using the following steps:

1. In the Web Config, use the menu to go to the *Settings* page.
2. Click on the tab *WiFi*.
3. In the HotSpot section, enter a password. It must have at least 8 letters or numbers.
4. Click on the *Save* button at bottom.
5. If you're connected via WiFi, you'll need to re-connect to the BomeBox' WiFi HotSpot with the new password.

If you ever forget the WiFi password, use the instructions for *Network Reset* on page 28.

## Update Firmware

We regularly improve the firmware of the BomeBox to add new features or to improve existing functionality. Therefore, we recommend to update to the latest firmware. The update process will not change any settings and it will not remove any uploaded project or other files.

To update, follow these steps:

1. Using an Internet browser, download the latest firmware here (a .bxfw file):

<https://www.bome.com/products/bomebox>

2. Log into the Web Config
3. Go to the *Settings* page using the main menu
4. Go to the *Backup & Firmware* tab
5. In the *Update BomeBox Firmware* section, press the *Browse* button and navigate to your Downloads folder. Select the downloaded .bxfw firmware file.
6. Back in the Web Config, press the *Update...* button
7. After a short while, you should see a verification page. You can compare the MD5 checksum to the one displayed on the download page.
8. Press the *Proceed* button.
9. Wait until the BomeBox restarted and the power LED stops blinking. That first start after a firmware update takes approximately 2 minutes.

## Register your BomeBox

Now is a good time to register your BomeBox at the following Internet URL:

<https://www.bome.com/register>

Registering will give you access to software, firmware updates and notifications related to your BomeBox.

## Power Options


### Daisy Chaining

If your BomeBox is powered via PoE, you can use the *PoE Out* connector to power another BomeBox. You can daisy chain up to 3 BomeBoxes via PoE. The PoE Out will not provide power if you're powering the BomeBox via Micro-USB.

You can also use the USB host connector marked to power one other BomeBox. Do not daisy chain more than one BomeBox via USB host.

### Powering USB-MIDI Gear



The USB host port  (type A) provides a maximum of 1A to connected devices (depending on power supply). The BomeBox consumes up to 0.3A.

If the sum of the current of all connected devices exceeds 1A, or if you have other power problems with USB-MIDI devices (e.g., device does not work), use a powered USB hub (which can also power the BomeBox!).

When using PoE, the USB host port always provides full 1A with stable voltage.

## MIDI Connections


### MIDI DIN Ports

The BomeBox provides a standard MIDI DIN input and output port, which can be routed to and from the other MIDI connections. By default, they are routed to all other ports except to itself. The routing configuration can be changed by the user, if desired.



## USB Host Port



The USB host connector marked  allows you to plug in and power your USB-MIDI gear. Use a USB hub to connect multiple USB-MIDI devices. If you encounter power issues, a powered USB hub will help. Or use a PoE power supply for the most reliable power.

## MIDI Routes

By default, every MIDI port is routed to all other ports, except to itself. All available MIDI ports (MIDI DIN, plugged USB-MIDI devices, Network MIDI) can be routed using the MIDI Router in the Web Config.

A route consists of a MIDI SOURCE and a MIDI DESTINATION. Any active route will forward the MIDI stream received on the MIDI SOURCE port to the route's MIDI DESTINATION port. This creates a MIDI Thru connection, allowing you to merge and duplicate MIDI streams. You can save your current collection of routes as a *Route Set* and load back such Route Sets later on.

The MIDI routing is persistent across restarts. If you are running a project file, the project file will define the MIDI routing.

## Network MIDI

The BomeBox implements the *Bome Network MIDI* protocol for low latency and low jitter MIDI connectivity from BomeBox to BomeBox and to computers (it does not currently support RTP-MIDI, but support is planned to be provided with a firmware update in the future).

For a MIDI connection from a computer to a BomeBox, first install the *Bome Network Tool* on the computer (see page 5).

For setting up a Network MIDI connection, follow these steps:

1. Connect the two BomeBoxes (A and B) or BomeBox A and computer B via Ethernet or WiFi.
2. Make sure that A and B have different names.
3. In the Web Config of BomeBox A, go to the *Network MIDI* page.
4. In the list of Network MIDI devices, find device B and click on the *Connect* button next to its name.
5. If you're connecting to BomeBox B, approve the pairing by pressing the blinking *Pair* button on BomeBox B. Alternatively, you can also approve the pairing in the Web Config of BomeBox B.
6. If you're connecting to a computer B, approve the pairing on the pop-up window on computer B.
7. Pairings are maintained and remembered until manually disconnected or canceled.
8. Note: the Bome Network tool can also be used to initiate a pairing.



You can also connect to another BomeBox or computer by entering the IP address directly. This advanced option is necessary, if the device to connect to is not in the same subnet as this BomeBox.



As of firmware version 1.3, a Network MIDI connection provides exactly one MIDI stream between the two paired devices. Any routed MIDI ports are merged and you can only MIDI channels mapping to separate streams from different MIDI ports. A future firmware update will allow multiple MIDI streams over one pairing to access remote MIDI ports directly. Until this feature is available, please inquire in our support forum at [www.bome.com/support](http://www.bome.com/support) and we can assist with other alternatives to work around this limitation.

## Bluetooth / BLE-MIDI

The BomeBox does not have a built-in Bluetooth radio, so you cannot directly use BLE-MIDI (Bluetooth Low Energy) devices with the BomeBox.

### WIDI BUD

However, there is a trick: you can use CME's WIDI BUD to connect one standard BLE-MIDI device to the BomeBox by plugging the WIDI BUD into the USB host port of the BomeBox. Note: not only CME devices work, we have tested with many different BLE-MIDI devices from different manufacturers.

You will need to pair the WIDI BUD with the BLE-MIDI device once on a computer using the WIDI PLUS software available from CME, too. Then the pairing is stored in the WIDI BUD and you can use it on the BomeBox.

More information here:

<https://www.cme-pro.com/widi-bud/>

### USB Bluetooth Dongles

We are working on a technical solution to support generic USB Bluetooth dongles to be used with the BomeBox for using BLE-MIDI devices without resorting to the WIDI BUD. That will be a firmware update.

## Networking

### Ethernet

The two Ethernet connectors on the BomeBox work as a 2-port Ethernet switch: both connectors work the same for networking.



The BomeBox will also pass through any other Ethernet data, such as Artnet, OSC, and more.

By default, the BomeBox Ethernet is set up as Ethernet Client, for connecting to an existing network with DHCP router.

To configure the Ethernet ports, go to the Web Config, page *Settings*, tab *Ethernet*. You have these options:

- o **Ethernet Client:** the default Ethernet setting. Use it for connecting to an existing router. Internally, the BomeBox is using a DHCP client to retrieve the IP address from a DHCP server on the network.

In this setting, the BomeBox also activates the APIPA mode (Automatic Private IP Addressing / link local), which allows connecting the BomeBox directly with a Cat-5 cable to a computer's Ethernet port.

- o **Ethernet Master:** in this mode, the BomeBox activates a DHCP server which provides naming and IP addresses to all other connected DHCP clients on the network – effectively replacing a router.

Note that there should only be one DHCP router in a given network. So for a network of BomeBoxes/computers, configure one BomeBox as Ethernet Master, and all other BomeBoxes as *Ethernet Client*. Computers are typically configured as DHCP client.

In Ethernet Master mode, the BomeBox is configured as IP address 192.168.1.1. Client addresses are assigned IP addresses in the same subnet (192.168.1.x where x is the address of each attached device on the subnet).

- o **Fixed IP Address:** for advanced users! Define a fixed IP address. Note that the automatic discovery only works for BomeBoxes and computers in the same subnet.

The Web Config displays the current IP address for the Ethernet port.

## WiFi



Press the *WiFi* button to enable the BomeBox wireless LAN. Activating the wireless network takes a few seconds, during which the WiFi LED blinks. Once the WiFi LED stays on, the wireless network is ready.

The BomeBox is a full WiFi router, so you can also use it for connecting computers and other gear to each other.

We recommend to set a WiFi password (see page 9), so that all wireless traffic is encrypted. Also, when powering on the BomeBox, it will only activate WiFi at startup when a WiFi password is set.

To configure the wireless network, go to the Web Config, page *Settings*, tab *WiFi*. You have these options:

- o **HotSpot:** this is the default WiFi setting. It creates its own WiFi network and allows other BomeBoxes, smartphones, tablets, and computers to connect to the BomeBox. The SSID (wireless network name) is the same as the name of the BomeBox. See *Web Config Settings* on page 8 for how to change the name. In HotSpot mode, the BomeBox provides a DHCP server, so it assigns an IP address for all connected devices. In this mode, the BomeBox itself has the IP address **192.168.153.1** and assigns client IP addresses in the same subnet (192.168.153.x, assigned device address is 'x').
- o **WiFi Client:** use this setting to connect to an existing WiFi router, or to another BomeBox set up as HotSpot or Access Point. Make sure to not misspell the SSID and the password! The BomeBox is configured as DHCP client, i.e., it gets an IP address via the given wireless HotSpot.

Recommendation: before configuring the BomeBox as WiFi Client, make sure (and test) that you can also access the Web Config via Ethernet. Just in case you misspelled something...



- o **WiFi Access Point:** this setting is like HotSpot, but it relays the wired Ethernet network instead of creating its own DHCP server. It uses the same configuration and IP address as the Ethernet network.

If Ethernet is configured as Master, any WiFi clients connecting to this Access Point will be assigned an IP address by the Ethernet DHCP server.

If Ethernet is configured as Client, connected WiFi clients will get an IP address by the same remote DHCP server connected via Ethernet (e.g., another BomeBox configured as Ethernet Master).



In WiFi Access Point + Ethernet Client mode, if a DHCP server is not reachable via Ethernet, connected WiFi clients will not get an IP address and there won't be wireless connectivity!

If Ethernet is configured as fixed IP address, all WiFi clients connecting wirelessly to this BomeBox should also be configured as fixed IP address in the same subnet as the Ethernet IP address. Otherwise, there will be no connectivity!

## Advanced Configuration

The advanced configuration will allow you to tune every aspect of the network configuration of your BomeBox. The advanced configuration is accessed via the small link at the very bottom of every page of the Web Config.



Please use the Advanced Configuration with care, and only if you know what you are doing!

## In case of Network Problems...

You can reset the network settings to their defaults and remove the WiFi password. Please see *Network Reset* on page 28 in the *Troubleshooting* chapter.

## MIDI Translator

For advanced MIDI mappings and translations, you can upload MIDI Translator Pro project files into the BomeBox on the *MIDI Translator* page in the Web Config.



Only project files saved in a **licensed** version of Bome MIDI Translator Pro can be uploaded to the BomeBox. The trial version will not work to create translation projects for the BomeBox.

For more information about MIDI Translator Pro, visit the following web page:

<https://www.bome.com/products/miditranslator>

## Selecting a Project

When you select a project, all MIDI actions, Rules, timer actions, preset actions, and MIDI Routes are executed exactly the same as MIDI Translator Pro running on a computer. Also Incoming Keystroke actions and Serial Port actions work with respective USB devices. You can use the *Execute File* Outgoing Action to switch to a different project file on the BomeBox.

## Uploading a Project File

To add a MIDI Translator Pro project file, follow these steps:

1. Go to the *MIDI Translator* page in the Web Config.

2. In the *Project File Upload* section at bottom, click the **Browse...** button and select the project file you want to add.
3. Click the **Upload Project File...** button.
4. Now that project file should appear in the list of projects.
5. Click the **Select** button in the list next to the name to activate and load this project.

## Project MIDI Routes

Selecting a project file will reset all MIDI routes to the routes stored in the project. If the project does not define MIDI routes, all previous routes are removed. Closing the project file will remove all MIDI routes and close all used MIDI ports.

## Project MIDI Ports and MIDI Aliases

MIDI Aliases and ports used in the project are assigned by name: if a MIDI port matches an existing port or alias on the BomeBox, it is used directly. Otherwise, you can (and should) assign that alias on the *MIDI Ports* page in the Web Config.

## BomeBox Auto MIDI Aliases

In addition to any USB-MIDI devices plugged into the USB port, the following MIDI ports and aliases are available on the BomeBox:

<b>BomeBox DIN</b>	The physical MIDI DIN port (input and output)
<b>Network 1</b>	Auto-Alias for the first Network MIDI port
<b>Network 2...</b>	Auto-Alias for the second Network MIDI port
<b>USB 1</b>	Auto-Alias for the first USB-MIDI device connected via USB
<b>USB 2...</b>	Auto-Alias for the second USB-MIDI device...

Network MIDI ports can also be accessed by name. A paired connection to a BomeBox with name "My other BB" will auto-create a MIDI port with name "My other BB".

## Assigning MIDI Port Aliases

Every MIDI Port Alias referenced in an uploaded and selected MIDI Translator project will appear in the list of MIDI ports on the *MIDI Ports* page of the Web Config.

If an alias is not assigned, the respective row will be read and a warning will appear at top of the Web Config.

Each alias in the list has a drop-down list in the *Assignment* column. The drop-down list has the following entries:

- o **(none)**: select this to not select a MIDI port for this alias. All translations in the project which use this alias will be disabled.
- o **(none – ignore)**: selecting this for an alias is the same as (none), but the Web Config will not prompt you to assign this MIDI Port Alias anymore.
- o **MIDI Port**: selecting an actual MIDI Port from the drop-down list will assign this alias to that MIDI Port. All translations using this alias will now use the selected MIDI Port.

To finalize the alias assignments, click the **Save** button at bottom of the list. MIDI Port Alias assignments are stored indefinitely, even if you select other MIDI Translator projects or power cycle the BomeBox. So you only need to assign a given MIDI Port Alias the very first time it appears in a project.

## Allen & Heath Mixers

The BomeBox has built-in support for Allen & Heath digital mixers of the dLive, GLD, Qu, SQ, and iLive series via Ether-net. To activate, go to the *Allen & Heath* page in the Web Config and check "Use Allen & Heath".

## Allen & Heath MIDI

Use Allen & Heath Network MIDI

Auto-Enable devices when they get discovered

Note: does not apply to manual devices (either added by IP, or edited use the Edit... button)

Auto-Create MIDI routes from all other MIDI ports to discovered Allen & Heath devices

Note: this option will auto-connect to the device whenever such a device is enabled.

Name	IP	Status	
dLive DM32 MixRack 2	192.168.1.3.41323	disabled	<span>Enable</span> <span>Edit...</span>
<i>My DIY Device</i>	<i>192.168.5.8.40000</i>	<i>unreachable [manual]</i>	<span>Disable</span> <span>Remove</span> <span>Edit...</span>
dLive DM64 MixRack 1	192.168.1.3	connected	<span>Disable</span> <span>Edit...</span>

Add manual device by IP

The **list** at bottom shows all auto-detected A&H mixers, and already connected mixers, and manually added devices.

For each device, you have the following options:

- o With the **Enable** button, you connect to this mixer device and you start using it. This will make available a new pair of associated MIDI Input and Output ports, with the name of this mixer. You can use these ports in MIDI routes and in a MIDI Translator translation project.
- o For a connected mixer, you can press the **Disable** button to disconnect. The associated MIDI ports will disappear.
- o Press the **Edit** button to rename the device locally, i.e., in the BomeBox that device is then referenced by that new name. The associated MIDI ports will be renamed, too. Editing the name will change a device to *manual* mode (see *Manual A&H Devices* on page 23).

- o For devices in *manual* mode, you'll also find a **Remove** button. This will remove this manual entry in the list of devices. If the corresponding device was an edited auto-detected device, the device will reappear under its own name.

You also have the following global settings:

- o **Auto-Enable devices:** if this option is checked, all auto-detected A&H mixers are automatically enabled whenever they are detected. This setting is useful if you know that you want to use all A&H mixers that are connected to the BomeBox via Ethernet. Manual devices are not auto-enabled. Auto-enabled devices cannot be disabled.

- o **Auto-Create MIDI routes:** if checked (the default), every connected/enabled device will be fully routed via MIDI. In the MIDI router, you will find routes which connect all other non-A&H MIDI ports to this mixer, so that you can access it from any other MIDI port. These Auto Routes can be disabled, but not deleted, in the *MIDI Routes* Web Config page. You can still add other manual routes using the A&H device MIDI ports.

This setting is recommended if you mainly use the BomeBox to access your A&H device(s) via MIDI.

- o **Add manual device by IP:** press this button to add a *manual device* (see *Manual A&H Devices* on page 23). You are prompted to enter the IP address or network name of the device to add. The default port number is 51325. You can specify a non-default port number by appending it with a colon. For example, to add a manual device at IP address 1.3.5.7 with port number 51327, enter "1.3.5.7:51327".

## Auto-Detected A&H Devices

Most newer A&H mixer devices are automatically detected and appear in the list of devices. By default, they appear under

their own name, which you can change using the Allen & Heath Director software.

Once you have enabled such an auto-detect device, it is stored under its *name*. So when you power cycle the BomeBox, it will look for an auto-detect A&H mixer of the stored *name*. If you rename your A&H device using the Director software, the BomeBox will recognize this mixer as a new device and will keep on looking for an A&H mixer of the old name (state "pending").

The match-by-name mode for auto-detected A&H devices is particularly useful if using DHCP, where a device can change IP address. The BomeBox will still recognize the device by name, even if it appears under a new IP address.

Once you rename an auto-detect device using the *Edit* button, the device will be stored in *manual mode*.

## Manual A&H Devices

Devices added using the "Add manual device by IP" button, or renamed auto-detect devices are stored in the BomeBox as a manual device. These devices are matched by IP address, so when you power cycle the BomeBox, it will try to restore this device by connecting to the given IP address.

Manual devices are useful when you've configured your A&H devices with fixed IP address, or when your A&H device is not auto-detected. You can also manually connect devices which are not in the same subnet.



A manual device will connect to the given IP / port using a plain TCP stream. So it can also be used to connect to **other brands and types of devices** which have a built-in TCP server for MIDI data.

## Serial Ports

The BomeBox allows you to plug one or more USB serial port adapters (RS-232) into the USB host port (or an attached USB hub). Note that while the most common brands of serial port adapters work with the BomeBox, there might be particular serial port adapters which do not work with the BomeBox.

### Mapping Serial Ports to MIDI

At this point, serial ports can only be used from MIDI Translator projects. Use Bome MIDI Translator Pro on a computer to create translations to and from one or more serial ports. Then upload the project file to the BomeBox (see page 18), select it, and assign the Serial Port alias(es).

### Assigning Serial Port Aliases

In a MIDI Translator project, serial ports are referenced by an alias name. When you select a project with such a Serial Port Alias, go to the *Serial Ports* page in the Web Config. In the list of serial ports, you will all plugged-in serial ports, plus one entry for each Serial Port Alias used in the project.

Red rows in the list mean that you should assign the respective Serial Port Alias.

For all Serial Port Aliases, you will find a drop-down list in the *Assignment* column. The drop-down list has the following entries:

- o **(none)**: select this to not select a device for this serial port alias. All translations in the project which use this serial port will be disabled.
- o **(none – ignore)**: selecting this for an alias is the same as (none), but the Web Config not prompt you to assign this serial port alias anymore.



- o **Serial Port Device:** selecting an actual serial port device (with awkward internal names like `"/dev/ttyUSB0"`) will assign this alias to that serial port device.

To finalize the alias assignments, click the **Save** button at bottom of the list. Serial Port Alias assignments are stored indefinitely, even if you select other MIDI Translator projects or power cycle the BomeBox. So you only need to assign a Serial Port Alias the very first time it appears in a project.

## Keystroke Input

By attaching a standard computer keyboard ("QWERTY"), or USB number pads and similar, you can use it in a MIDI Translator project to convert keystrokes to MIDI.



Some USB computer keyboards cannot be attached directly to the BomeBox. If it does not work directly, connect a USB hub to the BomeBox USB host port, and then plug the keyboard into the hub.

You can also use **wireless keyboards** if they come with an own USB dongle (*not Bluetooth!*).

At this point (firmware version 1.3), you can use multiple QWERTY keyboards with the BomeBox, but you will not be able to use different mappings per device.

## Standard Keystroke Mappings

The BomeBox ships with two standard keystroke-to-MIDI mappings. You enable them on the *MIDI Translator* page in the Web Config by selecting the corresponding, pre-installed, project.

## **Keystroke\_to\_MIDI\_simple.bmtp**

This project maps every key on a standard QWERTY computer keyboard to MIDI notes.

## **Keystroke\_to\_MIDI\_by\_channel.bmtp**

This project maps every key on a standard QWERTY computer keyboard to MIDI notes. You can use modifiers like SHIFT and CONTROL for selecting one of 16 MIDI Channels.

See the following web page for more information and complete list of which keys are mapped to which MIDI message:

<https://www.bome.com/keystroke-to-midi>

The web page also links to a third standard mapping, which sends the MIDI messages to different MIDI ports, depending on which modifier key is pressed.

## **Creating Own Keystroke Mappings**

Use Bome MIDI Translator Pro (licensed version) to create your own custom mappings from Keystroke Input to MIDI Output (or other actions available in MIDI Translator projects). You can load the standard keystroke mappings into MIDI Translator, too, and modify as needed.

The Keystroke-to-MIDI page also has a link with a Video Tutorial for creating keystroke mappings in MIDI Translator Pro and uploading them to the BomeBox:

<https://www.bome.com/keystroke-to-midi>

## LEDs



- Power** This LED indicates that the BomeBox is on. It is blinking during boot and during a firmware update.
- Pair** **Pair LED on:** at least one Network MIDI connection is established (paired).  
**Blinking slowly:** waiting for a remote BomeBox or computer to approve a connection (press to cancel).  
**Blinking fast:** another BomeBox or computer wants to connect to this box (press to approve).
- WiFi** On if WiFi is enabled. Press to enable or disable. It is blinking when transitioning between states.
- PoE In** The left LED indicates network activity. The right LED indicates that it is powered via PoE.
- PoE Out** The left LED indicates network activity. The right LED indicates that PoE power is available for powering another BomeBox.



- MIDI OUT** This LED indicates outgoing MIDI data (only if a MIDI cable is connected to a MIDI In).
- MIDI IN** This LED indicates incoming MIDI data.

# Troubleshooting

## Online User Support

In case of questions or problems, please consult our support team in the Q&A discussion forum:

<https://www.bome.com/support>

## Network Reset

It's possible to misconfigure the BomeBox network setup and entirely lose connectivity. If that happens to you, please follow the following instructions. All your other settings, project files, and Web Config password remain the same.

1. Prepare a USB thumb drive to reset the network settings: it must be **FAT formatted**, and not exceed 16GB in size.
2. Copy an arbitrary text file to the root folder of the thumb drive, and rename it to:

```
{serial}_reset_network.txt
```

Replace {serial} with the serial number of that BomeBox, as printed on the sticker at the bottom. For example, if the serial number of your BomeBox is 00012345, then the name of the file would be 00012345\_reset\_network.txt.

3. Attach that prepared thumb drive to the USB host connector of the BomeBox and power it up.
4. During the power-up process, Ethernet and WiFi are reset to factory defaults. You may need to start up the BomeBox a second time (by unplugging power, and replugging it) to make it effective.
5. Now Ethernet is set up as Client, and WiFi is configured as HotSpot with no password.
6. Don't forget to unplug the thumb drive when done.

## Password Reset

If you have forgotten your password for the Web Config, you can reset it in a similar manner to resetting the network (see previous chapter). All other settings, network configuration, WiFi password, and project files remain the same.

1. Prepare a USB thumb drive to reset the password: it must be **FAT formatted**, and not exceed 16GB in size.
2. Copy an arbitrary text file to the root folder of the thumb drive, and rename it to:

```
{serial}_reset_password.txt
```

Replace {serial} with the serial number of that BomeBox, as printed on the sticker at the bottom.

For example, if it is 00012345, then the name of the file will be 00012345\_reset\_password.txt.

3. Attach that prepared thumb drive to the USB host connector of the BomeBox and power it up.
4. During the power-up process, the password is reset. You may need to repeat this procedure once.
5. Now you can log into the BomeBox by using the **default password: the serial number**.
6. Don't forget to unplug the thumb drive when done.

## Reset to Factory Defaults

To remove all user files and reset all settings to their factory defaults, you can use the *Reset to Factory Defaults* function:

1. Log into the Web Config, go to the *Settings* page
2. Go to the *Backup & Firmware* tab
3. In the *Reset To Factory Defaults* section, press the *Perform Reset* button and acknowledge the security question with *OK*.
4. Wait until the BomeBox restarted and the power LED stops blinking. That first start takes approx. 2 minutes.

# Environmental Information

## Disposal of the Product



This product is subject to the provisions of the European directive 2002/96/EC. Should the product become damaged beyond repair, or if you wish to dispose of it, it must be disposed of separately from the municipal waste system via designated collection facilities appointed by the government or the local authorities. For countries outside of the European Union, observe the regulations of your area and country that relate to the disposal of electronic products.

## RoHS Information

This product conforms, where applicable, to the European Union's Directive 2002/95/EC on Restrictions of Hazardous Substances (RoHS) as well as the following sections of California law which refer to RoHS, namely sections 25214.10, 25214.10.2, and 58012, Health and Safety Code; Section 42475.2, Public Resources Code.

## FCC and IC Compliance Information

Contains FCC ID Z9W-CM2 and IC 11468A-CM2.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

# Legal Notices

## GNU Public License

The firmware of the BomeBox is based on the open source project OpenWRT, which is based on the Linux kernel. Most of that software is licensed under the GNU Public License (GPL) version 2. Consequently, we publish all source code modifications to OpenWRT and to the Linux kernel in an online repository hosted on github.com. You can use that repository to create your own firmware for the BomeBox. Note that this repository does not include BomeBox specific tools and scripts. Installing your own firmware requires SSH access.

To learn more, please follow these links:

OpenWRT: <https://openwrt.org>

Linux Kernel: <https://www.kernel.org>

GPL License v2: <https://www.gnu.org/licenses/gpl-2.0.html>

BomeBox

sources: <https://github.com/bome/openwrt-bomebox>

## Disclaimer

Bome Software GmbH & Co. KG cannot be held responsible for damage or lost or destroyed data caused by improper use or modification of the product.

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