Grimm | AUDIO

MU1 manual

MU1 Software Manual, to be read next to the MU1 Hardware Manual

Please read this manual before operating the unit!

For firmware version v2.0.4

Table of Contents

1 Introduction

Thank you for purchasing the Grimm Audio MU1 media player. It is designed to be the most sophisticated and best sounding music player on the market and at the same time blend seamless in your daily music playing routine. Core of the MU1 technology is an FPGA processor board of our own design that offers the highest quality oversampling and de-jittering.

The amount of work and knowledge that went into this project can hardly be overestimated. All this effort resulted in an elegant box of minimalistic design that humbly steps out of the way for the music. We are grateful that we were allowed to develop this gem and wish you many pleasurable hours of listening.

The Grimm Audio team
info@grimmaudio.com

Scope

In this manual you will find all information related to the software of your MU1. Since this software is regularly updated, we decided to offer this MU1 software manual only as download. Your MU1 was shipped with a printed MU1 hardware manual. Please read it carefully for your own safety. You can also download a pdf of the MU1 hardware manual on the MU1 page of our web site grimmaudio.com.

User interface description

The MU1 has 3 main user interface parts, the main knob on the top, the display on the front and the MU1 activity LED in the ‘i’ of the Grimm logo on the front. On the back are the connections and the power button, please read the hardware manual for more information.

With the main knob you can change the volume and source, and browse through the menu. Please see chapter 7 Main knob control for more information.

The display shows information about the system, depending on its state:

- System Off: display is black, no information.
- System in Stand-by: display is black, no information.
- System is booting: boot animation is running, after booting the welcome screen is shown until the software is ready.
- System On: this state has various menus where information is shown and settings can be adjusted. Note that depending on user settings the display can dim or even turn off automatically when no user interaction is present for a few seconds. So in the System On state, the display can in certain cases also be black.
- System shutting down: display is showing shutdown animation, with dimmed backlight. It goes to black when the system is fully shut down.
- System in support mode: display is showing an animation of 3 blue squares.
- System updating: display is showing an animation of 3 green squares.

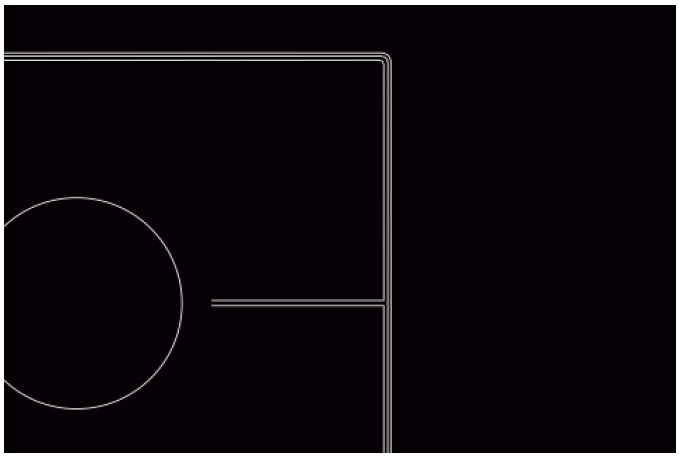
The MU1 activity led shows the current activity of the system. The table below shows the modes.

Off	MU1 is off.
On	MU1 is on or booting.
Fading slowly	MU1 is in stand-by mode.
Fading quickly	MU1 is updating.[1]

[1] The system will only update when the user has manually activated the update. See chapter Settings menu[6/7]: Software Version and Update.

Turning on the MU1

To turn on the MU1 press the power button on the back shortly. During start-up the unit will show a 3 white block animation and then a welcome screen with a line drawing of the top of the MU1 as shown below.



After that the MU1 waits for a network connection, it may take a few minutes before the MU1 is given a local IP address by the router. Until this happens you see “No Network Connection” on the display. The MU1 will enter the Music View, further described in chapter 7 Main knob control.

Support mode

The MU1 has a support mode feature, via this mode Grimm Audio staff is able to connect to your MU1 via the internet to check and if possible resolve software issues with your device. Grimm Audio may ask you to activate support mode, in chapter Settings menu[7/7]: Support you can find how to do this.

2 Playing audio

The MU1 can be used to play audio from different sources, like various streaming options and digital inputs. Let's have a closer look.

LS1

For the highest level of integration, the MU1 can be used with the LS1 playback system. Volume control and LS1 settings are done via the MU1. The LS1 has its own digital and analog inputs and they can also be selected via the MU1.

Roon labs

Working with the Roon software feels a bit as if you run your own streaming service in which you combine music from your local library with tracks from online streaming services such as Tidal, Qobuz or KKBOX. The Roon Server will neatly organize all of that music and offer suggestions for new music, find album art, show lyrics and give background information.

Roon consists of 3 parts, the Roon Server, Roon Ready endpoint and the Roon app. The Roon app is used to control the Roon Server which sends audio to the endpoint. The endpoint will process and play the music. In the MU1 the Roon Server and Roon Ready endpoint are pre-installed. The Roon Server in the MU1 can be disabled so you can use your own Roon Server on an external computer.

Note that Roon requires a paid subscription.

Tidal Connect

Tidal is a paid streaming service and contains a huge library of music. From the Tidal app on your phone or tablet you can stream music to the MU1 using Tidal Connect. The app sends an instruction to the MU1, which then requests an audio stream from the Tidal server. So the stream does not flow via the phone or tablet.

UPnP

UPnP stands for 'Universal Plug and Play'. It is a general purpose open source network protocol that allows you to stream music (and other media) over your network. There are many apps available that use UPnP to stream music.

UPnP consists of three parts: the UPnP server, renderer and control point. The control point app is used to control the server which sends audio to the renderer. The server stores and organizes the music files and the renderer will process and play the music.

Because UPnP is only a set of standard protocols there are various ways to implement this. Some control points have an integrated server but many require you to run a server somewhere in the network. Often such a server is already available since many routers and

NAS devices have UPnP server capabilities. The MU1 contains a UPnP renderer to process and play music. It does not have a UPnP server.

Digital inputs

The MU1 has three digital inputs on the back: AES3 on XLR, S/PDIF on RCA and Toslink optical. These can be used to connect the MU1 to other sources such as a TV or CD transport. They can receive PCM rates up to 192 kHz and also DoP ('DSD64 over PCM'). Dolby, DTS and other encoded surround formats are not supported.

3 Roon Labs setup

Grimm Audio selected Roon Labs as its main music player user interface for file and stream playback on the MU1. In our opinion Roon offers the best High-End user experience to date, a real must have.

Both Roon Server and Roon Ready endpoint are pre-installed, so no other computer is needed. The Roon app that's needed to control the system can be downloaded from the app store of your phone, tablet or computer brand. Please mark that Roon Labs is a paid subscription so you need to enter your account details via the Roon app. Roon Lab supports Tidal, Qobuz and KKBOX lossless music streaming services. These are separately paid subscriptions. You need to enter your account details of these services via the Roon interface.

Operating the Roon system in the MU1 is identical to that of any other Roon equipped system. First you need to install the Roon remote control software on a tablet, smart phone, PC or Mac to get access to the Roon Server in the MU1. Please visit the app store of your OS manufacturer, or use this link: https://roonlabs.com/downloads.html. For general operational guide lines of the user interface, we refer you to the Roon Labs documentation: https://help.roonlabs.com. Within Roon various signal processing options (like volume control) are available, but we strongly recommend to use the MU1 FPGA oversampling and volume control instead of the Roon offerings, and disable any other type of processing to achieve the highest sound quality level.

Roon is a capable multi-room system. If you like you can use the Roon Server in the MU1 to stream music to other Roon Ready endpoints in your network (for instance a system in the bedroom). Of course, the volume control, de-jittering and processing qualities of the MU1 can only be enjoyed from the physical outputs on the MU1 itself.

The MU1 can play all file formats that Roon supports, such as wav and flac, and has native support of PCM formats up to 8x the base rate (8FS, also called 'DXD') and of DSD formats up to DSD256. The FPGA processor in the MU1 can upsample 1FS and 2FS sources to 4FS and

downsample 8FS and DSD formats to 4FS. Alternatively the MU1 can upsample 1FS sources to 2FS and downsample 4FS, 8FS and DSD formats to 2FS. This is intended for use with 3rd party systems that only support sample rates up to 96 kHz.

Using an external Roon Server

Some customers have an extremely large catalog of albums on their local storage. We selected a powerful PC for the MU1 that runs quiet, without forced cooling. It is more than capable to serve the majority of our customer's needs. However, the demands of the Roon Server for catalogs larger than 100.000 tracks are serious and you then may experience a slower response with the built-in Roon Server. In those cases we recommend to buy a Roon Nucleus Titan or install a strong Windows, Mac or Linux PC somewhere in your network and run Roon Server on that. Installation instructions can be found at the Roon website https://roon.app/en/core.

If you use an external Roon Server, turn off the MU1 internal Roon Server via the "advanced" settings of the MU1 GRUI web interface (see chapter 8 of this manual). The Roon Ready endpoint will still run and be available as a destination for your external Roon Server.

Volume settings

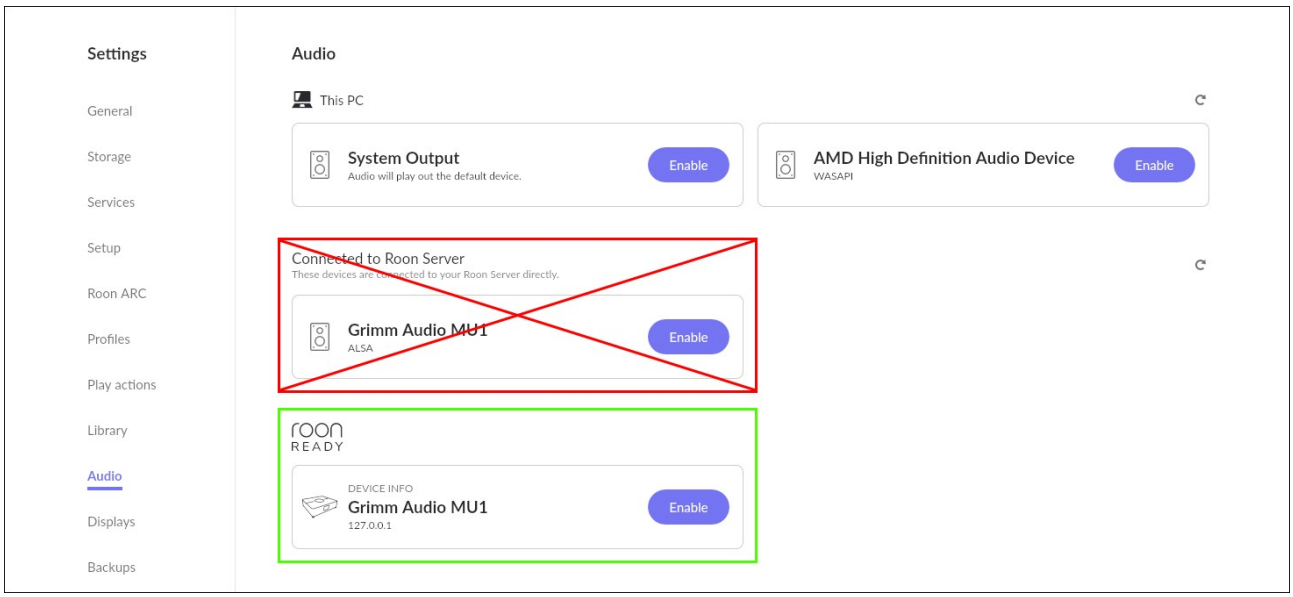
We recommend setting a "Comfort limit" for the Roon fader in the device setup of Roon so you cannot accidentally set the volume very loud by sliding the volume bar too far to the right. In case you do like to play louder than the limit, you can still press the + button in the Roon interface to further increase the volume of the system. To set the comfort limit, please click the volume button in the bottom right corner of Roon and then press the cog wheel to enter the Zone settings. Here you press "Volume limits" and set it to your preferred limit.

Device Setup

Roon offers various options for connected devices. We walk you through the preferred and required settings for the MU1.

Note: since update V2.0.0 the MU1 is an official Roon Ready endpoint which means you should select the MU1 endpoint under the Roon Ready category rather than the "Connected to Roon Server" category, as shown below. The MU1 endpoint always has IP address 127.0.0.1 when the Roon Server in the MU1 is used. ***Selecting the wrong audio device will cause problems with information on the display and volume control via the knob or GRUI****.*

The MU1 is shipped with the Roon Ready endpoint enabled and properly configured for a stereo setup. In case you have updated the MU1 from a previous version or when you have reset the Roon database you will need to manually select the Roon Ready device "Grimm Audio MU1" under the "Roon Ready" category in the Audio tab of the Roon settings as shown in the picture below. In a normal setup where the Roon Server runs on the MU1 the endpoint will have IP address 127.0.0.1.



After you enabled the Roon Ready endpoint you can press the cog-wheel to open the device settings. The default settings are the right settings for a stereo setup. By clicking “Device setup” you get the following window:

In Device Setup it is recommended to keep the default settings, if you encounter problems you might want to press the “Load defaults” button in the top right corner.

You can change settings here but some settings might give problems, like for instance changing “Volume control”. It should always be set to “Device volume”. When you switch off all volume control via the GRUI (and there is no LS1 connected), Roon will show “Volume control is fixed” since it follows the MU1 settings. The other way around does not work, you cannot disable volume control in the MU1 settings by changing the “Volume control” setting in Roon to “Fixed Volume”.

“MQA capabilities” defaults to “No MQA support” and that is fine. When playing an MQA stream, the ‘unfolds’ will be performed by Roon and in “No MQA support” mode Roon will not add the MQA metadata into the audio.

In case you connect a DAC with MQA decoding capabilities and want to use its MQA capabilities, things are different. In that case, please consult the manual of your DAC to find the recommended Roon setting, and disable all processing of the MU1 such as up- & downsampling, volume control, 3dB headroom and DoP. *Note: if you also play non-MQA material such as (ripped) CD’s and high res downloads, you may consider to enjoy the MU1 FPGA processes in stead of MQA and put the “MQA capabilities” setting to “No MQA support”. You will loose the advantages of MQA but gain the advantages of the MU1 FPGA processing.*

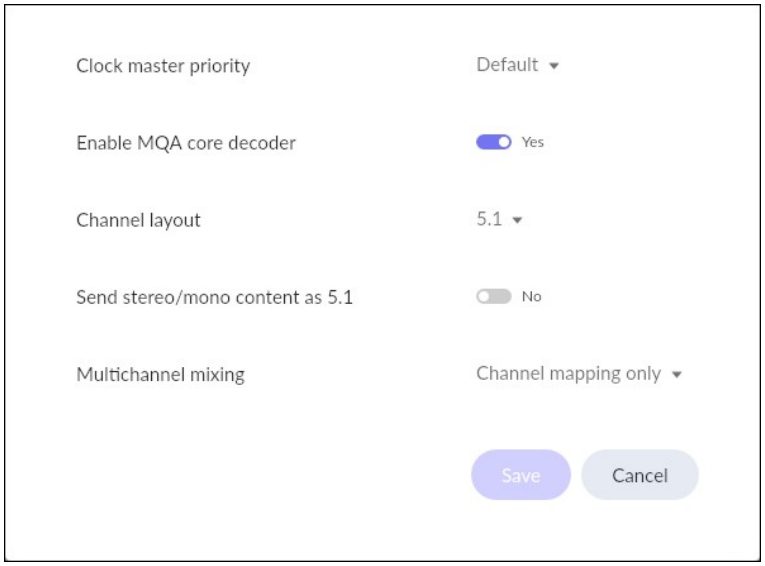
“Resync Delay” is set to 0 ms by default, when the MU1 also acts as Roon Server this is the right setting.

In the ‘Advanced’ part of the Device setup window (click “Show advanced”) you can check whether the max sample rate (PCM) is set to “up to 384kHz” and the max sample rate (DSD) is set to “up to DSD256”.

“Clock master priority” should be on “Default”, “Enable MQA core decoder” should be set to “Yes” and “Buffer size” to “Default”.

Surround setup of Roon

In the ‘Advanced’ part of the Device setup window you can also find the “Channel layout” options. For stereo this should be set to “2.0”. For a surround setup you need to select “5.1”.



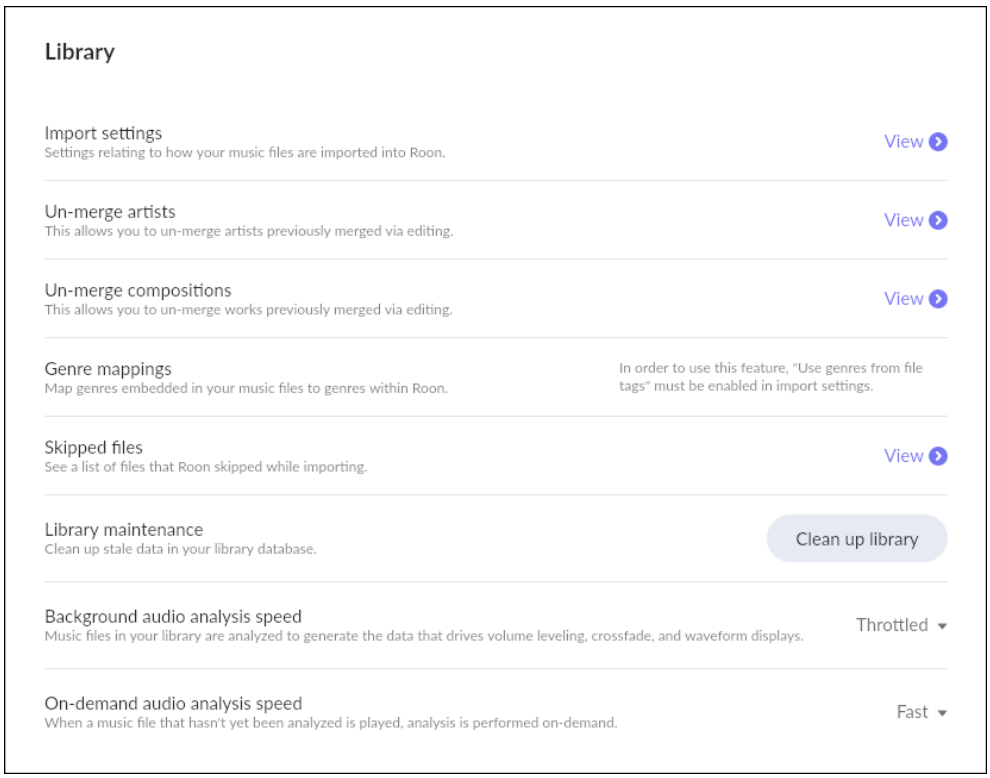
“Send stereo/mono content as 5.1” should be left to the default (“No”).

For “Multichannel mixing” we recommend to set it to “Channel mapping only”, this means that Roon will not touch the audio. In case you do not have a separate LFE sub and like to mix the LFE signal into the front channels, you can let the MU1 do this in high quality in its FPGA.

Similarly, if you have a 4-channel setup you can let the MU1 mix the center channel into the front speakers. See MU1 settings in chapter 8 for instructions to set this up.

Background analysis speed

In the Library page of the Settings menu Roon offers several options for the “Background Audio Analysis Speed“. We recommend to set this to “Throttled” and not to one of the “Fast” options. This makes sure most of the processing power of the CPU is dedicated to audio playback. You may also set it to “Off”, Roon will then calculate the UI waveform graphic on the fly when the file is played.



Updates of Roon software

Roon Labs offers frequent updates to both the Roon Server in the MU1 and the Roon Remote app in your tablet or smart phone. Updates on your phone/tablet are usually installed automatically. When a Roon Server update is available, the Roon Remote app will inform you about that. You are permitted to start a Roon Server update process in the MU1 from the Roon Remote phone/tablet app, but we are not liable for the impact of problems that may occur from Roon updates. Of course we will offer support to help you solve the problem, where possible.

Known issues with Roon Server on the MU1

#1 Hampered playback or unresponsive interface when analyzing a large catalog.

When you add a folder with lots of albums, Roon will analyze the files, download artwork etc. It will also do an analysis of the audio data to store waveforms that are shown in the user interface and to store the average loudness of the track for loudness normalization use. During the initial setup, the Roon processing can cause the system to be less responsive. Although possible, we recommend to not use the system for music playback while Roon runs this analysis for the first time on a large set of albums. If you let it run overnight, it is usually finished the next day.

When you add a few albums only, playback is not affected. Nevertheless we recommend to use the “Throttled” mode for the analysis to keep the CPU load low. This can be selected in the Roon settings, see chapter “Background analysis speed”. Consult the Roon manual for more information.

The MU1 supports a catalog of up to 10.000 albums (100.000 tracks). A bigger catalog can cause crashes or freezes of the Roon Server. If you have a larger catalog we recommend to use a separate Roon Server such as the Roon Nucleus Titan or a powerful Mac/Windows/Linux computer.

#2 Soft glitches in DSD album playback.

Please mark that when playing albums in DSD format, the end and start of the files are not reproduced 100% gapless by design, which means that a soft glitch can be heard at the start of a new track. This glitch is in the master files and cannot be solved in the MU1 or Roon software. Also, a short moment after playback of a DSD file has stopped, Roon will switch to a ‘silent’ PCM stream and this may also cause a soft glitch.

#3 Adding the root system folder to Roon.

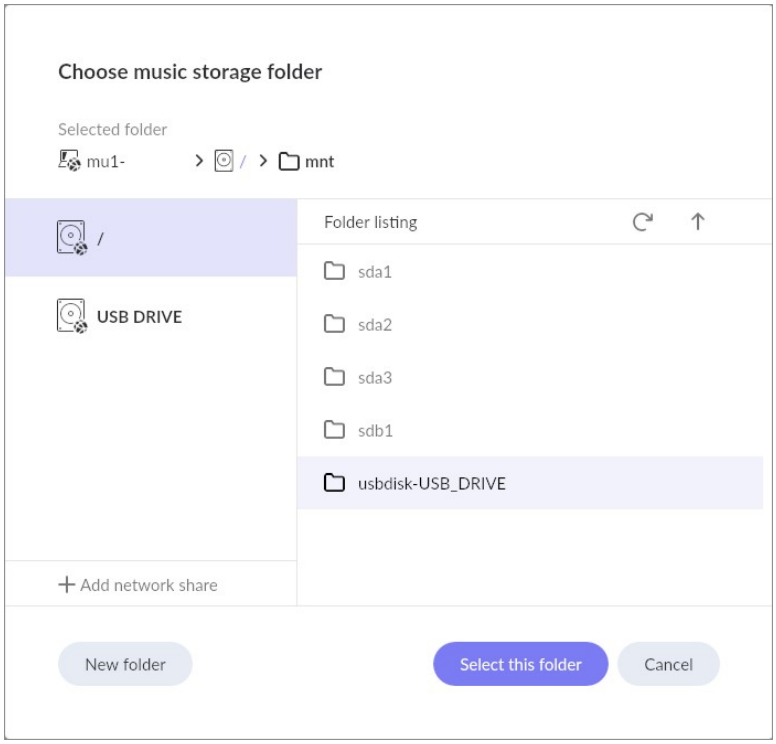
When adding the root directory (“/”) or a Roon backup folder in the music storage settings of Roon, problems may occur. Roon tries to index the OS file system making it slow and in some cases Roon might even crash. Instead of adding the root directory, please only add the music folders as explained in the next chapter.

USB storage (Only for Roon Server)

On the back of the MU1 is one or two USB port(s) which may be used for connecting an external USB drive (flash drive, SSD or HDD) extending the disk space of the Roon server. You may play music files from this drive via Roon. The MU1 supports the following file systems: **FAT32, FAT16, NTFS, HFS+, exFAT, EXT2** and **EXT4**. When a USB device is plugged in, it will automatically be mounted in the system.

It is not necessary to ‘safely remove’ the USB device from the system, since USB drives are mounted in ‘read only mode’ (the device is unmounted automatically when you unplug it). This also means you cannot use a USB drive to make Roon backups, nor add or delete music from these disks through Roon or the network.

The mounted folder can be found through the Roon storage settings. Go to the *Roon Settings* → *Storage* and press the button “+ *Add Folder”*. The following screen will show up:



The USB disk should appear in the menu on the left. The name of the usb disk is shown. If you don’t see it here, go to the root directory “/” and open “mnt”. There you will find your usb drive with the preface “usbdisk-”. Select this folder to add it.

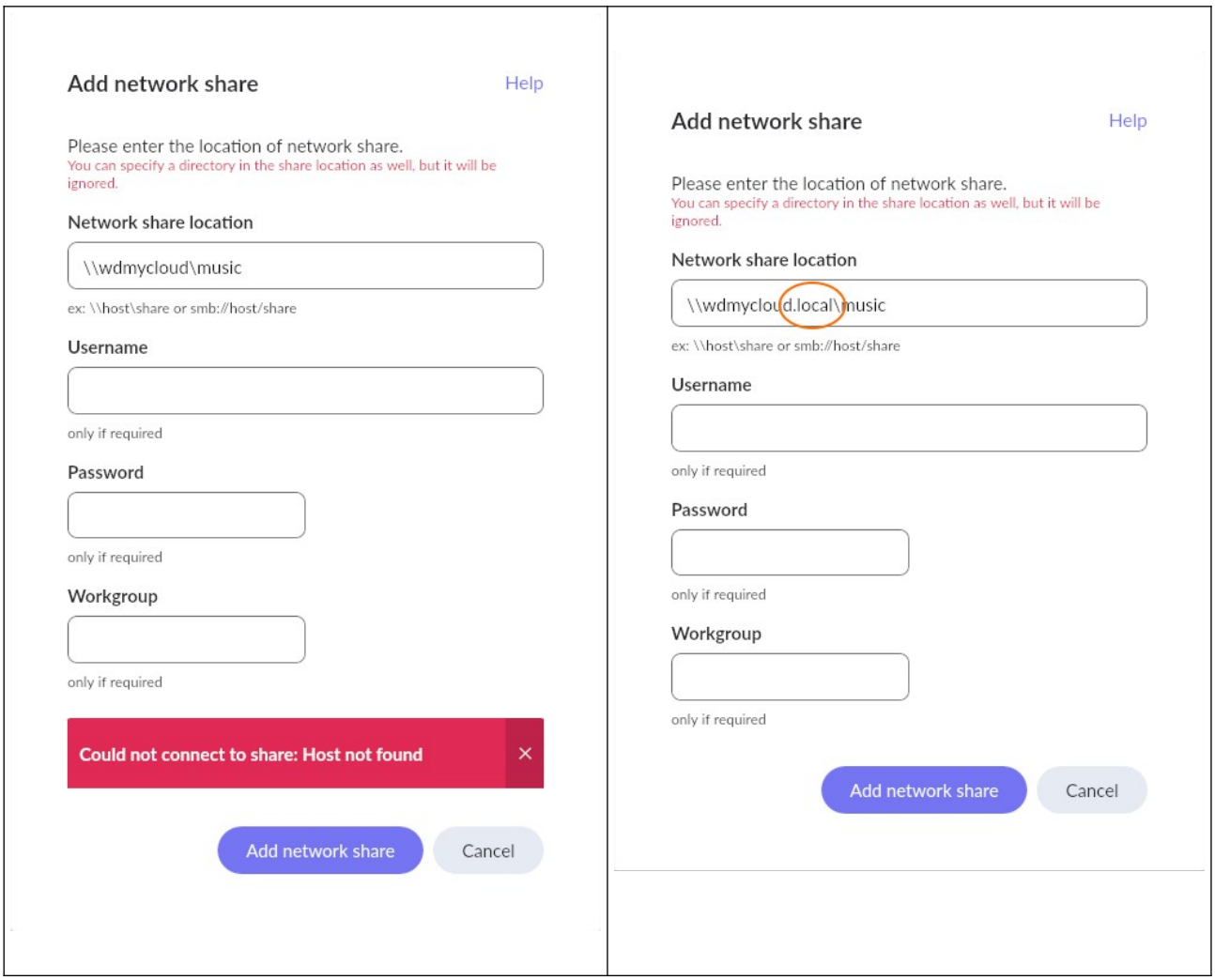
Note: the USB drive will not mount in the network and is therefore not available as music storage source for other servers than the built-in Roon Server.

Roon network storage

In Roon you can add a network drive or NAS for music storage and backup location. Roon has a knowledge base article about this topic which you can find here.

Depending on your router settings it is possible that the hostname of your NAS is not resolved in the network. When this is the case you can make use of the MU1's name resolve client by adding '*.local*' to the hostname of your NAS as is shown below.

Below you find an example for a NAS with the hostname *wdmycloud* and share *music*.

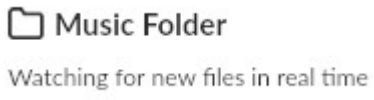


In case adding the disk via the hostname does not work you should try to add it via the IP address, but always include the name of the share ('music').

Internal storage

The MU1 has an optional internal disk for music files and Roon backups. Adding music to the folders of this drive is done via the network, how to do this is described below for Windows and Mac-OS.

In the MU1 disk there are two static folders: Music and Backup. Music added to the Music folder is automatically added to the Roon Storage as “Music folder“. Use the backup folder for making Roon backups.



Note: always use a wired connection between your computer and the network to copy music to the internal disk, doing this via a Wireless connection is slow. Through a wired connection you can expect transfer rates of about 50MB/s. Transferring 1TB will take at least 5 to 6 hours.

First of all, open the help page of the MU1 menu (see chapter Settings menu[2/7]: Help) and note the hostname and IP-address. The hostname depends on the serial number of the unit.

To connect to the internal storage over the network you need to fill in these credentials (since V2.0.4):

Username: mu1-user

Password: mu1-pass

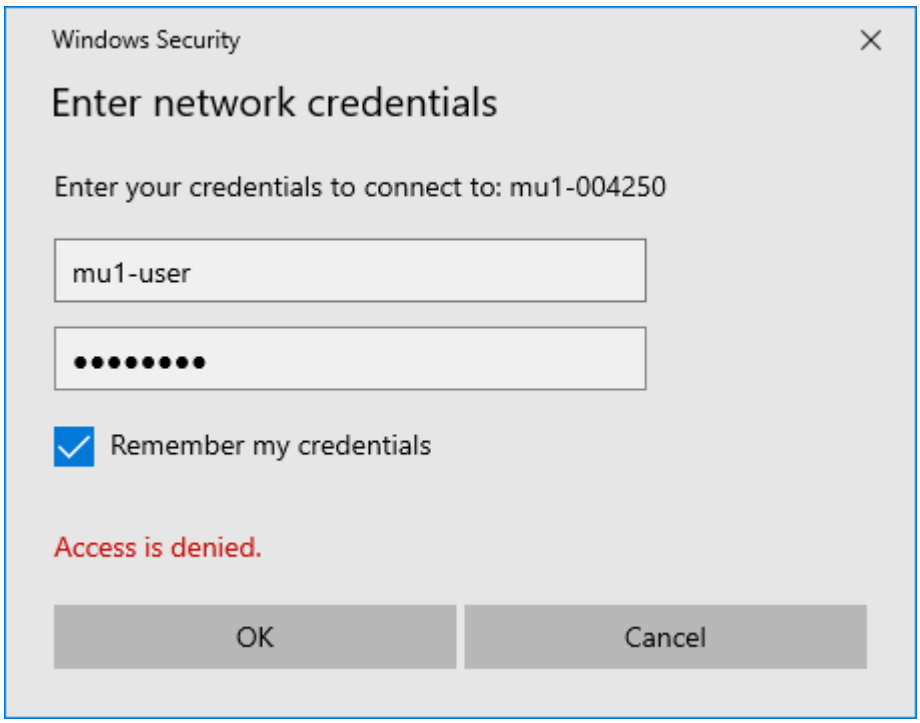
Windows users

Note: not all Windows computers can use the hostname for finding an internal disk in the network. This is because ‘mDNS’ is not natively supported by Windows. However, on many Windows computers software has been installed that added support for this protocol and therefore we advice to first try to use the hostname and if this doesn’t work, use the IP address.

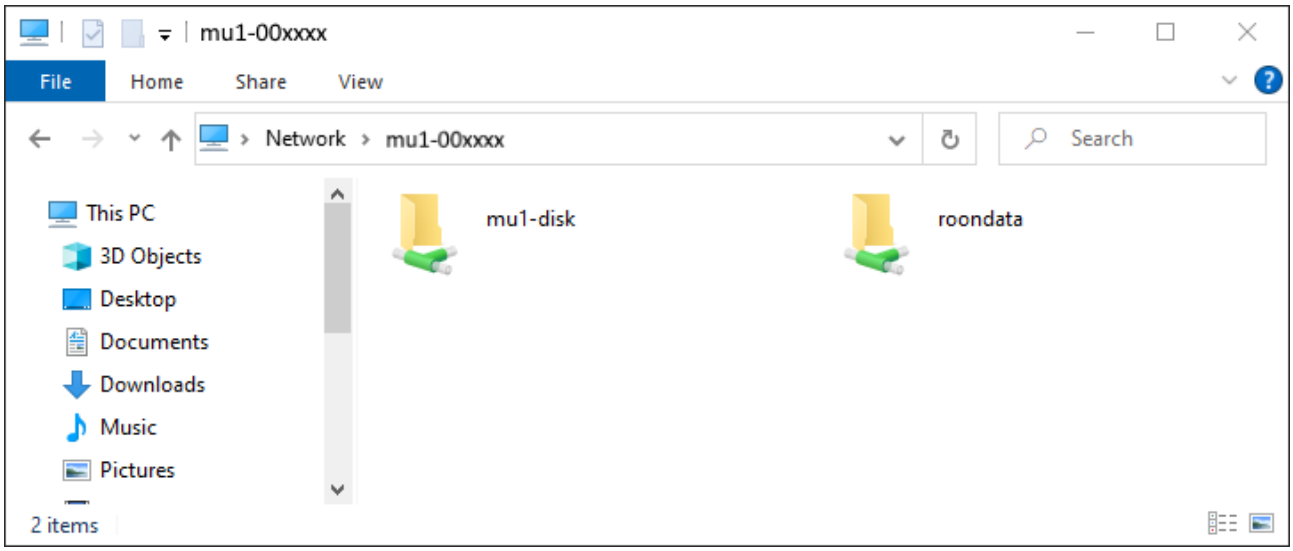
1. Open the File Explorer (this is done by opening a random folder).
2. Enter two backslashes followed by the hostname of the MU1 in the address bar. For example “\\mu1-001001” when the hostname of your MU1 is mu1-001001.
    - If the hostname does not work, try adding “.local” to the hostname, for example “mu1-001001.local”.

Note: if you do not have ‘mDNS’ this doesn’t work. Use the ip-address of the MU1: ‘\\”ip-address” ’ instead.

You will be asked to fill in your credentials in the following screen:



The username is: mu1-user, the password is: mu1-pass.

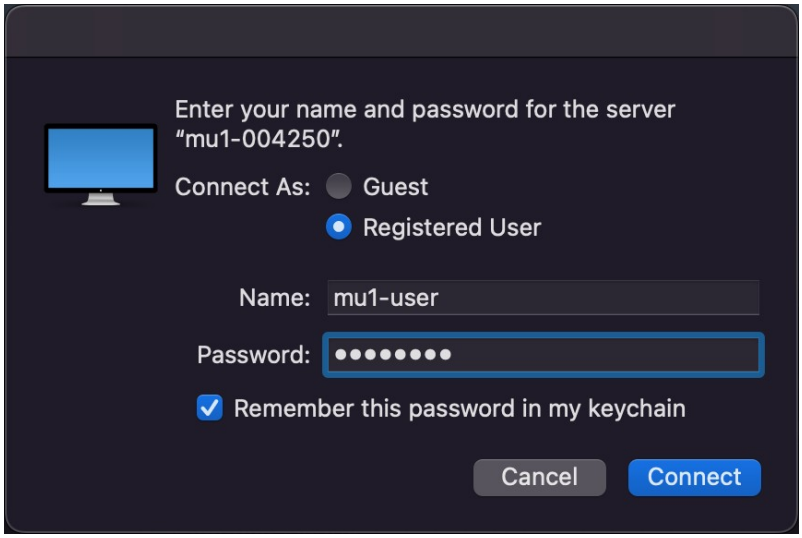


The internal disk is now present in the File Explorer as “mu1-disk“. In the mu1-disk folder there are two static folders: Music and Backup. Use the Music disk to add, delete and move music on the MU1 internal disk from your Windows computer.

Tip: make a shortcut to this folder so you can easily find it instead of typing the hostname.

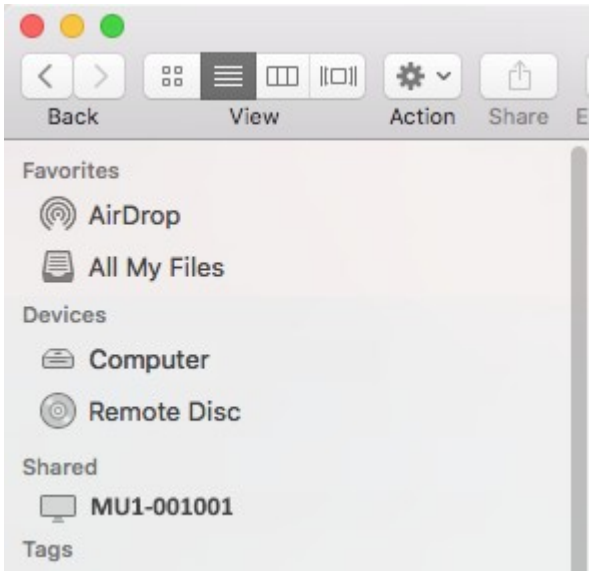
Mac users

The shared folder can be found in the Finder via “Network”. Double click the MU1 and in the new window “Connect as” and “Connect” in the popup, you will get the following screen:



Fill in the credentials: The username is: mu1-user, the password is: mu1-pass. It is a good idea to select “Remember this password in my keychain”.

After doing this once, you can find a shortcut to the disk in the finder, in the left hand column under “Shared”.



After selecting this folder you find a “mu1-disk” and a “roondata” share. In the mu1-disk share there are two static folders: Music and Backup. Use the Music folder to add, delete and move music on the MU1 internal disk from your Mac. Please mind to ‘eject’ the mounted folder before disconnecting from the network (for instance with a laptop).

If the MU1 does not show up in the Shared section, open the Finder and press ⌘ - K to open the Connect to Server window. Enter the *hostname* and press Connect. The hostname of your MU1 is indicated on the second page of the MU1 menu, see chapter Settings menu[2/7]: Help

of this manual. In the unlikely event that connecting to the hostname does not work, please enter the IP address of your MU1, which is found on the same menu page of the MU1.

Note: on the internal disk you will find a directory lost+found, you can ignore this folder.

Tip: after mounting you can make a backup of music that is stored on the MU1 internal drive via your Windows or Mac computer by using your favorite backup application.

Roon Server database access and reset

In case you encounter a problem with the Roon Server software on the MU1 and consult with Roon Support, they may ask you to view, copy, rename or reset your Roon database. The database folder contains all settings, log files and database items. The MU1 mounts this folder in the network under the share name “roondata”, and it is password protected to prevent accidentally resetting the database. The credentials are as follows:
username: mu1-user; password: mu1-pass.
How to mount this internal disk in your PC or Mac is explained in the chapter Internal storage above, use the mount name “roondata” instead of “mu1-disk”.

In case you need to reset the Roon database to solve a problem, the MU1 (GRUI) web interface offers a convenient “Reset Roon Server” button. This button should be used with care, and only after a Roon Labs or Grimm Audio support engineer instructs you to use it. More information about the GRUI and the Roon database reset button can be found in chapter GRUI MU1 Web Control.

Note: the files in the roondata folder are in use when the Roon Server is running. To edit or remove files in the roondata folder you have to stop the Roon Server and then restart the MU1. For more information about stopping the Roon Server, see Advanced settings of the GRUI MU1 Web Control chapter in this manual. ***Do not forget to restart the Roon Server when you have finished your work in the roondata folder!***

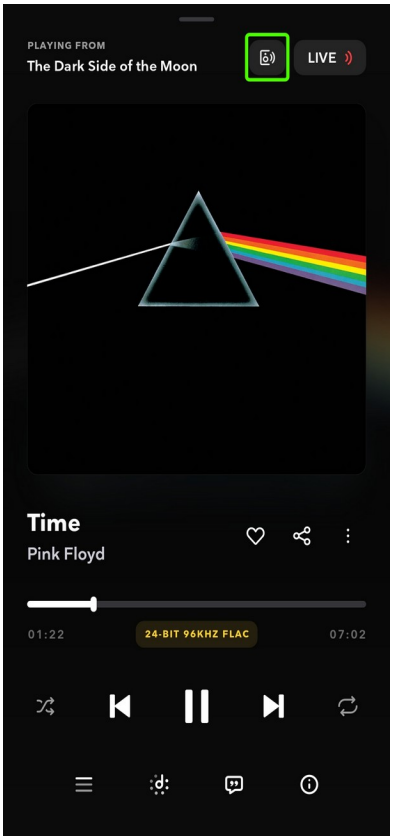
4 Tidal Connect

The MU1 supports Tidal Connect which means you can play music from your Tidal app to the MU1. More information and support can be found via the Tidal website: https://support.tidal.com/hc/en-us/articles/360004565898-TIDAL-Connect

TIDAL connect

How to use Tidal Connect on the MU1

- In the Tidal app, open the Now Playing screen while playing a track.
- From the Now Playing screen, select the device output icon.
- Choose the MU1 from the list, it is shown as MU1-xxxxxx (the hostname of your MU1).



The MU1 will automatically switch the source to Tidal when the MU1 is selected via the Tidal app and music plays. You can also manually switch the MU1 to Tidal Connect via the GRUI or by using the main knob.

Requirements for Using Tidal Connect

- Your mobile device version is at least iOS 15 or Android 7.
- Ensure your mobile device is on the same network as the MU1.

5 UPnP

On the MU1 a UPnP/DLNA compatible renderer is implemented, this means you can stream music to the MU1 via various apps and programs in your home network.

UPnP works via a control point (usually an app), a server and a renderer. The server can be a dedicated server on a computer, router or NAS, or can be integrated in the control point. On the control point you decide what music to play and the music is then streamed from the Server to the renderer which is in the MU1.

How to use UPnP

Every UPnP control app has a function to check for UPnP renderers on the local network. The renderer in the MU1 is named “MU1 UPnP Renderer [MU1-xxxxxx]” (the hostname of your MU1).

The MU1 will automatically switch its source to UPnP when the MU1 is selected as renderer via the control point and playback starts. You can also manually switch the MU1 to UPnP as source via the GRUI web interface or by using the main knob.

Depending on your UPnP control app you can play locally stored music, streaming services or internet radio. To play music from the internal disk of the MU1, you must add it as network disk to the storage setting in the control app.

Tested UPnP apps

Because UPnP is only a standard without a central authority, there exist implementation differences between servers and control points. This may lead to problems when using your favorite UPnP control point app.

The following UPnP apps are tested with the MU1 and are fully functional:

- mConnect (iOS and Android)
- BubbleUPnP (Android)
- Hi-Fi Cast (Android)

Playing music with the following UPnP apps has been tested, but there are known control problems like volume, play/pause control and issues when switching sources on the MU1.

- JPLAY (iOS)
- Elmedia Player (Mac OS)

The following UPnP servers are tested with the MU1:

- Asset UPnP
- MinimServer

6 Bit test function

The MU1 has a built-in bit test function that can check if audio is modified somewhere in the digital audio path between the storage location and the MU1. The bit test function works by playing a specific album with an embedded signature, prepared by Grimm Audio. This album is called “Polder Sunrise”. It is a one hour recording of birds waking up in a Dutch polder made in the 90’s by the late Onno Scholtze, a Philips Classics balance engineer. We cut the recording into many tracks and converted them to all possible sample rates and word lengths so these can all be tested for bit transparency.

How to use the bit test function

Simply play the album into the MU1 through the audio path that you want to test. The complete album can be downloaded from our website: https://download.grimmaudio.com/bittest. It comes in two versions; the ‘extended’ version adds sample rates of 8fs (“DXD”) and word lengths wider than 24 bits.

The MU1 will recognize the track and show “BITTEST xx[2]-BIT TRANSPARENT” on the display when the track arrives untouched. If the track is modified in any way the notification will not be shown on the display.

[2] xx is the bit depth of the current track, 16, 24, 32-bit or 32-bit float in which case only FLOAT is displayed.

The tracks can be played through Roon and UPnP, or via one of the digital inputs of the MU1 using digital audio sources such as the UC1 or the LS1i usb interface or a digital source from any other brand.

Note that Roon does not support bit transparent playback of files in float format.

Which file formats can be tested

The following stereo file formats are included in the extended bit test album:

- 44.1, 88.2, 176.4 and 352.8k PCM in 16, 24 and 32 bit
- 44.1, 88.2, 176.4 and 352.8k float in 32 bit
- 48, 96, 192 and 382k PCM in 16, 24 and 32 bit
- 48, 96, 192 and 382k float in 32 bit

How does it work

A specific semi-random pattern has been added to the bottom bits of the audio file. In the FPGA this pattern is recognised and reported to the user via the MU1 display. When the pattern is not recognised there is no notification on the display. The pattern recognition is always enabled, monitoring these patterns by the FPGA has no impact on the sound quality.

Unfortunately DSD does not lend itself for such a test as there are no ‘bottom bits’ in DSD. So the test files are limited to PCM format.

The pattern recognition is done before any other DSP operation so the volume control and upsampling of the MU1 do not have an effect on the bit test.

7 Main knob control

This chapter describes the user menus and settings of the MU1 that you can access using the main knob in the music view and the menu view.

Music View

The music view is the default view, the MU1 will boot up in this view.

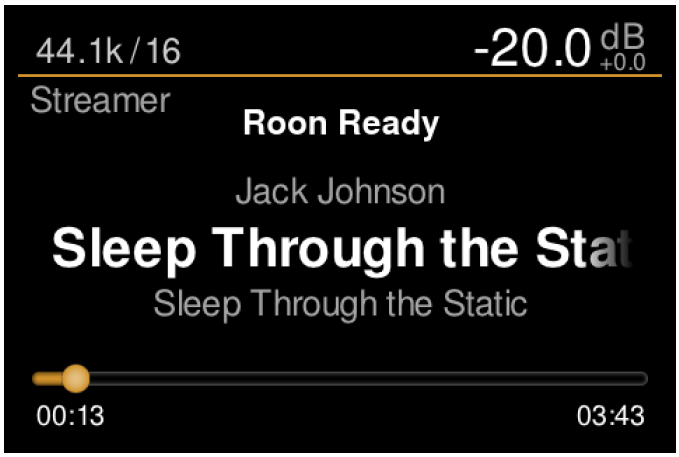
Function of the main control knob:

- Turn counter-clockwise for lowering the volume.
- Turn clockwise for increasing the volume.
- A short press pauses or starts stream playback or mutes the sound with other sources.
- A long press brings you into the settings menu.
- Press and turn selects the source.
- [3]Two short presses (‘double click’) switches between main out and second out.

A short press is shorter than 2 seconds, a long press is longer than 2 seconds.

[3] This is not default behavior, you can enable this function in the GRUI as described in the chapter Second Output Toggle.

When the selected source of the MU1 is a streaming service it will be shown on the display as in the image below.



In Music View, the display offers the following information:

- Sample rate and format[4]
- Current user set volume in dB[5]
- Offset volume in dB[6]
- Streamer service (Roon ready, Tidal, UPnP) or source
- Artist
- Song title
- Album name
- Progress bar
- Current time stamp
- Track length

[4] This is the indicated file or stream information. Your connected DAC may indicate a different rate since the MU1 optionally performs upsampling.

[5] You may disable volume control through the settings menu. When a Grimm Audio LS1 is connected you cannot turn off volume control.

[6] The offset shows the difference between the user set volume and the actual volume, for instance when volume normalization is present or when source offsets are applied through the GRUI.

When there is no audio playing and the queue is empty, the progress bar will not be shown. *Note: in Tidal Connect mode the progress bar will jump to the start of the current track in pause mode.*

When turning the MU1 main control knob, the volume changes and the track progress bar at the bottom is temporarily replaced by a bar that indicates the current volume setting.

If an LS1 is connected, the MU1 will send volume control data to the DSP of the LS1 via its proprietary cat5 connection. Volume control for the digital outputs is done in the FPGA chip which performs volume attenuation at high precision for these output(s). You can turn off volume control for the digital outputs, see chapter Settings menu[3/7]: Settings.

Mark that volume control for the digital outputs is disabled when DoP is turned on, see chapter Settings menu[3/7]: Settings for information about DoP.

Also note that the user set volume indication in the top right corner has a max level of +23.5 dB when an LS1 is connected and 0 dB when no LS1 is connected. You would normally never reach this level, it should only be used for music with very low average loudness. Your normal level will be around -20 dB or lower. For LS1 users, the 0 dB level is adjusted to the traditional acoustic reference playback level in mastering studios, only levels above +8 dB will add positive gain in the LS1 DSP.

Data detection on digital inputs

The MU1 supports PCM and DoP on the digital inputs, the output is muted when the MU1 receives a data flag in the AES3. Dolby AC3, DTS, etc cannot be decoded by the MU1.

When an unsupported format is detected the display of the MU1 will show the following:

Source selection

By pressing, holding down and then rotating the main knob you enter the source selection menu. Here you can select sources. To leave this menu just release the main knob when the desired input is selected.

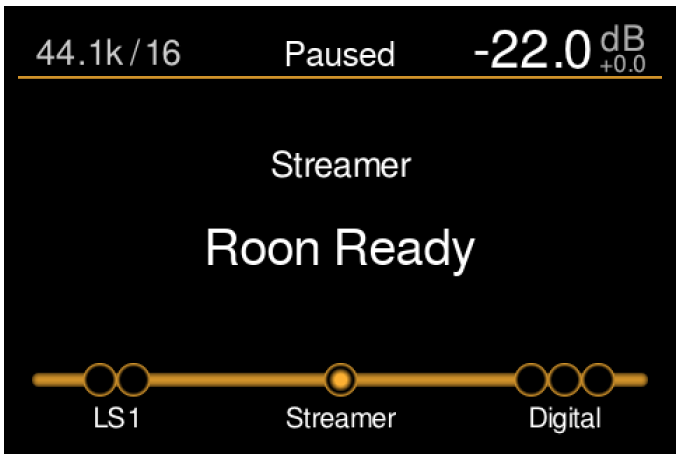
Depending on whether an LS1 is connected there are 2 or 3 source categories visible and each has one or more inputs[7]. The list below shows each category and their available inputs:

- LS1:
  - LS1 Analogue
  - LS1 Digital 1
- Streamer:
  - Roon Ready
  - Tidal
  - UPnP
- Digital in:
  - AES XLR
  - AES RCA
  - Toslink

[7] You may disable each source through the GRUI, they will not show up when disabled.

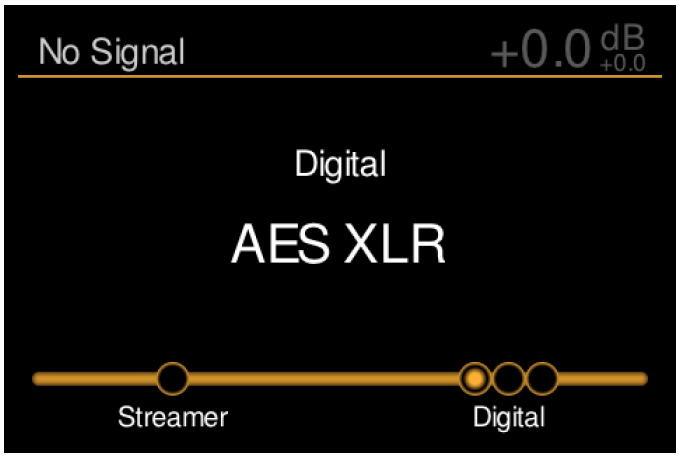
By turning the main knob (while holding it down) the sources can be picked. When releasing the main knob the selected input can be heard. Note that the output is muted when changing source selection.

Note: pressing 'play' in a streamer app while a different source is selected will cause the MU1 to jump to that source directly.



When shutting down the system, the MU1 will remember the last used source and select it when powered on later. If it was a source on the LS1 (Analogue or Digital) this source will be selected as soon as your LS1 is detected. Note that if you operate the MU1 before the LS1 is detected, the MU1 will automatically fall-back to the first enabled source selection.

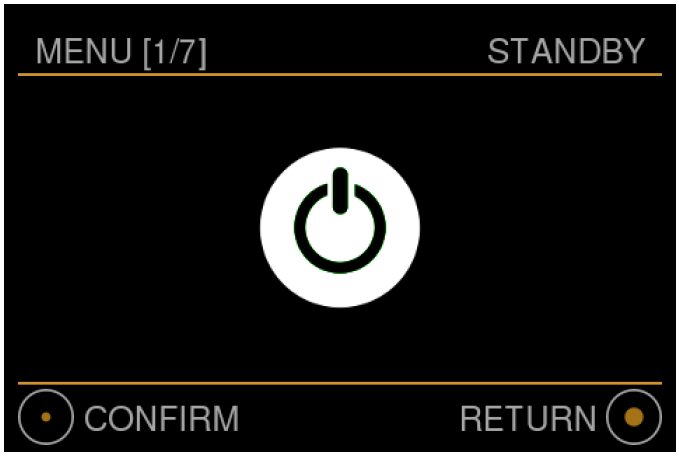
When there is no LS1 connected, the source selection menu will look like the image below. Mark that in this example picture the MU1 does not detect a signal on the digital XLR input and “No Signal” is shown top left. When there is a signal the received sample rate is indicated here.



Menu View

By pressing and holding the main control knob for 2 seconds or longer, the MU1 display enters the ‘Menu View’ mode.

Settings menu[1/7]: Standby



In this first menu you can put the MU1 in stand-by mode.

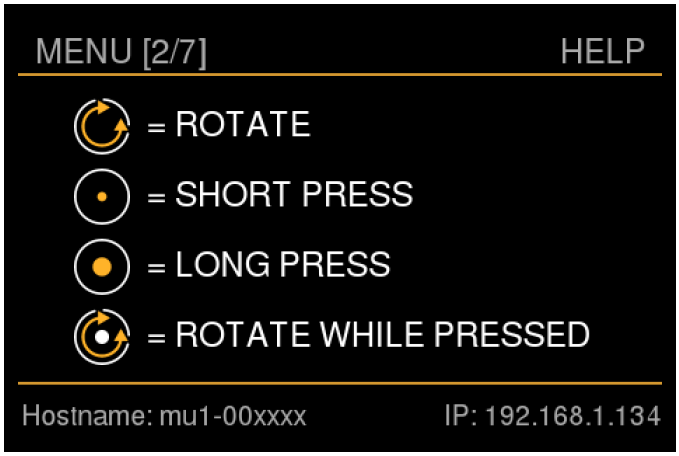
- Turn clockwise to go to the second menu.
- A short press (“Confirm“) will put the MU1 in stand-by mode.
    - When the MU1 is in stand-by you can simply press or turn the main control knob to initiate start-up of the system.

- With a long press you will exit the menu and go back to the Music View.

When in stand-by the power consumption decreases and the screen is turned off after a short animation. Most of the internal electronics is shut down, but some of it still functions. If you like to completely turn off the system, please switch off the device with the small mains power button on the back of the device. Always turn off or put the system in stand-by before unplugging the power cord to prevent damage to your MU1 computer system!

Hint: the white LED on the front indicates if the device is in stand-by (LED 'breathes') or if the MU1 is shut down (LED off).

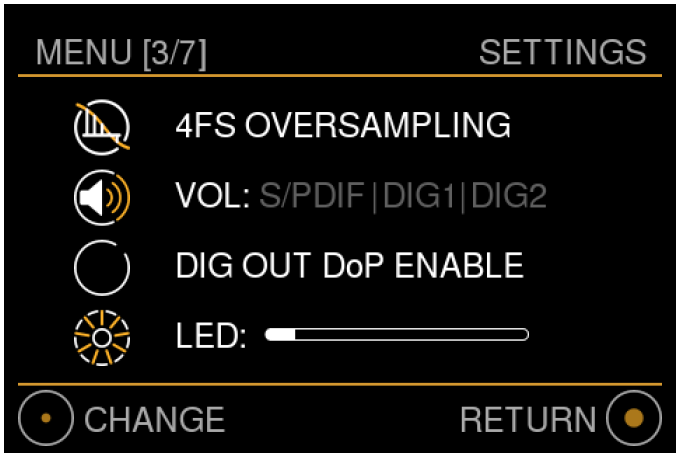
Settings menu[2/7]: Help



This menu shows the pictograms that are used in the MU1 for operating the main knob. At the bottom of the screen the current network information is shown. The indicated hostname depends on the serial number of your MU1. If the IP address shows "unknown", there is no network connection and in that case the MU1 cannot be found by the Streamer App in your tablet or smart phone. In that case, please check the network connection of your MU1.

- Turn counter-clockwise to go to the first menu, turn clockwise to go to the third menu.
- With a long press you will exit the menu and go back to the Music View.

Settings menu[3/7]: Settings



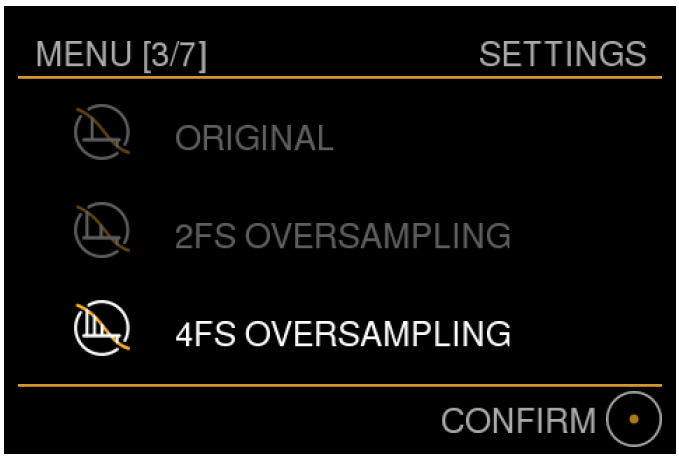
In this menu you can change operational settings of the MU1, note that all of these settings can also be changed via the GRUI.

- Turn counter-clockwise to go to the second menu, turn clockwise to go to the fourth menu.
- With a long press you will exit the menu and go back to the Music View.
- To change any of these four settings, apply a short press on the main control knob. You will then enter the menu and the selected option will be highlighted. In the next image you can see that the first option is highlighted.

- To select another option, turn the main knob until the desired option is highlighted. To change it, press the main knob briefly.
- To leave this menu, apply a long press of the main knob.

Oversampling

There are 3 options for the oversampling option: Original (no oversampling), 2FS (two times oversampling) and 4FS (four times oversampling).



Original means that the FPGA does not touch the bits of the audio when possible. Mark that DSD rates and 8FS (DXD) will still require downsampling to 4FS, and of course the bits will be altered if digital volume control is engaged (see the next menu item).

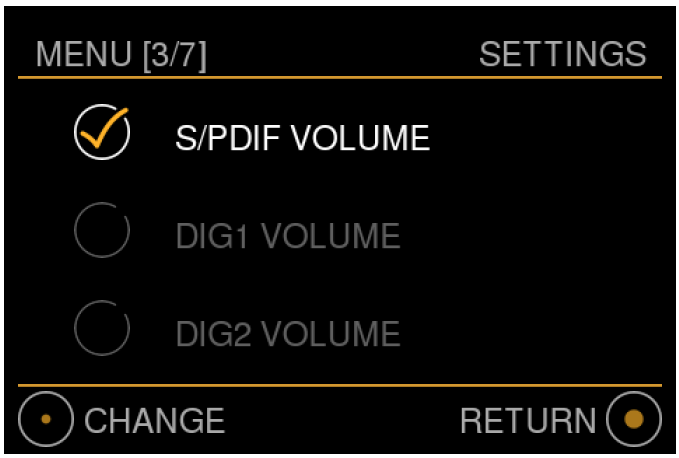
2FS oversampling means that 44.1 and 48 kHz audio will be upsampled to 88.2 kHz resp. 96 kHz. 4FS, 8FS and DSD (up to DSD256) material will be downsampled to these rates. Audio that is already 2FS will be left untouched. This 2FS option is intended to be used with DACs or active 'digital' loudspeakers that do not support 4FS or that work better with a 2FS source.

4FS oversampling means that audio will be upsampled to 176.4 kHz or 192 kHz. 8FS and DSD material will be downsampled to these rates. Audio that is already 4FS will be left untouched. This option is the default and recommended setting for the MU1.

To select your desired setting, turn the knob and the selection will be highlighted. Do a short press to confirm and exit. A long press lets you leave the menu without changing the setting.

Volume control on digital out 1, 2 and S/PDIF

In this menu you can select which digital output has digital volume control.



Note: volume control on the S/PDIF output cannot be enabled when there is an LS1 connected to the MU1.

The volume control is performed at very high resolution in the MU1's FPGA. You might want to compare its quality to the native volume control of your DAC.

Volume control of the LS1 output is always done in the LS1 and can not be switched off.

Hint: when using the MU1 as a source for a 'digital' loudspeaker that has on board digital processing such as crossover filters, it is recommended to disable the MU1 volume control so that the speaker will receive the audio with widest modulation.

- Turn the main knob to select the digital output of which you want to change the setting.
- Use a short press to change the setting, this can be on or off.
- To leave the menu press long on the main button, the shown settings will be saved.

DoP on AES

"DoP" is brief for 'DSD over PCM'. It is a standard for transporting DSD64 audio over an AES3 or S/PDIF PCM digital audio connection. All MU1 digital inputs support it. Some DACs can decode this format and the MU1 is able to send DSD64 material unaltered to these DACs. Mark that volume control is impossible on DSD signals, hence the DoP out option is disabled when volume control is enabled on any digital output.

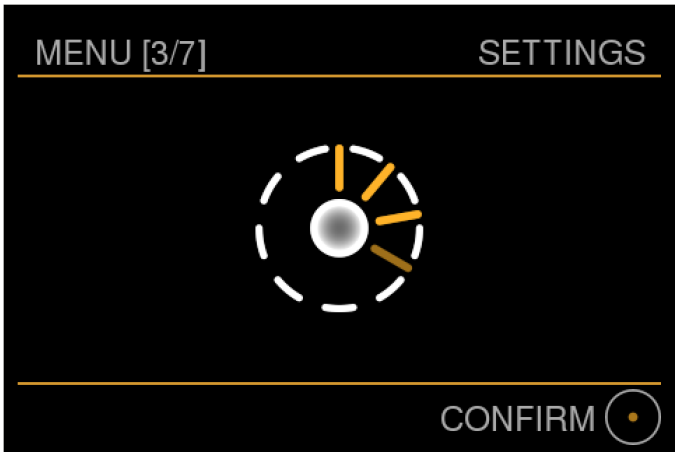
Since the Grimm LS1 does not support DoP, the DoP out option will also be disabled when an LS1 is connected. If DoP out is turned off, DSD material will be decimated to PCM by the FPGA with very high resolution.

Note: this setting has no effect on the Roon DSD playback strategy setting, which should always be set to "Native".

Use a short press to change the current setting.

LED

The brightness of the LED on the front of the MU1 can be adjusted with this option. This influences the brightness both in operation and in stand-by mode.



Turn the main knob clockwise to increase the brightness and counter-clockwise to decrease the brightness. Please note that the LED can not be turned off completely to facilitate showing whether the MU1 is in operation/stand-by or power off.

- A short press or long press confirms the current setting.

Settings menu[4/7]: GRUI control QR

This menu shows the information you need to connect to the Grimm User Interface (GRUI). The GRUI is the web control interface of the MU1. You can scan the QR code with your tablet or mobile device. As an alternative you can manually enter the link shown at the bottom of the screen in your browser. More information about the GRUI can be found in chapter GRUI MU1 Web Control. This menu page will always be shown at maximum screen brightness for optimal scannability.

Note: your browser device must be connected to the same network as the MU1 to be able to connect to the GRUI.

- Turn counter-clockwise to go to the third menu, turn clockwise to go to the fifth menu.
- With a long press you will exit the menu and go back to the Music View.

Settings menu[5/7]: Infrared remote programming

You can control the MU1 via the supplied Grimm Audio IR remote.

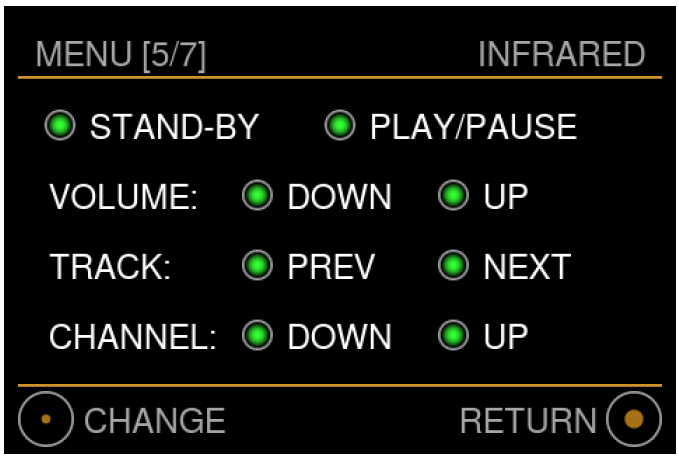
The following functions can be controlled with the IR remote, from top to bottom: Stand-by, Mute or Play/Pause (depending on the source), volume control, next/previous track (for streaming sources) and source selection.

To override the Grimm Audio IR remote you can make the MU1 respond to any[8] other IR remote via this menu, note that this can also be done in the GRUI.

Note: please make sure to connect an IR extension cord to the 3.5mm jack on the back when the unit is turned off, plugging in the jack while the unit is on may cause the display to flicker and stop working properly. Please see the hardware manual for the connector and pinout.

[8]The MU1 supports the following types of IR remotes: RC5, RC6, JVC, NEC, NEC extended and SIRC. Also some Apple remotes are supported, the types are shown in the picture below:

Other protocols may be added in the future, please contact info@grimmaudio.com if your favorite remote is not supported and we will check if it is possible to add support for your remote.

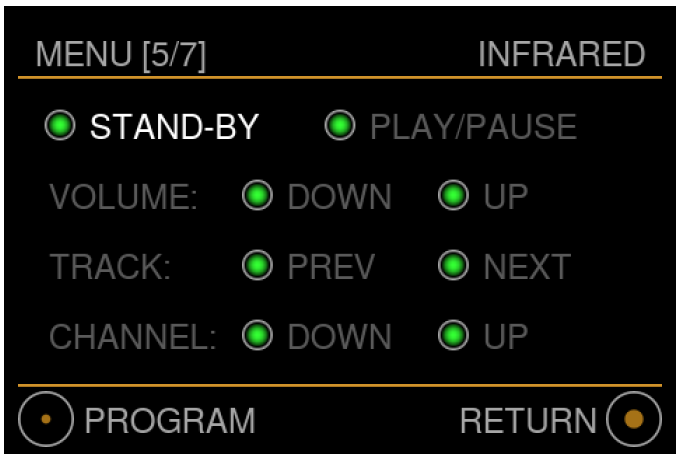


- Turn counter-clockwise to go to the fourth menu, turn clockwise to go to the sixth menu.
- With a long press you will exit the menu and go back to the Music View.
- A short press will enter the menu and highlight the selection function.

The colored dots next to each function can have 3 different colors with the following meaning:

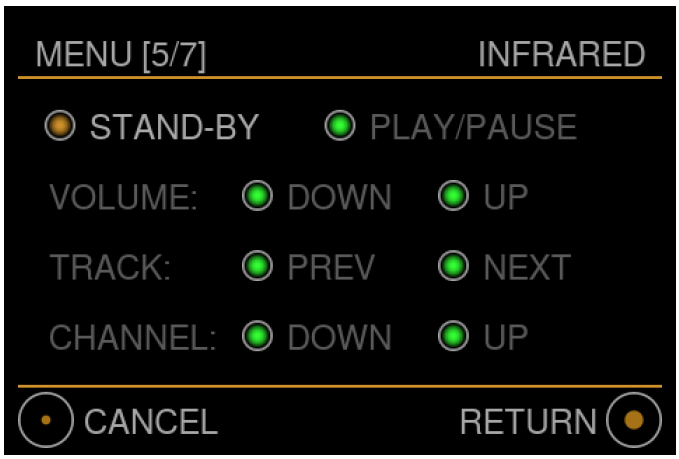
- Red: Function not programmed.
- Orange: In programming mode, waiting for an infrared command.
- Green: Infrared command paired with the function.

The image below shows the Stand-by function selected. Turn the main knob to switch the selection to the desired function. Short press the main knob to start programming the highlighted function.



The dot will turn orange until the MU1 receives an infrared command. Press the desired button on your infrared remote to link this infrared command to the selected function. When the MU1 receives an infrared command the dot will turn green and it returns to the infrared selection menu as shown in the previous image.

The image below shows the menu while programming the stand-by function, note that the volume up and volume functions are already programmed.

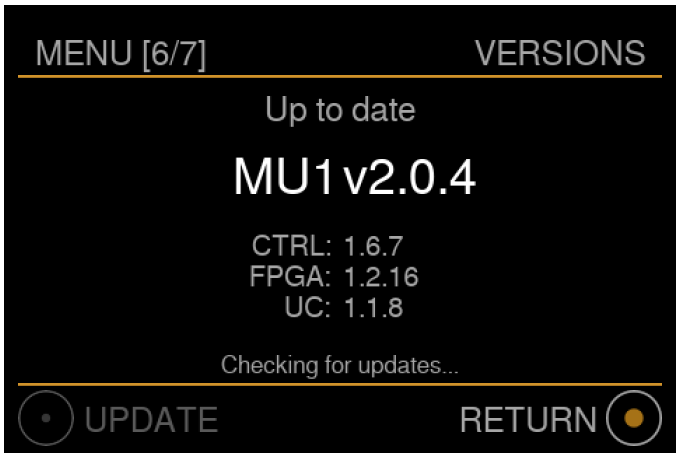


Note: programming stand-by may take a little more time than the other functions.

To cancel, apply a short press with the main knob. The dot of the selected function will turn back to the original (red or green, resp. not programmed or programmed) and no changes are made. To cancel and leave the menu, apply a long press.

One button of the infrared remote can only be paired with one function of the MU1. If you use the same button of your remote for another function, the previous function is overwritten and the new one is paired. The dot of the previously paired function will turn red and the new function will become green.

Settings menu[6/7]: Software Version and Update



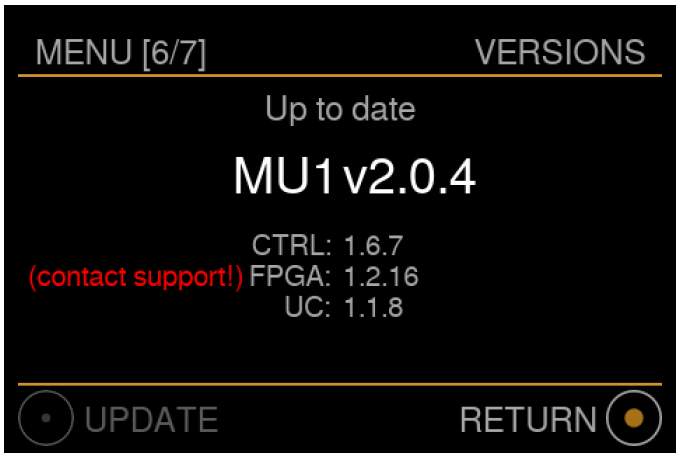
In this menu you can view the current software version and start an update. The MU1 automatically checks for an update every hour and also when entering this menu page from menu page [5/7]. If the MU1 is checking for updates, this is shown at the bottom of this menu.

If your software is up to date this is indicated in the display and the bottom left icon is greyed out.

The software versions of CTRL (Control software), FPGA and UC (Microcontroller) are also shown in this menu. When you experience problems with your MU1 we may ask you to send us this information.

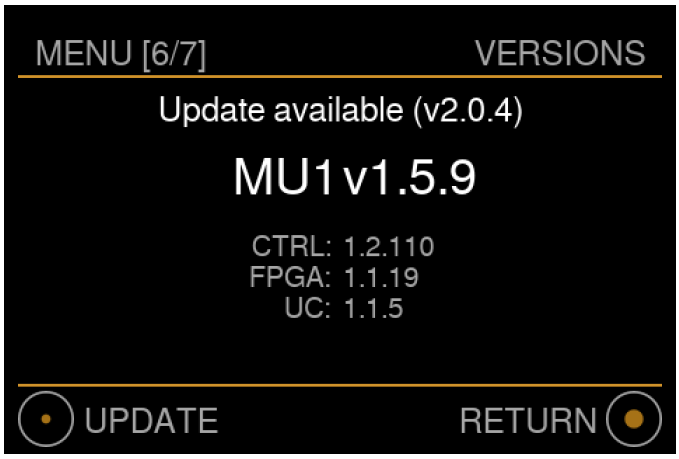
- Turn counter-clockwise to go to the fifth menu, turn clockwise to go to the seventh menu.
- With a long press you will exit the menu and go back to the Music View.

The MU1 performs a hardware self-test to check if everything is in good order to start the update. In case something is wrong the text “contact support!” is shown in red as shown in the image below.



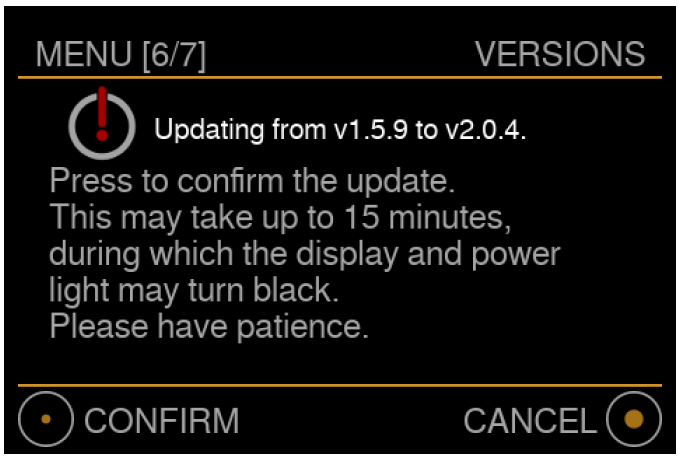
In such a case please contact Grimm Audio through our support form at www.grimmaudio.com/support-form and we will help you.

The image below is shown when there is an update available.



In case an update is available and downloaded, the text “Update available” is shown.

- Start the update with a short press. After reading the warning message, confirm with another short press.



Depending on the type of update the install can take up to about 30 minutes. During this time you will not see information on the display, the power LED is fading quickly and the power button on the back is disabled.

Note: during some updates the display will hang and/or even turn all-white for 30 seconds. The fading power LED might turn off as well. This is normal behavior.

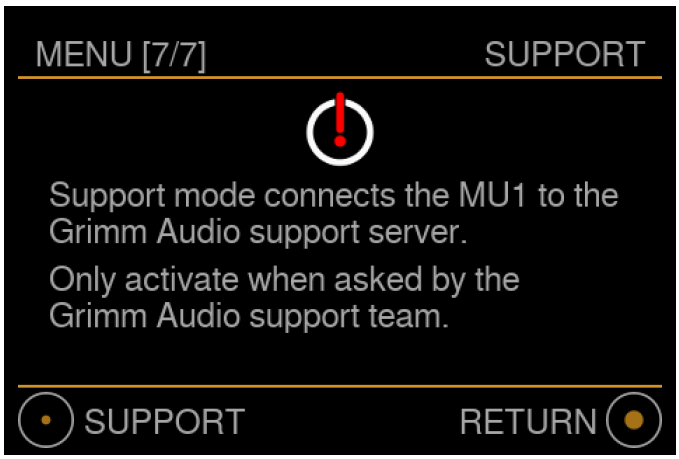
Please remain patient and do not unplug the device while updating since this causes the update to fail and the procedure starts again when the device is powered up.

During the update process the internal PC will shut down and it will reboot at least twice. When the update is complete the system will turn back on in normal mode and show the update status briefly.

Updates for the Roon Server are not included in the MU1 software update, this is done separately via the Roon App.

Note: also the Music View display will show the text "Update available" whenever a new update has become available.

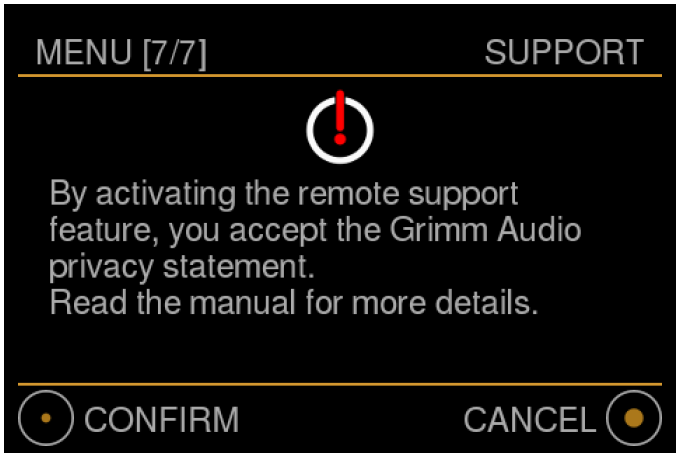
Settings menu[7/7]: Support



In this menu you can activate Support Mode. This should only be activated when you have reported a problem with your MU1 to Grimm Audio and our people asked you to activate

Support Mode. In this mode Grimm Audio engineers can get remote access to your device to help solve your problem.

When you've activated Support Mode and wish to return to normal mode, press the power button on the back of the MU1 to turn off the device, and press the power button again to boot the MU1 in normal mode. After rebooting, Grimm Audio has no access to your MU1 any more.



- Activate Support Mode with a short press on the main control knob, confirm by another short press. The MU1 will reboot in Support Mode and a continuous animation screen with blue instead of white squares is shown on the display.
- With a long press you will exit the menu and go back to the Music View.

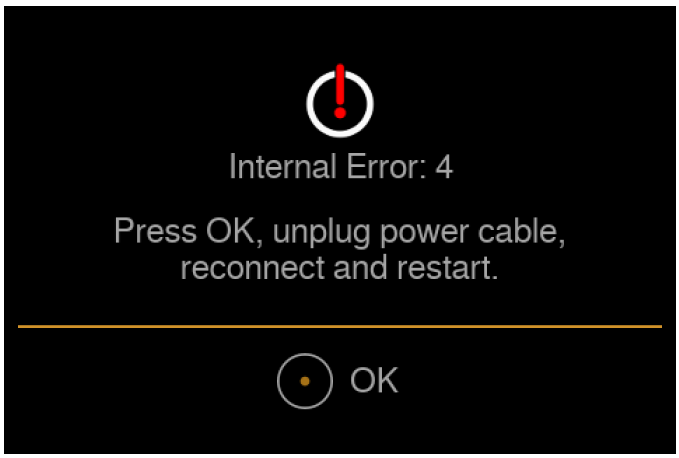
Note: while the MU1 is in Support Mode, the blue dot animation will keep running and no other information is shown.

Support Mode privacy statement:

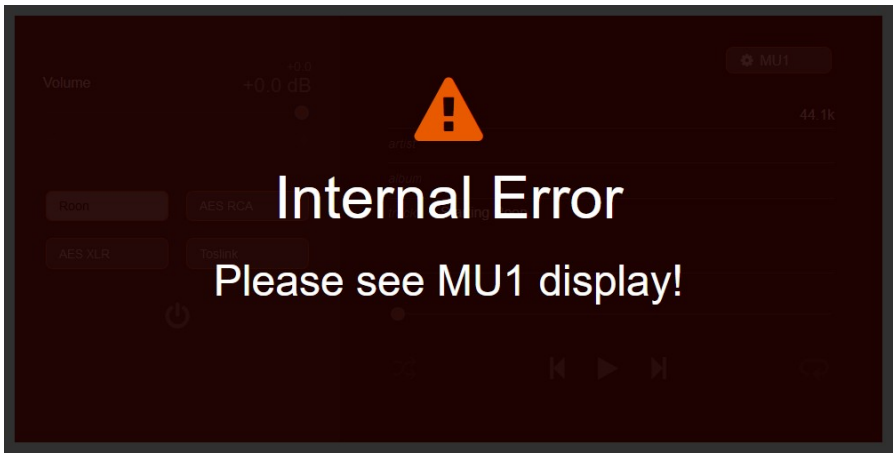
Support Mode reboots the MU1 and establishes a secure connection to a Grimm Audio server. Through this secure connection we can log in to your device, read log files and change settings. Grimm Audio will not copy information from your MU1 in any form without your consent. Grimm Audio will never share your data with any third party.

Internal error message

In very rare cases it is possible that the MU1 shows an error message like in the image below.



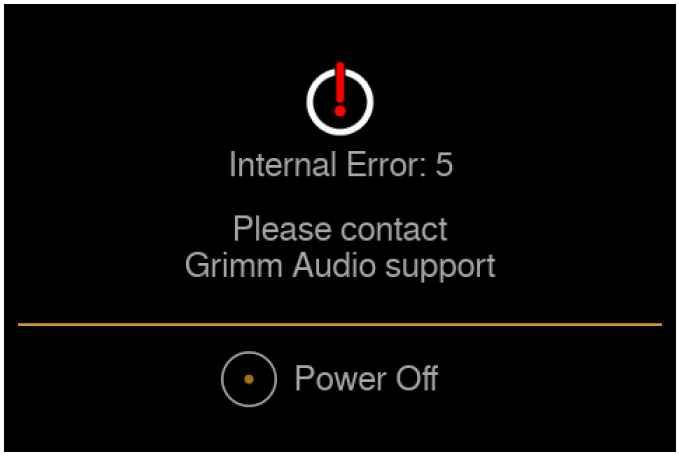
When this happens the GRUI will show the following:



The MU1 does a self-test to guarantee the FPGA conversion quality. Whenever something is wrong it will instruct you to do a full power cycle by pressing the main dial. The unit will then shut down. Please wait until the MU1 is completely shut down, then disconnect the power cable and reconnect it. You can power up the unit again.

Note that there is no hardware problem with your MU1, after the power cycle the MU1 is working as normal again.

Another possible error is the following:



This indicates a hardware problem with the MU1, please contact Grimm Audio support via the support form: https://www.grimmaudio.com/support-form/

8 GRUI MU1 Web Control

GRUI stands for Grimm User Interface, it is a web interface for controlling the MU1. There are settings available via the GRUI that cannot be set via the menu system of the MU1 hardware display.

Connecting to the GRUI

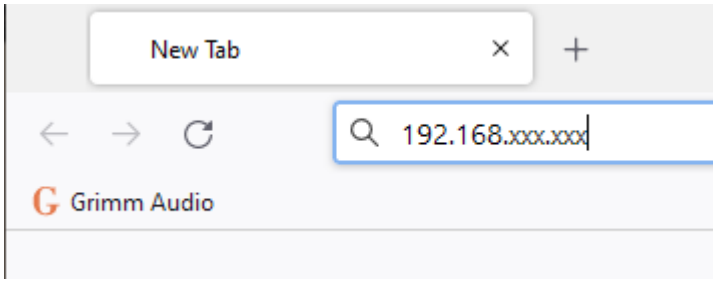
You can connect to the GRUI via a web browser on a device that is connected to the same network as the MU1.

You can scan the QR code shown in Settings menu[4/7]: GRUI control QR or enter the indicated address in your favorite browser to open the GRUI.

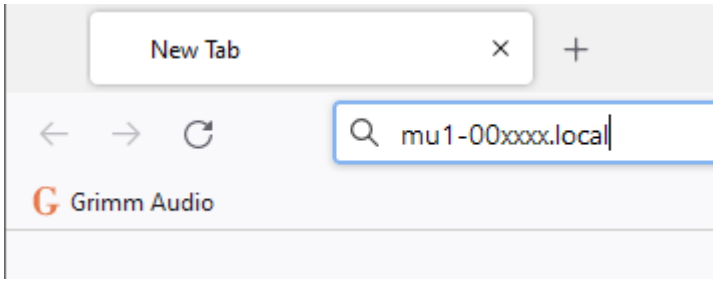
Hint: once the web page is opened, you may store it for direct access as an icon on the home screen of your iOS or Android device. In iOS this is achieved by clicking the 'share' icon (square with arrow), scrolling down and select "Add to home screen". In Android (depending on the browser) you can tap the menu icon (3 dots in upper right-hand corner) and tap "Add to home screen". You'll be able to enter a name for the shortcut and then it will be added to your home screen.

Note that if the MU1 receives a different IP address from your router, the url link in this stored 'app' does not work any more. In that case it does not connect. Please use the QR code again to establish a new connection. You may delete the old icon and create a new one.

Alternatively you can enter the IP address of the MU1 in your browser manually:

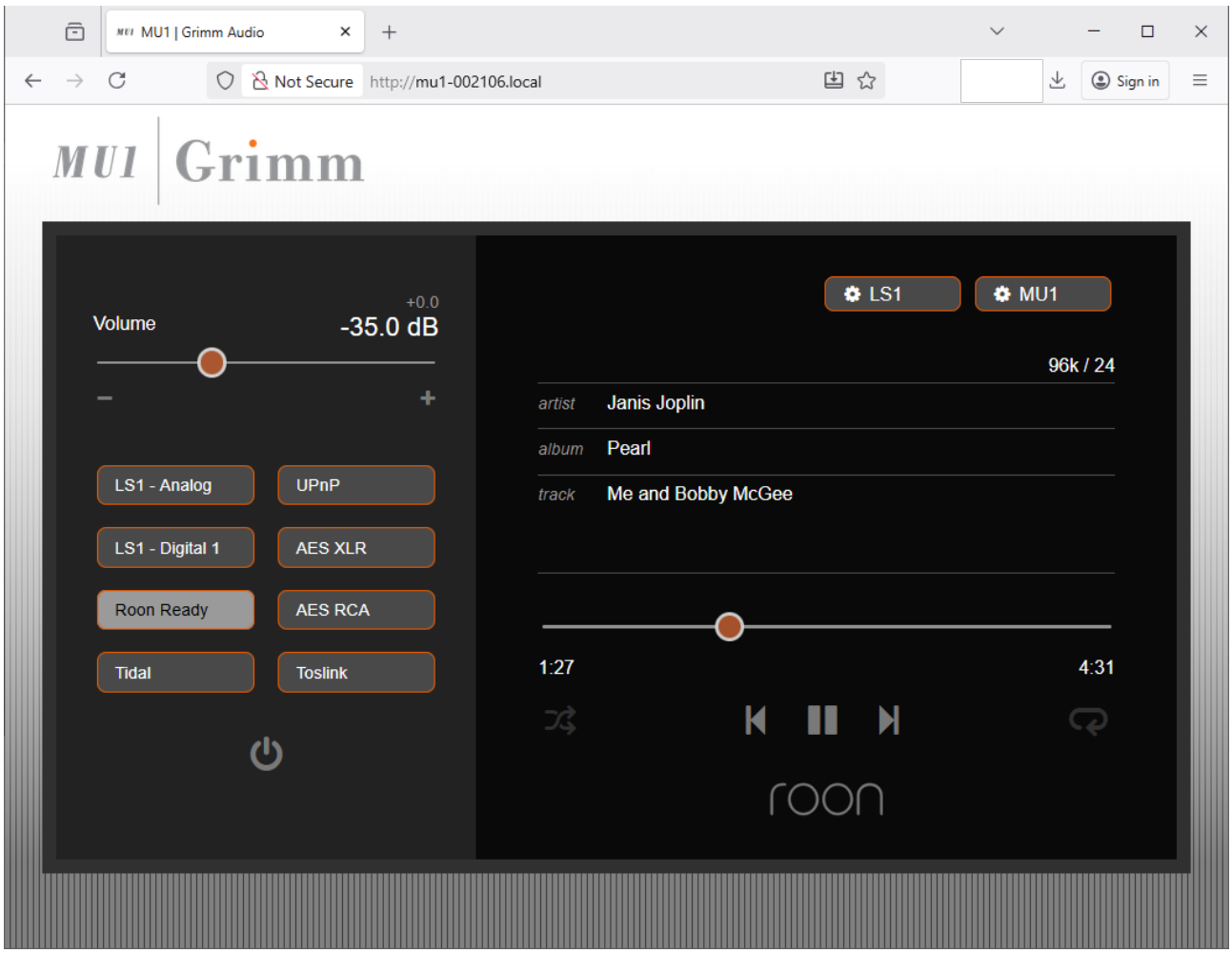


Some devices support connecting using the hostname, you can find the hostname in Settings menu[2/7]: Help in the bottom right corner. Enter the hostname in your browser to browse to the GRUI. Depending on your router settings you might have to add ".local" to the hostname and enter it in your browser as shown below:



Main page

The main page of the GRUI offers access to all basic functions of the MU1. The image below shows how it looks in a desktop environment. On mobile devices the volume control bar and source buttons will be placed below the artist play/pause buttons.



There are two sections: on the left is the control area. You can change the volume and select a source. The LS1 Analog and LS1 Digital 1 inputs are not available when you didn't connect an LS1 to the MU1. Below the inputs you can find the stand-by button.

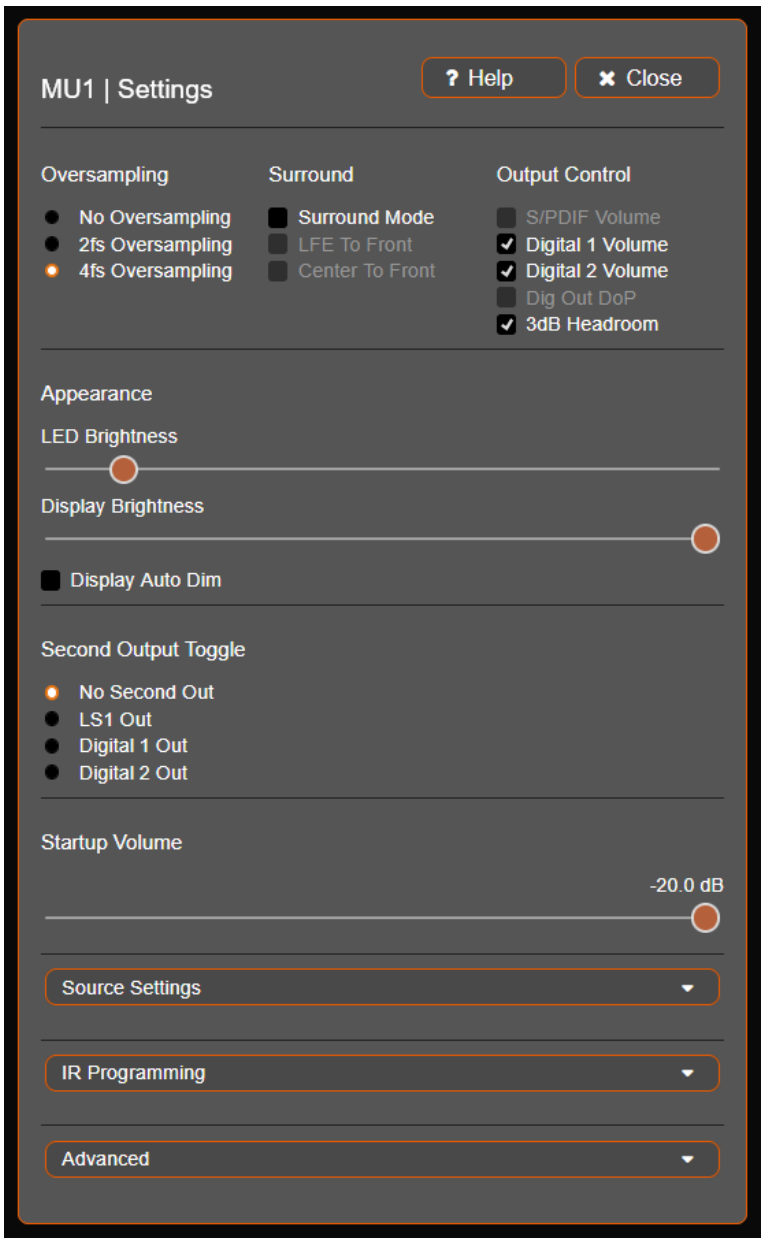
On the right is the track information and playback control. You can move the dot on the progress bar to skip or re-play parts of the current song. With the buttons below the bar you can select play, pause, next track and previous track. These operations are fully synchronised with the steamer interface, the hardware controls of the MU1 and the infrared control of the MU1.

Note: for the track functions to work, there needs to be some music in the queue.

The two cogwheel buttons in the top right offer access to the MU1 and (when connected) LS1 settings.

MU1 settings

The MU1 settings page looks like this:



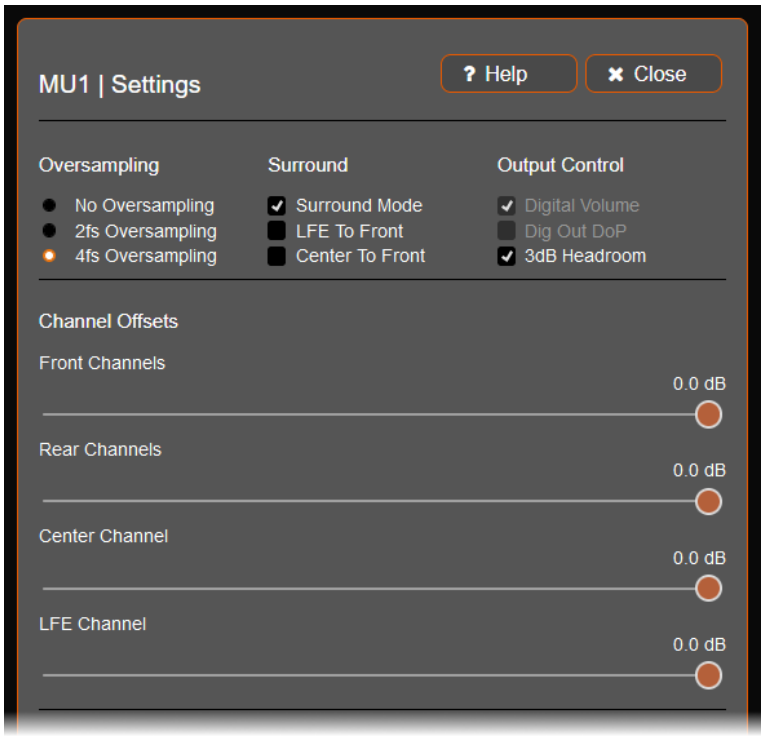
Oversampling

Here you may change the oversampling mode, which can also be changed in the Settings menu on the MU1. For more information about oversampling, see chapter Settings menu[3/7]: Settings.

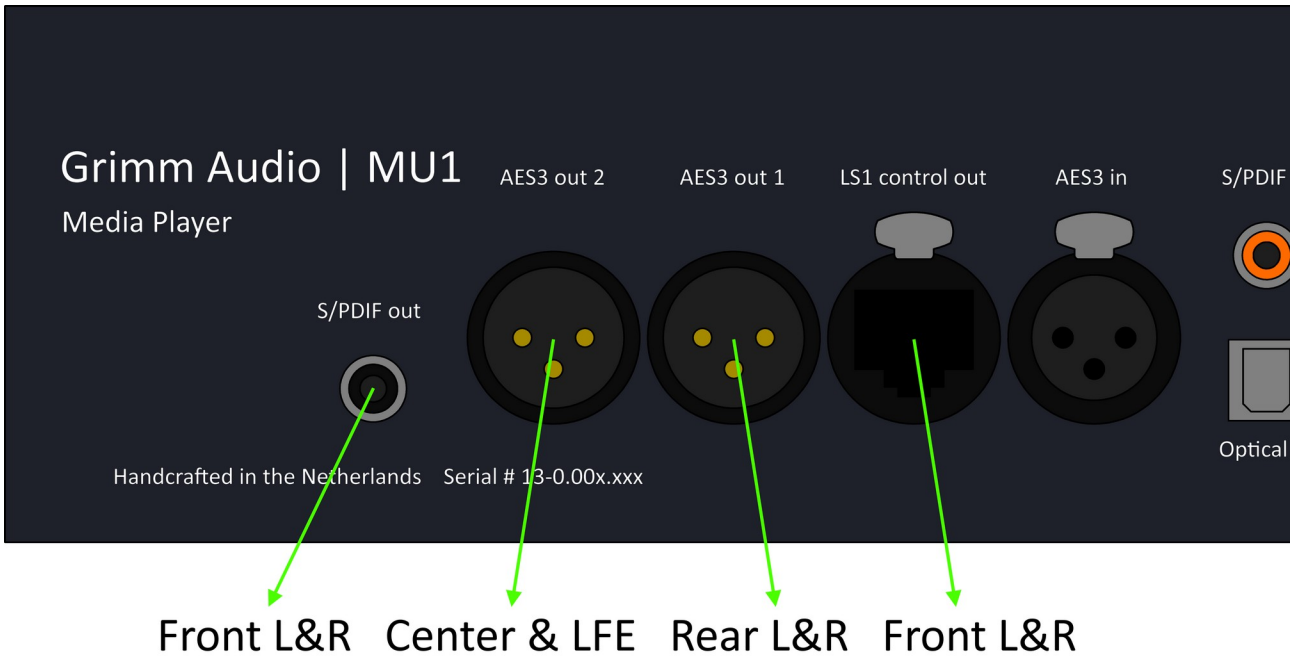
Surround

The MU1 offers the unique feature to playback surround music files.[9] Enabling "Surround Mode" modifies the functionality of the MU1 digital outputs.

[9]*Note that the MU1 cannot decode Dolby or DTS encoded surround audio on its digital inputs.*



In normal mode all outputs carry the same stereo signal. In Surround Mode the LS1 and S/PDIF outputs carry the Front Left and Right channels. AES out 1 carries the Rear Left and Right channels. AES out 2 carries the Center and LFE channels. When the surround option is enabled you can give volume offsets to the Front, Rear, Center and LFE channel(s). This way you're able to match the volume difference between different speakers or DACs.



“LFE to front” gives you the option to mix the LFE channel into the front speakers. The ‘Low Frequency Effects’ channel is the 6th channel, also known as ‘.1’ channel. In music mixes the LFE is mixed at equal volume as the main channels. In cinema mixes, the LFE has 10 dB more headroom and is mixed 10 dB softer so it needs +10 dB of gain in the playback system. The MU1 LFE level is set for music mixes. Is is mixed at -6 dB to left and right, to obtain an equal level compared to a single real LFE subwoofer.

“Center to front” can be enabled if you do not use a center speaker, in other words when you have a ‘quad’ setup of 4 loudspeakers. The center channel will then be mixed into the left and right front speakers, taking the 4 dB loudness difference between a real center channel and a ‘virtual’ center channel into account.

Output control

Most of the Output Control functions can also be found in the Settings menu of the MU1 display. For more detailed info, read chapter Settings menu[3/7]: Settings. In this area FPGA volume control of Digital 1, Digital 2 and S/PDIF outputs can be turned off, and DoP (DSD64 over PCM) can be enabled if your DAC is capable of decoding this special audio format and you have DSD64 files to play.

Depending on your setup some options can be greyed out. When an LS1 is connected to the MU1 you cannot enable DoP as the LS1 does not support DoP. Along a similar line, DoP is greyed out when volume control of the outputs is turned on, since DoP cannot be used with digital volume control. Finally, Digital 1 and Digital 2 Volume might be greyed out when there are more than two LS1's connected to the MU1 in a surround setup.

“3dB Headroom” attenuates the levels of all output channels (including the LS1 output) by 3 dB. This feature helps to avoid intersample clipping in downstream DACs when no digital volume control is used in the MU1. This also applies to the LS1 since the MU1 sends audio at full scale to the LS1 because its volume is controlled in the LS1 DSP. “3 dB Headroom” is turned on by default.

Note that intersample clipping is a problem since the late 90’s when the production masters of pop music were being created at increasingly high loudness. As a result the waveforms of most pop music tracks from this era carry many peaks between the samples that are higher than the full scale sample level. Most DACs do not have headroom to reproduce these kind of signals and will clip. By lowering the digital output level of the MU1 by 3 dB, most clipping is avoided.

Please keep in mind that when this feature is turned on, the MU1 will sound 3 dB softer than other streamers or CD transports with the same audio data. But the sound quality will be much better with modern pop music.

All mentioned processing is done in the MU1 FPGA with the highest possible quality. When all mixing, volume, source offset, headroom and oversampling options are turned off, the output is transparent and bit-perfect. Feel free to disable all these functions if a bit transparent

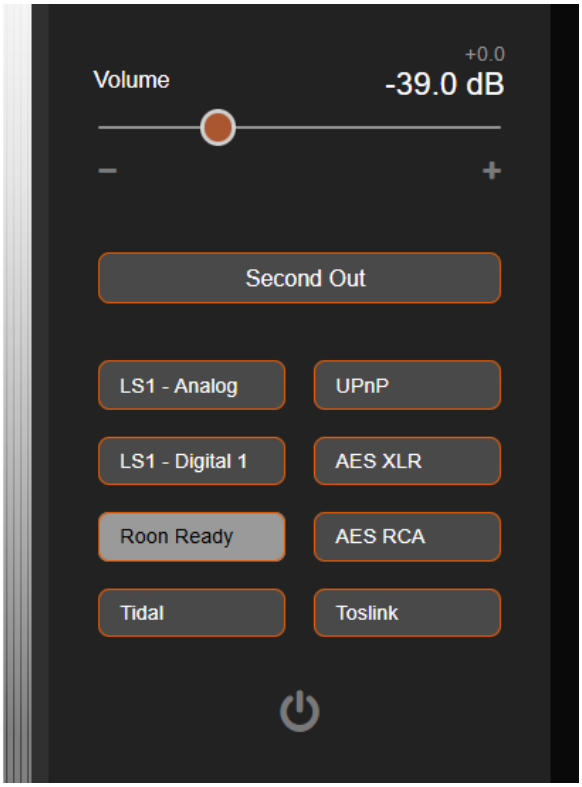
transfer is important to you. But mind that you will miss most of MU1's resolving power by doing so.

Appearance

The Power LED brightness and Display brightness can be set here. When enabling "Display Auto Dim", the display will go to a very low brightness a few seconds after you stopped adjusting a setting. Whenever you use the main knob or IR remote, it will light up for a few seconds again.

Second Output Toggle

If you wish you can enable the "Second Out" option, this feature is for users who like to toggle between two different outputs of the MU1. This is for instance convenient if you have a separate headphone DAC connected to one of the extra outputs, or when you have a second DAC and speaker set that you like to audition.



The output you have selected as Second Output will be muted until you press the now visible Second Out button in the source selection part. All other outputs will be muted when Second Out is enabled.

You can also toggle between normal use and Second Out by 'double clicking' the main knob of the MU1. Note that in case you were listening to live internet radio via Roon it will be paused for a short while as it has to re-start the stream.

Startup Volume

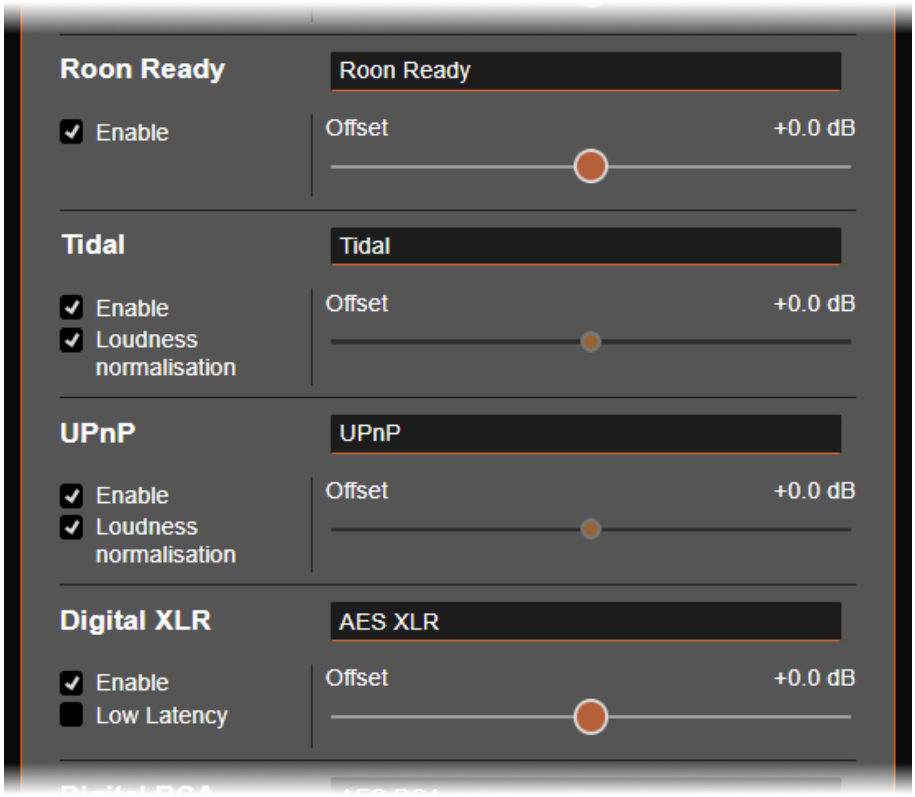
After starting the MU1, it defaults to the "Startup volume". You can set it to your preferred average listening volume, at a value between -63dB and -20dB. Please note that different recordings have a different 'perceived loudness' so it is generally advised to keep this level low.

This will only affect the audio if volume control is turned on or if you have an LS1 playback system connected.

Source Settings

The source settings allow for the following personalization:

- Enable or disable a source: Disabling an input source removes it from the control part of the GRUI and from the source selection menu in the MU1. In case Roon Ready, Tidal or UPnP are disabled, these services also stop running and are not visible in your network anymore.
- Change the name of the input which appears in the control part of the GRUI and on the display of the MU1.
  (E.g. the 'Digital RCA' could be renamed to 'CD' when your CD transport is connected to that input)
- The source related volume offset setting allows you to achieve a similar average loudness for different sources. It can be used to achieve similar perceived average loudness between sources.
- By enabling Loudness Normalisation (currently available for Tidal Connect and UPnP sources) track loudness information from the source is passed on to the MU1. The volume setting in the MU1 will receive an offset so that every album's loudest track will have equal loudness. The target loudness is -18LUFS, so tracks that are recorded louder than -18LUFS will receive an offset to make them softer. The resulting offset is indicated in the volume display of the MU1. Note that by enabling Loudness Normalisation the source related volume offset of this source is disabled.
- Turn on Low Latency mode: This option is just for owners of a 3-way LS1 system, it will not appear if you have no LS1 connected to the MU1. You can enable the low latency mode in the LS1 per source. This mode is typically used if you have your TV connected to the MU1. As a result you will will have approximately one frame less delay between audio and video. In case this delay does not bother you, we recommend to keep "Low Latency" mode turned off since it disables the phase correction of the LS1 sub crossovers. Note that changing this setting while music is playing may create a pretty loud pop.

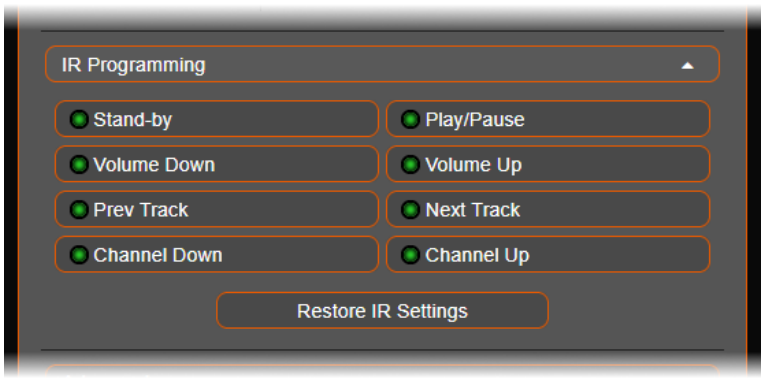


IR Programming

The MU1 works with the Grimm Audio IR remote by default.

If you wish to use a different infrared remote, you can program it via this menu. See chapter Settings menu[5/7]: Infrared remote programming for more information.

Programming codes of another remote will override the Grimm Audio IR remote preset. The “Restore IR Settings” button will restore the preset, overriding any changes you made.



The infrared remote functionality requires an IR extension cord connected to the 3.5mm jack on the back. An extension cord is included in the packaging of the MU1.

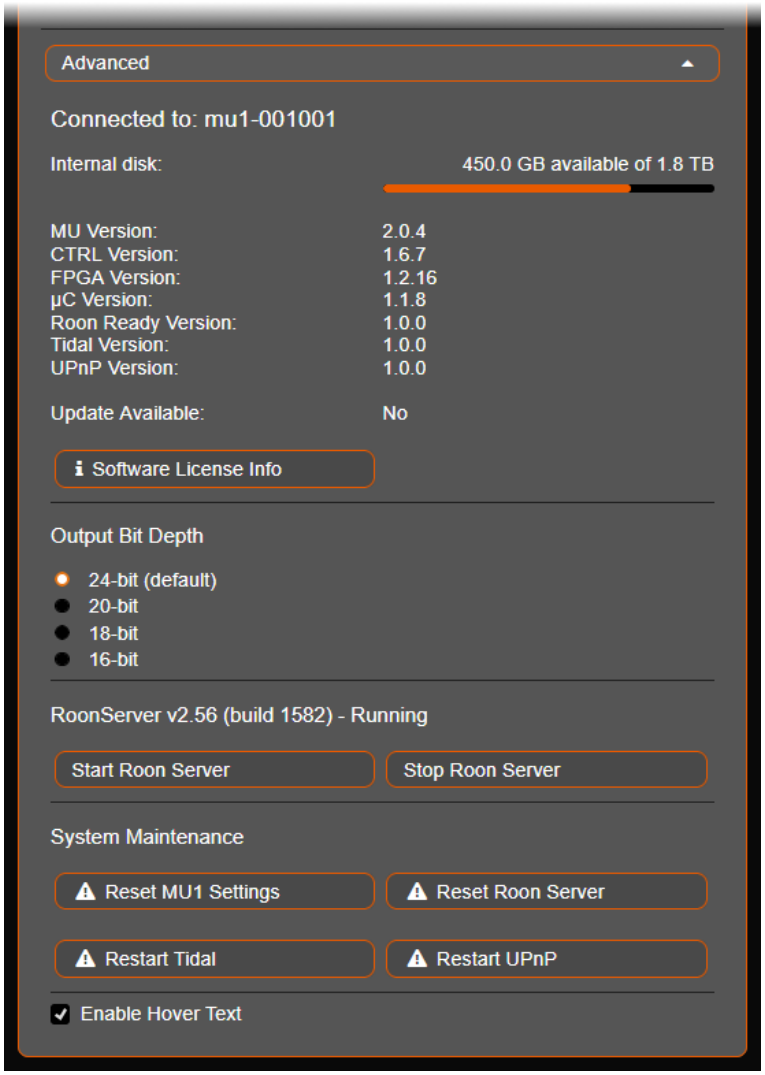
To start programming, press the function that you would like to program in the GRUI, the little dot will turn yellow and the label will fade until you press a button of your IR remote. When the MU1 receives a command from the remote it will save the button that you pressed under

that function. You can cancel the programming mode by pressing the selected function again, it will return to its last state.

If you already used the IR remote button for a different function, that function will turn back to red as you cannot program two functions under one button.

Advanced settings

The advanced tab offers access to more information about the MU1 and to options that reset parts of the MU1 software, please be cautious using these.



The first thing you see under advanced is the hostname of the MU1 that you are connected to, this consists of a part of the serial number.

In case your MU1 has an internal Music disk, its free space and the total space of the disk are shown. Note that the displayed disk space will be somewhat lower than advertised as this is in 'JEDEC 100B.01' format which differs from the 'IDEMA' standard used by disk manufacturers.

Furthermore you can see the exact software versions of each part of the MU1, this information might be requested by a Grimm Audio employee when you run into problems.

Also you can see if an update is available, this will be shown in the display of the MU1. Note that you cannot start an update from the GRUI, you have to use the main dial and go to the update menu as described in Settings menu[6/7]: Software Version and Update.

The Software License Info button brings you to a page where all the licenses of the software we use are stated, if you are interested.

Output Bit Depth

With this option you can choose the bit depth of the AES and S/PDIF outputs of the MU1. Only change this setting if you have a DAC that does not support 24-bit AES or S/PDIF formats, like for instance certain Audio Note DACs. The MU1 will reduce the output word length to the selected amount of bits. Check the required bit depth in the manual of your DAC. The signal is not simply truncated but noise shaped and dithered to preserve the sound quality of the MU1 upsampler as much as possible.

Roon Server Status

Here you can see the version and build of the Roon Server. Also it shows the status of the Roon Server.

Next you have options to start and stop the Roon Server. Note that this setting is saved throughout a reboot of the system; when stopped the Roon Server will not start when the system restart.

System maintenance

Reset options

The button “Reset MU1 Settings” resets the MU1 settings to the default value. This rolls back all settings you changed in the GRUI and the MU1 menus (including the IR remote settings). You will see a pop-up to confirm that you are sure, please note that your browser may block this pop-up, unblock popups for this page to use the reset function.

Note that the volume control settings are also reset to their default -20dB level which can be loud. Please turn off your DAC or LS1's to ensure a pleasant reset of the settings.

The “Reset Roon Server” button will stop the Roon Server on the MU1 and erase the complete Roon Server database from the MU1 and restart the Roon Server. This will also reset your login (you will have to press the “Select Different Server” button on your Roon remote), the audio device settings, playlists (excluding Tidal, Qobuz and KKBOX playlists), favorites, tags, storage settings and all other changes you made to Roon in your MU1. Use this button only when a Roon employee or a Grimm Audio employee requests you to do this. You will get a pop-up asking you if you are sure to do this. We recommend to make a backup using the Roon backup functionality before executing a reset.

Restart options

Using the “Restart Tidal” button will stop and start the Tidal Connect service on the MU1. Using the “Restart UPnP” will do this for the UPnP services.

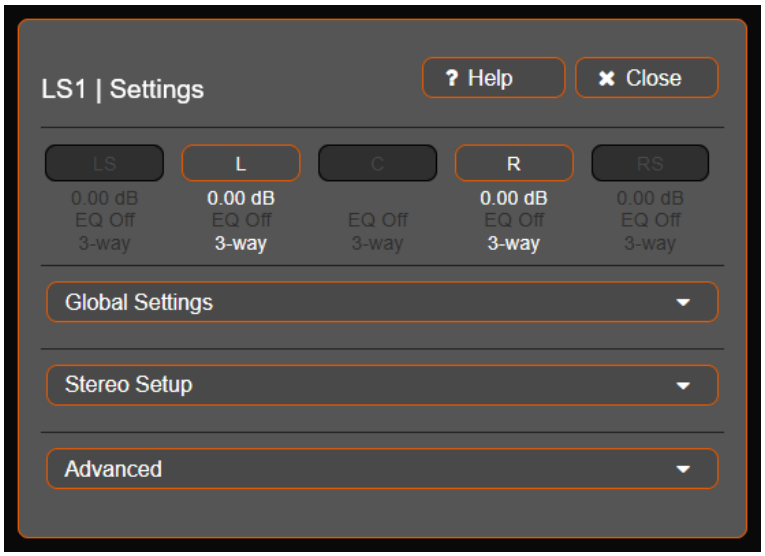
Use these restart options only in cases where you experience problems with these services like not being able to detect the MU1 on the network.

Enable Hover Text

The last function in the Advanced tab is to toggle the hover-over help text on and off. This setting is memorized in your browser which means the hover-over text will be shown again if you use a different browser or device.

LS1 settings

In this menu you can conveniently control the settings of connected LS1's via the MU1 GRUI. For in depth information about these functions, please consult the LS1 manual that you can find on the Grimm Audio website.

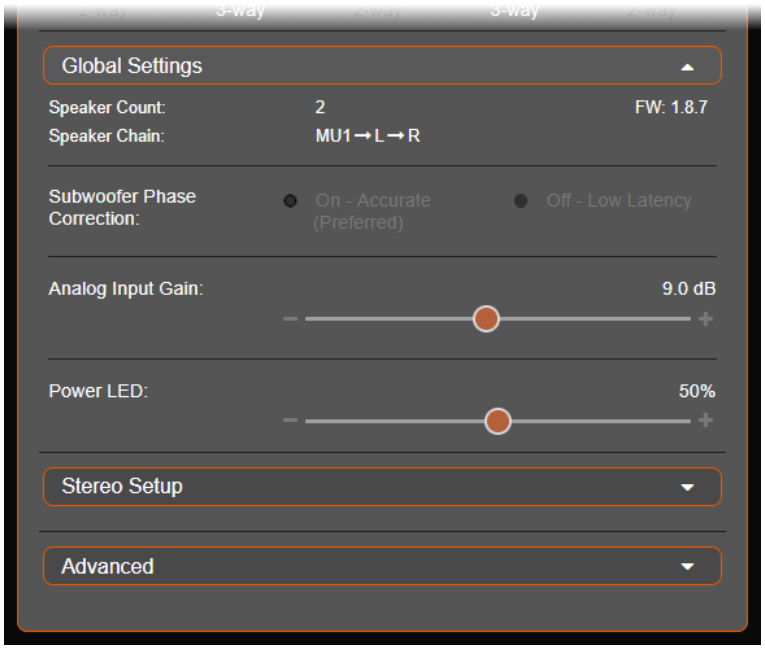


The first row shows a summary of the setup data per LS1. In the top row you see buttons with the names of the detected speakers. You can press these buttons to mute the indicated channel for a few seconds. This LS1 will blink its power LED, so you can easily identify the speaker and see if the wiring and LR switches in your system are correctly set.

Below the buttons there is an overview of the basic setup of each loudspeaker. You can see if a speaker has a volume offset, whether an EQ is engaged and if it is in 2-way or 3-way mode.

Global settings

Clicking this item opens a menu with settings that apply to all connected LS1's.



“Speaker Chain” shows how many LS1's, and in what order, are connected. The image above shows that there are two LS1's connected and the wiring goes from the MU1 to the left LS1 and then to the right LS1. In a surround setup with LS1's the indicated chain is important to double check, see the hardware manual for the proper surround setup wiring. In this chain “LS” means Left Surround and is the Rear Left channel, “RS” is the Rear Right channel, “C” is the Center channel.

In the top right corner the firmware version of your LS1's is shown. If the firmware of one of your LS1's is not up to date you will be notified here with an exclamation mark. You will need the ‘LS1 Control’ software to perform a firmware update (see the LS1 manual).

The “Subwoofer Phase Correction” of the crossover filter can be turned off to obtain low-latency playback. The sound quality will decrease but the latency will be shorter. This is useful when you need to synchronize the sound with video, for instance when you have the audio of your television routed through the MU1. The low latency option can automatically be set for selected sources of the MU1 by enabling this via the Source Settings menu.

Note: if audio is playing when you change this setting you will hear a loud pop. Please pause your playback first.

“Analog Input Gain” lets you apply a volume offset for the LS1 analog input. Because the LS1 is designed for the professional as well as the consumer market it accommodates a wide analog input range. For normal usage this can be set to 9 dB, which corresponds to an analog input

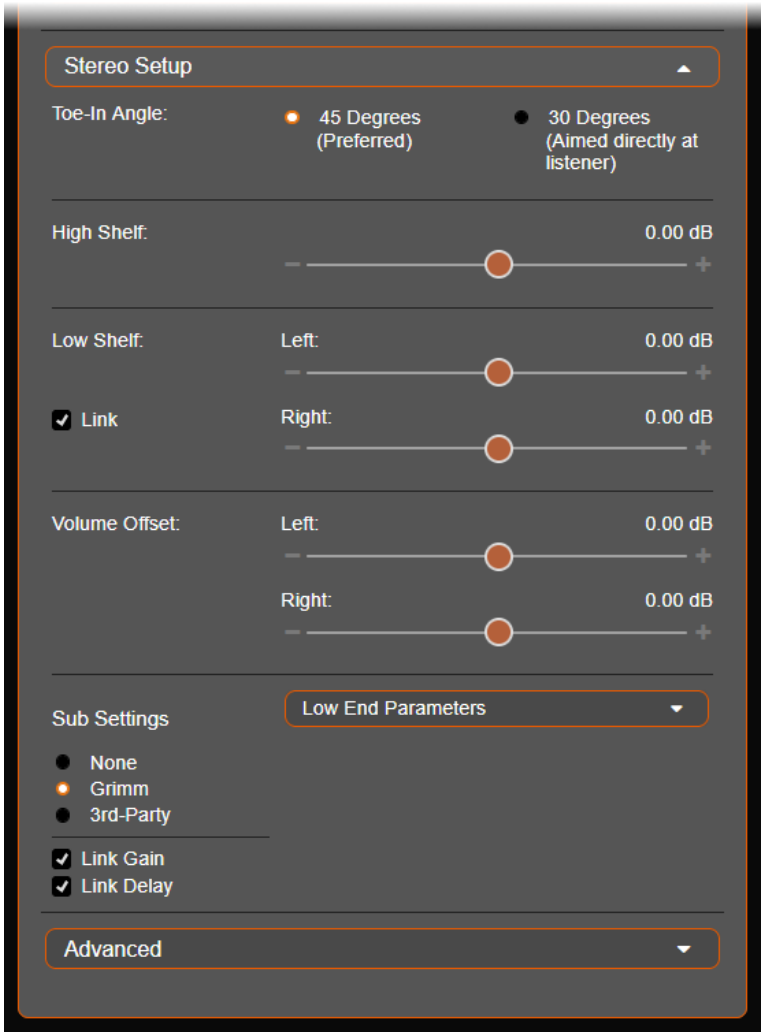
sensitivity of 12 dBu. Only turn the gain further up if your connected device plays too soft in comparison with other sources.

“Power Led” sets the brightness of the LS1 power LEDs.

Stereo Setup | Front Setup, Center Setup and Rear Setup

The LS1 has specific settings that you can change per loudspeaker pair through this sub menu.

Note: the Rear and Center settings are not available in a stereo setup, but they have similar options. They appear in the GRUI when the speakers are connected in a surround setup.



The “Toe-In Angle” should be set to follow the LS1 angles of your setup. 30 deg means ‘aimed directly at listener’, 45 deg means ‘aimed slightly in front of the listener’. For more info about this technique, please consult the LS1 manual. This setting controls an EQ in the LS1 that corrects the high frequencies for the used angle.

Note: this option is not available for the center speaker since it always faces the listener directly, so it defaults to the “30 Degrees” EQ.

“High Shelf” offers an EQ for the high frequencies to tune the system response to taste. This is applied to both front speakers.

“Low Shelf” applies a separate low-shelf filter for each speaker, that can be used to correct for influence of room acoustics. You can link the setting for left and right to keep the same offset between the channels.

“Volume Offset” allows to give each speaker a positive or negative volume offset, to compensate for an acoustic left-right imbalance. For general gain alignment in a surround setup you should use the Channel offset functionality in the MU1 menu in the GRUI.

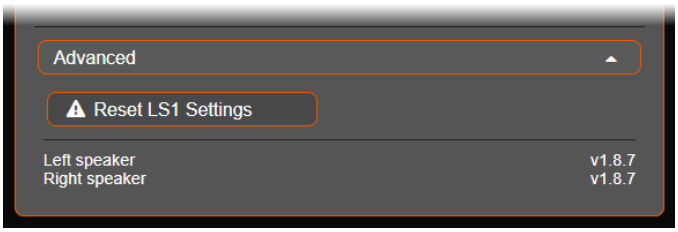
“Low End Parameters” offers various options for a subwoofer that is connected to the LS1. There are three options.
Note: please only change these settings when there is no audio playing to avoid hearing a loud pop.

- None: the subwoofer output on the LS1 is disabled, which means you have a 2-way system. You can change the Low-cut frequency for the 2-way LS1.
- Grimm: the subwoofer output of the LS1 is enabled and set to use with a LS1s, LS1s-DMF or SB1 subwoofer. The system will act as a phase corrected 3-way system. You can change the Gain and Delay of each subwoofer and the Low-cut frequency for both subwoofers together.
- 3rd-Party: the subwoofer output of the LS1 is enabled and set for use with 3rd party subwoofers. The full system will act as a 3-way system. You can change the Gain and Delay of each subwoofer and you can change the Low-cut frequency and phase for both subwoofers together.

You can link the Gain and Delay for easier control, the MU1 will then maintain the offset between the two sliders.

Advanced

In the Advanced tab you can reset the LS1 by pressing the Reset LS1 Settings button.



This triggers a reset that is built into the LS1 firmware. You will see a popup message to confirm that you want to reset the LS1. Use this button only if you experience problems with the LS1's.
Please note that you might have to setup your LS1 settings again, especially the 3-way setting, equalizer and toe-in angle.

It is advised to have no music playing when doing a reset of the speaker. After the reset the current volume setting will be re-applied in the LS1, volumes higher than -20dB will be turned down to -20dB.

Grimm Audio, The Netherlands
General questions: info@grimmaudio.com
Support questions: grimmaudio.com/support-form
Tel. +31 40 213 1562

Check grimmaudio.com for news about your MU1.

For software version V2.0.4
J.V. M.S. and E.G. 02-12-25