MT 48 Dante®

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DANTE®

Dante® by Audinate is one of the leading closed AoIP ecosystems, offering a comprehensive set of software, hardware and network protocols to deliver uncompressed networked audio.

Dante is the product name for a combination of software, hardware, and network protocols that delivers uncompressed, multi-channel, low-latency digital audio over a standard Ethernet network using Layer 3 IP packets. Developed in 2006 by the Sydney-based Audinate, Dante builds on previous audio over Ethernet and audio over IP technologies.

Like most other audio over Ethernet technologies, Dante is primarily for professional, commercial applications. Most often, it is used in applications where a large number of audio channels must be transmitted over relatively long distances or to multiple locations.

MT 48 is Dante Ready™

Latest generation of produced MT 48 serial numbers 10 000* and above are Dante Ready™.

Ex factory, the MT 48 continues to be delivered with the RAVENNA/AES67 firmware preinstalled. For Dante operations, Neumann provides an alternative Dante firmware free of charge. In addition, a I/O Dante channel license is required, which must be purchased from Audinate.
This ensures there are no additional costs for users who do not require Dante.

In order to operate in Dante it requires that the MT 48 Dante firmware is updated in the unit. Refer to the Dante Set Up guidelines for all details.

**Owners of an MT 48 with a serial number below 10000 who require Dante compatibility can have their device made Dante Ready™ as a retrofit. This requires a hardware modification, which Neumann Service will perform for a fee.*

About Dante Ready™ and Dante Activator.

A Dante Ready™ device allows you to purchase and add audio channels to a device after initial purchase using the Dante Activator feature in Dante Controller.

Dante Controller route's AV signals between all Dante-enabled audio and video devices on your network. Configurations are saved directly to the devices themselves, ensuring the stability of your network through power cycles, device disconnection and system reconfiguration.

MT 48 Dante Ready™ Setup Guidelines

Dante Set Up Procedure
Detailed procedure below on how to setup the MT 48 for Dante audio network operation mode.

Important:

- Neumann MT 48 with serial numbers 10000 and above are Dante Ready and can run in Dante mode using the appropriate Dante firmware.
  The serial number is within the last 6 digits of your MT 48.

  e.g. this unit is serial 1580 and not Dante Ready, but eligible for an upgrade*.
- Ex-factory, the MT 48 is delivered with the RAVENNA/AES67 firmware running. For the unit to operate in Dante, the MT 48 Dante firmware must be installed.
- Dante Ready™ means the MT 48 is Dante capable but comes without a Dante license. Once the Dante firmware is installed, a Dante license must be purchased separately from Audinate, using the Dante Controller software.

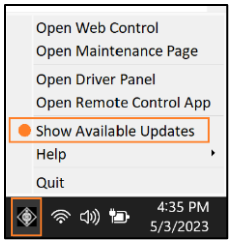
Requirements:

- Neumann MT 48 latest hardware revision. Serials 10000* and above are Dante Ready. Lower Serial numbers can be upgraded to Dante Ready*
- Required installed applications:
  - MT 48 Toolkit (for USB usage)
  - MT Discovery 20.0.0 and above
  - Dante Controller
- Creation of an Audinate account
- License purchasing plan comes at additional cost

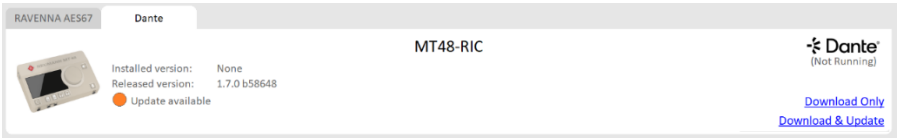
**Owners of an MT 48 with a serial number below 10000 who require Dante compatibility can have their device made Dante Ready™ as a retrofit. This requires a hardware modification, which Neumann Service will perform for a fee.*

Procedure:

1. Download and install the MT 48 Toolkit or MT Discovery application from the Neumann website.
2. Connect the MT 48 via USB (MT 48 Toolkit) or via network (MT Discovery software must be installed)
3. From the MT 48 Agent (Neumann logo in the task bar) select “Show available updates” (for MT Discovery go to step 5.)



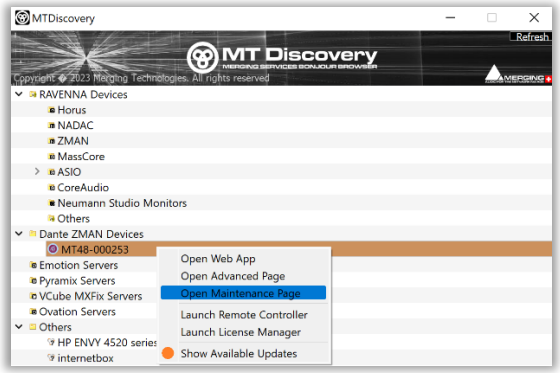
4. If your unit is Dante Ready the MT Portal will propose to update to either the latest RAVENNA/AES67 firmware or the Dante firmware, select the Dante tab and perform a “Download & Update”. This will update your MT 48 Agent and update the MT 48 firmware (do not abort until completed).



Note: Some firmware updates might take longer than usual or have a Dual progress bar phase on the unit. Do not abort at any time until the firmware update is completed.

5. If your MT 48 is connected to your computer via network, please install the MT Discovery software on your computer and follow steps 5a and 5b. If your MT 48 is connected via USB, skip step 5 and proceed to 6.

    a. The MT 48 should be detected, please open the Maintenance Page



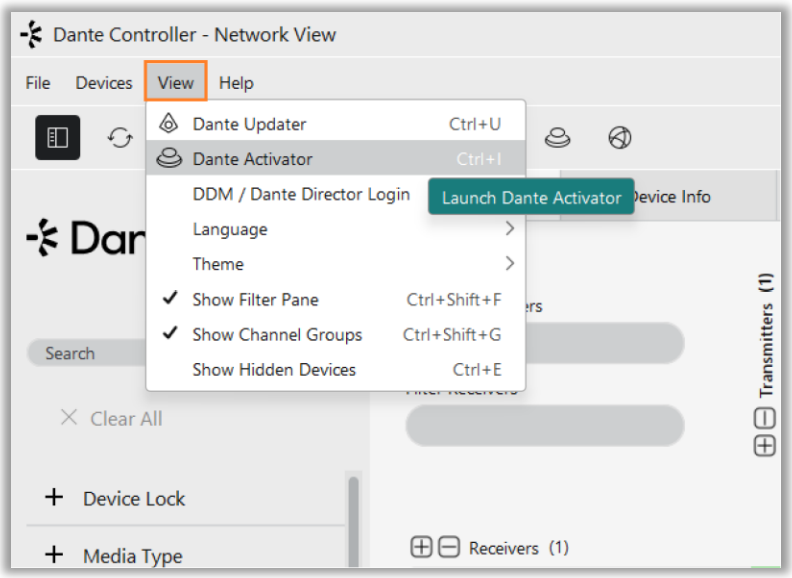
    b. Update the Firmware to the Dante firmware version
    The MT Updater will display the Dante firmware. Please select Download & Update. (Alternatively, you can download the Dante firmware from the Neumann website and install it via the Maintenance Page as outlined in the MT 48 manual).
    Note: The firmware update may take more than 15min, please do not abort at any time.

6. Once the Dante Firmware has been updated, reboot the unit.
Note: If preformed from the MT Portal the device will automatically reboot, once the update is completed.

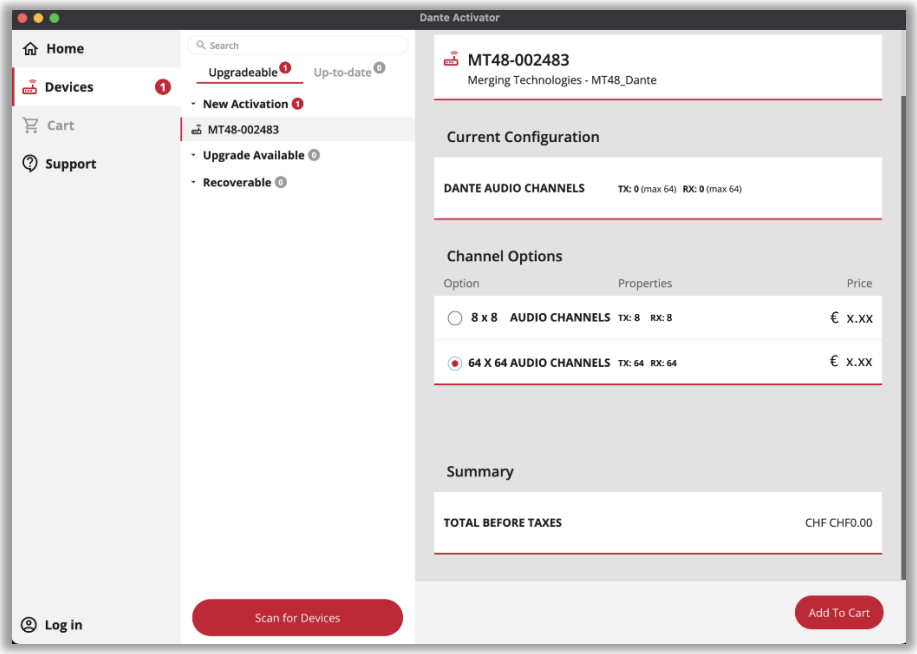
7. Download and install the Dante Controller application from the Audinate site.
https://www.audinate.com
Dante Virtual Sound Card is recommended for operating the MT 48 in Dante networks. The MT 48

can also be used as an I/O bridge between Dante and USB using the MT 48 toolkit or in class compliant mode.

8. Have the MT 48 connected to the system running Dante Controller and launch Dante Activator from the view menu



9. The MT 48 should be detected in Dante Activator

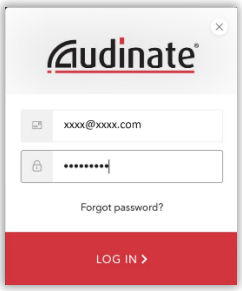


10. Select a license plan. Two options are offered, 8 x 8 IO or 64 x 64 IO.
Note: License plans are upgradable, and current amount paid is deducted from the upgrade cost.

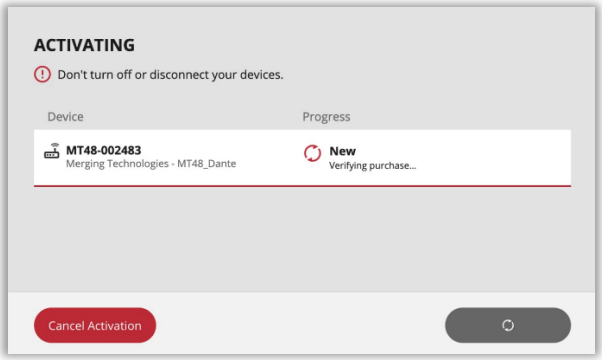
Dante Ready License Plan	44.1/48kHz	88.2/96kHz	176.4/192kHz
License plan 8 x 8 IO	8	8	8
License plan 64 x 64 IO	64	32	16

Note: Dante Virtual Sound Card specification may vary

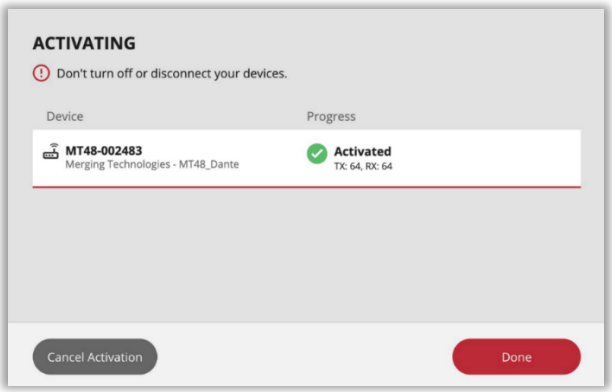
11. Go to Cart and Check out
    You will be asked to log into your Audinate account, create an account if you do not have one.



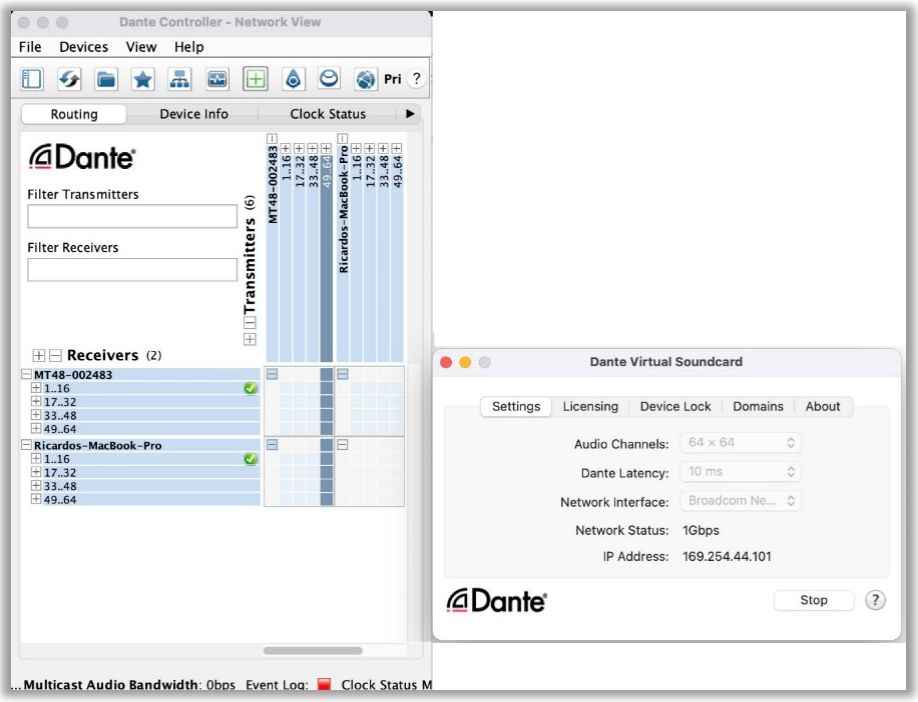
10. Activate your license plan upon entering the purchase details (e.g. credit card)



11. Wait for the confirmation of the Activation



12. The MT 48 is now ready for Dante operation.
It will be discovered in the Dante Controller and can be used with the Dante Virtual Sound Card

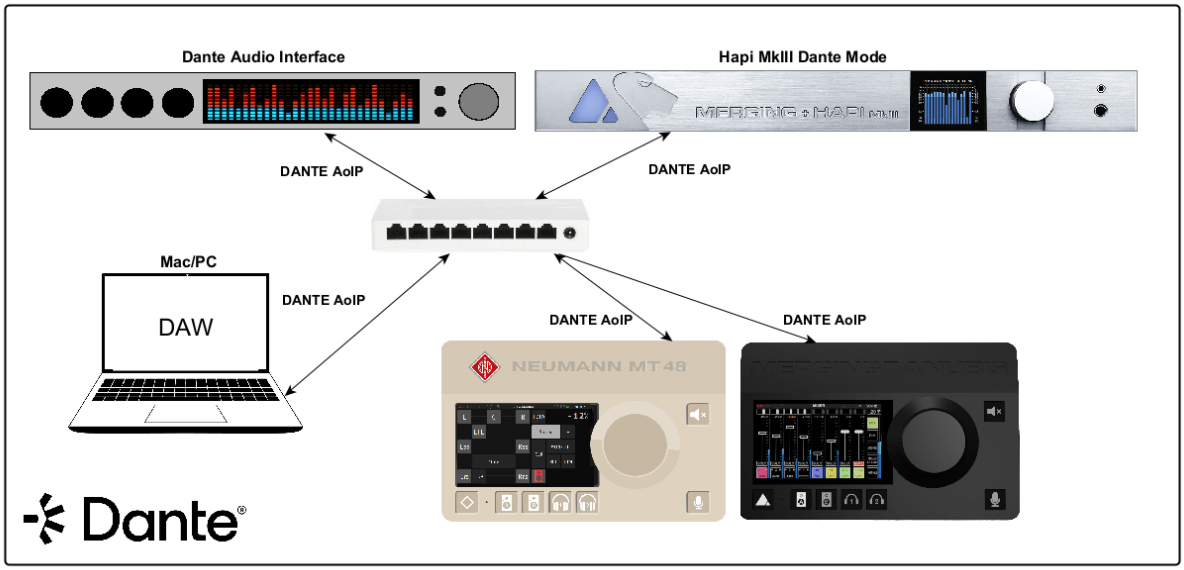


Note: Dante Virtual Sound card and/or Dante VIA come at extra cost.

Dante operation modes

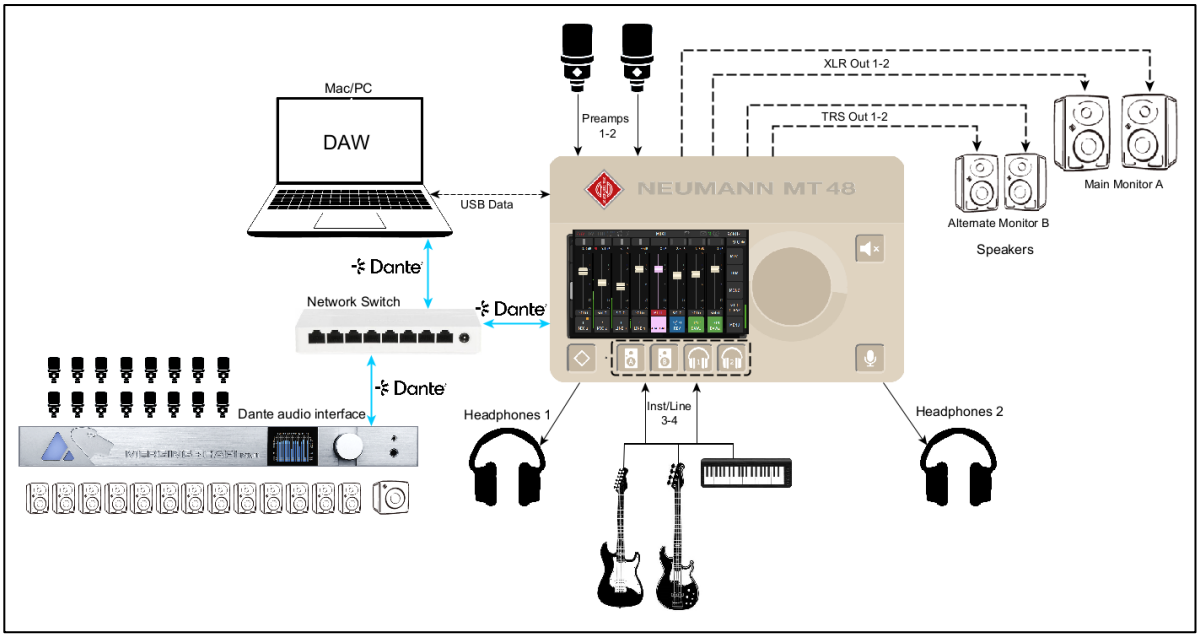
Dante Network integration

The MT 48, Anubis and Hapi Mk III can fully be integrated into a Dante network once they are running the Dante firmware with a purchased Dante/Audinate license plan.
Dante Controller should be used to manage/establish connections.



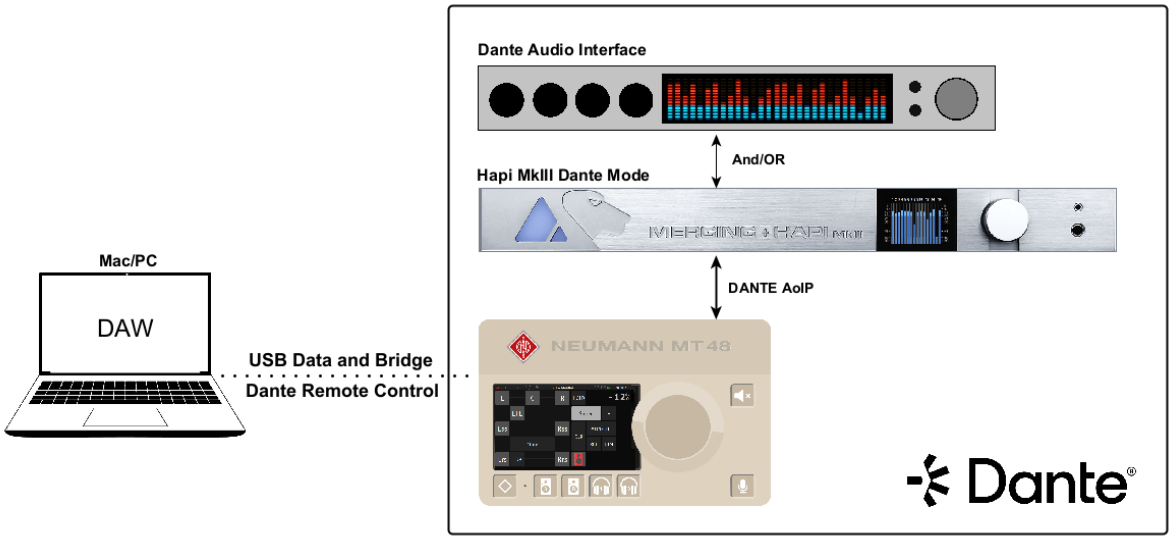
MT 48 Missions in Dante

Record or Mix any Dante channel and redistribute those anywhere on your network.
Monitor Multichannel content and have full control over your speakers sets.



Dante: IO Bridge and Remote Control over USB

From the MT 48 USB Data cable a user can manage the Dante IO connections using Dante controller as well as enable Dante IO bridging (Settings>Dante-USB IO) that will stream through USB data for recording or monitoring.



MT 48 specifications: RAVENNA/AES67 vs Dante

FIRMWARE RUNNING	RAVENNA AES67 FIRMWARE		DANTE FIRMWARE		
Features	**RAVENNA & AES67**	**USB**	**DANTE**	**AES67**	**USB**
Drivers Availability	Free of charge	Free of charge	Requires plan purchase	Requires plan purchase	Free of charge
IO Count	256 IO	16 I - 32 O @ 1Fs	8 IO or 64 IO	8 IO or 64 IO	16 I - 32 O @ 1Fs
Integration Applications	Merging: MAD (Windows) - VAD (macOS) - ANEMAN	MT 48 Toolkit	Dante Controller - DVS - VIA	Dante Controller - DVS - VIA	MT 48 Toolkit
Sampling Rate	Up to 192kHz	Up to 192kHz	up to 192kHz	48kHz	Up to 192kHz
latency	6-12-16-32-48-64 samples	Variable	0.25ms - 0.5ms - 1ms - 2ms - 5ms	1ms* - 2ms - 5ms	Variable
Additional Protocols supported	NMOS-SAP	YES	NO	SAP	NO
WDM Support (Windows)	YES (MAD)	YES	YES (Dante VIA)	NO	YES
USB Direct Routing	YES	YES	YES	YES	YES
PTP Clocking	YES (PTPv2)	N/A	YES (PTPv1)	YES (PTPv2)	N/A
AoIP listener	YES	YES	NO	NO	NO
Peering Support	YES	YES	NO	NO	NO
Generic input streams	YES	YES	YES	YES	YES
USB Bridge	YES (ANEMAN)	YES	YES	YES	YES
Plugins (EQ, Dynamics, Reverb)	YES	YES	YES	YES	YES
MIDI IO & GPIO	YES	YES	YES	YES	YES
Neumann KH AES67 Support	YES	YES	N/A	YES	YES
MT Portal Support	YES	YES	YES	YES	YES
NMOS	YES	N/A	NO	NO	N/A
LAWO HOME	NO Anubis & Hapi = Yes	N/A	NO	NO	N/A

Dante Missions Specifications

Music Mission (Dante)

- 48 Channels Mixer expandable over ADAT or Dante
- Mixing effects suite (EQ, Compression, Gate, Limiter, Reverb)
- Standalone Mixer for Live or CUE handling
- Dante USB IO bridge to stream Dante network audio over USB (32 Inputs and 16 Outputs). Refer to the Settings>Dante-USB IO page.
- Dante network remote control over USB Data for Dante Controller connectivity and handling over a USB data cable
- Enhanced Settings page for mapping of Dante IO channel to USB
- Mic/Pre DAW remote control
- Downmix to Mono support
- Flexible Bus Routing matrix
- Solo, Solo Exclusive, Solo PFL support
- 18 Save/Recall Internal Presets and unlimited external Presets Save/Recall
- Remote Control support (Web App and Remote App)
- Analog or Digital recording and Monitoring from Dante network.

Monitor Mission (Dante)

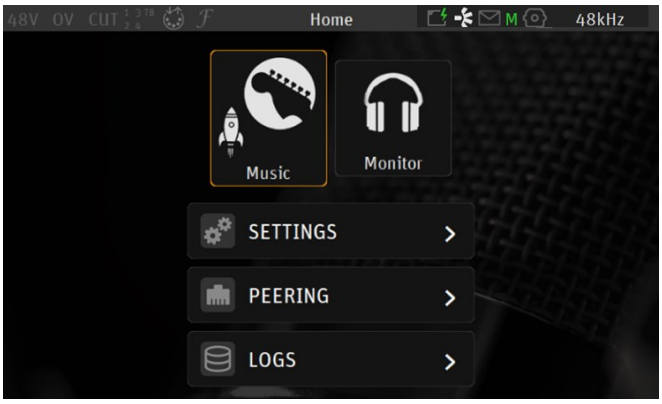
- The remote allows control of volume level and source selection of any Dante Device on the network
- In the Box and Expandable I/O through Merging Hapi, Horus or any Dante devices
- Dante USB IO bridge for stream Dante network over USB (32 Inputs and 16 Outputs). Refer to the Settings>Dante-USB IO page
- Up to 8 Monitors capable of up to 22.2 (maximum 32 channels)
- Dante USB IO bridge to stream Dante network audio over USB (32 Inputs and 16 Outputs)
- Dante network remote control over USB Data for Dante Controller connectivity and handling over a USB data cable
- Enhanced Settings page for mapping of Dante IO channel to USB
- Up to 64 AoIP Sources capable of up to 22.2 (maximum 64 channels -2 dedicated to Talkback)
- Up to 64 AoIP channels Analogue, MADI, AES3, SPDIF, Pro Tools HD I/Os via DANTE
- Down-mix selector (from mono to 22.2)
- Sources trim (exclusive and sum) selector
- 24 bands per EQ for Speakers, with up to a total of 224 bands available
- Bass management
- 18 Save/Recall Internal Presets and unlimited external Presets Save/Recall.
- Standalone operations. The MT 48 can serve as a multi-channel analog converter or headphone amp when disconnected from the computer.
- Access control: Protect settings and other parameters with a password
- Remote Control support (Web App and Remote App)
- Analog or Digital Monitoring from Dante network.

Mission Selection

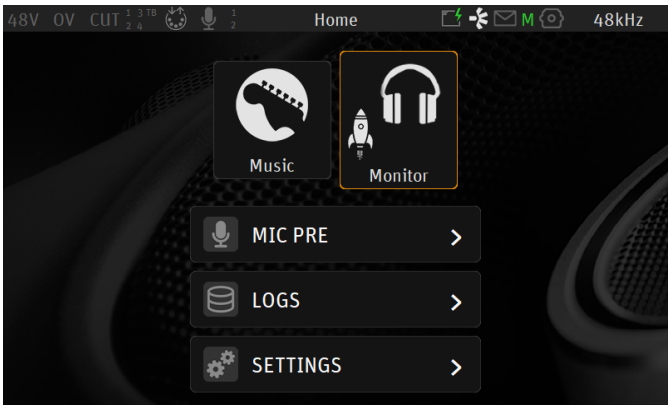
Anubis Home Page

The Home page will show the Missions available, “Music” or “Monitor”, select the Mission that suits your needs. Both Missions are supported in Dante mode.

Music Mission



Monitor Mission



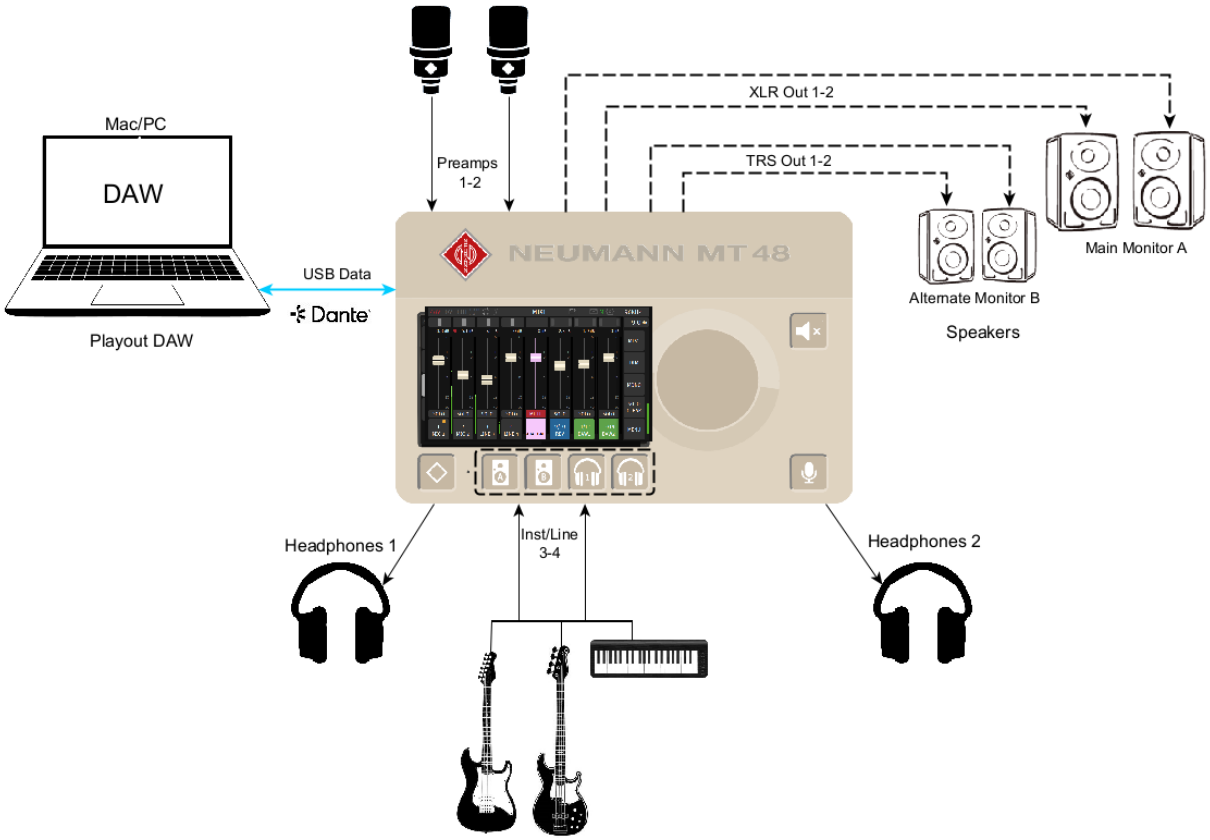
Note: The Monitor Mission required an authorized key to be running.

Music Mission

The Music Mission is a 48 Channels Mixer

The MT 48 is a fully-fledged mixing console with sophisticated EQ and dynamics in every channel plus a nice sounding reverb processor. Thanks to an intuitive touchscreen user interface: Adjust levels and panning at the touch of a finger. No more shuttling between the audio interface and a controller app on your computer: All parameters can be set on the device itself.

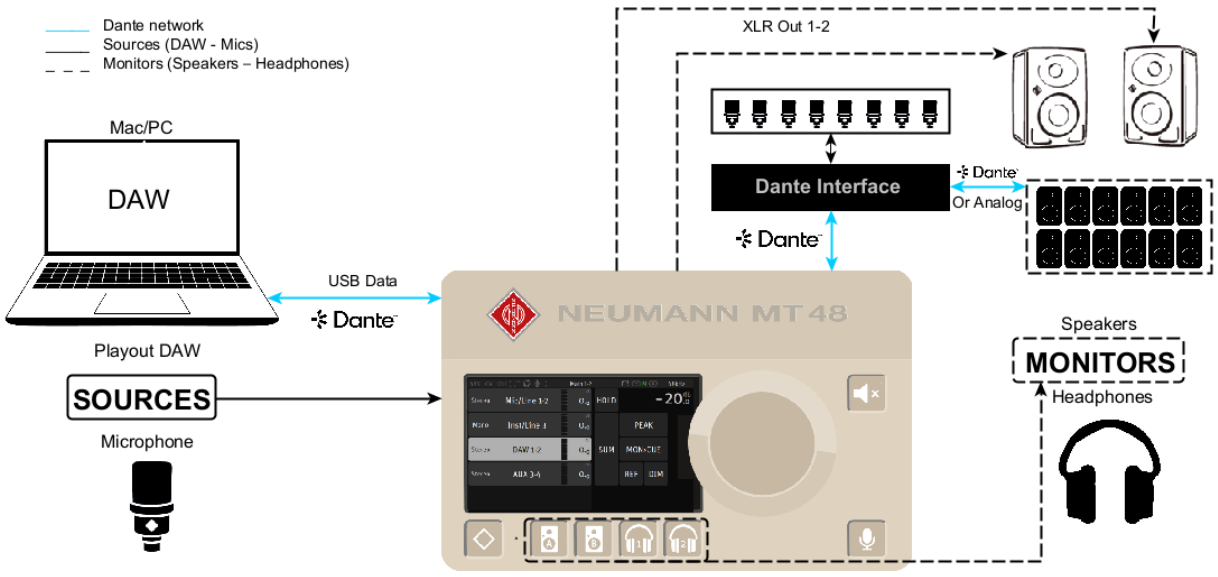
The MT 48 is thus the ideal companion for self-recording musicians. But it can handle large setups just as well, as it offers three expansion options, ADAT, RAVENNA/AES67 and Dante. Expand with Dante IO gear and mix those channels in the MT 48, and redistribute them to your Dante devices using the 4 Cue Mixers available with the MT 48.



Monitor Mission

The Monitor Mission will be available for selection only once you have entered a valid activation key.
Make sure you have registered and applied for a Monitor Mission authorization.
The activation keys must then be entered the MT 48 Agent > License Manager.

Sources vs. Monitors Fundamentals



It is fundamental with the MT 48 Monitor Mission to understand the importance of using Sources (Mixer inputs) and Monitors (Mixer outputs), as this is the base of the MT 48 monitoring engine.

Different types of Sources and Monitors going through the Monitor Engine

Sources examples

- DAW Buses
- Microphones preamps
- Analog inputs
- Dante or AES67 input streams

Monitors examples

- Analog Speakers
- Headphones
- Neumann KH AES67 monitors
- Expanding to Dante hardware with additional outputs
- SPDIF connected Speakers
- Analog outputs

MONITOR MISSION SPECS

Monitor Modes - features table

	MT 48 MONITOR MODES		
Features	**Speaker set**	**Headphone**	**Cue**
Channel Controls - Solo/Mute/Polarity	X		
Adaptative Downmix	X	X	X
Manual Downmix	X	X	X
Surround / Immersive	X		X
Crossfeed		X	
Bass management	X		
Mute (independent)	X	X	X
Volume (independent)	X	X	X
Ref	X		
Dim	X		
Max level	X		
Independent Source selection			X
Share Source selection	X	X	
Apply source sel. to Cues (Mon>Cue)			X
Colored indicator		X	X
Shared Outputs	X		
Multi-instance (running concurrently)		X	X
Source availability within a Monitor	X	X	X

Sources Types

	MT 48 SOURCES TYPES	
Features	**Discrete**	**Stream**
Channel mapping	Fixed choices	Freely configurable
Physical inputs	Patchable	Freely configurable
USB Inputs	Patchable	Freely configurable
Dante Controller required	Yes	No

Channels supported over USB connectivity

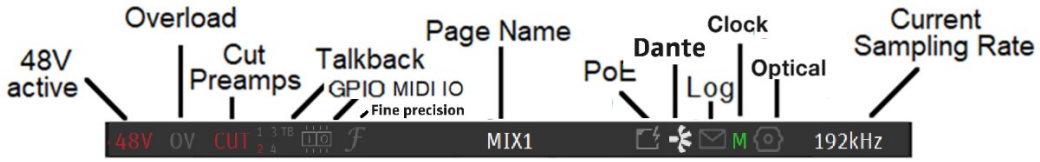
USB IO Support	Inputs	Outputs
1Fs (44.1-48kHz)	32	16
2Fs (88.2-96kHz)	16	16
4Fs (176.4-192kHz)	8	16

Maximum channels for Sources and Monitors (DANTE)

SOURCES AND MONITORS MAX CHANNELS		
	Sources	Monitors
1 Fs (44.1-48 kHz)	64	32
2 Fs (88.2-96 kHz)	32	32
4 Fs (176.4-192 kHz)	16	32

Status Bar Icons

Displays information and notifications about the MT48 status



48V: Will light up red if 48 Phantom power is active on a preamp input channel

CLP: Clipping peak detected, clear the clipping by either tapping the meters section (PreAmps & Meters page) or use the Peak clear option available in the Meters page (PK) or in the Monitor Control section (refer to the Monitor Mission chapter)

OV: OV indicates overload in the MT 48 mixer. Clear the overload selecting the Peak reset

Input Cut: When lit it will indicate that one or more Preamp channel is cut (muted) 1-2-3-4-TB

Talkback: Built-in and/or routed input to the Talk 1 or 2. Active talkback will light up if engaged

GPIO: GPIO indicator for input and output, will lit if GPIO is received or transmitted

MIDI IO: DIN5 symbol indicates MIDI activity

Fine Precision: Precision adjustment mode indicator

Page Name: Information related to the selected page

Power Over Ethernet: (PoE) when active, the icon will be highlighted green

Dante: Indicator that the Dante firmware is running

Log: Letter symbol lights up when a message or error has been received. View logs from Home Page

Synchronization status: Clock status: A green M indicates the MT 48 is Master, a green S indicates the MT 48 is slave. Yellow color indicates locking is in progress, red color indicates improper synchronization (check your setup!)
Note: If multiple MT 48 or network interfaces are connected over the same network (AoIP), one of them will be elected the PTP Master. A specific MT 48 can be imposed to be the PTP Master by enabling the PTP Master option in the MT 48 >Settings>General. There is no guarantee it will be the Master as another device can have higher PTP priority/class.

Optical: Signal and Clocking indication of the ADAT or SPDIF status

Sampling Rate indication: 44.1/48/88.2/96/176.4/192 kHz are the available sampling rate

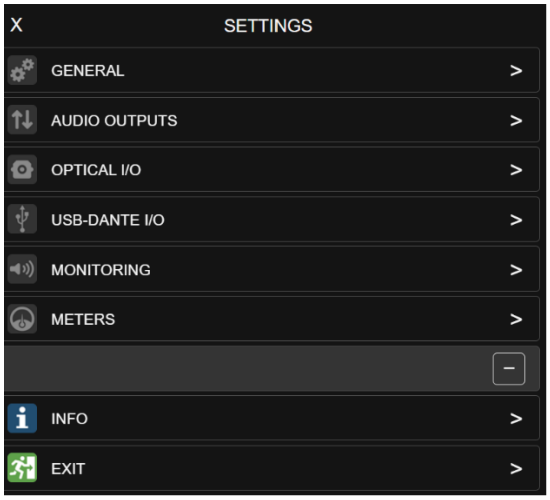
MT 48 Settings (Dante)

The MT 48 Settings are accessible from the Home page. For access, long press the MT 48 Home button.

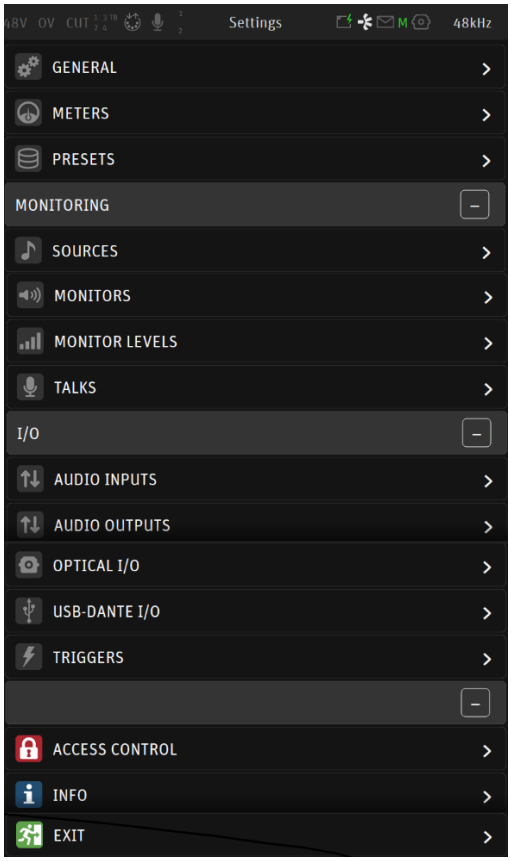
Select the Settings entry to open the Settings page

Settings Dante layout

Music Mission



Monitor Mission

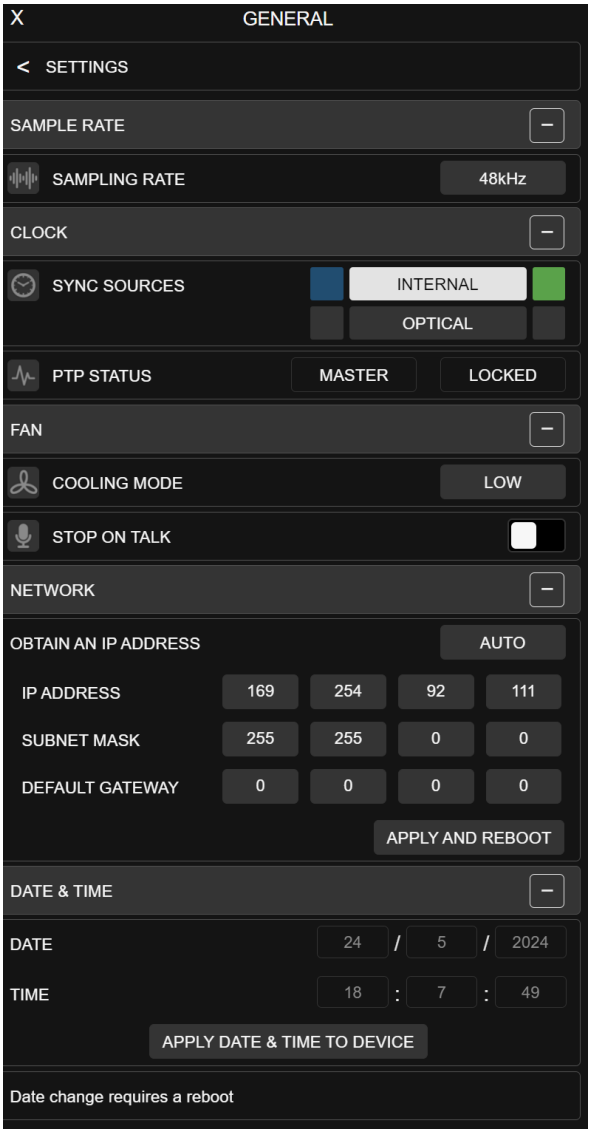


The MT 48 Settings when running the Dante firmware are adapted to the Dante workflow and requirements. Some settings will be different to running in RAVENNA/AES67 mode.

General Settings layout

The General Settings when running the Dante firmware will vary from running in RAVENNA/AES67 mode such as: Sampling Rate tops at 192kHz, PTP Sync and more.

Find below details on the main parameters used for Dante.



Note: Settings parameters and details are available in the MT 48 User Manual or Monitor Mission Manual.

GENERAL SETTINGS

Sampling Rate - Dante
Selector to the different sampling rates, available from a drop-down menu.
44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz

CLOCK
Internal: Dante
Optical: Synchronize to external Optical clock.

About Dante Clock

All Dante-enabled devices use the IEEE 1588 Precision Time Protocol (PTP) across the network to synchronize their local clocks to a leader clock, providing sample-accurate time alignment throughout the network. One Dante device will be elected as the PTP Leader Clock for the network; all other Dante devices act as a PTP Follower Clocks to the elected leader clock. Although many Dante devices may be capable of becoming PTP

Leader Clock, only one device will win the election. Devices with clock inputs (e.g. Word Clock or AES3) will be preferred in the election process. A gigabit connected device is preferred over a device connected via 100Mbps. A tie-breaker rule of the lowest MAC address is used if several equivalent candidate leader clocks are available. The election process may be overridden by manually setting 'Preferred Leader' on a device.

Dante Clock Types
Each Dante hardware device can derive its clock from either its high-quality onboard clock circuit, or an externally connected word clock. In the case of Dante Virtual Soundcard, the computer's clock will be used.

About Dante Latency

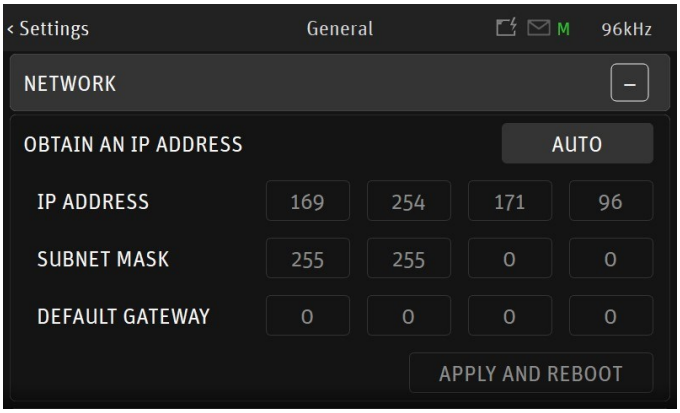
For Dante audio devices, variation in latency in the network is compensated for at the receiver. Each receiver has a device latency setting. This setting defines the latency between the timestamps on the incoming audio samples and when those samples are played out.

The typical default latency for a Dante audio device is 1 msec. This is sufficient for a very large network, consisting of a Gigabit network core (with up to 10 hops between edge switches) and 100 megabit links to Dante devices. Smaller, Gigabit-only networks can use lower values of latency (down to 150 µsec for very fast devices, such as PCIe cards). Recommended latency settings are displayed in Dante Controller, and may also be found in the documentation accompanying the product.

Refer to the Dante Controller Manual for all details

Network Settings

Those parameters will only take effect when using the MT 48 network connection (RJ45), for Dante or for Remote control needs.



Ex-Factory all units are delivers in Auto IP mode

Dante - USB IO Settings

This enhanced page allows the users to Route the Dante streams through the USB IO Data.
Assign the DANTE IO channel from within the MT 48 Settings. Allowing the operator to patch by example Microphone inputs of the MT 48 directly to the Dante channels in order to record those within the DAW.

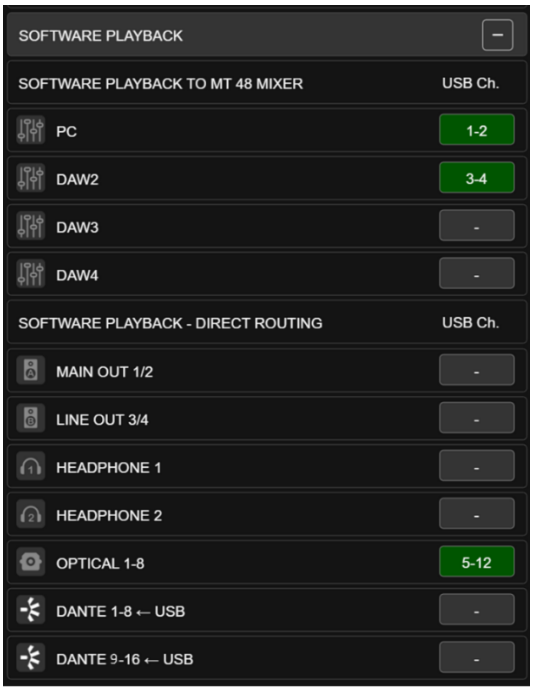
Inputs routed to computer

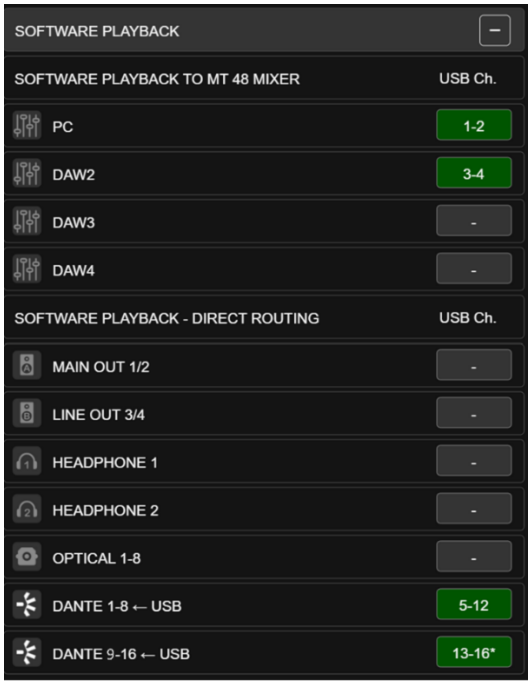
Inputs Routing customization to Dante Channels or USB channels with bridging possibilities.
Settings may vary between the Music Mission and Monitor Mission.

DANTE 1-8 →USB Route the Dante streams to the USB inputs 1-8
DANTE 9-16 → USB Route the Dante streams to the USB inputs 9-16
DANTE 1-8 POST FX → USB Route the Dante streams Post FX to the USB inputs 9-16
DANTE 9-16 POST FX → USB Route the Dante streams Post FX to the USB inputs 9-16

Software Playback

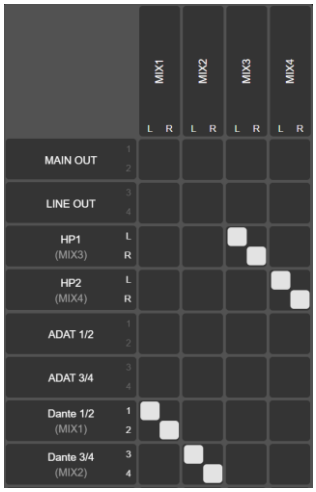
Outputs Routing customization to Dante Channels or USB channels with bridging possibilities





DANTE 1-8 ← USB Software Playback (e.g.DAW outputs) Routed from USB to Dante 1-8
DANTE 9-16 ← USB Software Playback (e.g.DAW outputs) Routed from USB to Dante 9-16

Mapped Dante Bus Routing channels.



The Bus routing will indicate the already mapped channels consumed by the Dante - USB IO Settings routing. Please unassign those to have them available for Dante mapping.

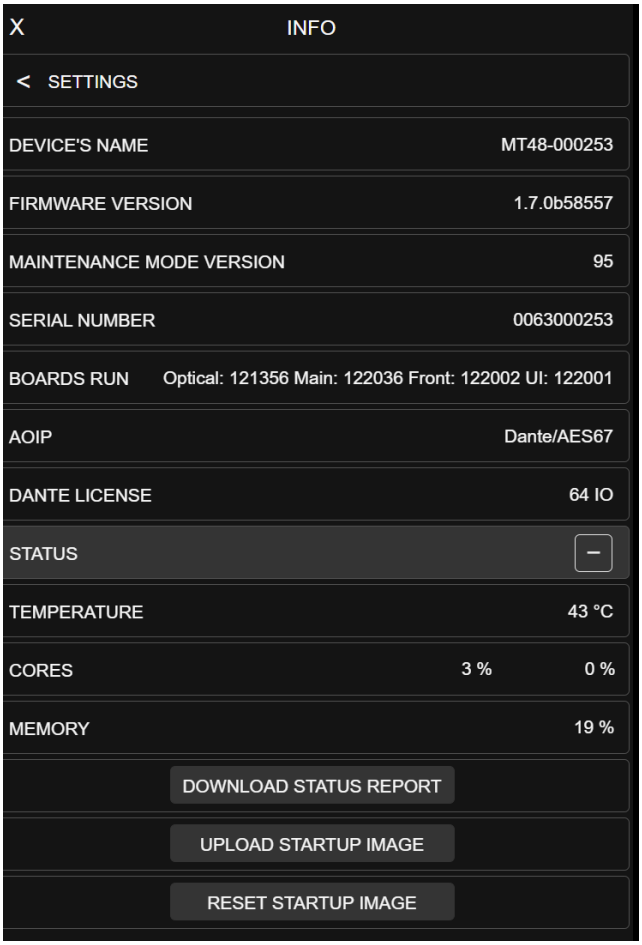
4. Select Reboot to factory
Warning: This will reinitialize all the applied Locks Settings.

Info

Find all information about the MT 48 Name, Type, Firmware version, Maintenance mode and Serial Number along with additional information on the MT 48 status: Temperature, CPU and Memory usage.

AOIP: Identifies the running firmware and protocol

Dante License: Identifies the Dante IO License present, 8 IO or 64 IO are available for purchase.



Note: It's important to update to the latest firmware to benefit from the latest improvements and fixes.

EXIT Settings

Reboot

Reboot the MT 48

Note: To turn OFF MT 48, press on the POWER button to switch it to the released state.

Save

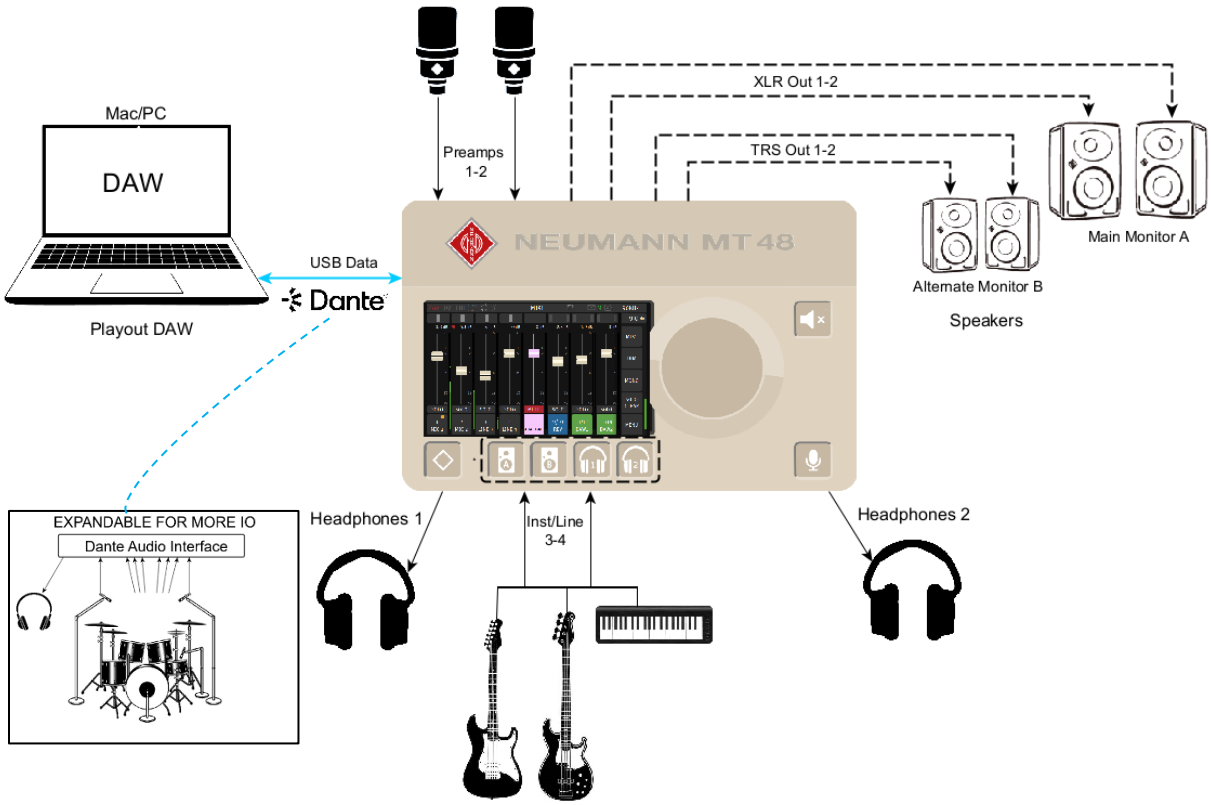
Save the current MT 48 configuration, note that an auto-save runs every two minutes.

Reboot to Factory

Reboot your MT 48 to factory settings will recall to the default factory settings.

Note: the saved Presets will not be erased we recommend that you first back up ion by saving a Preset

Dante Use Case - Music Mission



Setup
Adding Microphones and Instruments for recording while monitoring your DAW Main outputs along with an ultra-low monitoring Cue routed to the Headphones 1.
Providing CUE Mixes to Artists over a Dante Network.

Prerequisites:
Install Dante Controller and Dante Virtual Soundcard.
Download and install MT Discovery v15.0.10 and above

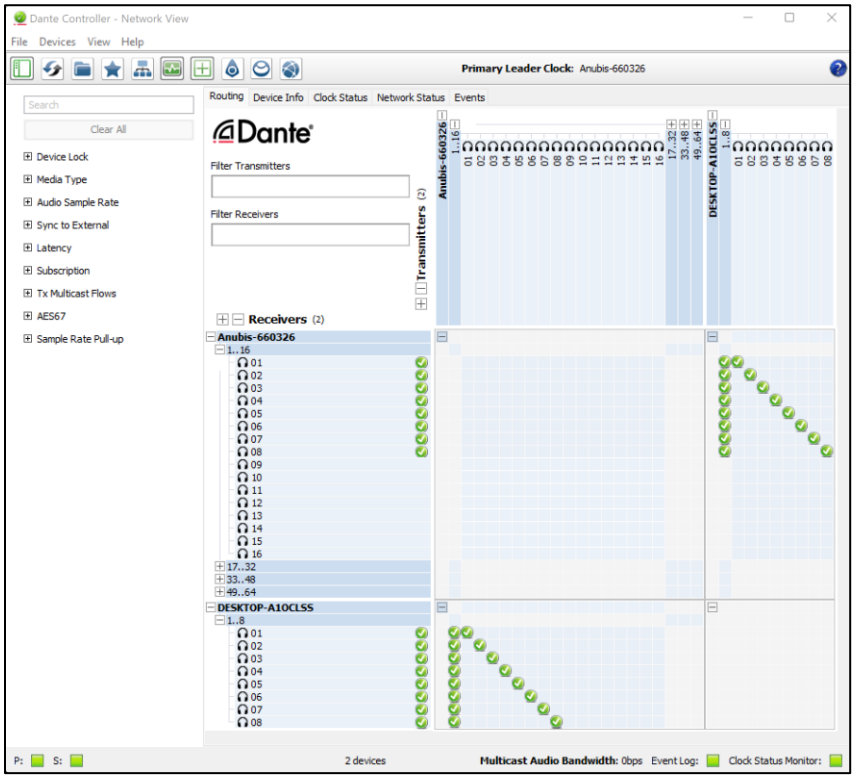
Connect your microphones to the XLR combo inputs 1-2 located at the back of the MT 48, your Guitar or Bass can be directly connected to the Hi-Z instrument input at the front Input 3.
Stereo inputs 3-4 can be used, but in this case under Settings>Sources>Inst/Line the source mode has to be changed to Stereo mode and patched to Jack 3 and Jack 4.

Note: Using Input 4 will override the built-in Talkback microphone as both share the same circuitry.

Procedure:

1. Launch Dante Virtual Sound Card (DVS) and Dante Controller.

2. In Dante Controller establish connections between the MT 48 and your system



Note: You can expand the Dante IO connectivity to other Dante devices.

3. Configure your DAW to use the Dante Virtual Sound Card and make sure it is configured to use the Dante Outputs 1-2 by example

4. Playback your DAW

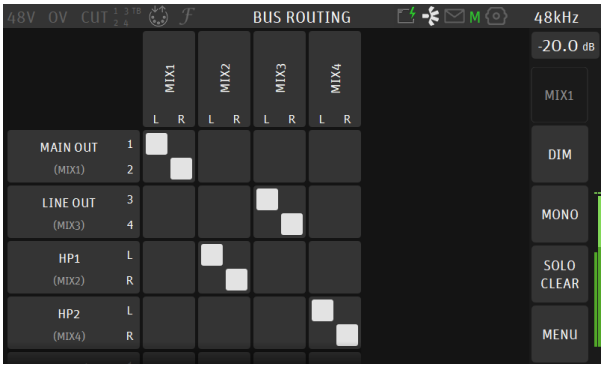
The DAW signal will be coming into the Dante inputs channels of the MT 48.

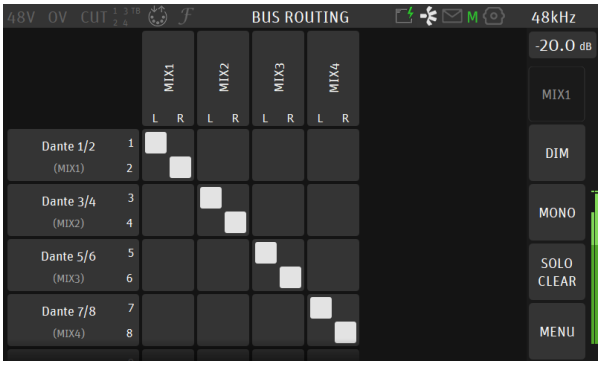
DAW 1-2

Note: It is recommended for Stereo DAW inputs to Pan the channels left and right and Link the channels

5. Open the Bus Routing Page and patch the Mixer and Mixer-ALT to the outputs you wish to monitor from.

Bus Routing



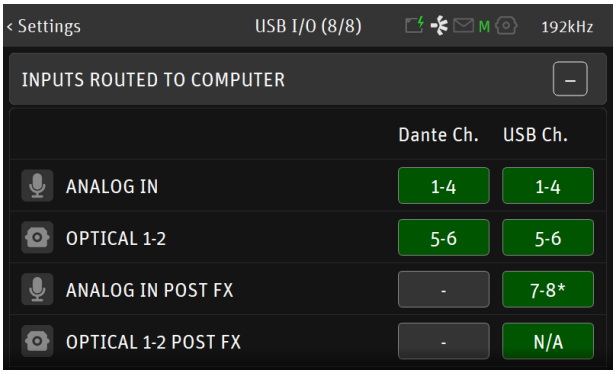


You can map the Mixers outputs to local MT 48 hardware outputs (e.g. XLR 1-2 or HP1 or HP2) but can also map your Bus Routing to Dante devices over your network (scroll down the page).

Note: For Dante Multichannel Monitoring we recommend using the Anubis Monitor Mission

6. To record the Physical Preamps of the MT 48 over Dante and your DAW, make sure you route them properly under Settings>Dante IO.

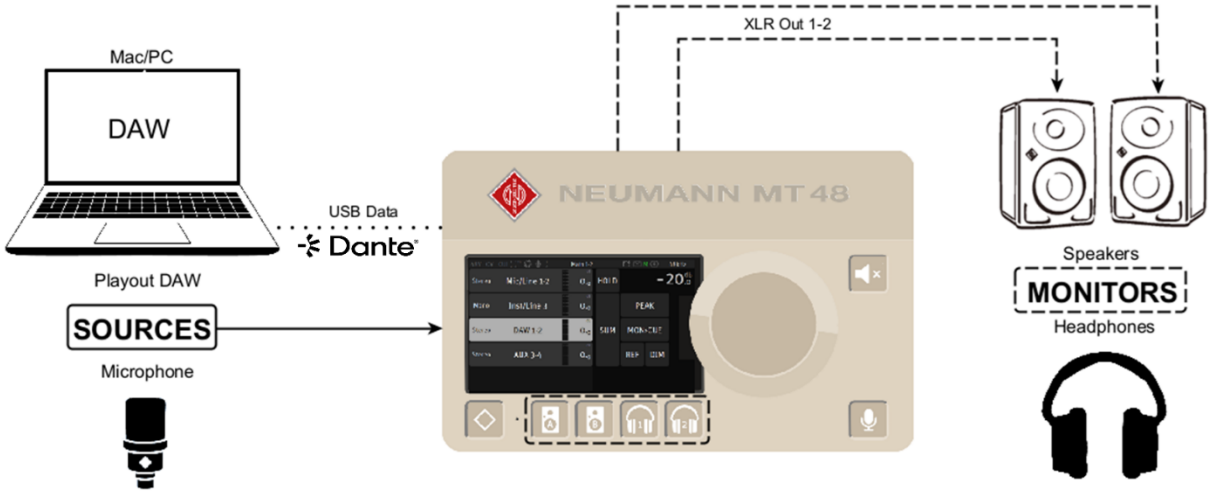
In the image below the Analog inputs 1-4 of the Anubis are routed to the Dante channels 1-4 in order to record those channels within your DAW inputs.



You now are ready to Record and Monitor Software applications (DAW) using the Anubis Music Mission from which you can as well Mix all the Anubis Inputs channels in ultra-low latency for performers cues.

Dante Use Case - Monitor Mission

When the MT 48 is used in Dante mode we recommend using Audinate Dante Virtual Sound card and Dante Controller for the connectivity of the AoIP Streams**.** Refer to the Dante Controller guide for more details.



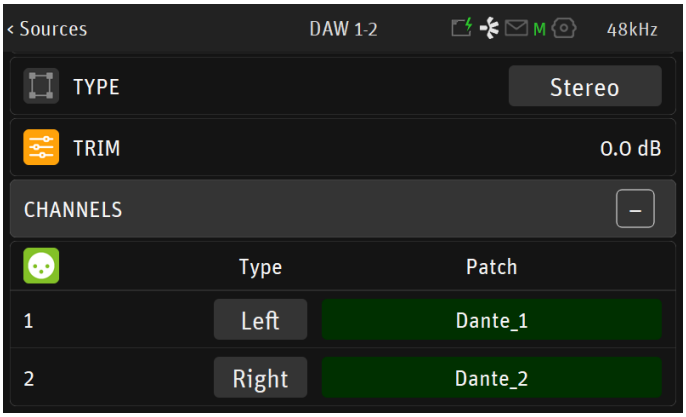
SetUp:
MT 48 running the Monitor Mission that controls 2 x Monitors sets and Headphones over a USB IO connection.

Prerequisites:

- An MT 48 running the Monitor Mission
- Audinate Dante Controller, the Audinate Virtual Sound card if using along a DAW, Mac or PC.
- Highly recommended to install MT Discovery v15.0.10 and above

Procedure:

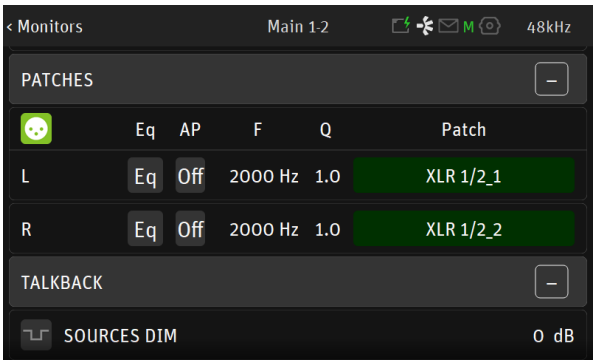
1. By default the MT 48 DAW 1-2 Source is connected to the USB channels 1-2, change the Patch to Dante 1-2 when running in Dante, so that the DAW playbacks is patched to those channels.



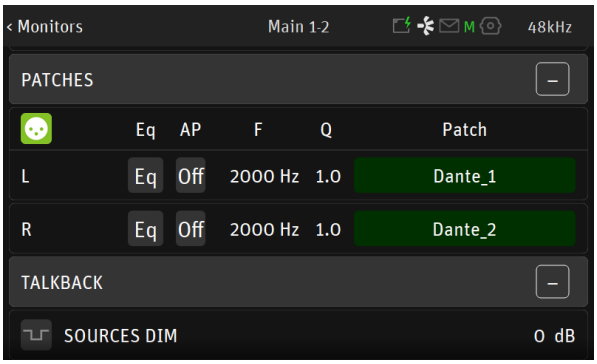
2. Connect your MT 48 with network cable to your system

4. Patch your Monitor Set in MT 48. By default Main 1-2 is patched to XLR 1-2 channels and assigned to the Monitor A button while the Alternate 3-4 should be patched to TRS 3-4 channels assigned to Monitor B button. Headphones 1 and 2 should already be patched to their respective physical outputs. This can be verified and changed if desired under the Settings>Monitors Patch section.

Patched to local Physical outputs



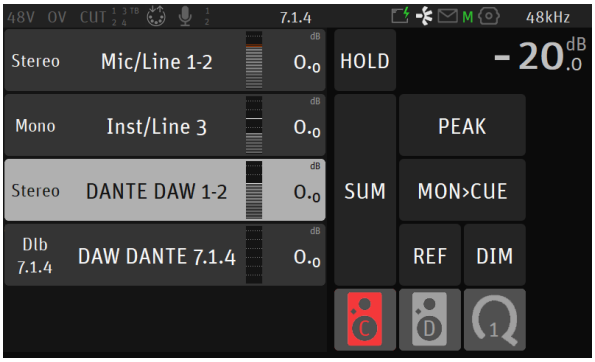
Patched to Dante outputs



The operator has the freedom to change the default patch to suit his Monitoring setup

Note: If the Dante patched IO auto-disconnect make sure that under Settings>USB Dante IO that those Inputs are not already mapped to the same Dante channels.

5. Go to the Main Anubis Source page in order select which Source you will Monitor (e.g. DAW 1-2). Then select the Monitor Set (e.g. Speaker A, B or Headphones button) which you wish to monitor.



In order to monitor multiple sources simultaneously enable the SUM option and sum your Sources selections. To control the Headphones volume, simply select the Headphone 1 button and use the MT 48 Rotary knob to adjust its Volume, the same applies to Speakers buttons.

Note: The Speakers Set mode and Headphones mode listen to the same Sources selection. In order to listen to different Sources, a Monitoring Cue must be configured (refer to the Settings>Monitors Cue mode section)

You are now ready to run the Monitor Mission and have full control over your DAW monitoring.

Web Control

The MT 48 can also be controlled via a web interface in your browser.
Dante users must download and install MT Discovery 15.0.10 and above. MT Discovery will allow you to Open the Anubis Web Access, License Manager, Advanced Dante Pages, Maintenance mode and MT Portal.

If using MT 48 over USB connection make sure you have install the MT 48 Toolkit click on the Neumann logo (MT 48 Agent) in your computer's taskbar/menu bar and select OPEN WEB CONTROL.

Controlling the MT 48 from your Tablet

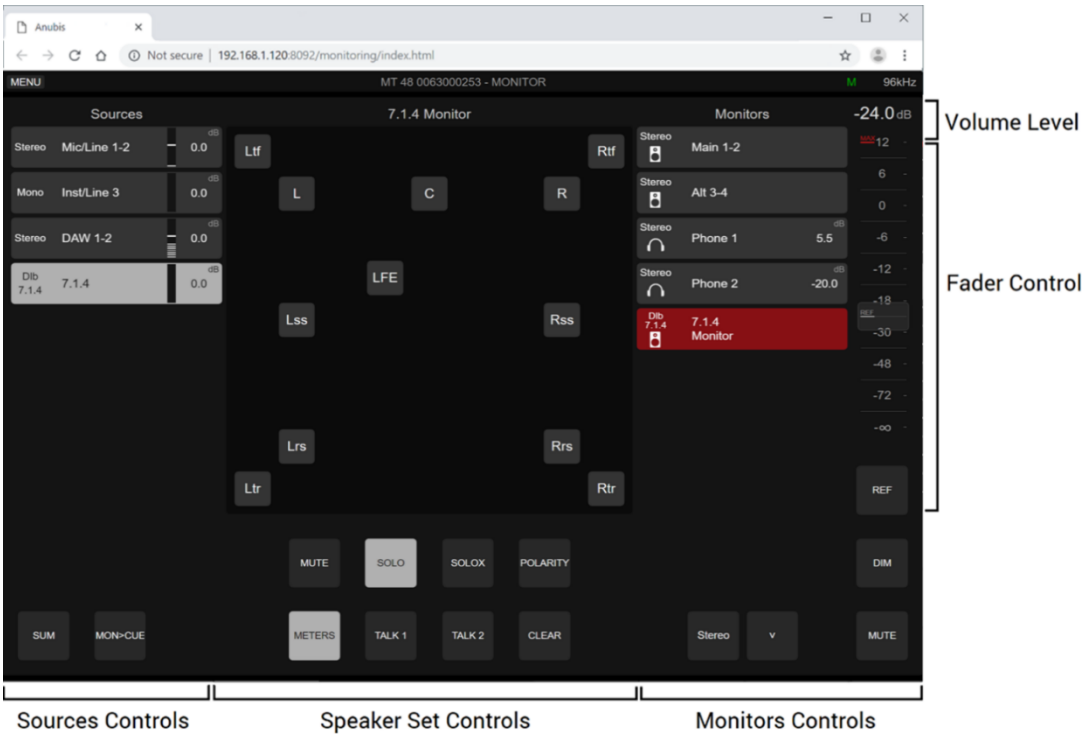
The Web Control can be used to remote control the MT 48 from another computer. However, this requires the MT 48 to be part of your home network.

A typical use case would be to remote control mixes from one or more tablet computers so the artist(s) can adjust their own monitor mix.

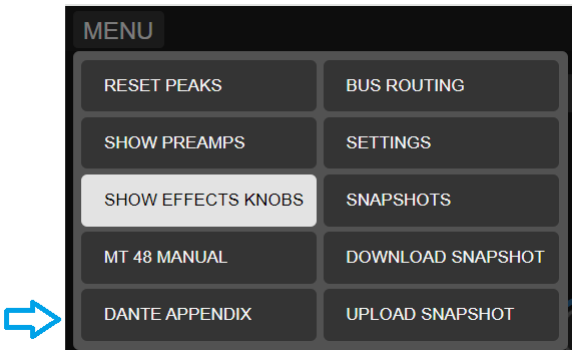
To accomplish this, connect the MT 48's network gigabit port to your WiFi router via an CAT5 or CAT6 ethernet cable. If that's not possible, you can also connect the MT 48 to a WiFi extender with an ethernet port.

To find out the web address of your MT 48, go to the MT 48 AGENT, i.e. the Neumann logo int the menu bar/taskbar of your computer and select OPEN WEB CONTROL. The web address in your browser window will work on any web device within your network.

Web User Interface Page



Click on at the top left corner to display the Menu options



MT48 User Manual and Dante Appendix
Selecting this entry will open the MT 48 User Manual or Dante Appendix that is embedded into the MT 48. Make sure you have a PDF program or extension installed to view the manual.

Mission Manual:
Will open the Monitor Mission Manual

Preamps:
Select in order to view the preamps remote control display.

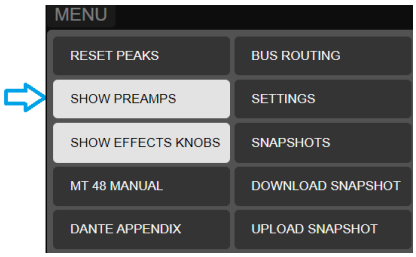
Settings:
Opens the Settings of the MT 48 remote settings.

Upload Preset:
Select “Chose File” to load externally saved presets (.NeuMon). Browse and select the MT 48 preset.

Download Preset:
Download and save an MT 48 preset to an external drive. Browse and select the folder to save preset.
Note: Monitor Mission presets file extensions are .NeuMon while Music Mission Snapshots are .NeuMi files

Web Access PreAmps Remote Control

Accessible from the Menu options select Show Preamps



MT 48 Remote PreAmps page

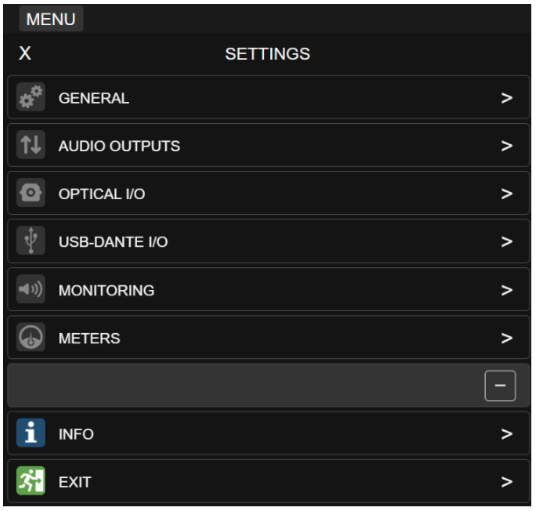
Web Access Settings

The Web Access provides remote controls of the MT 48 main Settings.

Select Show Settings from the menu option in order to open the Settings remote layout.

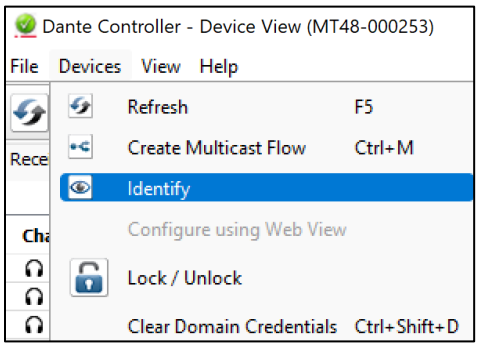
Click on the setting entry line or + you want to open a specific setting. All changed parameters will be reflected on the MT 48 itself

Note: Sources and Monitors settings management are not available in the Web Access pages, those can be configured from the MT 48 itself or from the MT 48 Remote App

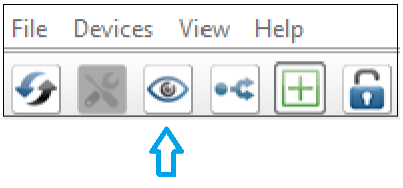


Identify Device

Dante Controller incorporates support for device identification. Double click any device in the Network View to open the Device View, the click on the “Identify” button. This will Display the device Name/Serial in Overlay on the MT 48 TFT display.



or from the eye icon



FIRMWARE UPDATE

Prerequisites

- The MT 48 Toolkit. Download from https://www.neumann.com/en-en/file-finder/
- An internet connection

Procedure

To find out if your MT 48 is on the newest firmware, go to MENU → SETTINGS → INFO

Updating requires the MT 48 Toolkit to be installed on your computer system. Download the newest MT 48 toolkit software, unzip and install the Toolkit.

1. With the MT 48 connected to your computer (in USB or Network), go to the Neumann logo in the menu bar (Mac)/taskbar(Windows) to open the drop-down menu of the MT 48 Agent
2. In the menu, select "Show Available Updates"
3. A Window with an Update page will open
4. If updates are available, select "Download and Update" in order to update both the Toolkit/Drivers and the Firmware. Ex-Factory MT 48 are running the RAVENNA/AES67 firmware. *Note: Latest production of MT 48 serials 10000 and above are Dante Ready ™ two firmware's will be proposed in the MT Portal update tabs. Refer to the Dante Appendix for all details.*
5. Once complete you will be asked to reboot the MT 48 unit. *Warning: Never abort an ongoing firmware update*

<u>Manual Update from the Maintenance Page (alternative)</u>

Users can update the firmware from the Maintenance Mode page. This is supported over a USB connection (via the MT 48 Agent) or from a network AoIP connection

1. OPEN MAINTENANCE PAGE from the MT 48 Agent menu or from the MT Discovery Right Click menu
2. A browser window opens. Click SELECT FILE and locate the firmware file you downloaded. *(The RAVENNA-AES67 or DANTE firmware/toolkits can be downloaded from the Neumann site)*
3. Click UPDATE and wait for the procedure to end. Make sure your computer does not enter sleep mode during the update process. The updating procedure takes about 10 minutes. Don't panic if the process appears to get stuck. Do not abort, just wait.
4. Once the update is completed, the message REBOOT DEVICE appears. Confirm.
5. After rebooting the device, your MT 48 is on the latest firmware. *Warning: Never abort an ongoing firmware update*

Note: Some firmware updates might take longer than usual or have a Dual progress bar phase on the units. Do not abort at any time until the firmware update is completed.