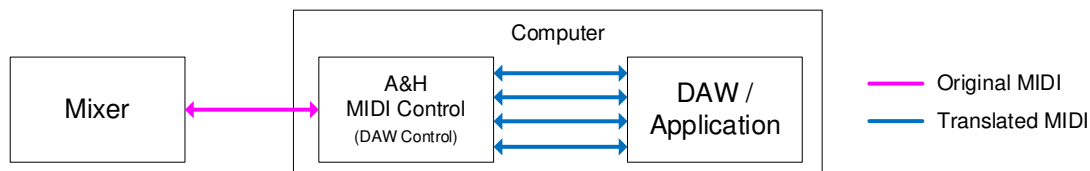


Allen & Heath MIDI Control Help V2.20

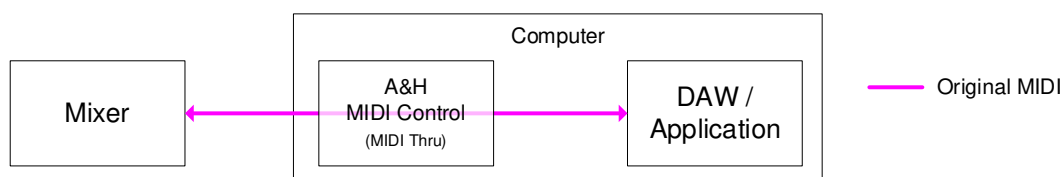
Introduction

Allen & Heath MIDI Control works by creating virtual MIDI ports in Mac OS or Windows and then facilitating a MIDI connection between these virtual ports and the mixer either with or without translation.

This enables compatible Allen & Heath mixers to control DAW software on Mac OS or Windows by emulating popular HUI or Mackie Control protocols.

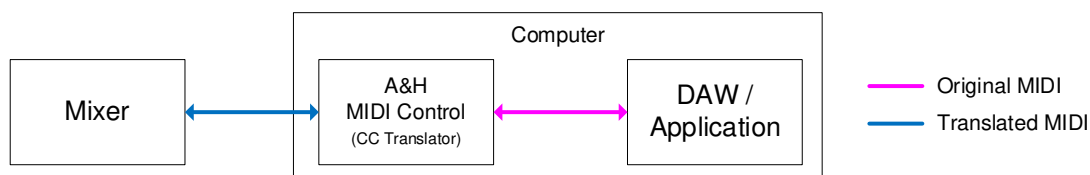


It can be used to send and receive MIDI control messages directly to and from a digital mixer's core for remote control of mixing parameters, scene changes and other functions.



- ❗ Compatible mixers send and respond to MIDI messages as detailed in the MIDI Protocol specification documents for each range, available for download from www.allen-heath.com.

Simplified control of the most common mixer parameters with MIDI CC messages from the computer is also made possible with the 'CC Translator' options.



About this version (V2.20)

- Support for **Qu-5/6/7**
- Matched **dLive MixRack** and **dLive Surface** options

Supported operating systems

- Windows 10, Windows 11.
- macOS 10.14 Mojave, 10.15 Catalina, 11 Big Sur, 12 Monterey, 13 Ventura, 14 Sonoma, 15 Sequoia

Creation of virtual MIDI ports

Virtual MIDI ports are created every time **Allen & Heath MIDI Control** is started up *and* whenever the protocol setting is changed.

Therefore, to ensure that your DAW or any other application recognises these ports correctly, it is best practice to set up your mixer and **MIDI Control** *before* starting your DAW or any other application.

Use alongside direct USB connection

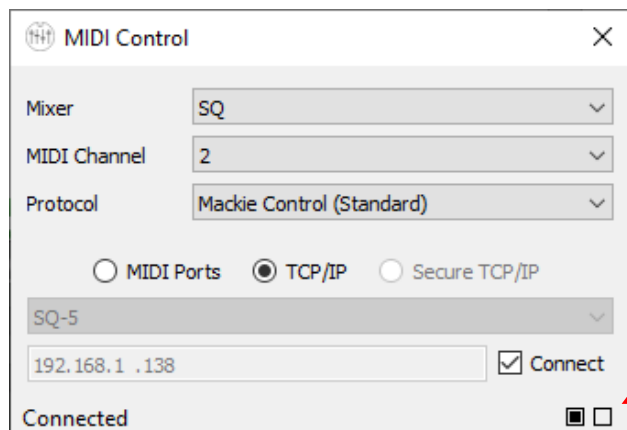
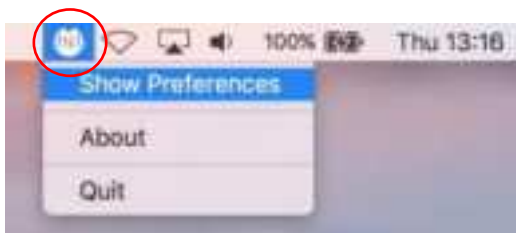
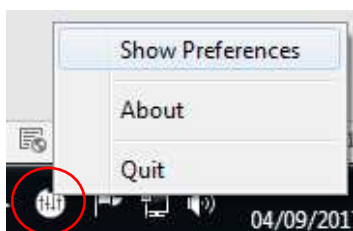
CQ, Qu and **SQ** mixers feature a built-in USB audio/MIDI interface. The MIDI side of this can be connected to **Allen & Heath MIDI Control**, but this will mean that any DAW or other application on the computer will have access to both the direct (USB-B) MIDI port *and* any virtual ports at the same time.

Therefore, to avoid issues when using **Allen & Heath MIDI Control** for DAW Control purposes, it is best to disable the direct USB MIDI connection in your software where possible. This will ensure that only the translated messages from the virtual ports are being received and used.

Configure Allen & Heath MIDI Control

Download **Allen & Heath MIDI Control** from www.allen-heath.com and install it on your computer.

Launch **Allen & Heath MIDI Control** which will open and run as a background task. Right click on the icon in the system tray (Windows) or right click/control click on the icon in the menu bar (Mac) then click on **Show Preferences** in the menu to access the preferences panel.



The two squares at the bottom right of the window display MIDI I/O activity. To check you are connected to the mixer, move any MIDI fader on the mixer and the left indicator should flash. Similarly, when messages are being sent from the computer, the right indicator will flash.

Mixer - Select the mixer type/range you are connecting to.

MIDI Channel - This should match either the MIDI channel of the mixer itself, or for control surface use, the DAW Control MIDI channel. For example, by default, the Qu MIDI channel is **1** and the Qu DAW Control MIDI channel is **2**.

Protocol - Select a protocol to choose whether translation is carried out.

- **HUI/Mackie Control** – Translates MIDI messages from the mixer to emulate a control surface.
- **Mackie Control (Standard/Alt Display)** – This option is available for SQ and Qu-5/6/7, which can display channel naming on the channel strip LCD displays. The Mackie control protocol allows for two rows of text, so these options simply switch which row is displayed.
- **MIDI Thru** – All messages are passed to and from the mixer without translation. Use this to control the mixer according to its MIDI protocol, or to receive direct MIDI output from MIDI channel strips. This should also be used for simple program/scene changes and to receive MIDI output from SoftKeys or Soft Rotaries.
- **CC Translator** – Translates simple MIDI Control Change (CC) messages and Note On/Off messages from the computer to NRPN messages for control of a mixer's audio channel faders and mutes (see page 6).

Connection - Select MIDI Ports for USB connection to the mixer (CQ, Qu, SQ), TCP/IP for a network connection or Secure TCP/IP for a secured network connection.

- **MIDI Ports** – Select the MIDI Input and Output ports to be used, these could be via a MIDI interface or a direct USB connection to the mixer (CQ, Qu, SQ), for example Qu-16 MIDI Out and Qu-16 MIDI In.
- **TCP/IP or Secure TCP/IP** – Select the mixer from the drop-down box or select Custom and type in the IP address of the mixer, then tick the Connect checkbox.

❗ For a network connection, make sure your computer and the mixer are set to compatible IP addresses within the same subnet.

Configure your mixer for use as a DAW control surface


Qu-16/24/32/Pac/SB (firmware V1.2 or higher)

The Custom Layer can be populated with MIDI strips which are automatically assigned with the correct control messaging for each physical channel strip.

- Go to **Setup > Control > Custom Layer** and set the required fader strips to MIDI by selecting first then scrolling with the screen rotary.
- Use the **Fn '+1'** key to auto assign the next fader sequentially.
- Set the MIDI Channel in the mixer's **Setup > Control > MIDI** screen.
- If required, set SoftKeys to MMC transport controls or DAW Bank Up/Down in **Setup > Control > SoftKeys**.

dLive (firmware V1.5 or higher), Avantis (firmware V1.1 or higher), SQ (firmware V1.2 or higher), Qu-5/6/7 (firmware V1.1 or higher), GLD (firmware V1.4 or higher)

Up to 32 MIDI strips can be freely assigned to channel strips.

- Drag and drop MIDI strips to the desired Banks and Layers in **Surface > Control > Strip Assign (dLive/Avantis)**, **Setup > Surface > Strip Assign (SQ)**, **SETUP > Strip Assign (Qu-5/6/7)**, **Setup > Control > Strip Assign (GLD)**.
-  Although MIDI strips can be freely assigned, for logical operation as a control surface, they should be added in blocks of 8 and in order (see 'Number of ports and virtual control surfaces' below).
- Set the MIDI Channel in **Utility > Control > MIDI (dLive/Avantis)**, **Utility > General > MIDI (SQ/Qu-5/6/7)**, **Setup > Control > MIDI (GLD)** and note the DAW Control MIDI channel.
- On **dLive** and **GLD**, the set of MIDI messages for each strip can be customized to suit user requirements. Leave the default values for use with DAW Control. You can restore the factory default MIDI messages by recalling the Reset MIDI Scene in any Template Show.
With **Avantis** the **Reset Settings** scene can be used in combination with recall filters to achieve the same result.
- Refer to mixer Reference Guides for further information on mixer setup including SoftKey assignment.

Number of ports and 'virtual control surfaces'

When using a control surface protocol, **Allen & Heath MIDI Control** will create 4 virtual input, and 4 virtual output ports labelled **DAW Control MIDI 1-4**.

This is because the control surfaces being emulated have only 8 channel faders, meaning it is only possible to use 8 physical faders from the mixer for each 'virtual control surface'.

To allow all physical faders to be used (up to 32 on a Qu-32 for example) therefore, up to 4 separate virtual control surfaces must be set up in the DAW or other application, each using a separate port.

Virtual control surface	Physical mixer channel strips	Input and Output port
Virtual control surface #1	Mixer MIDI Channel Strips 1-8	DAW Control MIDI 1
Virtual control surface #2	Mixer MIDI Channel Strips 9-16	DAW Control MIDI 2
Virtual control surface #3	Mixer MIDI Channel Strips 17-24	DAW Control MIDI 3
Virtual control surface #4	Mixer MIDI Channel Strips 25-32	DAW Control MIDI 4

Configure your DAW/software for use with a control surface

- ① Connect your mixer and configure **MIDI Control preferences** before opening your DAW.

Follow the instructions specific to your DAW in the following pages to assign the **Faders**, **PAFL**, **Sel/Mix** and **Mute** keys from mixer MIDI strips to **Levels**, **Solo**, **Select** and **Mute** controls in your DAW. This will also assign MMC transport controls from the mixer to the corresponding DAW controls. By assigning **Bank Up/Down** functions to the mixer's SoftKeys, fader bank navigation is also possible.

Any DAW or application which features MCU or HUI control surface support but is not mentioned here should also work. Simply follow the standard control surface setup instructions for your application and connect up to 4 control surface instances using the virtual ports created by **Allen & Heath MIDI Control**.

Harrison LiveTrax

1. Select the **Mackie Control** protocol in **MIDI Control preferences** and launch LiveTrax.
 2. Open the **Preferences / Control Surfaces** window.
 3. Tick and select the **Mackie** option.
 4. Click **Show Protocol Settings** and select a device type:
 - a. **Mackie Control** for 8 faders/1 emulated surface.
 - b. **Mackie Control with One Extender** for 16 faders/2 emulated surfaces.
 - c. **Mackie Control with Two Extenders** for 24 faders/3 emulated surfaces.
 5. Assign sends and receives for the Main surface and Extenders. The following example assumes 16 MIDI strips are used:
 - a. **Main surface at position 1 sends/receives via = DAW Control MIDI 1.**
 - b. **Extender at position 2 sends/receives via = DAW Control MIDI 2.**
 6. Close the **Control Protocol Settings** and **Preferences** windows.
- ① A maximum of 24 faders/3 emulated surfaces can be used with LiveTrax.

Avid Pro Tools

1. Select the **HUI** protocol in **MIDI Control preferences** and launch Pro Tools.
2. Go to **Setup / MIDI / Input Devices** and enable all **DAW Control** MIDI ports.
3. Open the **Setup / Peripherals** window and navigate to the **MIDI Controllers** tab.
4. Create a **HUI** device for each block of 8 MIDI strips present on the mixer and assign to the corresponding MIDI ports. The following example assumes 16 MIDI strips are used:
 - a. In row #1, select **HUI** as the Type and **DAW Control MIDI 1** as the **Receive From** and **Send To** ports.
 - b. In row #2, select **HUI** as the Type and **DAW Control MIDI 2** as the **Receive From** and **Send To** ports.
5. Click **OK**.

Steinberg Cubase

1. Select the **Mackie Control** protocol in **MIDI Control preferences** and launch Cubase.
- ① When using SQ, select **Mackie Control (Alt. Display)** to show track names correctly.
2. Open the **Studio / Studio Setup** window.
 3. Create a Mackie Control device for each block of 8 MIDI strips present on the mixer and assign to **Not Connected** before assigning the corresponding MIDI ports.
- ① Note that the top-most device in the left-hand list represents the right-most block of MIDI channel strips.
- a. Click on the **Add Device** button (+), select **Mackie Control** and set the input and output ports to **Not Connected**.
 - b. Click **Apply**.
 - c. Repeat this for up to 4 devices in total (32 MIDI strips)
 - d. Assign the input and output MIDI ports of each device to the **DAW Control** MIDI ports as follows:

8 MIDI Strips		16 MIDI Strips		24 MIDI Strips		32 MIDI Strips	
Mackie Control	DAW Control MIDI 1	Mackie Control	DAW Control MIDI 2	Mackie Control	DAW Control MIDI 3	Mackie Control	DAW Control MIDI 4
-	-	Mackie Control 2	DAW Control MIDI 1	Mackie Control 2	DAW Control MIDI 2	Mackie Control 2	DAW Control MIDI 3
-	-	-	-	Mackie Control 3	DAW Control MIDI 1	Mackie Control 3	DAW Control MIDI 2
-	-	-	-	-	-	Mackie Control 4	DAW Control MIDI 1

Cockos Reaper

1. Select the [Mackie Control](#) protocol in **MIDI Control preferences** and launch Reaper.
 2. Open the [Options / Preferences](#) window and click on [MIDI Devices](#) from the left-hand list.
 3. To avoid message conflicts, make sure that all DAW Control MIDI Input and Output ports are disabled. If needed, right click on a port to change its status.
 4. Select [Control Surfaces](#) from the left-hand list and create a [Mackie Control device](#) for each block of 8 MIDI strips present on the mixer, then assign each to the corresponding MIDI ports.
The following example assumes 16 MIDI strips are used:
 - a. Click the [Add](#) button, select [Mackie Control Universal](#) surface mode and [DAW Control MIDI 1](#) as the Input and Output port, set Surface Offset to **0** and adjust the size tweak to **8**, then click [OK](#).
 - b. Click the [Add](#) button again, then select [Mackie Control Extender](#) surface mode, [DAW Control MIDI 2](#) as the Input and Output port, set Surface Offset to **8** and adjust the size tweak to **8**, then click [OK](#).
- ❗ Size tweak is always **8** with offsets set to: Surface#1 = **0**, Surface#2 = **8**, Surface#3= **16**, Surface#4 = **24**.
5. Click [OK](#) to close the window.

Ableton Live

1. Select the [Mackie Control](#) protocol in **MIDI Control preferences** and launch Live.
2. Open the [Live / Preferences](#) window and navigate to the [MIDI / Sync](#) tab.
3. Select [MackieControl](#) in the [Control Surface #1](#) dropdown box and set [DAW Control MIDI 1](#) as the Input and Output port.
4. For each subsequent block of 8 MIDI strips present on the mixer, create a Mackie Control Extender device and assign it to the corresponding MIDI port.
The following example assumes 16 MIDI strips are used: Select [MackieControlXT](#) in the [Control Surface #2](#) dropdown box and set [DAW Control MIDI 2](#) as the Input and Output port.
5. Close the window.

Apple Logic

1. Select the [Mackie Control](#) protocol in **MIDI Control preferences** and launch Logic.
2. Open the [Logic Pro / Preferences / Control Surfaces / Setup](#) window.
3. Create a Mackie Control device and assign it to the first virtual MIDI port:
 - a. Click [New / Install](#), scroll down, select [Mackie Designs – Mackie Control – Logic Control](#) and click [Add](#).
 - b. Close the window and click the picture labelled [Mackie Control](#).
 - c. Select [DAW Control MIDI 1](#) as the Output and Input Port.
4. For each following block of 8 MIDI strips available on the mixer:
 - a. Click [New / Install](#) again and select [Mackie Designs – Mackie Control Extender – Logic Control](#). Click [OK](#) when prompted.
 - b. Close the window and click the picture of the new device (labelled [Mackie Control Extender](#), [Mackie Control Extender #2](#) or [Mackie Control Extender #3](#))
 - c. Select [DAW Control MIDI 2](#), [DAW Control MIDI 3](#) or [DAW Control MIDI 4](#) respectively as the Output and Input Port, for a maximum of 4 devices on screen, each connected to its own pair of virtual MIDI ports.
 - d. Click and drag up/down to adjust the [Fader Bank Offset](#) for each extender so the first extender is offset by 8 faders, the second by 16 faders and the third by 24 faders.
5. Check settings match the following table:

Mixer MIDI Strips	Logic Control Surface	Output Port	Input Port	Fader Bank Offset
1-8	Mackie Control	DAW Control MIDI 1	DAW Control MIDI 1	0
9-16	Mackie Control Extender	DAW Control MIDI 2	DAW Control MIDI 2	8
17-24	Mackie Control Extender #2	DAW Control MIDI 3	DAW Control MIDI 3	16
25-32	Mackie Control Extender #3	DAW Control MIDI 4	DAW Control MIDI 4	24

6. Close the Setup window.
7. Save your project to store the settings.

CC Translator protocols

CC Translator protocol options allow use of standard **Control Change (CC)** messages for mixer fader control and **Note On/Off** messages for mixer mute control via the virtual MIDI ports. This makes for easy automation of mixer audio channels from a DAW, show control application or other software.

The following messages can be used with **dLive** (firmware **V1.7 or higher**), **Avantis** (firmware **V1.1 or higher**), **SQ** (firmware **V1.4 or higher**), **Qu-5/6/7** (firmware **V1.1 or higher**) **Qu-16/24/32/Pac/SB** (firmware **V1.9 or higher**) and **CQ** (firmware **V1.2 or higher**)

❗ Hexadecimal values are shown, a decimal to hexadecimal table can be found at the end of this document.

Fader Control

Send **Control Change** messages to control levels of Inputs, Mix masters, FX sends, FX returns and DCA's

<div>5N CH VA</div>		
N = MIDI Channel	CH = Mixer/Audio channel	VA = Level value

Mute Control

Send **Note On/Off** messages to mute Inputs, Mix masters, FX sends, FX returns, DCA's and Mute Groups

On	9N CH VA	VA = Velocity value
Off	8N CH VA	
N = MIDI Channel	CH = Mixer/Audio channel	

❗ **dLive/Avantis** CC translators use only **Note On** messages for mute control.

dLive

The **dLive CC translator** option uses separate **Faders** and **Mutes** virtual MIDI ports and the selected MIDI channel assignment on the desk for control of all channels, in accordance with the **dLive** MIDI protocol. All fader control uses the **CC Translator Faders** port, and all mute control uses the **CC Translator Mutes** port.

N = Base MIDI Channel assigned to the mixer (lowest channel of the range).

Mute On is ≥ 40 velocity, Mute off is $\leq 3F$ velocity.

❗ **dLive** CC translator uses only **Note On** messages for mute control.

dLive channel assignments for fader and mute controls are as follows:

Inputs 1 to 128	N = N	CH = 00 to 7F
Mono Groups 1 to 62	N = N + 1	CH = 00 to 3D
Stereo Groups 1 to 31	N = N + 1	CH = 40 to 5E
Mono Aux 1 to 62	N = N + 2	CH = 00 to 3D
Stereo Aux 1 to 31	N = N + 2	CH = 40 to 5E
Mono Matrix 1 to 62	N = N + 3	CH = 00 to 3D
Stereo Matrix 1 to 31	N = N + 3	CH = 40 to 5E
Mono FX Send 1 to 16	N = N + 4	CH = 00 to 0F
Stereo FX Send 1 to 16	N = N + 4	CH = 10 to 1F
FX Return 1 to 16	N = N + 4	CH = 20 to 2F
Mains 1 to 6	N = N + 4	CH = 30 to 35
DCA 1 to 24	N = N + 4	CH = 36 to 4D
Mute Group 1 to 8	N = N + 4	CH = 4E to 55

❗ The above assignments can also be found in the **dLive** MIDI Protocol document, available from www.allen-heath.com

Avantis

The **Avantis CC translator** option uses separate **Faders** and **Mutes** virtual MIDI ports and the selected MIDI channel assignment on the desk for control of all channels, in accordance with the **Avantis** MIDI protocol. All fader control uses the **CC Translator Faders** port, and all mute control uses the **CC Translator Mutes** port.

N = Base MIDI Channel assigned to the mixer (lowest channel of the range).

Mute On is ≥ 40 velocity, Mute off is $\leq 3F$ velocity.

❗ **Avantis** CC translator uses only **Note On** messages for mute control.

Avantis channel assignments for fader and mute controls are as follows:

Inputs 1 to 64	N = N	CH = 00 to 3F
Mono Groups 1 to 40	N = N + 1	CH = 00 to 27
Stereo Groups 1 to 20	N = N + 1	CH = 40 to 53
Mono Aux 1 to 40	N = N + 2	CH = 00 to 27
Stereo Aux 1 to 20	N = N + 2	CH = 40 to 53
Mono Matrix 1 to 40	N = N + 3	CH = 00 to 27
Stereo Matrix 1 to 20	N = N + 3	CH = 40 to 53
Mono FX Send 1 to 12	N = N + 4	CH = 00 to 0B
Stereo FX Send 1 to 12	N = N + 4	CH = 10 to 1B
FX Return 1 to 12	N = N + 4	CH = 20 to 2B
Mains 1 to 3	N = N + 4	CH = 30 to 32
DCA 1 to 16	N = N + 4	CH = 36 to 45
Mute Group 1 to 8	N = N + 4	CH = 46 to 4D

❗ The above assignments can also be found in the **Avantis** MIDI Protocol document, available from www.allen-heath.com

SQ

The **SQ CC translator** creates an **Input** and **Output** virtual MIDI port - fader control of input channels (CH1-48, Group & FX return) uses the **CC Translator Inputs** port and output channels (LR, Aux, FX Send, MTX & DCA group) use the **CC Translator Outputs** port. Mute control for all input and output channels (CH1-48, Group, FX Return, LR, Aux FX Send, MTX, DCA & Mute Group) is available via both **Input and Output** ports.

N = MIDI Channel of the **SQ** (not the MIDI DAW Control channel)

Mute on uses a **Note On** message with **01** velocity, Mute off uses a **Note Off** message with **00** velocity.

SQ channel assignments are as follows:

	Port	Fader Control	Mute Control
Inputs 1 to 48	CC Translator Inputs	CH = 00 to 2F	CH = 00 to 2F
Groups 1 to 12	CC Translator Inputs	CH = 30 to 3B	CH = 30 to 3B
FX Return 1 to 8	CC Translator Inputs	CH = 3C to 43	CH = 3C to 43
LR	CC Translator Outputs	CH = 00	CH = 44
Aux 1 to 12	CC Translator Outputs	CH = 01 to 0C	CH = 45 to 50
FX Send 1 to 4	CC Translator Outputs	CH = 0D to 10	CH = 51 to 54
MTX 1 to 3	CC Translator Outputs	CH = 11 to 13	CH = 55 to 57
DCA 1 to 8	CC Translator Outputs	CH = 20 to 27	CH = 58 to 5F *
Mute Group 1 to 8	CC Translator Outputs	-	CH = 60 to 67 *

❗ The above assignments can also be found in the **SQ** MIDI Protocol, available from www.allen-heath.com

*Note that DCA and Mute Group assignments with CC translator differ from the **SQ** MIDI protocol

❗ Matrix Mixes 4-6 do not have any control MIDI available.

Qu-5/6/7

The **Qu-5/6/7 CC translator** creates an **Input** and **Output** virtual MIDI port - fader control of input channels (CH1-32, ST&USB channels, Group & FX return) uses the **CC Translator Inputs** port and output channels (LR, Aux, FX Send, MTX & DCA group) use the **CC Translator Outputs** port. Mute control for all input and output channels (CH1-32, ST&USB channels, Group, FX Return, LR, Aux FX Send, MTX, DCA & Mute Group) is available via both **Input and Output** ports.

N = MIDI Channel of the **Qu-5/6/7** (not the MIDI DAW Control channel)

Mute on uses a **Note On** message with **01** velocity, Mute off uses a **Note Off** message with **00** velocity.

Qu-5/6/7 channel assignments are as follows:

	Port	Fader Control	Mute Control
Inputs 1 to 32	CC Translator Inputs	CH = 00 to 1F	CH = 00 to 1F
Stereo Inputs (ST1/ST2/USB)	CC Translator Inputs	CH = 20/22/24	CH = 20/22/24
LR	CC Translator Outputs	CH = 00	CH = 44
Mixes 1 to 12	CC Translator Outputs	CH = 01 to 0C	CH = 45 to 50
FX Send 1 to 4	CC Translator Outputs	CH = 0D to 10	CH = 51 to 54
FX Return 1 to 6	CC Translator Inputs	CH = 3C to 41	CH = 3C to 41
MTX 1 to 3	CC Translator Outputs	CH = 11 to 13	CH = 55 to 57
DCA 1 to 8	CC Translator Outputs	CH = 20 to 27	CH = 58 to 5F*
Mute Group 1 to 8	CC Translator Outputs	-	CH = 60 to 67*

❗ The above assignments can also be found in the **Qu-5/6/7** MIDI Protocol, available from www.allen-heath.com
*Note that DCA and Mute Group assignments with CC translator differ from the **Qu-5/6/7** MIDI protocol

❗ Matrix Mix 4 does not have any control MIDI available.

Qu-16/24/32/Pac/SB

The **Qu CC translator** uses separate **Inputs** and **Outputs** virtual MIDI ports - control of input channels (CH1-32, ST & FX Return) is via the **CC Translator Inputs** port and output channels (FX Send, Mix, LR, Group, MTX, DCA & Mute Group) use the **CC Translator Outputs** port.

N = MIDI Channel of the **Qu** (not the MIDI DAW Control channel)

Mute on uses a **Note On** message with ≥ 40 velocity, Mute off uses a **Note On** message with $\leq 3F$ velocity.

Qu-16/24/32/Pac/SB channel assignments for fader and mute controls are as follows:

INPUTS				OUTPUTS		CONTROL	
Qu	Hex (CH)	Qu	Hex (CH)	Qu	Hex (CH)	Qu	Hex (CH)
1	00	21	14	FX1 Send	00	DCA 1	12
2	01	22	15	FX2 Send	01	DCA 2	13
3	02	23	16	FX3 Send	02	DCA 3	14
4	03	24	17	FX4 Send	03	DCA 4	15
5	04	25	18	Mix 1	04	Mute Grp 1	16
6	05	26	19	Mix 2	05	Mute Grp 2	17
7	06	27	1A	Mix 3	06	Mute Grp 3	18
8	07	28	1B	Mix 4	07	Mute Grp 4	19
9	08	29	1C	Mix 5-6	08		
10	09	30	1D	Mix 7-8	09		
11	0A	31	1E	Mix 9-10	0A		
12	0B	32	1F	LR	0B		
13	0C	ST1	20	Group 1-2	0C		
14	0D	ST2	21	Group 3-4	0D		
15	0E	ST3	22	Group 5-6	0E		
16	0F	FX1 Ret	23	Group 7-8	0F		
17	10	FX2 Ret	24	MTX 1-2	10		
18	11	FX3 Ret	25	MTX 3-4	11		
19	12	FX4 Ret	26				
20	13						

CQ

The **CQ CC translator** creates an **Input** and **Output** virtual MIDI port - fader control of input channels (CH1-16, Stereo Inputs & FX return) uses the **CC Translator Inputs** port and output channels (LR, Outputs, overall Send to FX & DCA's) use the **CC Translator Outputs** port. Mute control for all input and output channels (CH1-16, Stereo Inputs, FX, LR, Outputs, & DCA's) is available via both **Input** and **Output** ports.

N = MIDI Channel of the **CQ**, which is fixed to channel **1** (so **N** is always **0**)

Mute on uses a **Note On** message with **01** velocity, Mute off uses a **Note Off** message with **00** velocity.

CQ channel assignments are as follows:

	Port	Fader Control	Mute Control
Inputs 1 to 16	CC Translator Inputs	CH = 00 to 0F	CH = 00 to 0F
Stereo Inputs (ST1/ST2/USB/BT)	CC Translator Inputs	CH = 18/1A/1C/1E	CH = 18/1A/1C/1E
FX 1 to 4	CC Translator Inputs	CH = 3C to 3F	CH = 51 to 54
Main LR	CC Translator Outputs	CH = 00	CH = 44
Outs 1 to 6	CC Translator Outputs	CH = 01 to 06	CH = 45 to 4A
Overall Send to FX 1 to 4	CC Translator Outputs	CH = 0D to 10	CH = 51 to 54
DCA 1 to 4	CC Translator Outputs	CH = 20 to 23	CH = 58 to 5B
Mute Group 1 to 4	CC Translator Outputs	-	CH = 60 to 63

CC Translator message examples

COMMAND	MESSAGE	PORT
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dLive Examples with mixer MIDI channels set 12-16		
Channel 102 fader to -Inf dB	B _B 65 00	CC Translator Faders
Mono FX Send 10 mute off	9F 09 3F	CC Translator Mutes

Avantis Examples with mixer MIDI channels set 3-7		
Channel 63 fader to 0 dB	B2 3E 6B	CC Translator Faders
Mono Matrix 3 mute on	96 02 7F	CC Translator Mutes

SQ Examples with mixer MIDI channel set to 4		
Aux 1 fader to -40 dB	B3 01 50	CC Translator Outputs
Channel 32 mute off	83 1F 00	CC Translator Inputs/Outputs

Qu-5/6/7 Examples with mixer MIDI channel set to 2		
DCA 3 fader to -30 dB	B1 22 1F	CC Translator Outputs
Channel 27 mute off	81 1A 00	CC Translator Inputs/Outputs

Qu-16/24/32/Pac/SB Examples with mixer MIDI channel set to 1		
Channel 1 fader to 0 dB	B0 00 62	CC Translator Inputs
Main LR mute on	90 0B 7F	CC Translator Outputs

CQ Examples (mixer always uses MIDI channel 1)		
Channel 11 fader to -20 dB	B0 0B 2E	CC Translator Inputs
Output 3 mute off	80 47 00	CC Translator Inputs/Outputs

Decimal to Hexadecimal Conversion

DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX
0	0	16	10	32	20	48	30	64	40	80	50	96	60	112	70
1	1	17	11	33	21	49	31	65	41	81	51	97	61	113	71
2	2	18	12	34	22	50	32	66	42	82	52	98	62	114	72
3	3	19	13	35	23	51	33	67	43	83	53	99	63	115	73
4	4	20	14	36	24	52	34	68	44	84	54	100	64	116	74
5	5	21	15	37	25	53	35	69	45	85	55	101	65	117	75
6	6	22	16	38	26	54	36	70	46	86	56	102	66	118	76
7	7	23	17	39	27	55	37	71	47	87	57	103	67	119	77
8	8	24	18	40	28	56	38	72	48	88	58	104	68	120	78
9	9	25	19	41	29	57	39	73	49	89	59	105	69	121	79
10	A	26	1A	42	2A	58	3A	74	4A	90	5A	106	6A	122	7A
11	B	27	1B	43	2B	59	3B	75	4B	91	5B	107	6B	123	7B
12	C	28	1C	44	2C	60	3C	76	4C	92	5C	108	6C	124	7C
13	D	29	1D	45	2D	61	3D	77	4D	93	5D	109	6D	125	7D
14	E	30	1E	46	2E	62	3E	78	4E	94	5E	110	6E	126	7E
15	F	31	1F	47	2F	63	3F	79	4F	95	5F	111	6F	127	7F