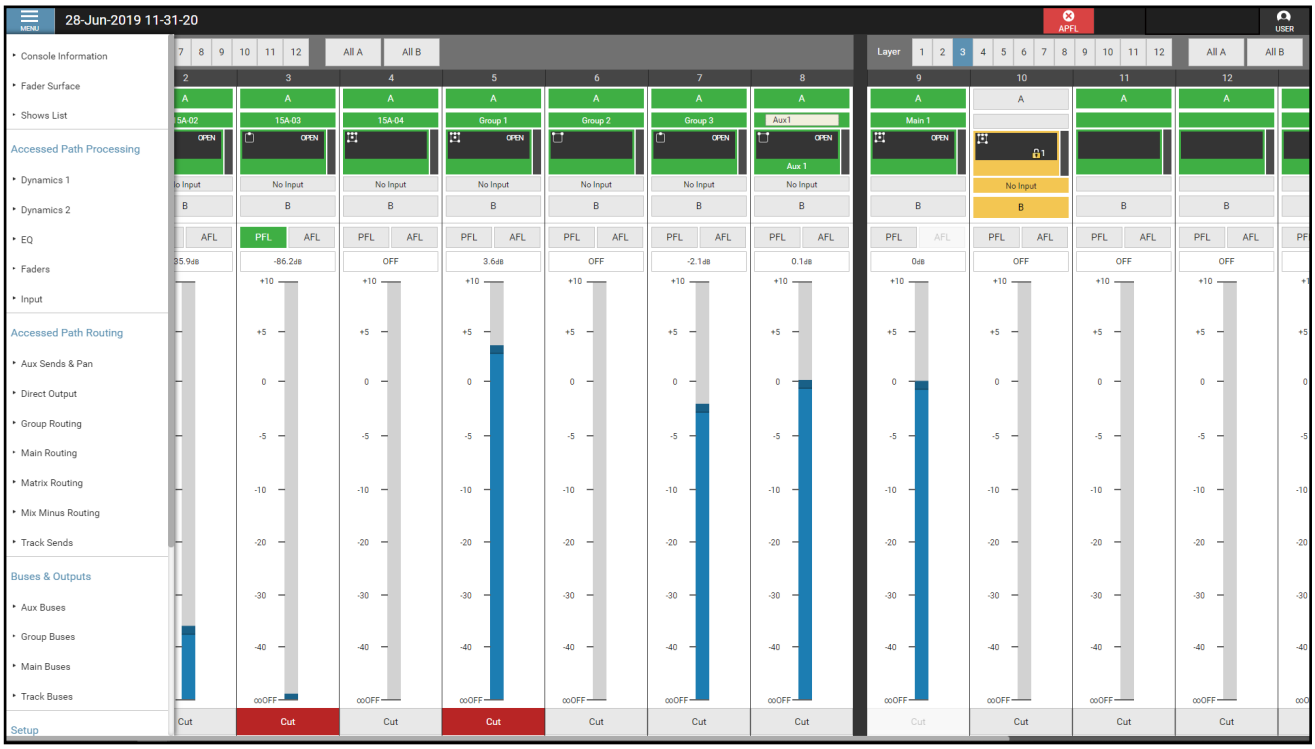
V9 ASSIST MANUAL

V9.1



Desk Editor

calrec.com

CALREC

Calrec Audio Ltd
Nutclough Mill
Hebden Bridge
West Yorkshire
England UK
HX7 8EZ

Tel: +44 (0)1422 842159
Fax: +44 (0)1422 845244
Email: enquiries@calrec.com

calrec.com

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Calrec Audio Ltd reserve the right to change specifications without notice. E & O.E.

The established policy of Calrec Audio Ltd. is to seek improvements to the design, specifications and manufacture of all products. It is not always possible to provide notice outside the company of the alterations that take place continually.

Despite considerable effort to produce up to date information, no literature published by the company nor any other material that may be provided should be regarded as an infallible guide to the specifications available nor does it constitute an offer for sale of any particular product.

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V9 ASSIST
INFORMATION

CALREC

INFORMATION

Should you require any technical assistance with your Calrec product please contact your regional Calrec distributor. Customers within the UK or Ireland should contact Calrec directly.

For a complete list of worldwide distributors by region, go to www.calrec.com or contact us for more information.

Our UK customer support team works closely with our global distributor network to provide the highest level of after sales support. Your distributor should be your first point of contact and will often be able to provide an instant solution, be it technical advice, spares or a site visit by an engineer.

Product Warranty

A full list of our conditions and warranties relating to goods services is contained in Calrec's standard terms and conditions. A copy of this is available on request.

Repairs

If you need to return goods to Calrec for whatever reason, please contact your regional distributor, or Calrec customer support beforehand for guidance, as well as to log the details of the problem and receive a reference number.

Telephone: (9:00am-5.30pm)	+44 (0) 1422 842159
Email - Technical:	support@calrec.com
Email - General:	enquiries@calrec.com
Postal Address:	Calrec Audio Ltd. Nutclough Mill, Hebden Bridge, West Yorkshire, HX7 8EZ, UK
Fax:	+44 (0) 1422 842159
Website:	www.calrec.com

For customers outside the UK and Ireland, shipping via the distributor saves customers from dealing with exportation paperwork. If there is a need to send direct to Calrec, contact us beforehand to log the incoming repair and for assistance with exportation documents.

Standard of Service

Ensuring the highest standards is a priority, if you have any comments on the level of service, product quality or documentation offered to you by Calrec, please contact the Calrec Customer Support team in the UK who will endeavour to address your issues. Calrec welcomes all customer feedback.

For feedback specific to this document, please contact enquiries@calrec.com.

Whenever you contact Calrec Customer Support please have the following information to hand:

- Name.
- Company.
- Email Address.
- Full details of enquiry (e.g. Fault report).
- Serial number of faulty hardware (if applicable).

Once this information has been provided, a service ticket will be created to log your enquiry. The service ticket reference number will be given via email.

Serial Numbers

All units produced by Calrec are given a serial number and are booked into a central record system at the time of manufacture. These records are updated whenever a piece of hardware is dispatched to or received from a customer.

When contacting Calrec Customer Support with a hardware inquiry it is important that the correct Calrec serial number is provided to enable the customer support team to provide a high level of service. The Rack serial numbers can be found on the label on the back of the 4U rack.

After Sales Modifications

Please be aware that any modifications other than those made or approved by Calrec Audio Limited or their agents, may invalidate the console's warranty. This includes changes to cabling provided by Calrec and variations to the recommended installation as detailed in Calrec documentation.

Modifications to this equipment by any party other than Calrec Audio Limited may invalidate EMC and safety features designed into the equipment. Calrec Audio Limited can not be liable for any legal proceedings or problems that may arise relating to such modifications.

If in doubt, please contact Calrec Audio Limited for guidance prior to commencing any modification work.

Installation
In many installations the AC power connectors will not be readily accessible, effectively making the equipment permanently connected. The installation should be carried out in accordance with all applicable installation rules and regulations.

Service Personnel
The AC power disconnect devices are the 2 x IEC (IEC60320-1 C13/C14) couplers located at the rear of each unit. WARNING: The apparatus has a dual power system. It is essential that BOTH AC power IEC couplers are disconnected to prevent exposure to hazardous voltage within the unit.

Third Party Equipment
Integrating third party equipment into a Calrec system may compromise the product's ability to comply with the radiated emission limits set in the latest EMC (Electro Magnetic Compatibility) standard.

Calrec Audio Limited can not be responsible for any nonconformance due to use of third party equipment. If in doubt, please contact Calrec Audio Limited for guidance prior to integrating any third party equipment.

ESD (Static) Handling Procedures
In its completed form, this equipment has been designed to have a high level of immunity to static discharges. However, when handling individual boards and modules, many highly static sensitive parts are exposed. In order to protect these devices from damage and to protect your warranty, please observe static handling procedures, for example, use an appropriately grounded anti-static wrist band.

All modules and cards should be returned to Calrec Audio Limited in anti-static wrapping. Calrec Audio Limited can supply anti-static wrapping upon request.

This applies particularly to digital products due to the types of devices and very small geometries used in their fabrication, analogue parts can, however, still be affected.

RoHS Legislation
In order to comply with European RoHS (Reduction of Hazardous Substances) legislation, Calrec PCB and cable assemblies are produced with lead-free (tin/copper/silver) solder instead of tin/lead solder.

In the unlikely event of a customer having to carry out any re-soldering on any Apollo, Artemis, Summa, Brio, RP1, Type R, VP2 or Hydra 2 hardware, it is imperative that lead-free solder is used; contaminating lead-free solder with leaded solder is likely to have an adverse effect on the long-term reliability of the product. Circuit boards assembled with lead-free solder can be identified (in accordance with IPC/JEDEC standards) by a small oval logo (see below) on the top-side of the circuit board near the PCB reference number (8xx-xxx). The same logo is used on the connector hoods of soldered cable assemblies.

If in doubt, please check with a Calrec customer support engineer before carrying out any form of re-soldering.

ISO 9001 and RAB Registered
Calrec Audio Ltd has been issued the ISO9001: 2008 standard by the Governing Board of ISOQAR.

The award, for both UKAS and RAB registration (see below), is the most comprehensive of the ISO9000 international standards. Granted in recognition of excellence across design, development, manufacture and after-sales support, the certification follows a rigorous and thorough review of Calrec's internal and external communication and business procedures.

UKAS AND ANAB REGISTRATION

ISOQAR QUALITY ASSURED ISO 9001 — UKAS QUALITY MANAGEMENT 026
Certificate number 3205/02

ISOQAR QUALITY ASSURED ISO 9001 — ANAB ACCREDITED
Certificate number 3205/02

LEAD FREE

e1

LEAD FREE STICKER

Pb Pb-Free Lead Free

HEALTH AND SAFETY

Important Safety Instructions:

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Do not block any ventilation openings.
- Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Warning: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- Not intended for outdoor use.
- This equipment must be EARTHED.
- Caution - Shock Hazard
- Disconnect all power sources before starting any servicing operation, equipment must be isolated from the AC power supply. The disconnect devices are the 2 x IEC connectors (IEC 60320-1 C13/C14 couplers).
- Do not leave the equipment powered up with the dust cover fitted.

Cleaning

For cleaning the front panels of the equipment we recommend using a soft anti-static cloth, lightly dampened with water if required.

Explanation of Warning Symbols

Triangular warning symbols contain a black symbol on a yellow background, surrounded by a black border.

The lightning flash with arrow head symbol within an equilateral triangle, as shown on this page, is intended to alert the user to the presence of dangerous voltages and energy levels within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock or injury.

The exclamation mark within an equilateral triangle, as shown on this page, is intended to prompt the user to refer to important operating or maintenance instructions in the documentation supplied with the product.

The altitude warning symbol indicates that the equipment is to be used at an altitude not exceeding 2000m.

The multiple power sources symbol indicates that more than 1 power source is connected and that all power sources should be disconnected before servicing.

Earthing

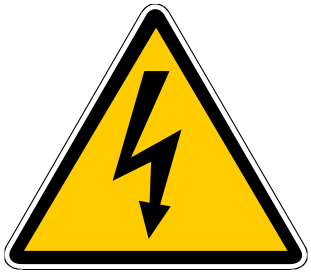
This is a Class I product. An Earth connection MUST be provided in each AC power cord.

The Earth Bolt connection at the rear of the core is provided for those users who wish to have a separate ground/ earth connection using Earth cable at least 6 mm^2 in cross section (10 AWG), this connection is optional and is NOT a requirement to comply with safety standards.

Lithium Battery Replacement

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type. Batteries must not be exposed to excessive heat such as sunshine, fire or the like.

DANGEROUS VOLTAGES



IMPORTANT INSTRUCTIONS

ALTITUDE WARNING SYMBOL

MULTIPLE POWER SOURCES SYMBOL

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

V9 ASSIST
GETTING STARTED

CALREC

ABOUT V9 AND RELATED MANUALS

V9 Assist is a Desk Editor that provides the equivalent facilities found in the Apollo and Artemis product ranges, the desk editor is meant to be used in conjunction with a console and the user interface is provided via a web interface application running on a browser platform.

This manual is designed to provide information on how the Assist application is used to control some of the console functionality and the manual is arranged into the same feature areas as an Apollo or Artemis physical console would provide.

This manual does not replace the Installation or Operational manuals of the consoles and the following manuals should be referred to as required:-
Apollo Installation Manual (926-136) / Artemis Installation Manual (926-149)
Apollo Operator Manual (926-137) / Artemis Operator Manual (926-150)

Note this manual covers the use of V9 Assist as an Online Desk Editor.
V9 Assist Offline is described at the end of this manual.

Rack Connection to PC/Laptop for V9 Assist & H2O
V9 Assist is optimised to be accessed using a Google Chrome web browser, on a Windows 7 or higher based computer platform.

Windows PC: Minimum specification

- i5 Intel Processor or AMD equivalent
- 4 Gig RAM memory
- Windows 7 or 10 - 64bit
- Google Chrome Browser v75 or higher

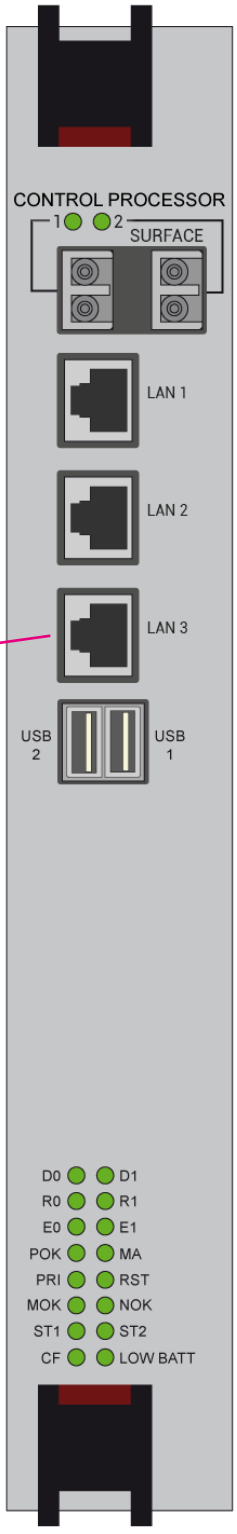
In order to interface the Apollo or Artemis core (as shown here) to a PC or Laptop, the LAN3 port on the front of the Control Processor should be connected to an Ethernet port on the PC/Laptop via a CAT5e cable with RJ45 connectors.

The IP address of the LAN3 port should be set to **192.168.1.1** with a Subnet mask of **255.255.255.0**. Setting the NIC (network interface card) in the PC/Laptop to an address in the same network range e.g. **192.168.1.100** with a Subnet mask of **255.255.255.0** will allow the PC/Laptop to communicate with the V9 Assist application by simply typing in the IP address for the LAN 3 port into an internet browser running on the PC/Laptop.

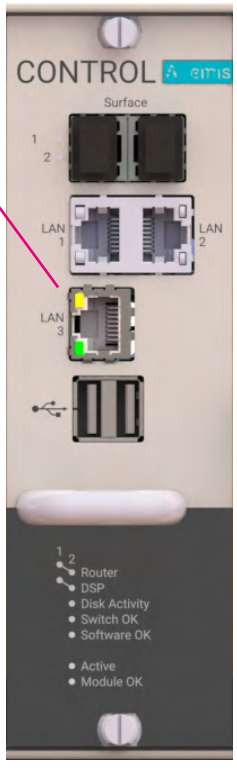
If the user wishes to access the H2O application for this rack then the user should type in **192.168.1.1:8080**. Details of the use of H2O/Hydra2 for control of Hydra2 I/O can be found in the following manuals:-
H2O User guide (926-166) & Hydra2 Installation Manual (926-153)

If the user has ordered AoIP -Hydra2 Interfaces then the user may also need to refer to the following guide:-
AoIP-Hydra2 Interfacing Guide (926-225)

APOLLO CONTROL PROCESSOR



ARTEMIS CONTROL PROCESSOR



V9 ASSIST
OPERATION VIA CALREC ASSIST

CALREC

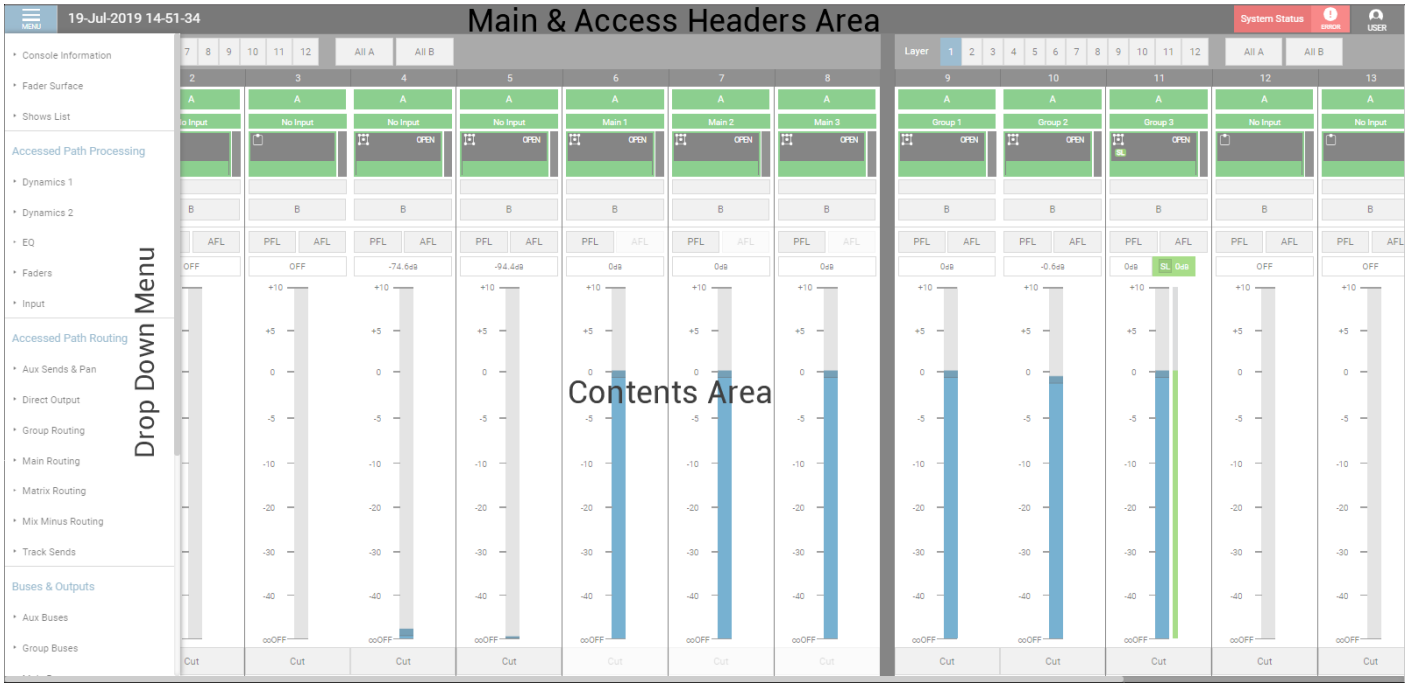
CALREC V9 ASSIST DESK EDITOR FOR APOLLO/ARTEMIS

V9 Assist Desk Editor is an application which runs in a Web browser on Mac, Windows, and Linux devices, giving you a virtual online desk running on a laptop.
Once connected to the console via the LAN 3 port on the front of a Control Processor module, or via the other LAN ports once configured, a web browser is used to connect to Calrec Assist's HTML UI.
See "Rack Connection to PC/Laptop for V9 Assist & H2O" on page 12 for instructions on how to connect to the Core. This allows the user to set up shows, memories, fader layout, patching, bus setup, labelling, set input and output levels on a virtual fader bed, control input channel parameters including mic gains, routing to outputs and much more, all on their own device without a physical console surface attached. If the user wants to access different pages of the assist application in parallel more pages can be opened by adding further instances of the application arranged in tabs or the user can just drag them out as a new window.

Starting Calrec V9 Assist

Open your Web browser e.g. Chrome and browse to the address of the LAN port you are connected to e.g. the LAN3 port on the front of the Primary Control Processor by default should be **192.168.1.1**. This will launch Calrec V9 Assist, which opens on the Console Information Page. Clicking on the drop down menu at the top left corner of the screen gives access to the various assist pages including the Fader Surface page shown below.

V9 FADER SURFACE PAGE



The Assist pages are arranged as 4 distinct areas :-

Main Header Area across the top of the pages provides information about the Name of the show and the memory loaded.

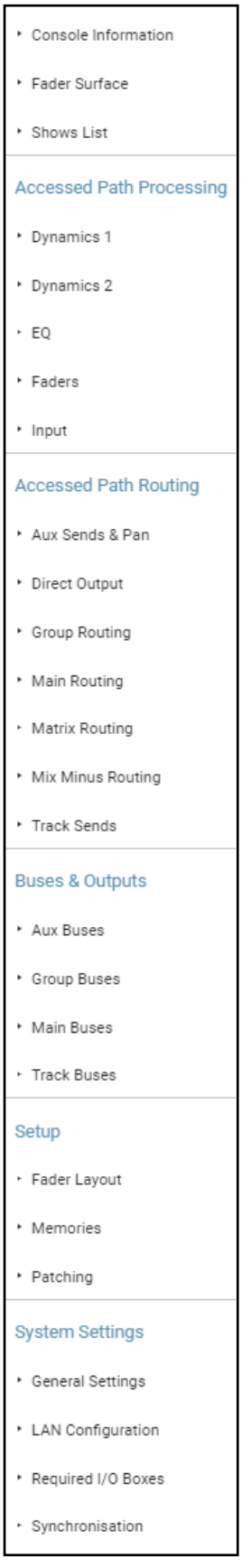
Access Header Area shows various controls depending on which of the Menus are accessed, and towards the right more global facilities such as the On Air status control, Talkback, APFL & Tone flags which can be cleared by tapping that area of the screen. Further right is shown the current system status with a drop down providing detailed information. Next to this is shown the Current Time and Date and finally the User icon area. Note: the relevant global facilities listed above are further detailed in the Access Header Facilities section.

Menus This drop down menu appears down the left hand side is used as to navigate around the many functions in Assist. Tapping on any of the menu items opens the relevant page, where further selections in that functional area can be made if required.

Contents Area this is the main body of the page where the functions for the selected Menu pages appear.
Note: the relevant global facilities available in the function headers are further detailed in the Function Header Facilities section.

MENUS

Below is shown how the menus are arranged in functional areas:-



Console Information - This provides system Information about the Core, Software version, Nº of faders and allows the export of the desk configuration for use with Calrec Assist Offline.
Fader Surface - This provides the fader bed for mixing control.
Shows - The Show Lists lets the user create and load various shows**.**

Access Path Processing - Processing for the accessed path:-

Dynamics 1 - Process including (Compressor-Limiter 1, Expander/Gate 1 and Sidechain Equaliser).
Dynamics 2 - Process for Compressor-Limiter 2.
Equaliser - 4 Band Equaliser and 2 band Filter.
Faders - Fader control for each path including Spill Legs and Downmix faders for Main Outputs.
Input - Control of Mic Gain, Trim, Polarity invert, Balance & Width, L>LR, R>LR etc.

Access Path Routing - Routing from the accessed path to the following destinations:-

Aux Sends & Pan - Routing of Channels and Groups to Aux buses with Level & Pan control.
Direct Outputs - Create and Patch Direct Outputs with level control from Channels and Groups.
Group Routing - Routing of Channels and Other Groups to Groups.
Main Routing - Routing of Channels, Groups and Other Mains to Mains.
Matrix Routing - Routing Input sources to Output destinations on an X-Y grid layout.
Mix Minus Routing - Routing of Channels and Groups to the Mix Minus bus output via Direct Outputs.
Track Sends - Routing of Channels and Groups to Track Sends with level control.

Buses & Outputs - Configuration of the number of buses and their bus widths for the following buses:-

Aux Buses - Control of Width, Label, Level & Cut, PFL/AFL, Talkback & Tone + Pre fader send control.
Group Buses - Control of Width, Label, Level & Cut, PFL/AFL, Talkback & Tone.
Main Buses - Control of Width, Label, Level, PFL, Talkback & Tone, Downmix Type.
Track Buses- Control of Mono Format, Label, Level & Cut, AFL, Talkback & Tone.

Setup - Configuration of fader layouts, memory management and IO passing for shows:-

Fader Layout - This is used to create and place channels and buses on the fader bed on the various layers.
Memories - Management of memories allows the user to create, load & control the storage of a set of console parameters.
Patching - The connecting of Desk Outputs or Input Ports directly or via Patchbays, Aliases & Port Lists to Desk Inputs or Output Ports directly or via Patchbays, Aliases & Port Lists.

System settings - This set of pages determines system settings that are independent of shows such as:-

General Settings - This is not available in Assist as controlled from StudioSetup file.
LAN configuration - This shows the IP addresses set for LAN1, 2 & 3 on both Control Processors.
Required IO Boxes - This shows the Online Hydra2 resources and selects those required by the Console.
Synchronisation - This shows the sync sources available and the current sync source in use.

V9 ASSIST
ACCESS PROCESSING

CALREC

OVERVIEW

The items in the Assist Drop Down Menu, all use the Access and Function Headers to provide the user with information and control of path selection.

The image above right shows an Input Processing screen. The Main header at the top shows the name of the show memory.

The row below the main header is the Access Header this contains nudge keys which follow the fader surface selection including sub-layers A or B. If the user wishes to look at say 1B rather than 1A they can either change that fader's A or B selection on the User surface or click on the Fader Information block to go to the Fader Access page and change it there as described at the end of this page*.

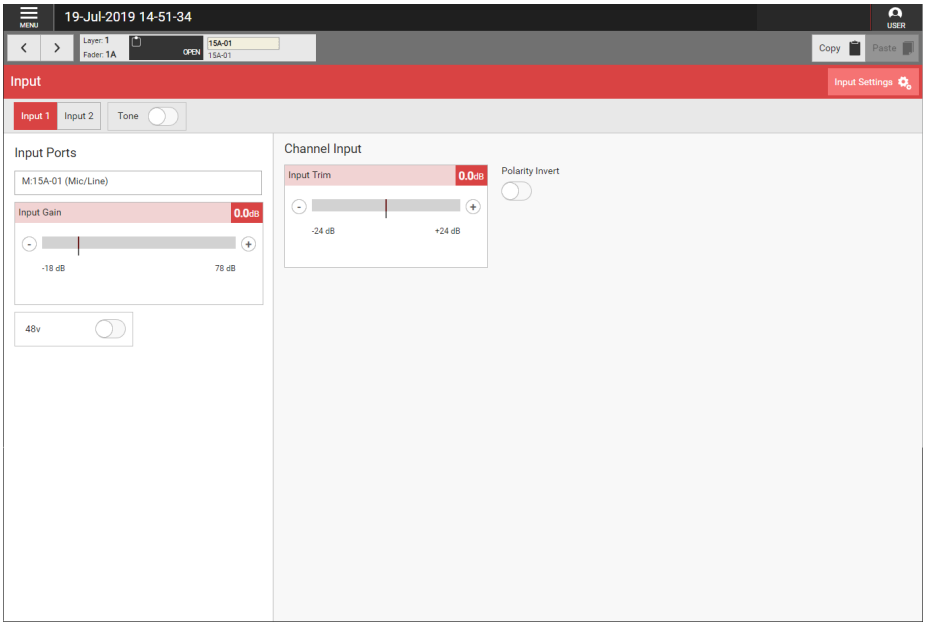
Next to this is the Fader Information block which shows the Layer/Fader Number, User Label & User Port of the currently selected path. Inset in the block is a status window showing the width and various other status symbols such as path width, layer lock and fader open as required. If the path is wider than mono then a drop down button is shown labelled 'Full Path'. Accessing this allows the user to select the legs that make up a stereo or 5.1 path for independent operation.

To the right of this is shown the various warning flags to inform the user that TB (Talkback), APFL (either AFL or PFL) and/or Tone is active on the system. Tapping on those icons cancels those functions. Next to these is the System Status, see "System Status" on page 80.

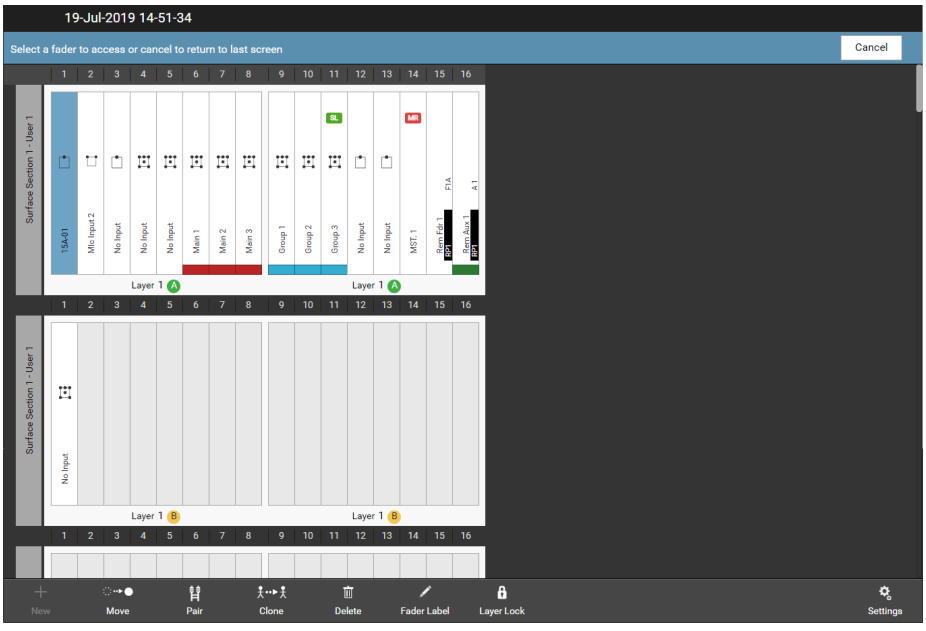
At the end of the Access header row is the User Settings icon, Assist will follow the current access path selection when this switch is ON. Note: this will also affect the Routing Matrix Surface selection option.

Below the Access Header Row is the Function Header as shown on the Input page above right. This has controls in it that are specific to the function selected from the menu.

ACCESS PAGE SHOWING BANNER AND ACCESS FUNCTIONS



SELECT FADERS TO ACCESS



*Tapping on the Fader Information block allows the user to select a different path as shown below right. After tapping on the fader information block, a copy of the fader layout screen appears allowing the user to select any of the existing Layer/Fader paths to become the currently accessed path or the user can cancel if they decide to return to the existing path access selection.

INPUT

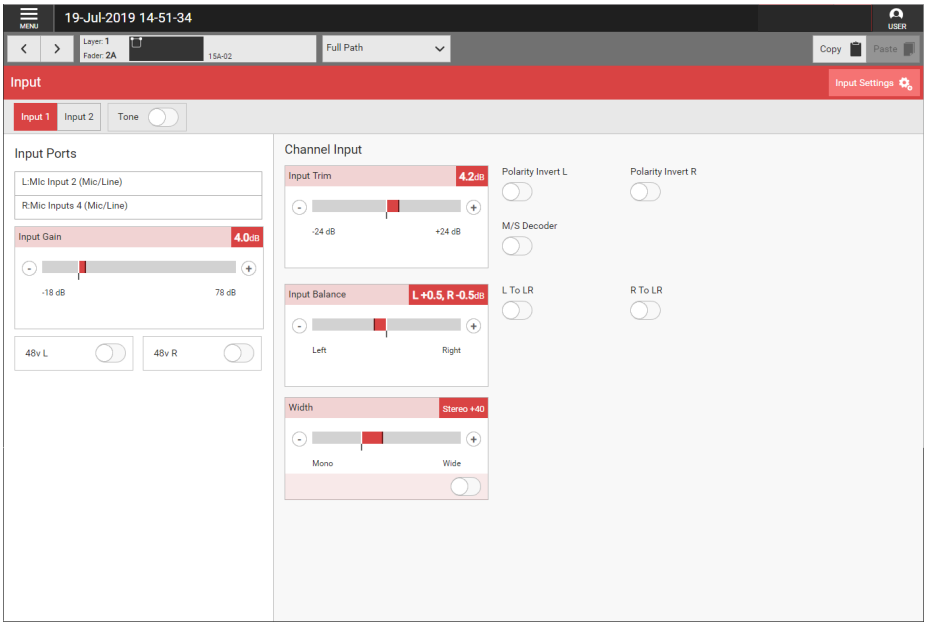
This provides the user with a set of controls related to the currently accessed path on which they can control the input port settings such as mic gain & phantom power and other channel input settings.

Input Controls
After tapping **Accessed Path Processing>Input** from the Menu, the image above right is displayed, which in this case is a stereo input channel that has mic/line ports attached to it on input 1.

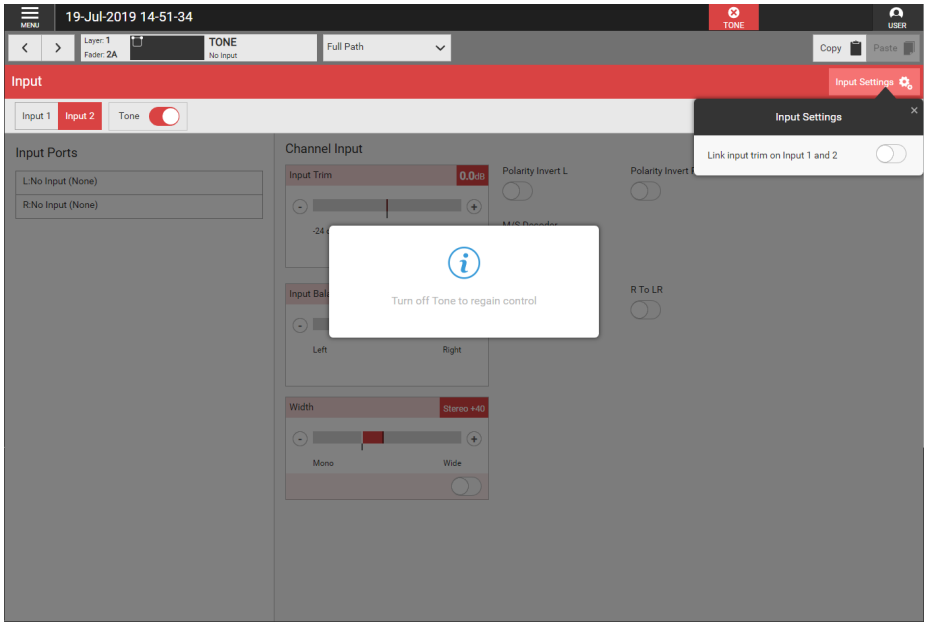
The following controls are available:-
Input 1 / Input 2: This selects which of the input sources will be used by this path.
Tone: Select to inject tone into the path, replacing the input source with the correct tone for the path width.
Input Ports: Shows the ports in use for this path.
Input Gain & 48v: If the source is a Mic input then a gain control & 48v power controls are made available.
Input Trim: A gain offset of +/- 24dB can be applied to the incoming signal as required and if the link to the other input source is switched on the trim is applied to both sources.
Input Balance & Width: If the source is a stereo signal then additional controls to alter the left-right balance of the sources and a width control allows the sources to be reduced to a mono source or made wider if required.
Various Input Switches: To the right of the Trim, Balance and Width controls is a set of channel input switches which include, polarity invert switch(es) and if stereo:- M-S decoder, L to LR & R to LR switches.

The image below right shows the Input screen for Input 2 which has not yet been ported. In addition, the tone switch has been turned on, which greys out the page and a 'Turn off Tone to regain Control' pop-up message appears.
Also shown is the input settings pop-up which allows the user to link input 1 & 2 trims. This is commonly used where a backup mic is put on input 2, so that the trims can track each other.

INPUT 1 OF A STEREO PATH



INPUT 2 SHOWING TONE AND INPUT SETTINGS POP-UP



Note, that if the path is wider than mono a drop-down box labelled 'Full Path' opens which allows the user to access each legs' control parameters.

For stereo paths the legs are arranged as Left Only & Right Only.
For 5.1 paths the legs are arranged as LR Only, C Only, Lfe Only & LsRs Only.

EQUALISER

A four band parametric Equaliser + LF & HF filters module is available on every channel, group and main.

The frequency range for all bands is 20Hz to 20kHz, the gain range is -18dB to +18dB. The Q control for the bell curve can be set at: 0.3, 0.5, 0.7, 1, 2, 3, 5, 7 or 10, and for all other bands is set at 0.7.

Each band can have an On/Off button when made Independent otherwise the bands 1-4 and bands 5-8 are switched in and out of circuit using the sliders in the Function Header.

When looking at an equaliser module, any control situated within the function header affects the whole module if not independent. Note that in the case of 5.1 paths the Lfe (e) leg is made independent by default and has its own independent equaliser controls.

Equaliser and Filter Controls
After tapping **Accessed Path Processing>EQ** from the Menu, controls can be adjusted in a number of ways:-

- Dragging the sliders left and right
- Using the + and - buttons at the end of the sliders.
- Dragging the numbered bands with their control circles on the graph.

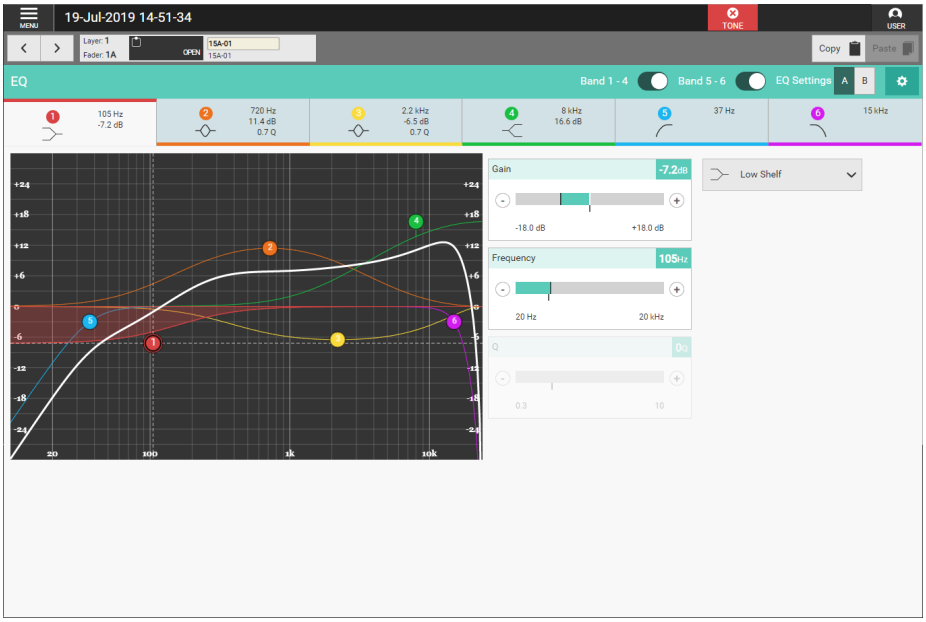
The resultant numerical values are shown in the top right hand corner of each control and also reflected on the graph.

The following controls are available:-
Tapping on any of the 6 band tabs along the top of the EQ control screen highlight that band in the EQ graph display.

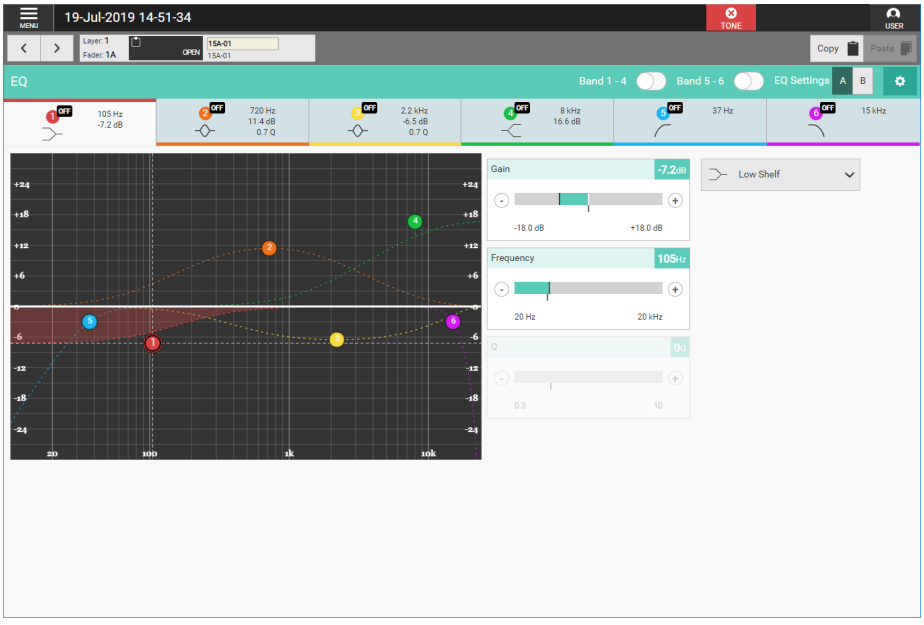
The EQ controls to the right of the screen apply to whichever EQ band is currently selected. The graph instantly updates to reflect EQ parameter changes.

Bands 5 & 6 are by default set as Filters but can by changing their response have the same behaviour as EQ bands 1-4. EQ bands can be set to any response type but good practice is to set them in a logical, frequency-based order.

EQUALISER ACTIVE



EQUALISER NOT IN CIRCUIT



Band 1-4 and Band 5-6 EQ switches:
These are in the function header and the 2 sliders, switch the EQ 1-4 bands and the 5-6 bands in or out of circuit, as shown above.

Response: Select the desired EQ response curve for the selected band, from high cut filter, high shelf, notch, bell, low shelf, low cut filter.

See Equaliser Response type above right.

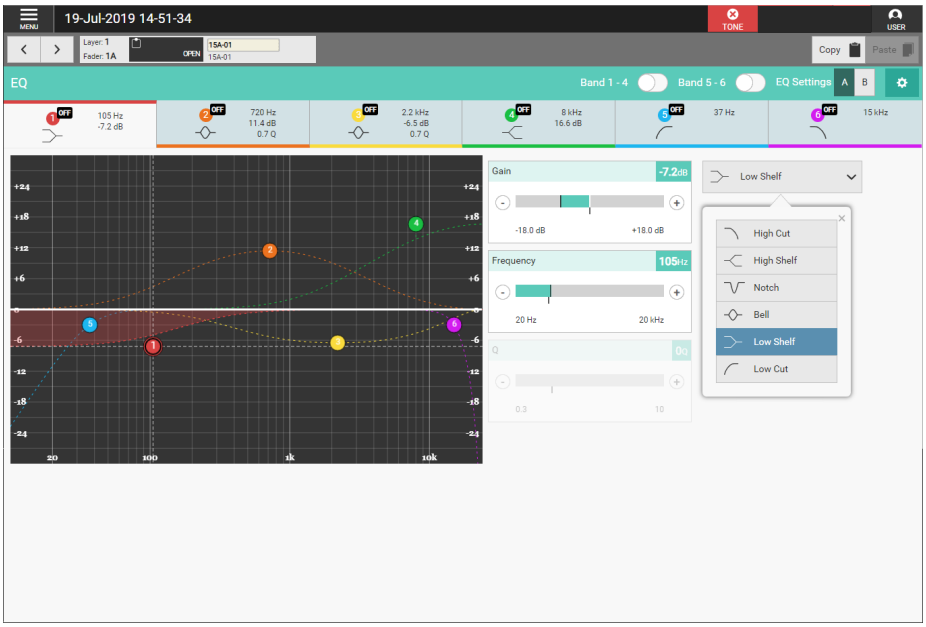
Band: This switches the selected EQ band in/out of circuit note this is only available when that band is under Independence control.

Frequency: Sets the frequency that the EQ band is operating around.

Gain: Sets the gain increase or reduction for the band.

Q: Sets the width of the frequency band for the selected response. The higher the Q, the narrower the bandwidth.

EQUALISER RESPONSE TYPE



EQ A / EQ B Comparison: Allows the user to compare two EQ set-ups. To do this tap the EQ Settings **A B** buttons in the function header to switch between EQ A & EQ B and change the parameters within each setup as required. The user can switch between the two setups to compare settings.

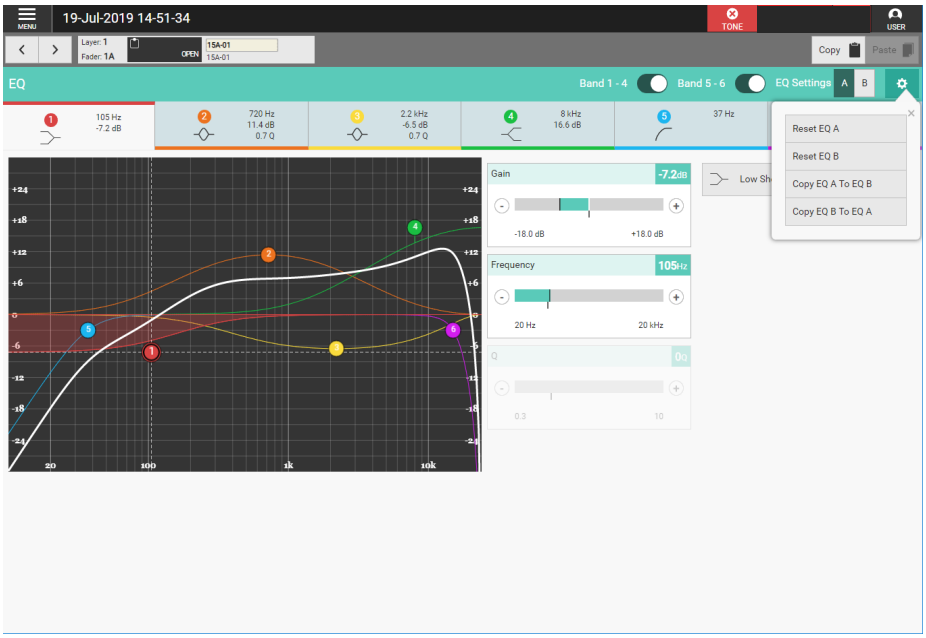
Settings: Tapping on the cog icon in the EQ function header displays four EQ settings options:

Reset EQ A and **Reset EQ B** returns all the EQ A or EQ B settings to their default values.

Copy EQ A To EQ B and **Copy EQ B To EQ A** allows the user to duplicate EQ settings which can be useful in auditioning subtle differences in EQ.

Copying the EQ settings to the other EQ setup, modifying either EQ A or EQ B and then using the EQ A/B switching buttons in the EQ function header allows the user to quickly switch between the two.

EQUALISER COPY A TO B OR COPY B TO A



Equaliser Independence Controls for Stereo and 5.1 Paths

For Multichannel paths such as stereo and 5.1 paths it is possible to apply equaliser processing independently for each L or R spill leg in the case of a stereo path, or LR, C, Lfe, LsRs spill legs in the case of a 5.1 path.

The image above right shows the equaliser page for a 5.1 path, in the path header is shown a drop down box which normally says 'Full Path'. Tapping on this opens an independence control table which is used to determine which spill leg controls will be made independent of its multichannel master for any of the 6 equaliser bands shown down the Spill Leg Independence column. For instance the user may want to make some equaliser bands to act independently and others to track with the master such as the filters.

Sliding any of these switches makes those particular controls for a particular spill leg to become independent.

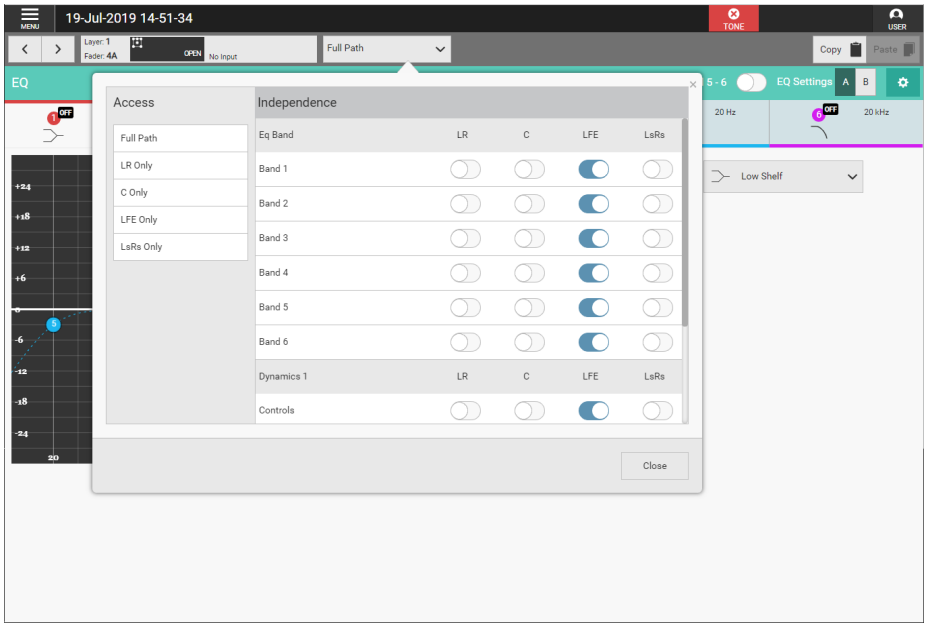
As shown in the previous image all the controls for the Lfe leg are independent, this is by default. The user has just selected the Lfe only leg to be controlled/ displayed and the image below right shows the equaliser control for the Lfe Only spill leg.

Removing Equaliser Independence from Spill Legs

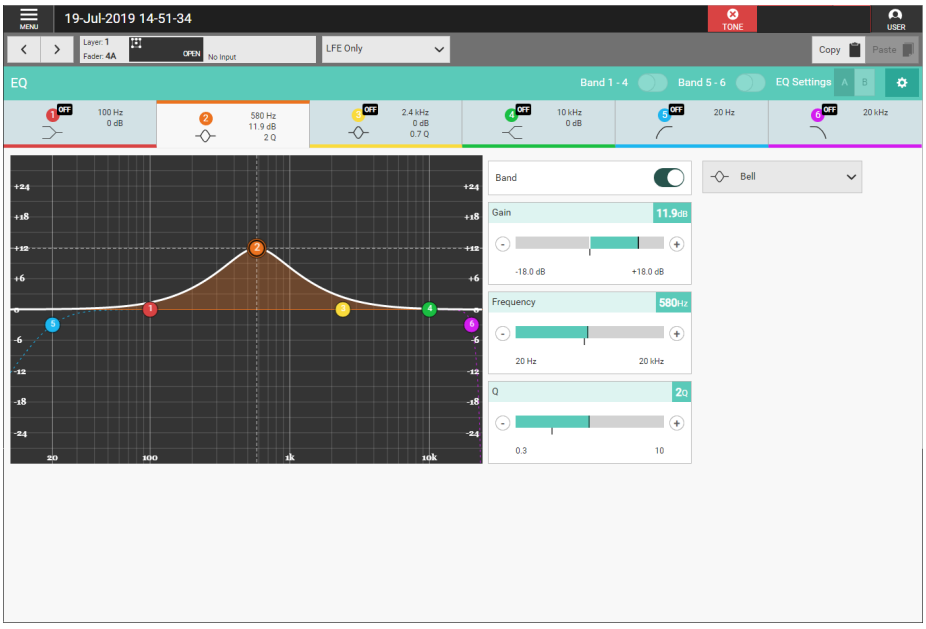
Tapping on the Spill Legs button to the right of the Access display shown as 'Lfe Only' below right, reopens the independence control switch table as shown above right in 'Multichannel Independence Controls'.

Turning Off the independence switches overwrites the independent control settings that this equaliser process had for this spill leg and replaces it with its master's settings.

MULTICHANNEL INDEPENDENCE CONTROLS FOR EQUALISER



INDEPENDENT EQUALISER CONTROLS FOR LFE ONLY LEG OF A 5.1 PATH



DYNAMICS 1

Every Channel input, Group bus, and Main bus has 2 Compressor-Limiter processors available to it:
For Channels, Groups & Mains there is also an associated sidechain equaliser with sidechain listen.
This processor can be placed Pre EQ/Pre Fader or Post Fader and either run standalone or be linked to the eight Gain Reduction buses available.

Compressor-Limiter 1

Compressor-Limiters provide controls for reducing and smoothing the dynamic range of an audio signal.

Compressors proportionally reduce the gain of a signal as it exceeds a definable threshold.

When the compressor is set to be a limiter (by selecting a ratio of 50:1), the input signal must increase by a massive 50dB above the threshold in order for the output to increase by a negligible 1dB.

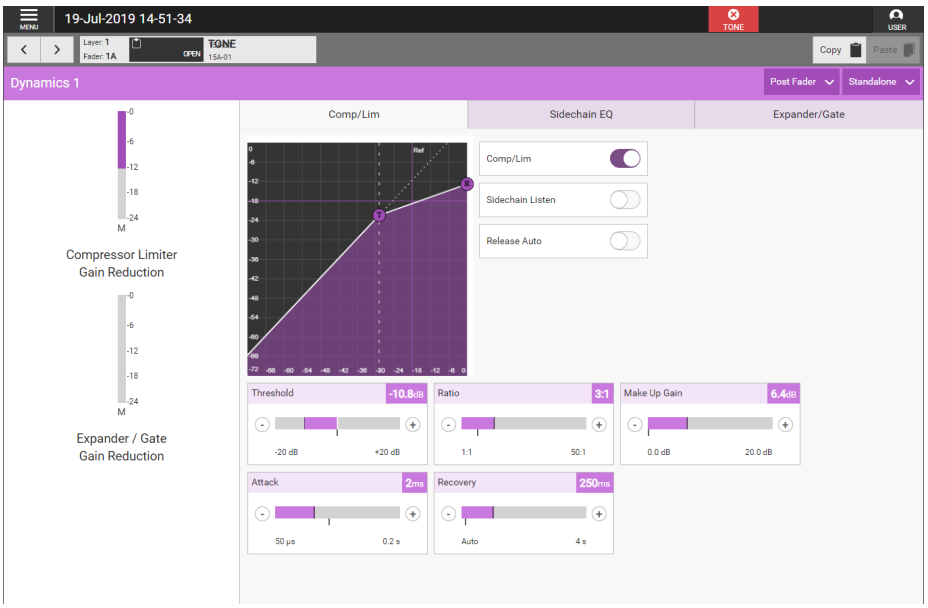
When looking at a dynamics module, any control situated within the function header affects the whole module if not independent.

The Gain reduction bargraphs are shown on the left of the process window and show the amount of gain reduction being applied to the signal, note that in the case of 5.1 paths the Lfe (e) leg is made independent by default, so no reduction is applied as shown above right as Lfe has its own independent dynamics controls.

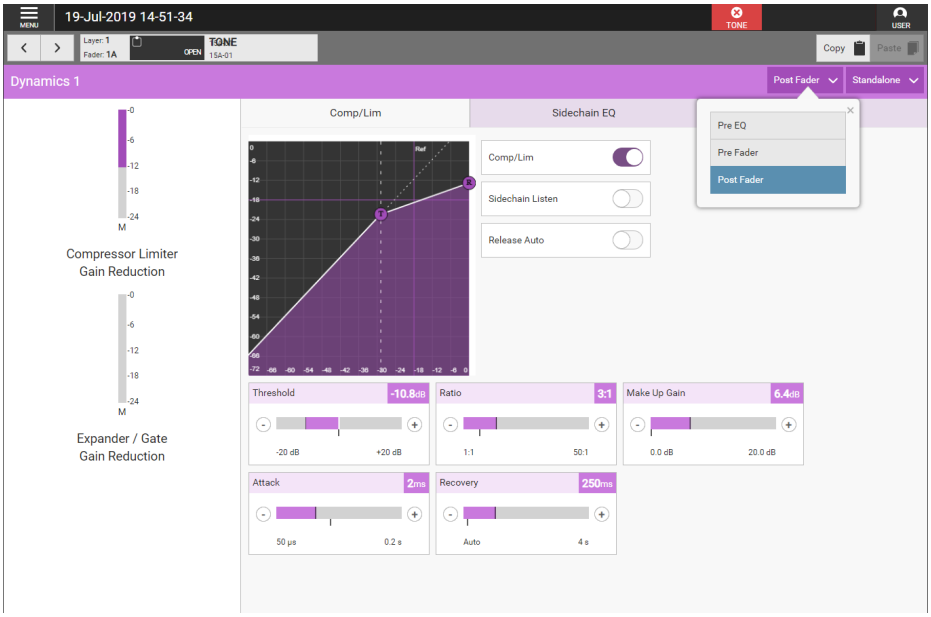
Dynamics Position in Path

Each Compressor-Limiter module can be inserted either Pre EQ, Pre Fader or Post Fader. Tap on the dynamics position button in the function header and select an option. Note that the Expander/Gate is tied to the Compressor-Limiter 1 so that both follow the Pre EQ, Pre Fader, Post Fader selection.

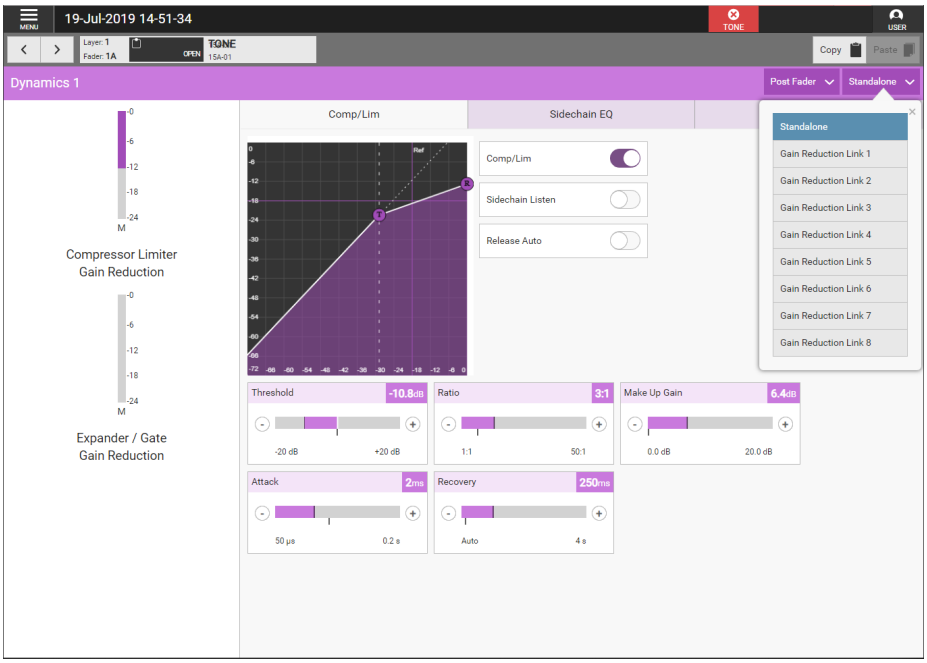
COMPRESSOR-LIMITER 1



DYNAMICS PATH POSITION



GAIN REDUCTION LINKS



Compressor-Limiter Controls
After tapping **Accessed Path Processing>Dynamics 1** from the Menu and selecting the Comp/Lim TAB, the controls can be adjusted in a number of ways:-

- Dragging the sliders left and right
- Using the + and - buttons at the end of the sliders.
- Dragging the threshold and ratio control circles on the graph.
- The resultant numerical values are shown in the top right hand corner of each control and shown on the graph.

The following controls are available:-
Compressor-Limiter In/Out switch:
This slider switches the Compressor in or out of circuit.

Threshold: The level (dBFS) at which the signal will begin to have its gain reduced.

Ratio: Controls gain reduction once a signal has exceeded the threshold, for example, if the ratio is set at 2:1 and the signal exceeds the threshold by 4dBFS, the gain will be reduced so it exceeds the threshold by only 2dBFS. When set to 50:1, the compressor is acting as a limiter.

Attack: Time taken to reduce the gain to reach the new compressed level. Short attack times enable the compressor to catch transients in the audio feed, whereas increasing the attack time will focus the compressor on more long term level issues, such as level differences across various sections of a program.

Release: Time taken to remove gain reduction once the signal falls back below the threshold. Short release times can lead to a 'pulsing' effect, with only audio peaks being compressed. A longer release time will lead to a smoother effect at the expense of some lower level audio components being compressed.

Make Up Gain: Allows the gain of the whole compressed signal to be increased by up to 20 dB.

Release Auto: In this mode a filter is applied which determines how quickly the signal comes out of compression by measuring the amount and duration of the compression attack. This is useful in dealing with both sudden noises which recover quickly and sustained noises such as applause which recover slowly. When Release Auto is ON the Recovery control is greyed out.

Sidechain Listen

Selecting the Sidechain Listen allows the user to listen to the effect that the sidechain EQ is having on the signal as it is altered. Note that on Apollo/Artemis the sidechain source is always fed from its own path.

Gain Reduction Links

By default, dynamics modules operate as standalone units. The right hand button in the function header allows the module to be put into one of eight gain reduction links.

Gain reduction links allow multiple audio feeds to have the same dynamics processing applied. Note that the compressor-limiter and expander/gate modules use the same gain reduction links.

When multiple paths' dynamics modules are set to be part of a gain reduction link, the amount of gain reduction applied across the link will always equal that for the signal which is being affected the most. For example, within a gain reduction link, if one path's signal is causing 5dB of gain reduction and another is causing a reduction of 10dB, all signals within the gain reduction link will have a gain reduction of 10dB applied. When expander/gate units are used within a link and one feed within the link reaches the threshold level to open the expander/gate, all expander/gates within the link open regardless of the audio levels of their feeds.

Sidechain EQ (SCEQ)
Dynamics units take copies of their input signals, analyse them, and work out how best to process the originals. These copies are called sidechains. SCEQ controls are used to process frequency components of the sidechain signal in order to control which components of the input signal the dynamics will respond to.

With Dynamics 1 processing selected, tap on the Sidechain EQ tab within the control screen to see the SCEQ controls.

The following controls are available:-
Sidechain EQ On/Off Switch:
Switching the SCEQ controls in and out for both SCEQ bands, allows the user to hear the difference SCEQ processing makes. The settings drop down button allows the user to reset the parameters of the SCEQ to their default values.

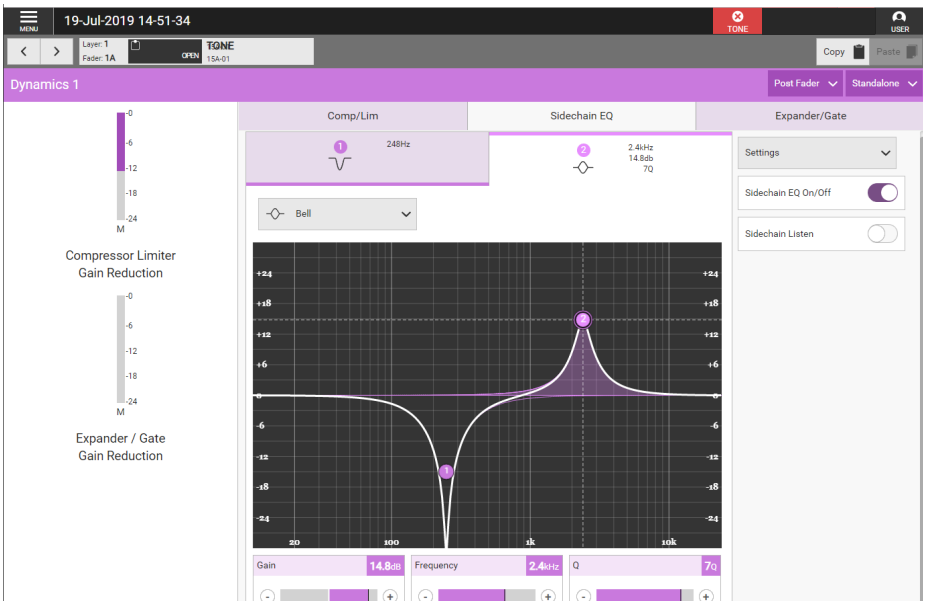
The other SCEQ parameter controls, i.e. **Response, Band, Frequency, Gain & Q** are the same as the EQ controls and are explained in more detail in the EQ section. **Note that the SCEQ function is shared between the Compressor-Limiter 1 and the Expander/Gate of each Channel, Group and Main Path. Channels have 2 bands of sidechain equaliser, Groups and Mains only have 1 band of sidechain equaliser each.**

Expander/Gate
An expander acts in the opposite way to a compressor: When a signal exceeds the expander threshold it is passed through unchanged, and when it falls below the threshold it is reduced, effectively increasing the dynamic range of the signal and reducing unwanted audio content.

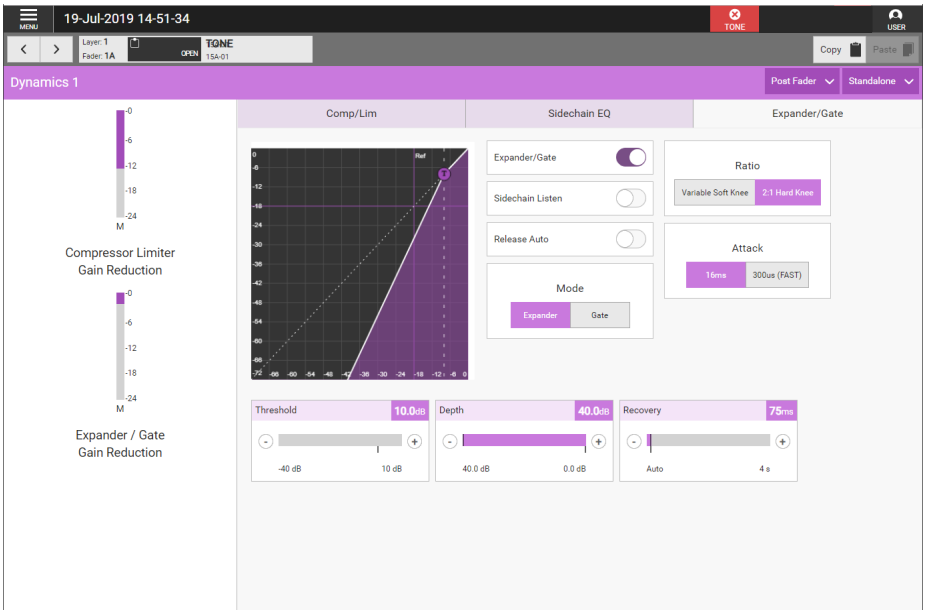
A gate is effectively an extreme version of an expander, with a very high ratio, resulting in the gain of the input signal being significantly reduced almost immediately as it falls below the threshold. Gates are often used to minimise unwanted audio content.

Calrec's expander/gate processing has 6dB of built-in hysteresis to avoid unwanted 'chatter' (constant on/off switching) resulting from an input signal residing on or around the threshold. The gain reduction bargraphs are again shown on the left of the process window.

SIDECHAIN EQUALISER



EXPANDER



Expander/Gate Controls
After tapping **Accessed Path Processing>Dynamics 1** from the Menu and selecting the Expander/Gate TAB, the controls can be adjusted in a number of ways:-

- Dragging the sliders left and right
- Using the + and - buttons at the end of the sliders.
- Dragging the threshold control circle on the graph.

The resultant numerical values are shown in the top right hand corner of each control and also reflected on the graph.

The following controls are available:-
Expander/Gate In/Out switch: This is shown in the function banner it switches the expander/gate in or out of circuit.

Mode: The expander/gate module has a dual mode button for switching between expander and gate functionality.

Threshold: The level (dBFS) at which the signal will begin to have its gain affected.

Depth: Controls the maximum amount of attenuation which can be applied to signals below the threshold.

Delay (Gate Only): The minimum time the gate will be held open before closing once the threshold is reached.

Ratio (Expander only): Controls the amount of gain reduction applied to the input signal level. A 2.1 Hard knee uses a fixed ratio of 2:1, meaning 1dB of gain reduction is applied for every 1dB that the signal falls below the threshold.

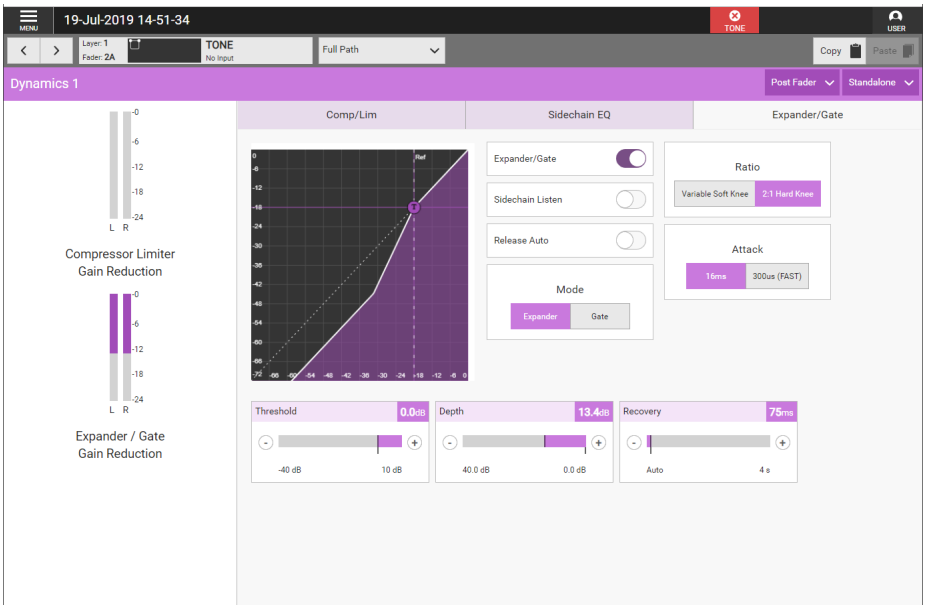
Variable Soft knee uses a variable ratio dependent on the input signal level with the final ratio of 3:1 being applied when the signal drops to 20dB below the threshold.

Attack: Time taken for the expander/gate takes to open. Short attack times help to preserve natural transient attack but can result in a 'tapping' sound due to the rapid transition. A long attack time ensures a smoother transition but some of the transient information will be lost.

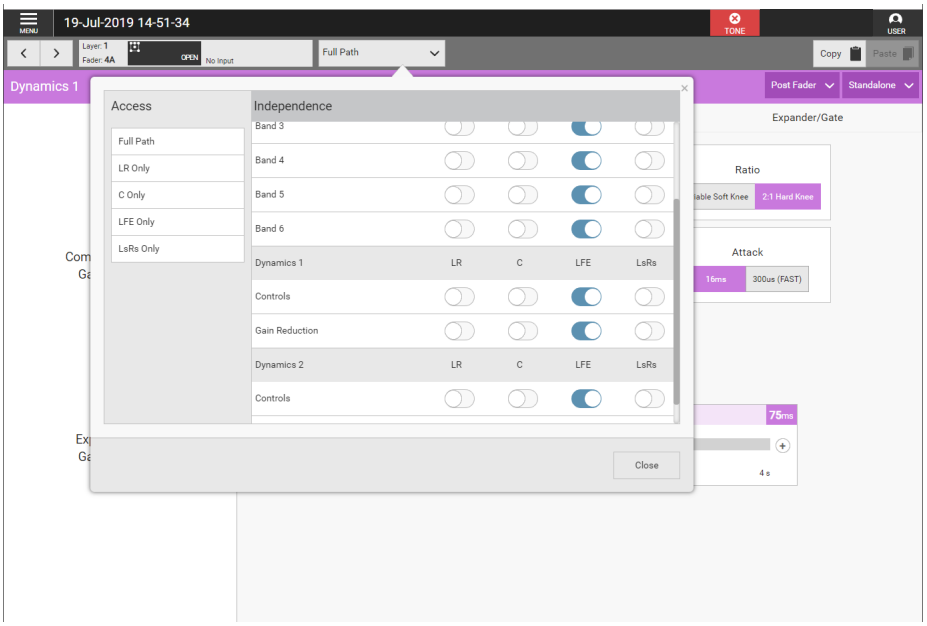
Release: Time taken for the expander/gate to close. Longer release times create a smoother more natural transition.

Dynamics 1 Independence Controls for Stereo and 5.1 Paths
For Multichannel paths such as stereo and 5.1 paths it is possible to apply Dynamics 1 processing independently for each L or R spill leg in the case of a stereo path, or LR, C, Lfe, LsRs spill legs in the case of a 5.1 path.

GATE



MULTICHANNEL INDEPENDENCE CONTROLS FOR DYNAMICS 1



The image below right on the previous page shows the expander/gate page for a 5.1 path, in the path header is shown a drop down box which normally says 'Full Path'. Tapping on this opens an independence control table which is used to determine which spill leg controls will be made independent of its multichannel master for any of the dynamics controls or gain reduction elements shown down the spill leg independence column.

Sliding any of these switches makes those particular controls and or gain reduction elements for a particular spill leg to become independent.

As shown in the previous image all the controls for the Lfe leg are independent, this is by default.

The user has just selected the Lfe only leg to be controlled/displayed and the image above image above right shows the expander control for the Lfe Only spill leg.

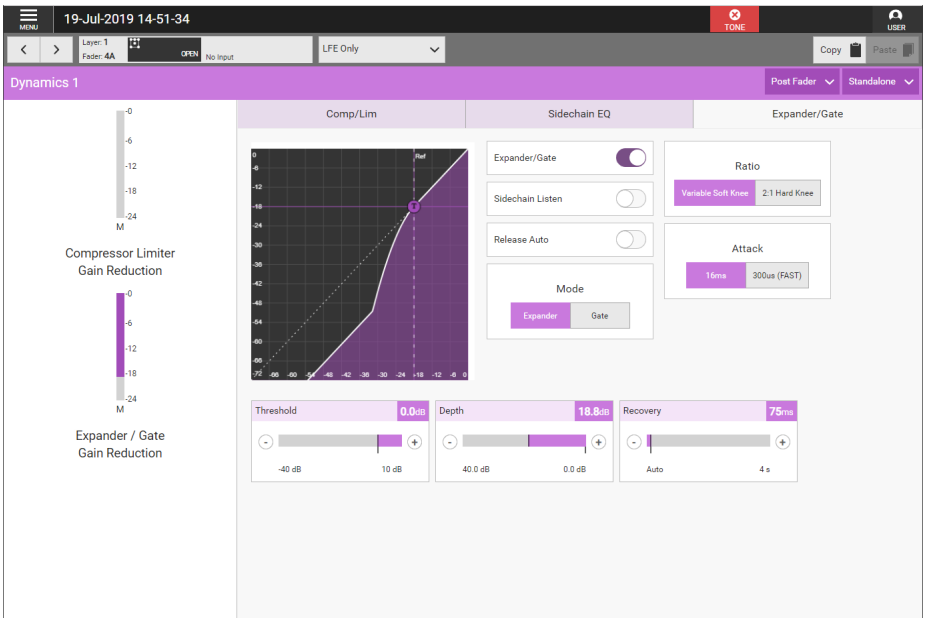
Removing Dynamics Controls & Gain Reduction Independence from Spill Legs

Tapping on the Spill Legs button to the right of the access display shown as 'LR Only' below right, reopens the independence control switch table as shown in 'Multichannel Independence Controls' on the previous page. Turning Off the independence switches overwrites the independent control settings that this dynamics process had for this spill leg and replaces it with its master's settings.

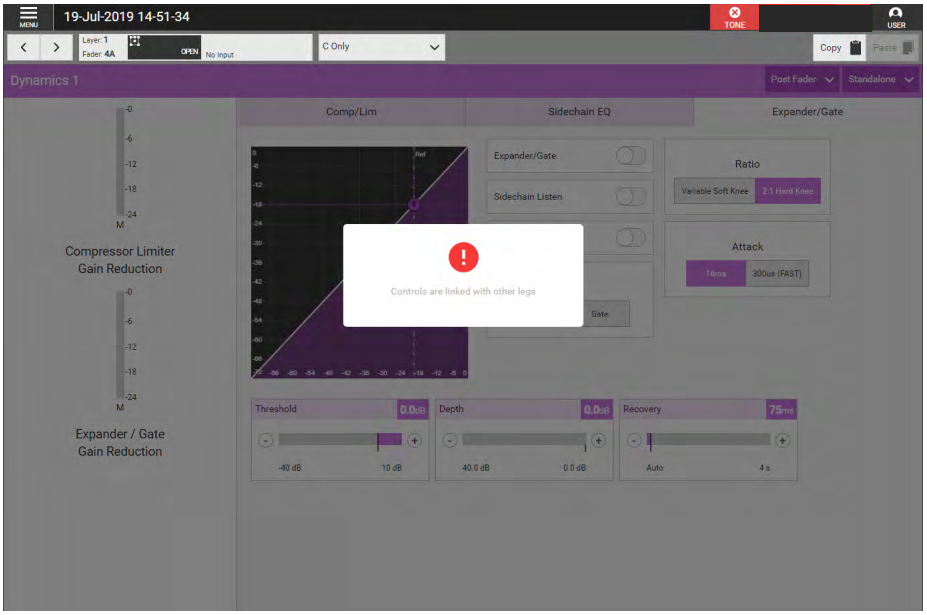
If the user selects a spill leg that has not been made independent from its master or selects an expander/gate or compressor-limiter control set that has not been made independent then the display is 'greyed out' meaning that no controls are available from this page.

The image below right shows the expander page for the LR Only spill leg of a 5.1 path which has not been made independent as indicated by the "Controls are linked with other legs" message.

INDEPENDENT EXPANDER CONTROLS FOR LFE ONLY LEG OF A 5.1 PATH



NON-INDEPENDENT EXPANDER CONTROLS FOR LR ONLY LEGS OF A 5.1 PATH



DYNAMICS 2

Every Channel input,Group bus, and Main bus has 2 Compressor-Limiter processors available to it:
This processor can be placed Pre EQ/Pre Fader or Post Fader and either run standalone or be linked to the eight Gain Reduction buses available.

Compressor-Limiter 2
Compressor-Limiters provide controls for reducing and smoothing the dynamic range of an audio signal.

Compressors proportionally reduce the gain of a signal as it exceeds a definable threshold.

When the compressor is set to be a limiter (by selecting a ratio of 50:1), the input signal must increase by a massive 50dB above the threshold in order for the output to increase by a negligible 1dB. When looking at a dynamics module, any control situated within the function header affects the whole module if not independent.

The gain reduction bargraphs are shown on the left of the process window and show the amount of gain reduction being applied to the signal, note that in the case of 5.1 paths the Lfe (e) leg is made independent by default, so no reduction is applied as shown above right as Lfe has its own independent dynamics controls.

Dynamics Position in Path
Each Compressor-Limiter module can be inserted either Pre EQ, Pre Fader or Post Fader. Tap on the dynamics position button in the function header and select an option.

Compressor/Limiter Controls
After tapping **Accessed Path Processing>Dynamics 2** from the Menu, the controls can be adjusted in a number of ways:-

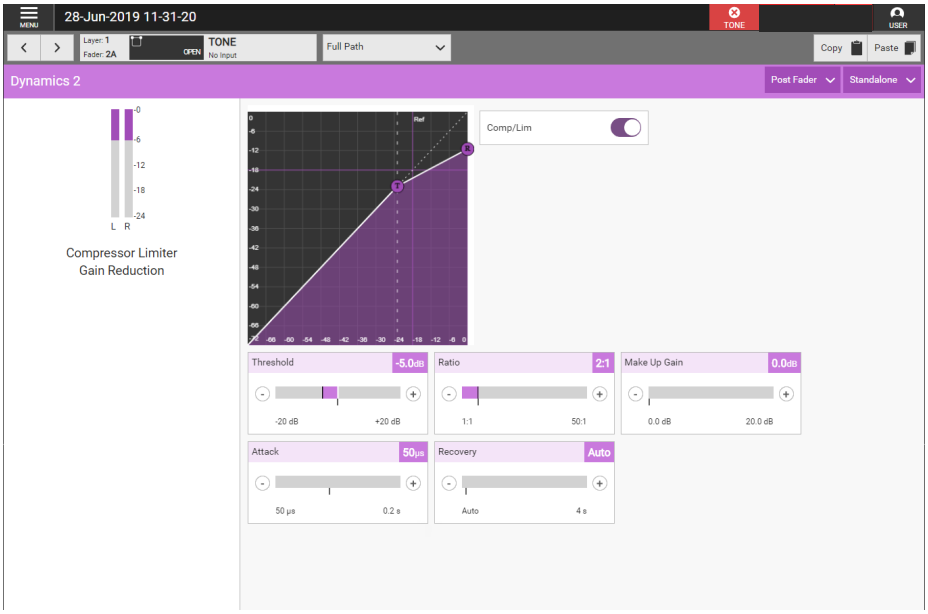
- Dragging the sliders left and right
- Using the + and - buttons at the end of the sliders.
- Dragging the threshold and ratio control circles on the graph.
- The resultant numerical values are shown in the top right hand corner of each control and shown on the graph.

The following controls are available:-
Compressor-Limiter In/Out switch:
This is shown in the function header it switches the compressor in or out of circuit.

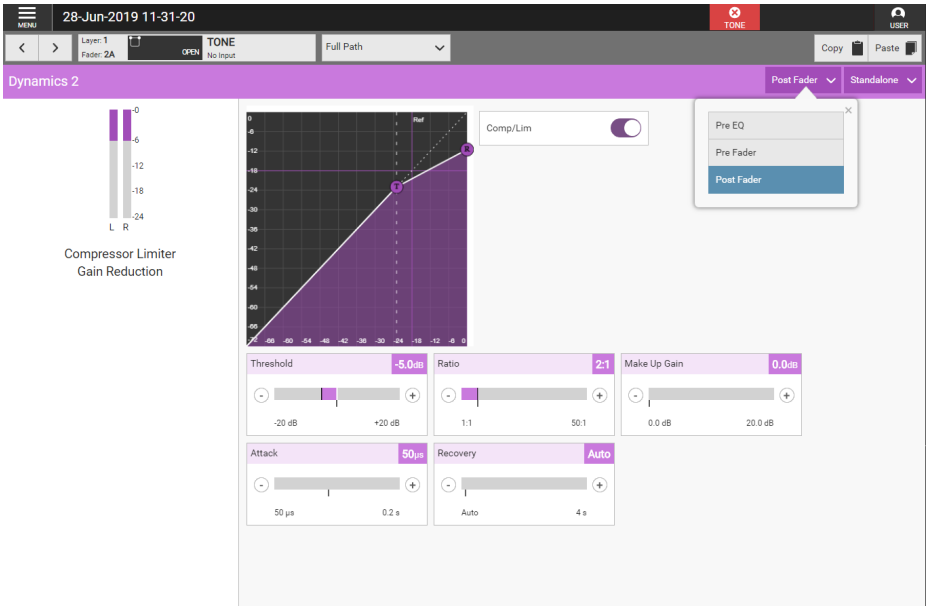
Threshold: The level (dBFS) at which the signal will begin to have its gain reduced.

Ratio: Controls gain reduction once a signal has exceeded the threshold, for example, if the ratio is set at 2:1 and the signal exceeds the threshold by 4dBFS, the gain will be reduced so it exceeds the threshold by only 2dBFS. When set to 50:1, the compressor is acting as a limiter.

COMPRESSOR-LIMITER 2



DYNAMICS 2 PATH POSITION

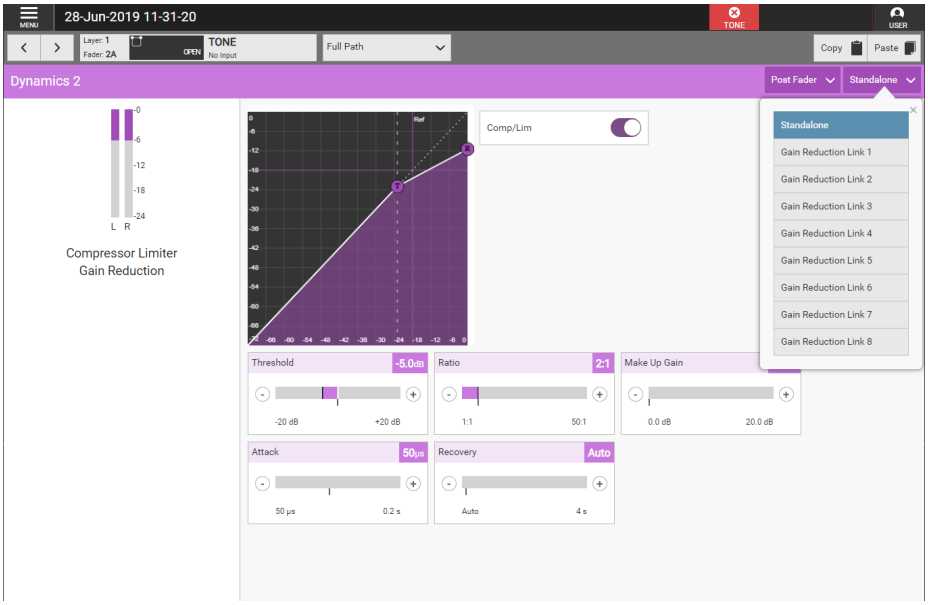


Attack: Time taken to reduce the gain to reach the new compressed level. Short attack times enable the compressor to catch transients in the audio feed, whereas increasing the attack time will focus the compressor on more long term level issues, such as level differences across various sections of a program.

Release: Time taken to remove gain reduction once the signal falls back below the threshold. Short release times can lead to a 'pulsing' effect, with only audio peaks being compressed. A longer release time will lead to a smoother effect at the expense of some lower level audio components being compressed.

Make Up Gain: Allows the gain of the whole compressed signal to be increased by up to 20dB.

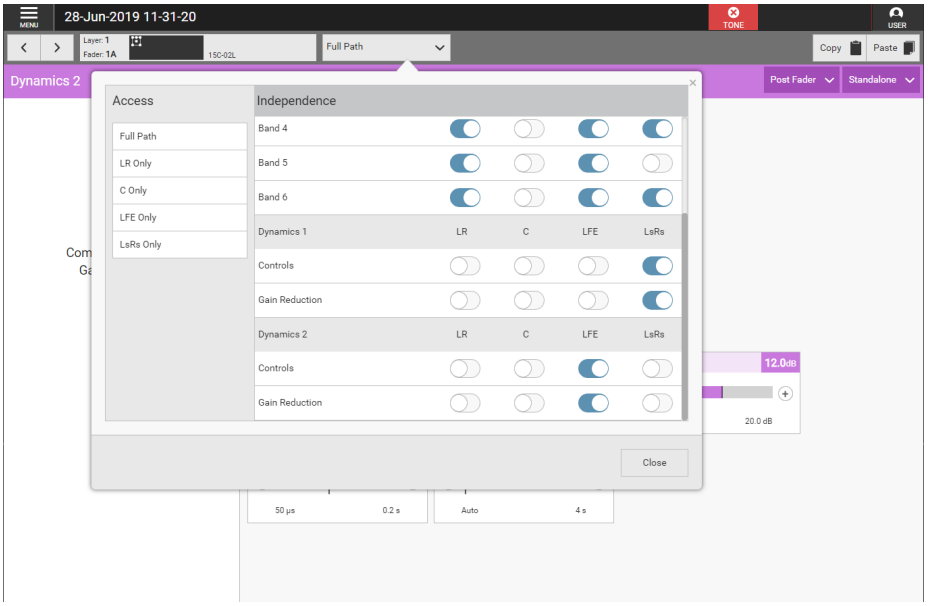
GAIN REDUCTION LINKS



Gain Reduction Links
By default, dynamics modules operate as standalone units. The right hand button in the function header allows the module to be put into one of eight gain reduction links. Gain reduction links allow multiple audio feeds to have the same dynamics processing applied. Note that the Dynamics 2 compressor-limiter acts independently and can use different gain reduction links than Dynamics 1. When multiple paths' dynamics modules are set to be part of a gain reduction link, the amount of gain reduction applied across the link will always equal that for the signal which is being affected the most.

For example, within a gain reduction link, if one path's signal is causing 5dB of gain reduction and another is causing a reduction of 10dB, all signals within the gain reduction link will have a gain reduction of 10dB applied.

MULTICHANNEL INDEPENDENCE CONTROLS FOR DYNAMICS 2



Dynamics 1 Independence Controls for Stereo and 5.1 Paths
For Multichannel paths such as stereo and 5.1 paths it is possible to apply Dynamics 2 processing independently in just the same way as Dynamics 1 does.

The image below right shows the Dyn 2 page for a 5.1 path, in the path header is shown a drop down box which normally says 'Full Path'. Tapping on this opens an independence control table which is used to determine which spill leg controls will be made independent of its multichannel master for any of the dynamics controls or gain reduction elements shown down the Spill Leg Independence column. Sliding any of these switches makes those particular controls and or gain reduction elements for a particular spill leg to become independent.

FADER

This provides the user with a set of faders related to the currently accessed path on which they can control the Fader, Cut, PFL and AFL parameters of all the legs of the accessed path and its downmix levels if Stereo or Surround.

Fader Controls
After tapping on **Accessed Path Processing>Faders** from the Menu, the image above right is displayed showing the fader and for stereo & 5.1 wide paths a set of spill faders.

The following controls are available:-
Fader Levels: The user can tap and drag in the fader columns to modify the levels of each of the faders. The current value of the fader level is shown by the position of the fader knob and numerically in the box just below the PFL & AFL buttons.

PFL & AFL: The user can listen to the individually to the PFL (pre-fader listen) or AFL (after-fader listen) using the PFL or AFL buttons.

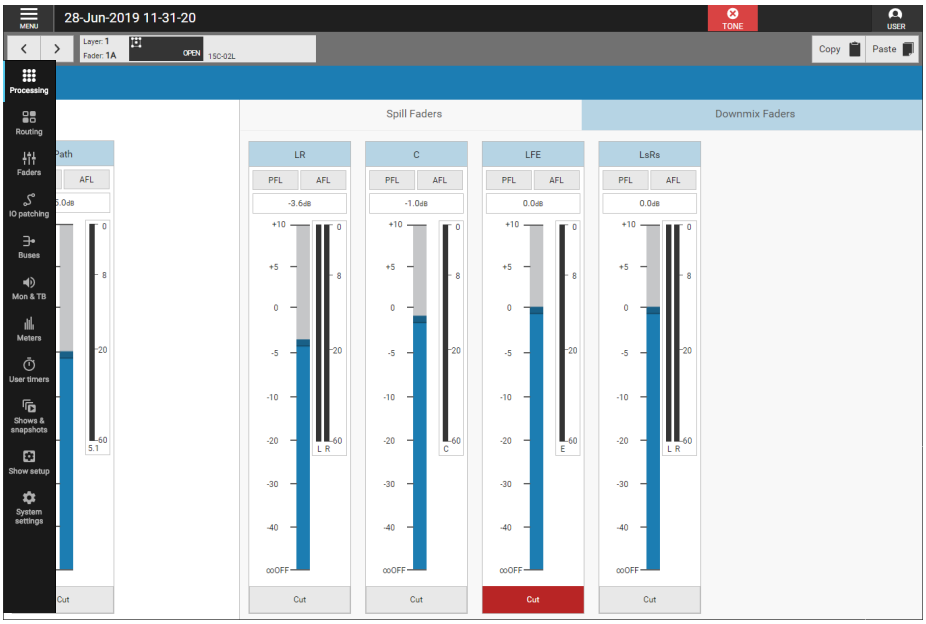
Cut: The user can cut the output of the path by tapping on this button if the master path is cut on a stereo or 5.1 path all its legs are also cut.

The image below right shows the downmix faders page for the currently assigned path.

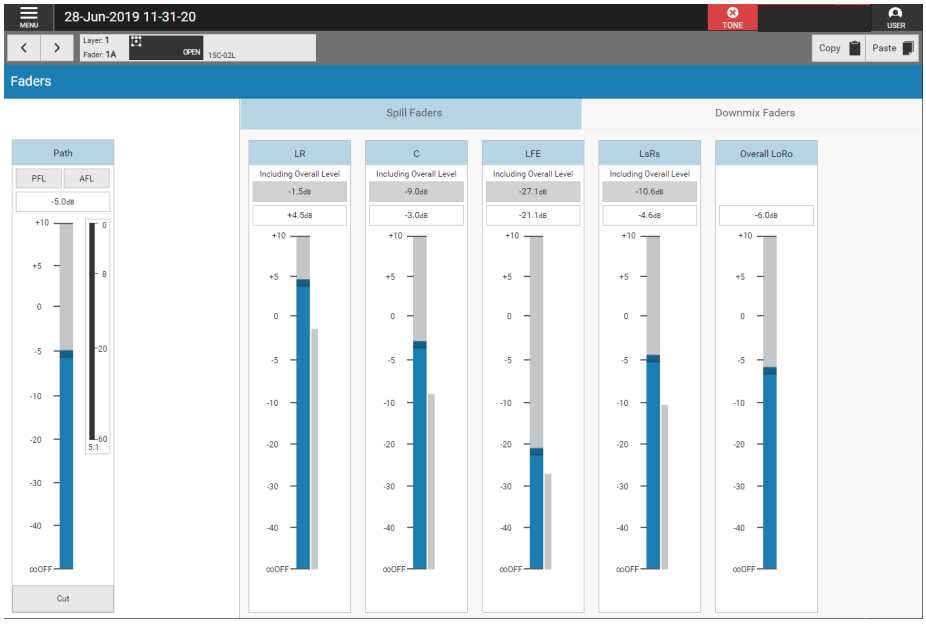
The user can tap and drag in the fader columns to modify the levels of each of those faders including the separate LoRo overall stereo mixdown fader level.

Note that downmix faders do not have AFL, PFL or Cut functions. Along the top, above the faders function header, is shown the usual set of nudge buttons which lets the user select a different access path and to the right of that is shown the fader information block showing the currently accessed path along with further information such as path width, layer locked and fader open as well as its label shown further to the right.

FADERS SHOWING SURROUND LEG FADERS



FADERS SHOWING DOWNMIX FADERS



The 'Full Path' drop down associated with stereo and 5.1 paths is not required here as the user has full access to all the legs of the chosen path.

V9 ASSIST
ACCESS ROUTING

CALREC

MAIN AND GROUP ROUTING

The Routing Section deals with the routing of sources to buses. For each path, there are a number of pages showing its bus routing.

Main and Group Routing
After tapping on the menu selection **Accessed Path Routing>Mains** the page shown above right appears. The user can select other routing destinations by tapping on the other menu tabs such as **Accessed Path Routing>Groups** as shown below right.

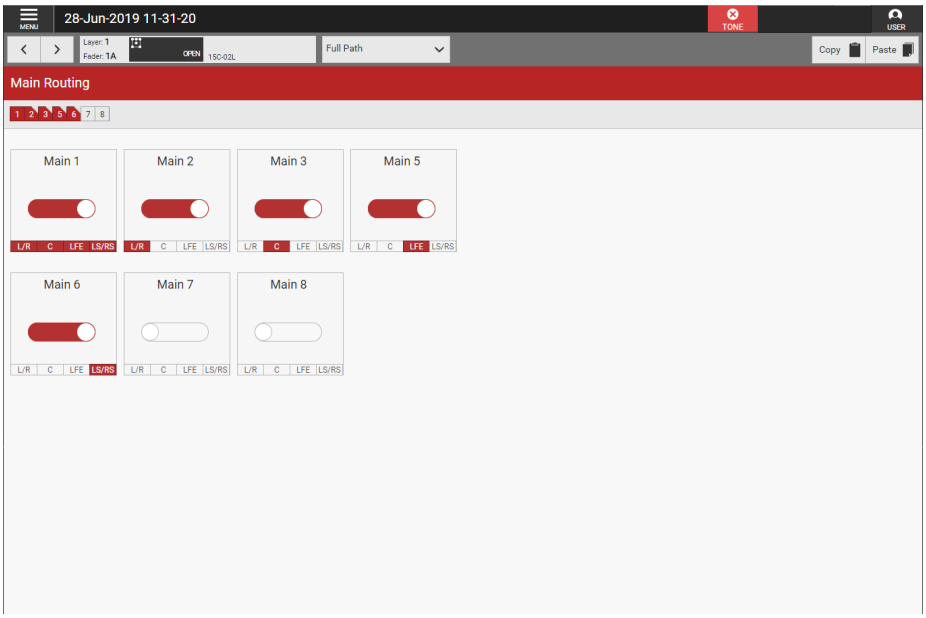
Apollo/Artemis has up to 16 Main Buses, 48 Group Buses and 1 Mix Minus Bus. These can be labelled on the selected buses page. Each bus has a slider switch which routes the current access path to it and in the base of each bus display is shown the state of each leg of the source. For mono sources there is no leg selection needed, however stereo sources show L & R legs and 5.1 sources show L/R, C, Lfe & Ls/Rs leg displays which illuminate in the appropriate colour to show that those legs are routed.

Stereo & 5.1 path spill leg access and independence for Routing.
Using the independence drop down it is possible to access each spill leg of a stereo or 5.1 path and allow routing changes to be made on each spill leg. Tapping on the 'Full Path' drop down opens an independence control table which is used to determine which spill leg controls will be made independent of its multichannel master.

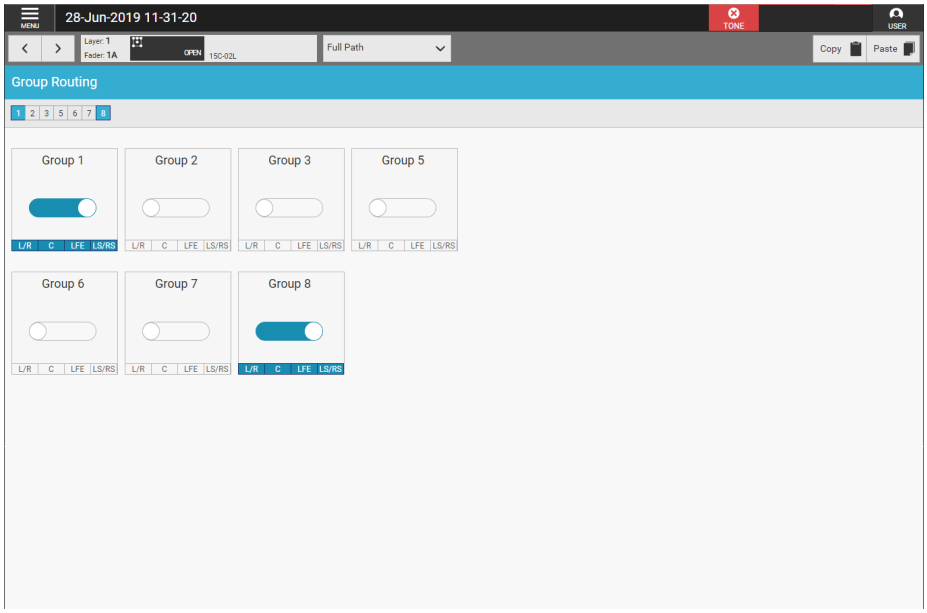
The user selects which spill leg they wish to examine/alter and the screen then accesses that leg as required. For a stereo source the user can select either the L or R legs to route or for a 5.1 source the user can select either the LR, C, Lfe or LsRs spill legs to route.

Quick Routing: Just below the function header is a 'clickable' routing display which can be used to quickly switch routes on and off. Note that when part of a bus is routed e.g. Main 2 & Main 3 , then this partial routing is shown by the corner of the routing block being 'cut off' on the routing display and the individual routing boxes are lit separately underneath each control.

MAIN ROUTING



GROUP ROUTING

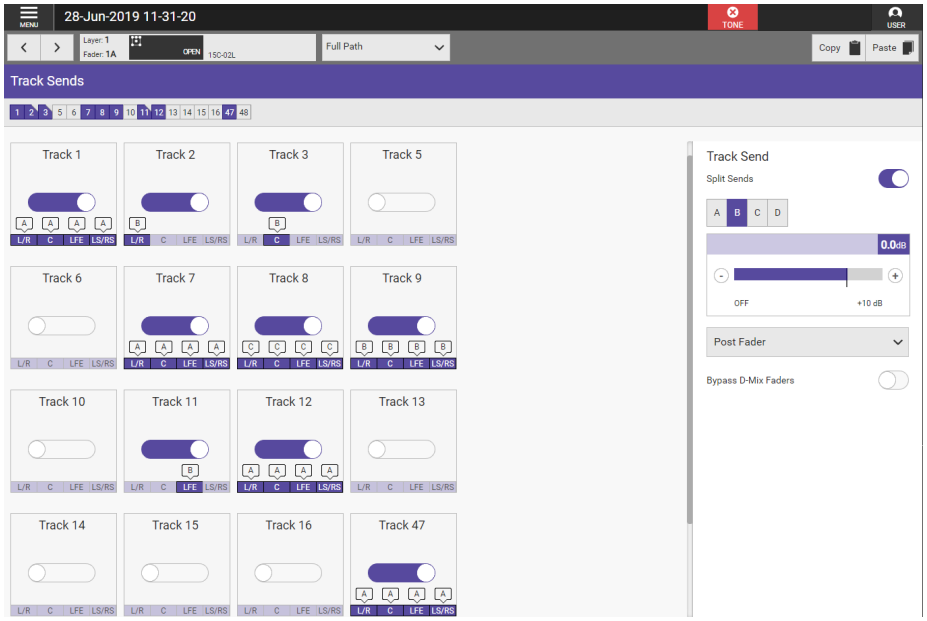


TRACK ROUTING SENDS

Tracks are generally used to record copies of channels & groups, feed external signal processing devices or to create Interruptable foldback feeds (IFB's). For each path there is a track send level control and send position switches.
The track send level is applied to all tracks from each path and normally paths are only routed to one or two tracks so that individual track send control isn't required.

To further extend the flexibility of the tracks it is possible to split the track sends which allows each track to be fed from 1 of 4 track sends, these are labelled A,B,C & D as shown in the image above right. There is of course the track output level control that allows each track overall level control which is covered in the track buses section.

TRACKS FOR ROUTING & SENDS LEVELS



This allows extensive control of up to 96/48 separate track mixes in Apollo/ Artemis. There are 3 types of track:- Mono Odd, Mono Even and Mono which relates to how the odd numbered tracks are panned left, the even numbered tracks are panned right or the track can be mono and therefore pan centred.

Track Routing & Send Controls

After tapping on the menu selection **Accessed Path Routing>Track Sends** the image above right is displayed.

The following controls are available:-
Routing: Slide the large switches in the routing boxes for this path to each track. Note that the Routing indication for stereo and 5.1 paths are the same as for mains, groups and mix minus.

Quick Routing: Just below the Track Sends function header is a 'clickable' routing display which quickly allows the user to route to each track send from the currently accessed path.

Note that Track 1 & part of Tracks 2 & 3 are shown routed. Using the 'Full Path' drop down it is possible to select the individual legs of a stereo or 5.1 path and route just those legs to the track.

This partial routing is shown by the corner of the routing block being 'cut off' on the routing display and the individual routing boxes being lit separately underneath each track, see Tracks 2 & 3 in the image above.

Track Send Level: Slide the level control or tap on the + or - icons to alter the level of the track send between 'off' & +10dB. The send level value is shown in the top right corner of each send levels for the A, B, C & D Track sends when Split Sends are active.

Track Send Position: Track sends can be taken at different points in the associated path's signal flow, pre EQ, pre fader or post fader.

More about Track Split Sends.

Each channel has up to four track sends although by default only one is enabled.

To enable the four sends, touch the SPLIT SEND button to the far right of the page. This will enable the four split send buttons for selecting the required send (A, B, C or D) as shown above right.

Select one of these sends and then create or remove routing to tracks as required. A letter will appear below the track number when a route is made to indicate which send it is associated with.

Each of the four sends has an individual level control and can be selected by pressing the appropriate split sends A, B, C or D button. This enables access to a wider range of controls for that specific send such as pre or post fade.

Removing sends

If a channel has been routed to a track using send C then send C must be selected when removing the route. Only routes made with the currently selected send may be removed.

In order for the track routing to be collapsed back into just one send, all routes from sends B, C and D must be removed. The SPLIT SEND button can now be touched again to disable the three unused B, C, D send controls.

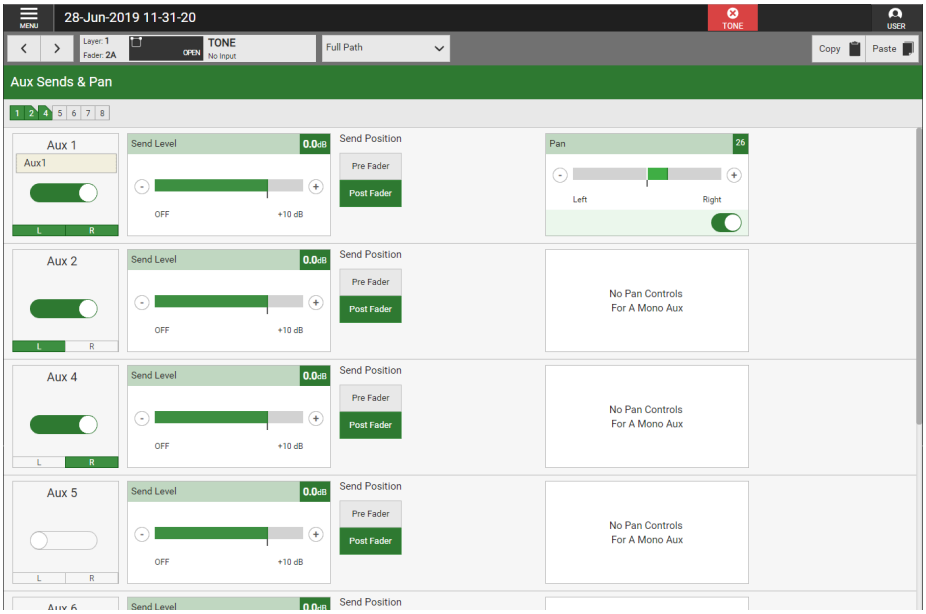
AUX ROUTING SENDS & PAN

Auxs are generally used to feed external signal processing devices or to create Interruptable foldback feeds (IFB's). For each path, auxs have individual level controls and send position switches for each of the possible aux feeds, this allows extensive control of up to 48/24 separate mixes on Apollo/Artemis.

Mono or stereo auxs can be created.

Auxs also have an additional level of logic control, allowing you to set conditions under which each pre fader aux send should be cut, these are shown in the Aux Buses page.

AUXILIARIES FOR ROUTING, SENDS AND PANNING



Aux Routing, Send & Pan Controls
After tapping on the menu selection **Accessed Path Routing>Aux Sends & Pan** the image above right is displayed. Each aux send is displayed in its own row.

The following controls are available:-
Routing: Slide the large switch in the box on the left for each aux to make a route.

Quick Routing: Just below the 'Aux Sends & Pan' function header is a 'clickable' routing display which quickly allows the user to route to each aux send from the currently accessed path.

Note that Aux 1 and part of Aux 2 are shown routed. Using the 'Full Path' drop down it is possible to select the individual legs of a stereo or 5.1 path and route just those legs to the aux.

This partial routing is shown by the corner of the routing block being 'cut off' on the routing display and the individual routing boxes being lit separately underneath each aux row, see Aux 2 in the image above.

Send Level: Slide the level control or tap on the + or - icons to alter the level of the aux send between 'off' and +10dB. The send level value is shown in the top right corner of each send level.

Send Position: Aux sends can be taken at different points in the associated path's signal flow, pre fader or post fader.

Bypass Downmix Faders: If the aux output's associated path is 5.1 and the aux output is stereo or mono the user can choose whether or not to use the downmix fader levels during the downmixing process.

Follow Spill Faders: If the aux output is stereo and its send position is Pre Fader, the user can choose whether or not to follow the levels of the spill faders.

Pan Position: For stereo aux sends an additional pan control is available which allows the user to adjust the position of the source to the left or right of centre.

Note: If there are more aux sends than can be fitted on the screen a vertical scrollbar appears on the right hand side allowing the user to scroll to their required bus.

DIRECT OUTPUT & MIX MINUS BUS

Direct outputs are path specific desk outputs, available to Input Channels and Groups. Apollo/ Artemis has a pool of 512/256 output resources, shared between Direct Outputs and *Mix Minus Outputs.

Direct Output Controls
After tapping on the menu selection **Accessed Path Routing>Direct Output**, the image above right is displayed, ready for a direct output to be created. Note that the number of available outputs is shown on the page, once the pool is empty no further direct outputs can be created. Once a direct output has been created it appears as the image below right which in this case is a stereo direct output from a 5.1 channel attached to Fader 1A.

Note: up to 4 direct outputs are available per path.

The following controls are available:-
Direct Output Patching: The direct output patch destination ports are displayed.

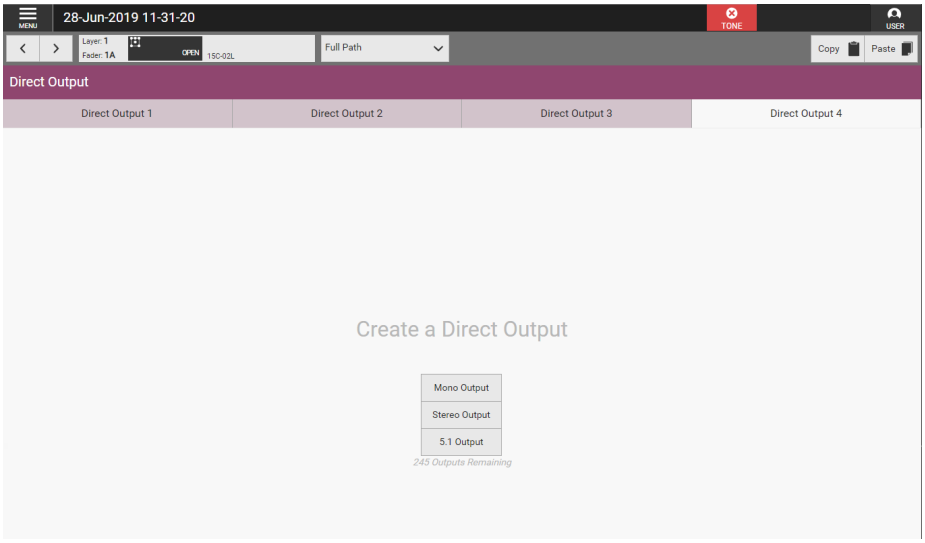
Level: Slide the level control or tap on the + or - icons to alter the level of the direct output between 'off' and +10dB.

Send Position: Direct outputs can be taken at different points in the associated path's signal flow, Pre EQ, Pre fader, Post Fader or Mix Minus.

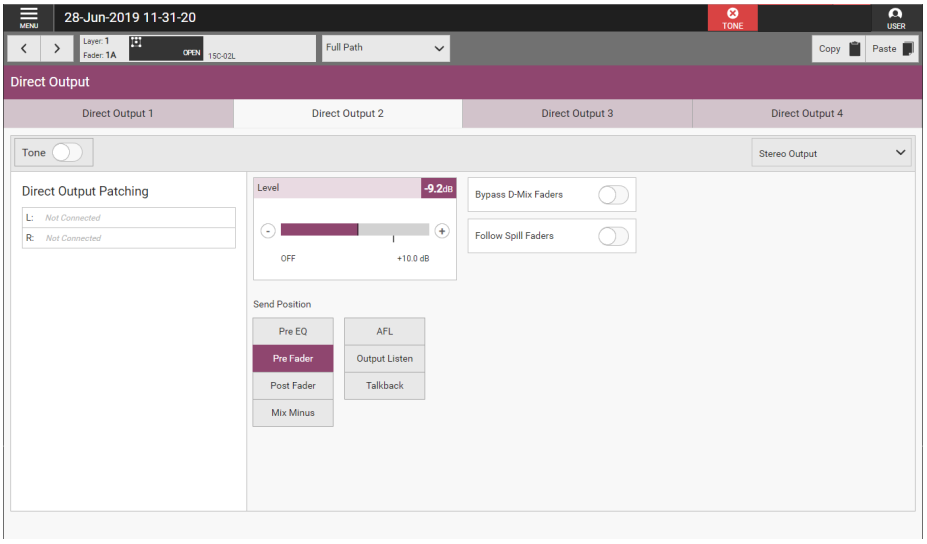
***In Apollo/Artemis there are no dedicated Mix Minus Outputs, however selecting the Mix Minus as the send position allows the mix minus bus, feed the selected Direct Output and thus provide Mix Minus Output.**

Bypass Downmix Faders: If the direct output's associated path is 5.1 and the direct output is stereo or mono the user can choose whether or not to use the downmix fader levels during the downmixing process.

DIRECT OUTPUT CREATE



DIRECT OUTPUT PATH POSITION



Follow Spill Faders: If the direct output is 5.1 or Stereo and its send position is Pre Eq or Pre Fader, the user can choose whether or not to follow the levels of the Spill faders.

AFL: Tapping on AFL replaces the console monitor source with the direct output feed, post level control, providing a non-destructive solo for the direct output.

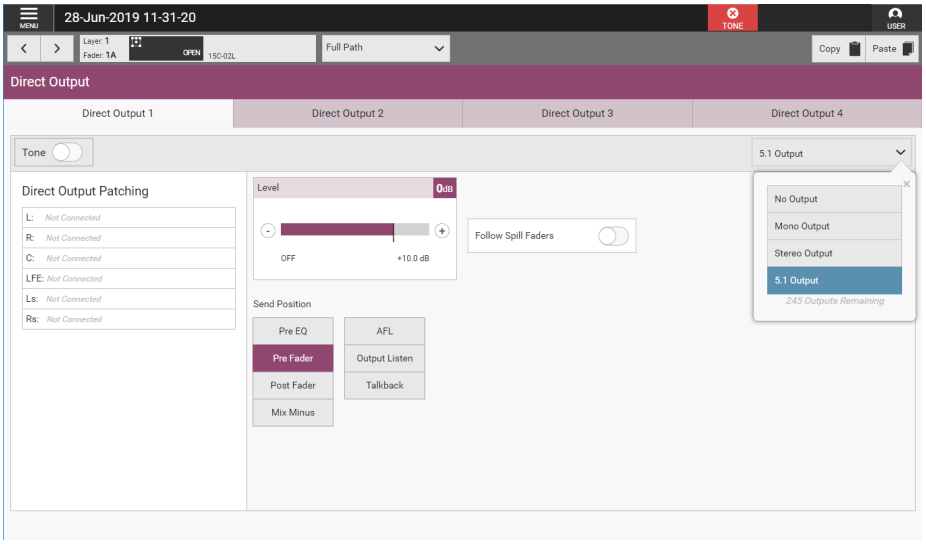
Output Listen: Similar to AFL but the feed is taken post output delay.

Talkback: Replaces the direct output feed with whatever is routed to the talkback input.

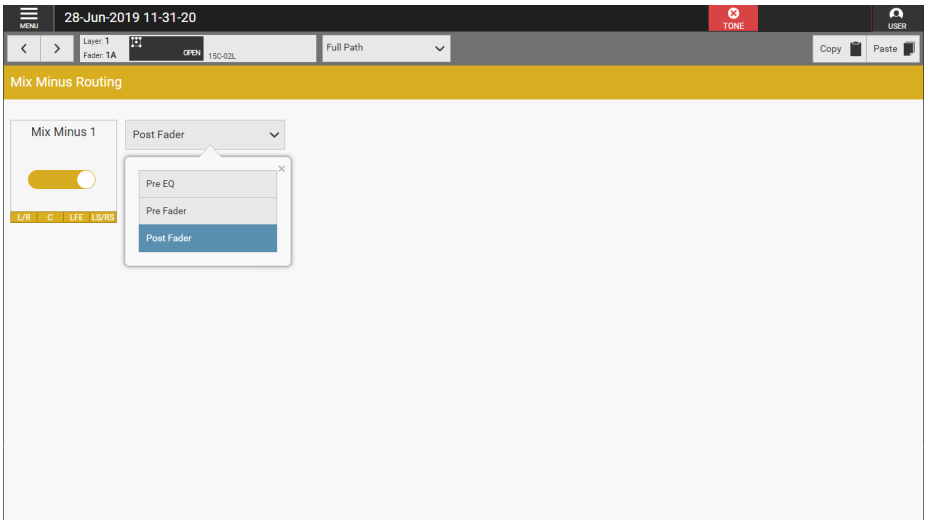
Tone: Select this to inject tone into the direct output, replacing the direct output feed with the correct tone for the path width, the slider switch in the function header turns the tone on or off.

Path Width Box: As shown above right, tapping on the path width dropdown menu to the right allows the user to change the width of the direct output or select 'No Output' to remove it.

DIRECT OUTPUT WIDTH INCLUDING NO OUTPUT (REMOVE) OPTION



MIX MINUS ROUTING



Mix Minus Routing
After tapping on the menu selection **Accessed Path Routing>Mix Minus** the page shown below right appears.

Sending signals to the mix minus bus
There is one mono mix minus bus, which is a global bus that any path can contribute to.

To send a signal to this bus, first access the chosen path and slide the route switch as shown below right. Signals can be sent Pre EQ/Pre Fader or Post Fader using the position dropdown to the right.

Using a direct output
Each path on the surface has a number of direct outputs associated with it. These direct outputs can be assigned to any output port which can then feed the foldback back to that path's source as described on the previous page see ✱.

Monitoring a mix minus signal
Assign a path on the surface that is being fed by the source you wish to send a mix minus signal to. Select a direct output bus from the Direct Output page.

Selecting the Mix Minus position will route the mix minus signal to that direct output.

The mix minus signal sent to the required source will be the contents of the mix minus bus, with the source's contribution (if any) removed.

V9 ASSIST
FADER SURFACE & FADER LAYOUT

CALREC

FADER SURFACE

FADER SURFACE SHOWING FADERS 1-16 OF 32

The primary purpose of this screen is to provide the user with a fader bed on which they can mix the shows on by controlling the fader and other parameters of all the paths that are set up on the fader layout screen.

This page is accessed via the menu entry **Fader Surface** as shown above.

The Function Header has layer controls in it which affect the Fader Surface area, these are described on the next page under the Layer Control / All A / All B and Layer Split headings.
The fader surface area provides a virtual fader bed showing faders in blocks of 8 at a time for V9 to emulate the physical fader panels of an Apollo or Artemis.

The actual number of faders visible is affected by the resolution of the display and the zoom setting of the browser.
In order to see the rest of the faders the user can scroll across them horizontally.

Note: Tapping on the menu icon folds away the drop-down menu to give more space on the content page.
As the faders on V9 are an emulation of the connected surface it will show the same number of faders as the console does. The faders on the V9 assist fader surface arranged as 12 layers, each with two sub-layers A & B. By tapping on the individual A or B assign buttons on the screen, the user can view and control a mixture of paths. The nudge buttons shown in the access header of the access and routing pages follow the A/B selections made here on the fader surface page.

Fader Surface Area:
Each A/B fader path is arranged from top to bottom as follows:-

Fader Number:
This number is shown at the top of each fader in the fader bed which is arranged in blocks of 8.

Sub-Layer A & Sub-Layer B buttons:
As the A or B buttons are tapped their paths become the currently accessed selection and light up Blue.
The A sub-layer buttons light up Green, the B sub-layer buttons light up Yellow.

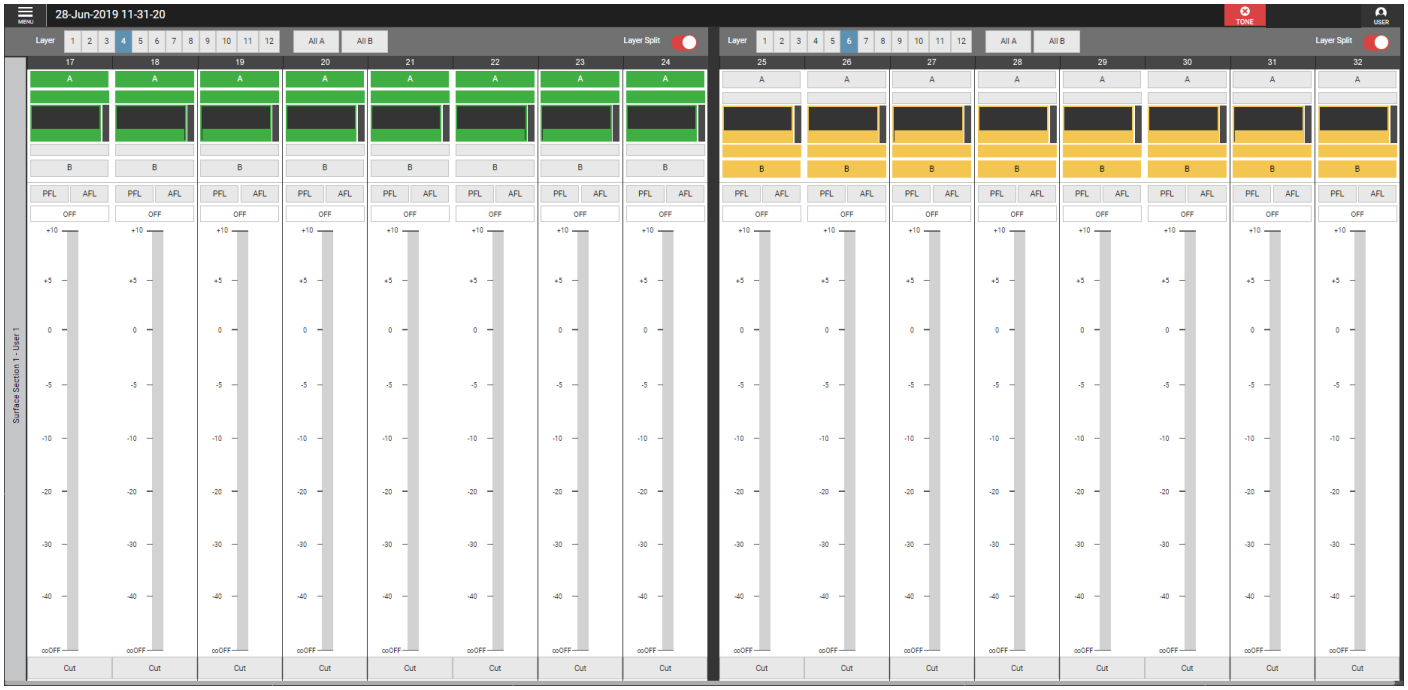
PFL & AFL buttons:
These switch the path onto the PFL and AFL monitor buses respectively.

Fader level indicator:
Displays a numerical fader value.

Fader Slider:
This can be tapped & dragged up/down to vary the level.

Cut / On buttons:
These buttons at the bottom of each fader can be disabled / enabled on the Console PC, by default this is set to '**Enabled**'.
The user can also decide if these buttons should act as Cut or On buttons.
This is selected from '**System Settings >Surface Layout** page on the Console PC in Technician mode.

FADER SURFACE SHOWING FADERS 17-32 OF 32



Note: this decision requires the system control processor to be restarted once the selection has been loaded.

Fader Status display:
Provides further information about the path being displayed. This is the black inset window placed between the sub-layer A and sub-layer B buttons. It is colour coded to match the A or B path selection and displays its port or bus name or label and if it is an unpatched channel displays 'No input'.

The black inset status window shows:- path width, fader open, layer locked and other icons as required and to the right of this window is shown a small signal presence meter which is used to display the audio signals on that path. This small mono meter shows the highest audio level present if the path is stereo or 5.1.
Note: this signal presence meter is not meant to replace the more detailed metering level information that appears on the meter displays.

Layer Control:
Above the fader bed in the function header is a Layer select button set which allows the user to select which of the 12 layers the faders in that virtual fader panel will control.

All A & All B:
In the function header to the right of the Layer select buttons are global ALL A and ALL B buttons which changes the fader surface display to show all the faders on sub-layer A or sub-layer B for that virtual fader panel.

Layer Split:
This switch on the right of each Virtual Fader panel allows that panel to select its own layer and All A/All B selection.

The switch also applies to all the panels to the right of the panel that is "Split" unless they also have their Layer Split switch selected.

This allows for a greater flexibility of path selection and the nudge buttons feature on the Access & Routing pages track the Current Access selection and vica versa.

Opening a second window in the session allows the user to have fader bed control of the mixer in one window and control another page such as Input or EQ in the other.

The user can then change the currently accessed path and the Access and Routing pages will follow the selection ready for the user to adjust controls as required.

The image above shows the screen scrolled across to Faders 17-32.

The image also shows that a Layer Split has been applied to every panel so that access to various layers can be made on one panel without affecting any of the other panel layer selections.

FADER LAYOUT

Configuring the Fader Layout
When a show is loaded the fader layout screen is automatically populated as the loaded show becomes the active show. This screen can be accessed from the menu via **Setup>Fader Layout** as shown above right. This what the user would see when a New show is created.

The first stage of passing audio into the system is to attach a channel to a fader. Audio feeds to input ports must then be attached to channels in order to be processed and routed, channels must be attached to faders to exist. Faders can also be assigned to control bus outputs.

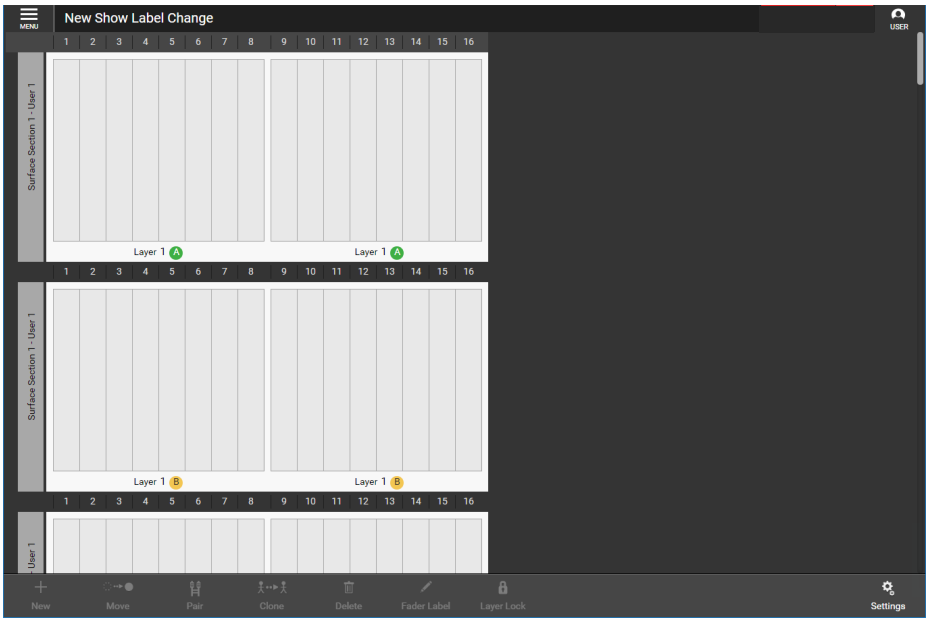
The Fader layout screen for a typical 64 fader console would have its faders arranged as:-
Faders 1A-64A on sub-layer A and Faders 1B-64B on sub-layer B for each of the 12 Layers available.

The faders are further divided into blocks of 8 to emulate a physical Apollo/Artemis fader panel. The console fader layout displayed above right is a 16 fader console i.e. 2 x 8 wide fader panels.

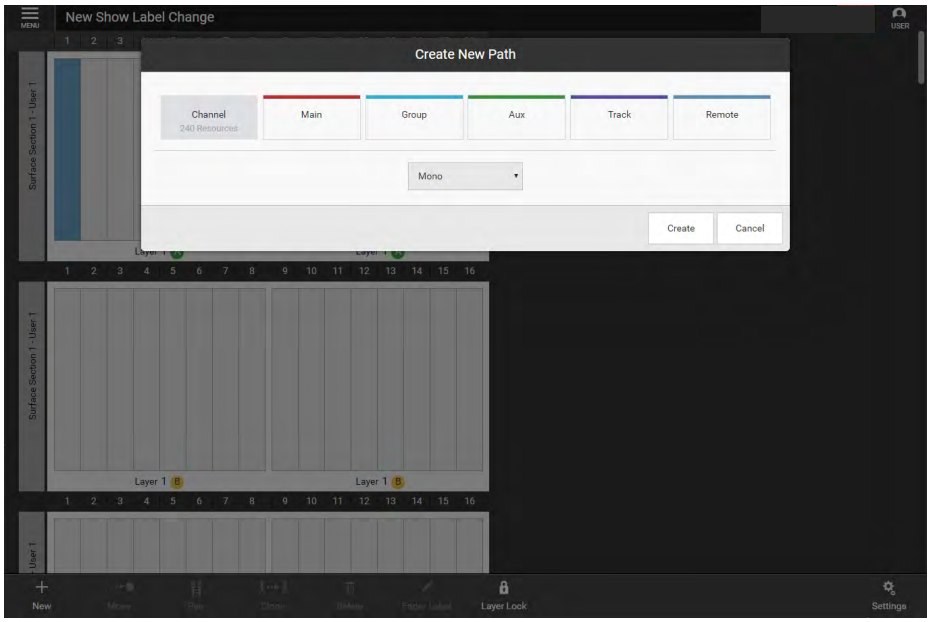
Attaching a Path to a Fader
To attach a path to a single fader:
1. Tap on an empty fader space to select it.
2. Tap on '**New**' in the control screen footer. A pop-up opens to show all path options, for channels, different path widths are available as shown below right.
3. Tap to select the desired width/type.
4. Tap on '**Create**' then the pop-up closes, or tap on '**Cancel**' to return to the fader layout screen without making any changes.

To attach paths to multiple faders:
1. Tap and drag selection handles to select the desired range of faders.
2. Tap on '**New**' and select your path/ width choice from the pop-up.

EMPTY FADER LAYOUT SHOWING STRUCTURE OF SCREEN



CREATE NEW PATH

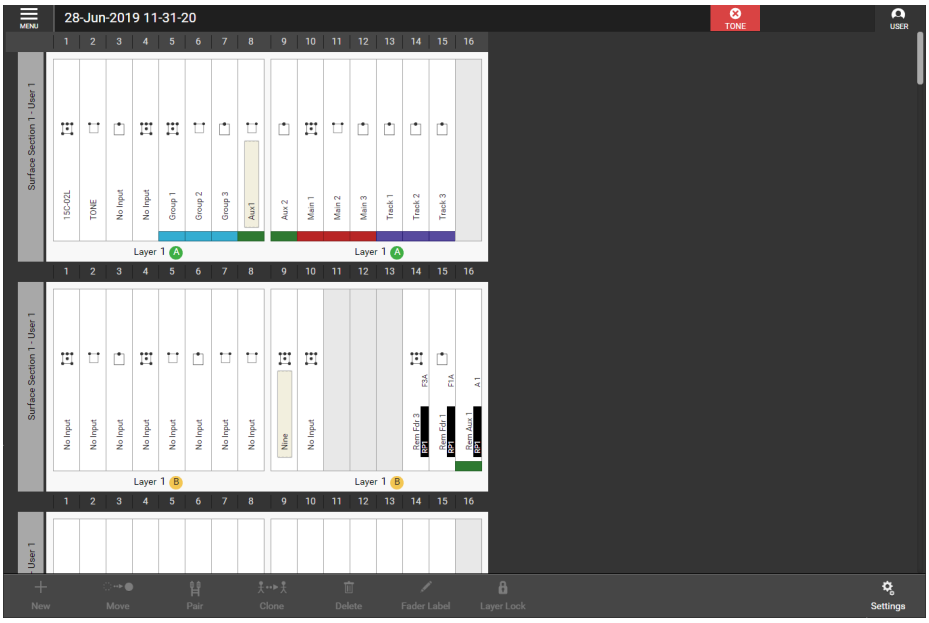


POPULATED FADER LAYOUT

Populating the Fader Layout
All selected faders will then be populated with the chosen path type/width. If an output bus is chosen, the selected faders will be populated with buses in consecutive order.

For example, if you select four faders, and then choose aux master 1, the faders will be populated with aux masters 1. 2. 3 & 4.

The image above right shows the fader layout screen populated in this case with various channels and buses across sub-layer A and sub-layer B on Layer 1.

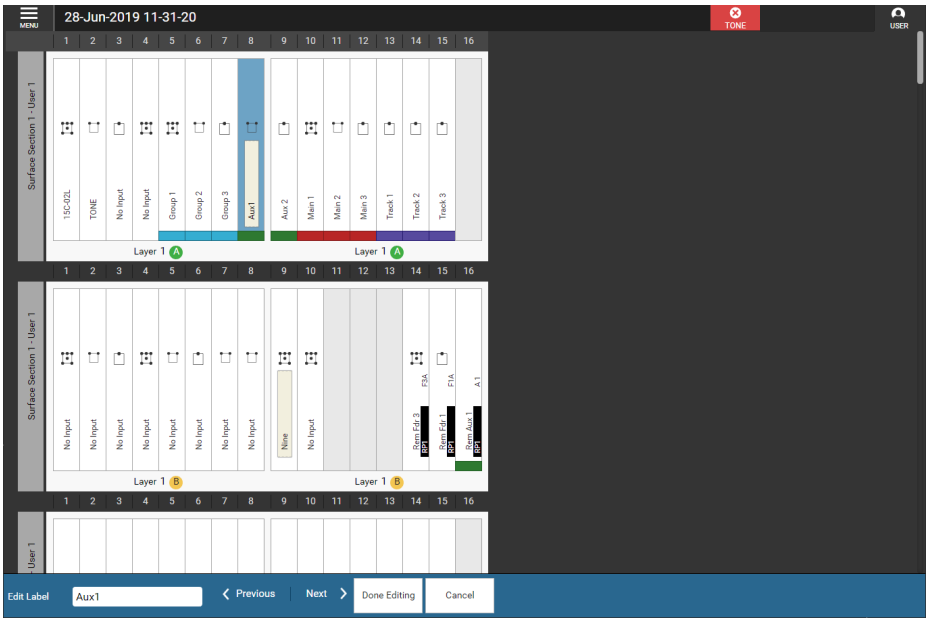


FADER LABEL EDITING

Editing Fader Labels
Once a path has been created, the user can edit its fader label and make it more meaningful see below right.

To edit a fader label:

1. Select one or more faders and tap on '**Fader Label**' . The footer changes to display a text entry field and four buttons, Previous, Next, Done & Cancel appear as shown below right.
2. Enter fader labels using the keyboard.
3. Scroll through the fader label fields by tapping on them, or by tapping on '**Previous**' and '**Next**'.
4. Once the user is happy with the label changes, tap on '**Done**'.
5. Pressing **Cancel** will cancel the current label entry and exit the Editing footer.



Label Display Options

Accessed from the Settings icon at the right hand side of the footer. This allows the user to change the label display for the paths for Buses & Outputs and Channels. The Bus & Output labels change between a user label such as 'Presenter HP' to the system label e.g. 'Aux 1'. The channel labels can change between a channel user label such as 'Commentator' to a port user label such as 'IO Box4 Mic5' set to the port system label ID e.g. '24-02' which is the Box ID and the port number in that box.

Moving Paths

This allows the user to move paths to different faders as follows:

1. Select one or more faders, at least one of which must contain a path.
2. Tap on '**Move**' in the control screen footer and tap on the fader that you wish to move the selected paths to.
3. Tap on '**Move**' again to confirm your choice.

If the user has selected a move destination that has existing paths on it you are presented with three options:
Cancel: - which cancels the action.
Swap: - which swaps the original paths with faders on the chosen destination.
Overwrite: - which replaces the destination path with the original selection and removes the destination paths from the surface.
As channels don't exist once they are removed from a fader, a pop-up appears if there is an attempt to overwrite a channel, asking for confirmation.

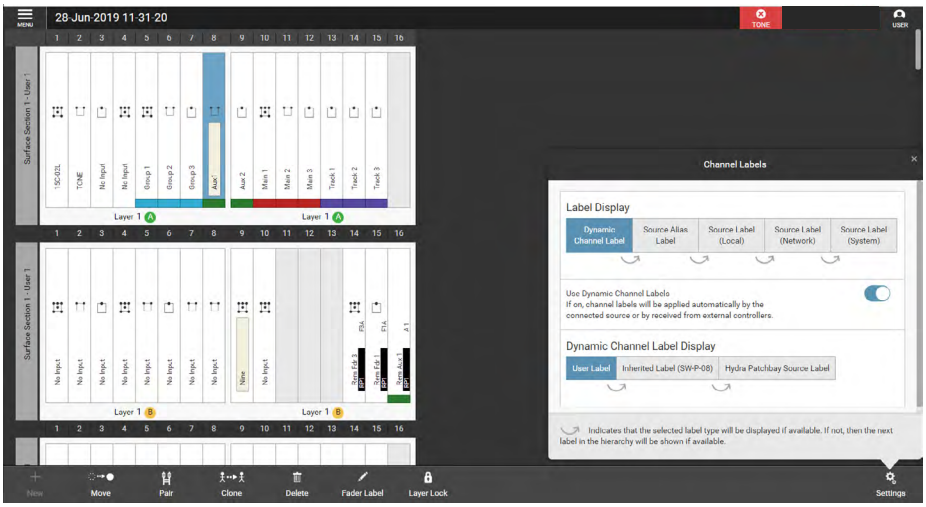
Cloning Paths

To create a clone of a path from a fader:

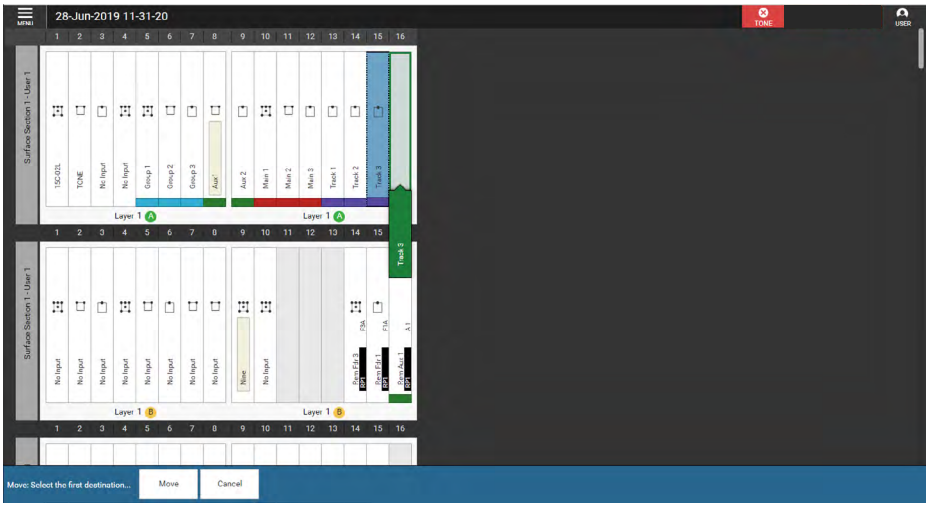
1. Select the fader to be cloned which must have a path attached.
2. Tap on '**Clone**' in the screen footer.
3. A pop-up appears asking the user to select the destination where the clone should appear.
4. Tap on the '**Clone**' button in the pop-up to create the clone path or tap on '**Cancel**' to return to the fader layout screen without making any changes.

Note: The Clone Icons will appear as shown on Faders 10B-L1 & 11B-L1.

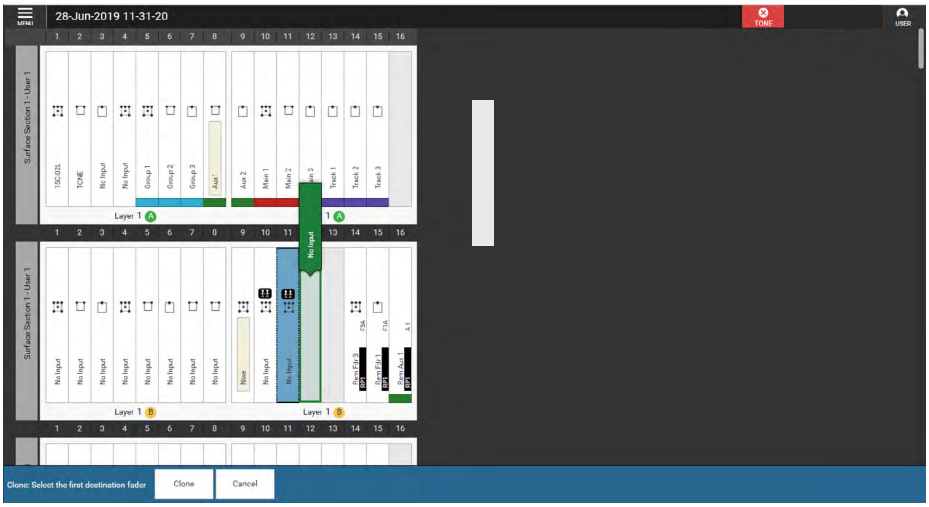
LABEL DISPLAY OPTIONS



MOVE PATHS



CLONING PATHS



Deleting Paths

To remove a path from a fader:

1. Select one or more faders, at least one of which must have a path attached.
2. Tap on '**Delete**' in the screen footer.
3. A pop-up appears asking for confirmation that the selected paths are to be deleted and advising that this operation cannot be undone.
4. Tap on '**Delete**' in the pop-up to remove the path from the fader or tap on '**Cancel**' to return to the fader layout screen without making any changes.

Layer Lock

This allows the user to ensure that some faders are always present on the fader surface, regardless of which sub-layer A or sub-layer B is selected as follows:

1. Select one or more faders (with or without paths attached).
2. Tap on '**Layer Lock**' in the screen footer.

A padlock symbol appears on the locked paths see below right on fader 10B-L1.

Pair Faders

This allows the user to pair two faders together. These will then operate like a link, where moving either fader moves them both by the same amount, but note it only pairs the faders and cut/on switches. This is primarily designed to pair an RP1 fader with a console fader but can be used without an RP1 if required.

To pair two faders together:

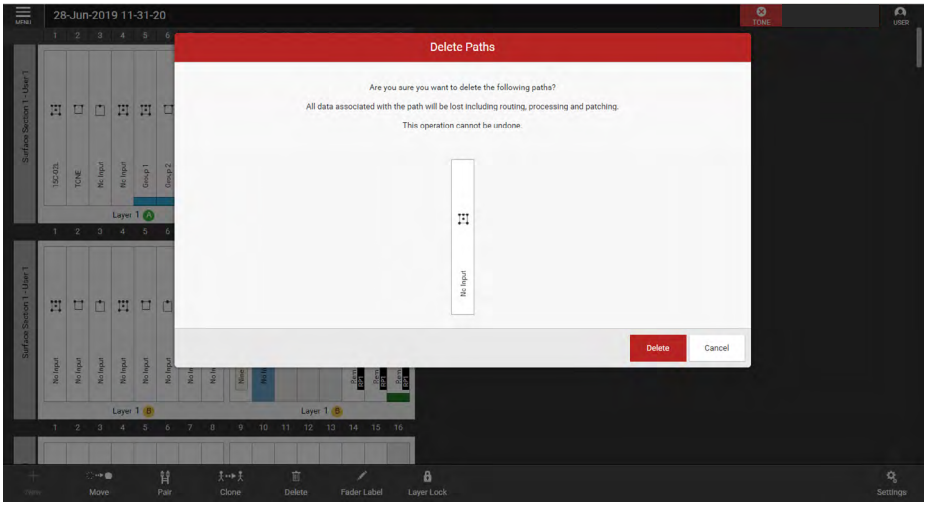
1. Select the first fader to be paired which must have a path attached.
2. Tap on '**Pair**' in the screen footer.
3. Select the second fader to be paired
4. Click on 'Pair' in the footer dialogue.
5. The Pair icon appears on both faders as shown on Faders 6B-L1 & 16B-L1.

To unpair a fader pair:

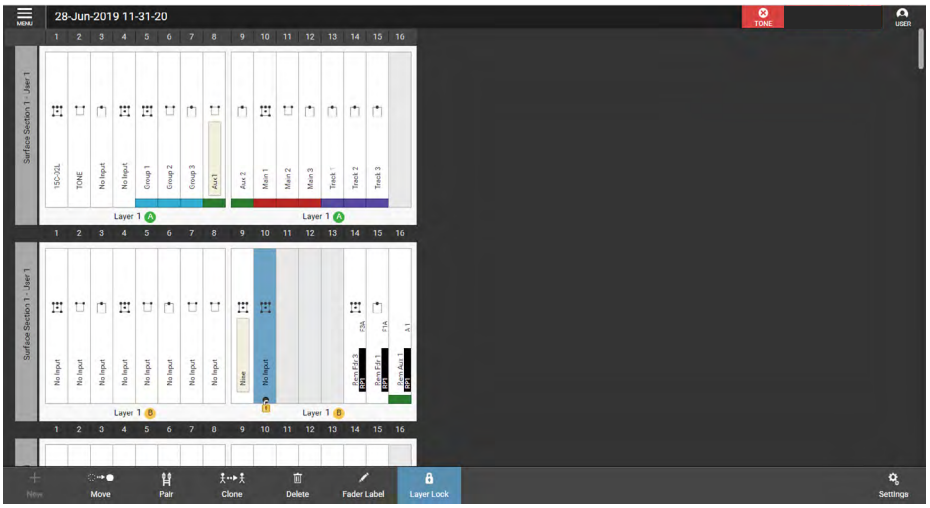
1. Select either of the paired faders.
2. Tap on '**Unpair**' in the screen footer.
3. This will unpair the faders and the pair symbol will be removed.

Note: If one of the pair is deleted from the Fader Layout the Pairing connection is also deleted.

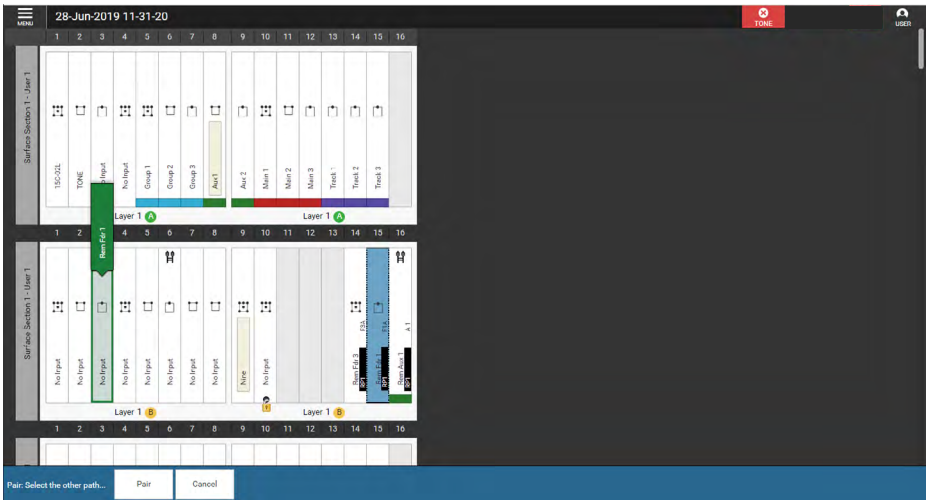
DELETING PATHS



LAYER LOCK



PAIR FADERS



V9 ASSIST
IO PATCHING

CALREC

INPUT AND OUTPUT PATCHING

System inputs and outputs can be patched to physical I/O ports or virtual Hydra patchbay ports, or to each other. To enter the patching screen, click on Setup>Patching in the Assist menu.

Patches are made between sources and destinations.

- A destination can be an I/O output port selected either directly from an I/O Box, via a Port List or Hydra2 patchbay input, or be a console Desk Input such as a Channel, Insert or External Input.
- A source can be an I/O input port, selected either directly from an I/O box, via a Port List or Hydra2 patchbay output, or be a console DSP Desk Output such as an Aux or Monitor O/P.

Each source can be patched to multiple destinations but a destination can only have one source. When patching an input port to multiple input channels it is important to remember that phantom power (48v), input gain and sample rate conversion are all set within the Hydra2 domain and so altering these controls from any point on the surface will affect that feed for every instance of it across the surface and the Hydra2 network.

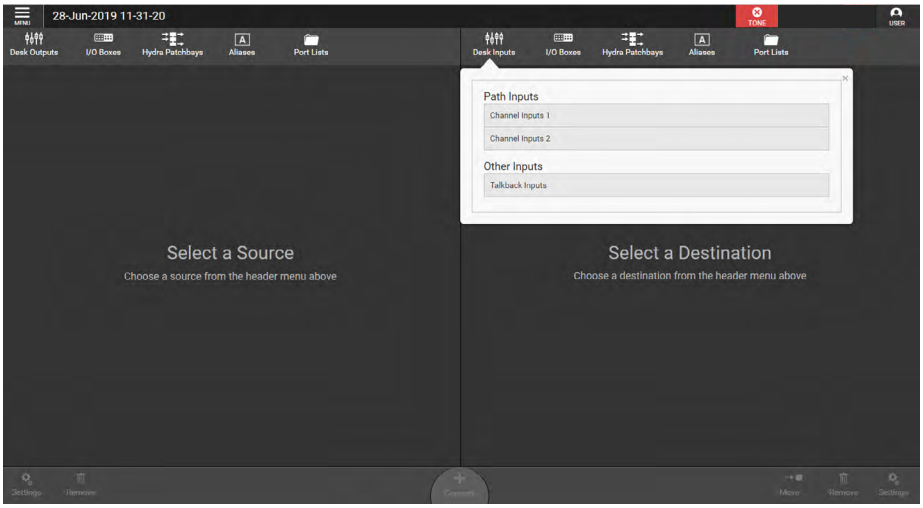
The I/O Patching Screen

The I/O patching screen is split into two halves, sources are displayed on the left and destinations on the right as shown above right. Each side has a series of buttons running along the top for the user to select which source/destination type they wish to access.

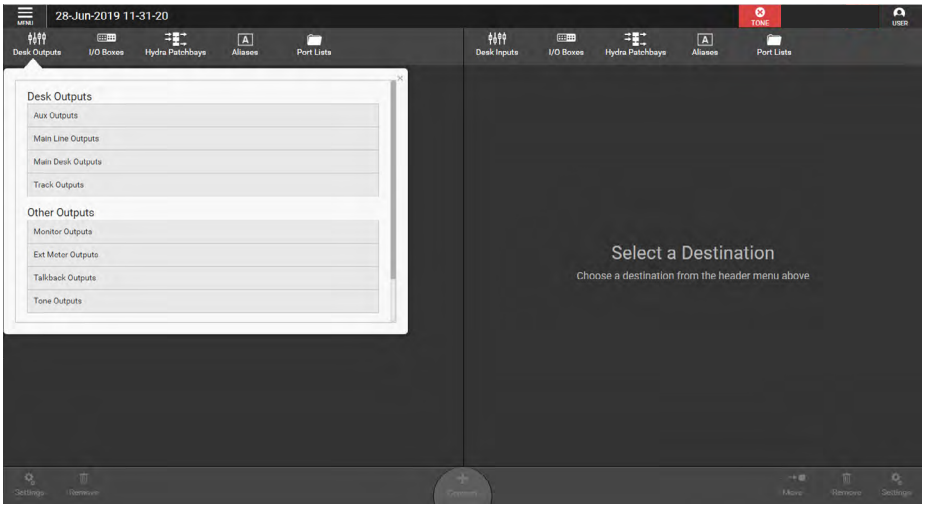
Selecting Sources and Destinations

Click on a source or destination selection button and a pop-up reveals all available options of that type, either as a set of buttons, or, in the case of I/O boxes, within a sortable table. The image above right shows the desk input types available. The image below right shows the desk output types available, tapping to select one of these options, i.e. 'Aux Outputs', populates the source/destination screen with the associated ports.

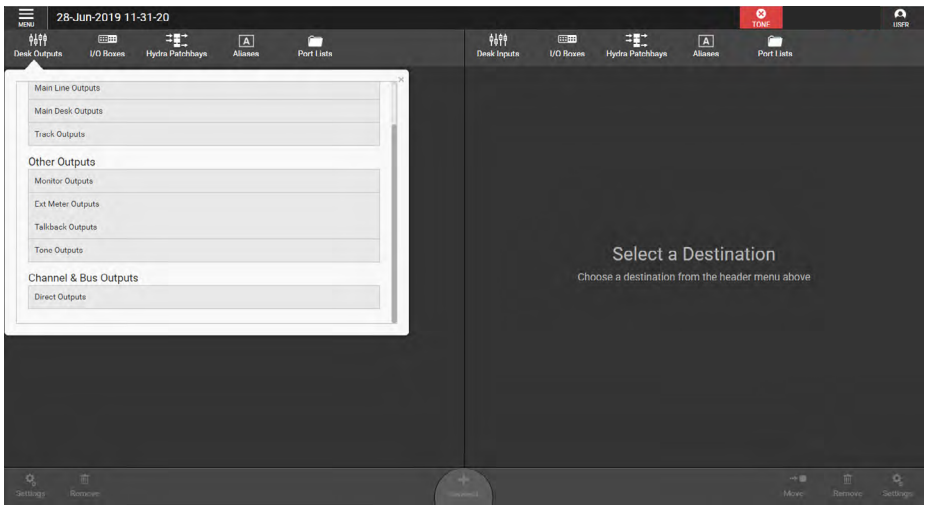
PATCHING - SELECTING DESK INPUT DESTINATIONS



PATCHING - SELECTING DESK OUTPUT DESTINATIONS 1



PATCHING - SELECTING DESK OUTPUT DESTINATIONS 2



Understanding Ports
The images to the right show how different sources and destinations are displayed within the I/O Patching screen.

The upper image shows the patching of Microphones, AES & SDI sources from **I/O Boxes** being patched to **Desk Inputs** on channel inputs attached to fader paths in the console.

The middle image shows the Aux Bus **Desk Outputs** being patched to **I/O Boxes** on line output ports.

Port groupings are displayed within sortable tables under the following headings on that screen.

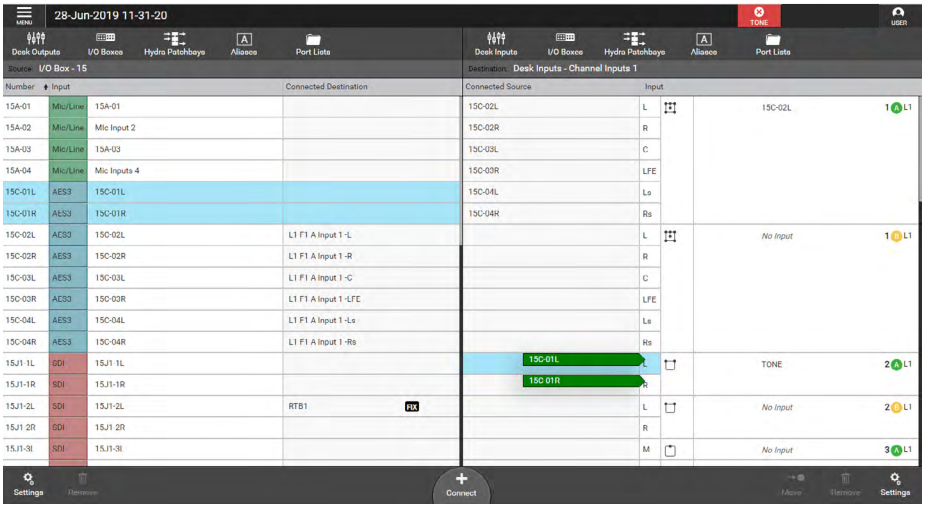
Port Numbers
The port number is a combination of the I/O box hardware ID (HID) and the port number within the box. See the H2O user guide for more detailed information. This is the port's native label and is generated directly from the I/O box itself.

Port Labels
The input and output port labels can be either the port user label or the system label.

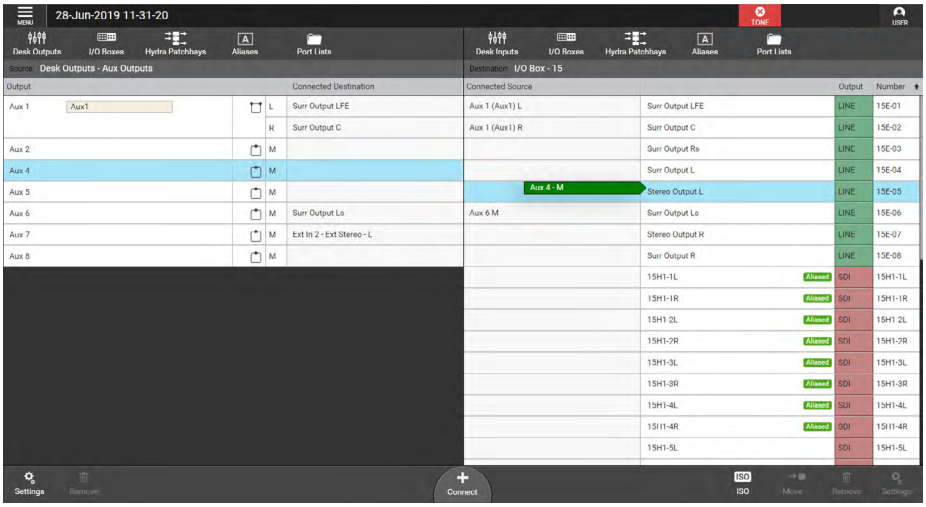
Connected Source/Destination
The label of the source/destination that is connected to the port is displayed. Within the I/O patching screen, sources and destinations have separate settings, which are accessible from the left and right of the control screen footer. The available settings vary depending on which port type is in view.

The lower image shows I/O Box Inputs being patched directly to I/O Box Outputs this can be useful for format conversion where the user may want to bring in an AES port and send it back out as an Analogue port without it passing through a console DSP process. Also note these inputs and outputs were selected via the Port Lists option which allows the user to make lists of certain ports in a group rather than having to select them from different I/O boxes.

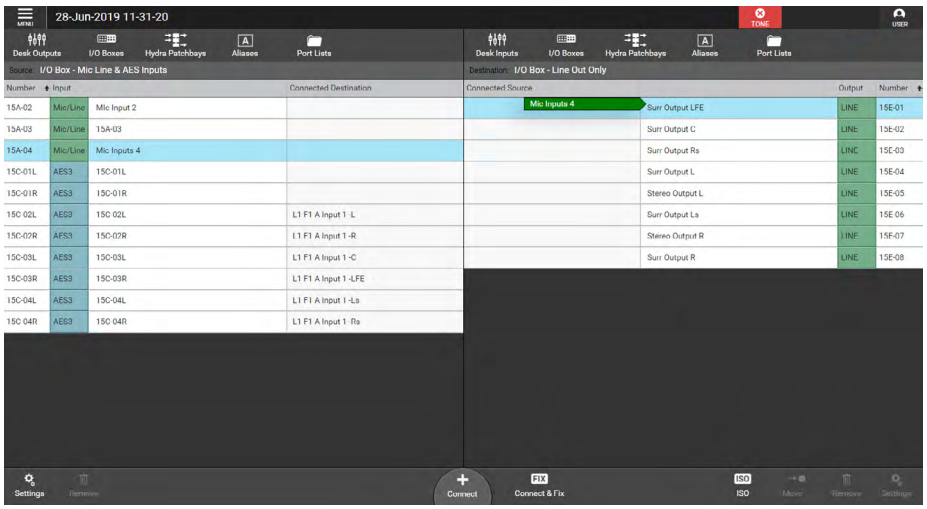
PATCHING - INPUT PORTS TO DESK INPUTS SELECTION



PATCHING - DESK OUTPUTS TO OUTPUT PORTS SELECTION



PATCHING - INPUT PORTS TO OUTPUT PORTS SELECTION



Source Settings

If more than one destination is connected to a source there is a settings button on the bottom left hand side of the footer as shown right, which allows the user to compact or expand the view of the connected destinations as required.

Destination Settings

When viewing fader specific paths, such as channel inputs, layer view options will be available. There is a settings button on the bottom right hand side of the footer as shown right, which allows the user to select layers A and B or only view faders on layer A or B.

Connected Destination

The user can view connected destinations from sources and view connected sources from destinations. Both are displayed within the centre columns with this option selected.

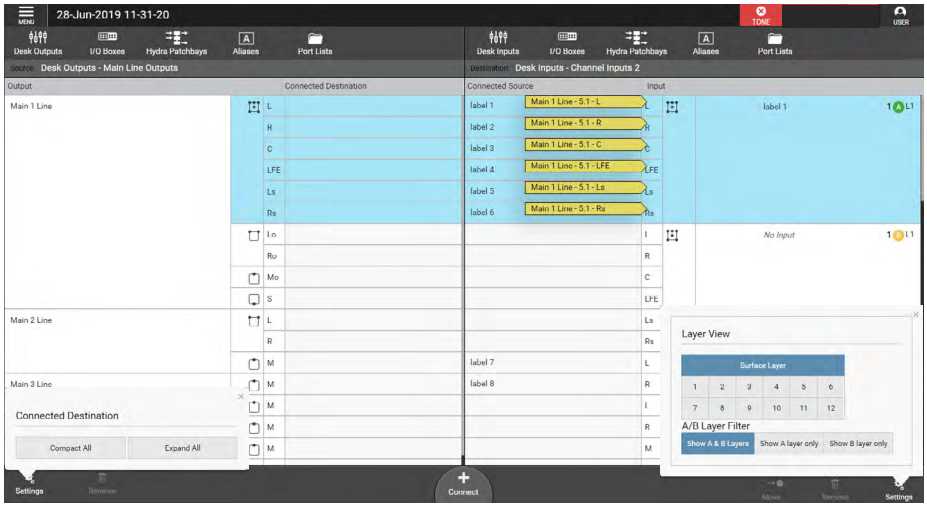
Hydra2 Patchbays

In the images to the right you can see the use of Hydra2 patchbays. The middle image shows MADI Inputs connected to Hydra2 patchbay inputs and the lower image shows Hydra2 patchbay outputs being connected to desk inputs.

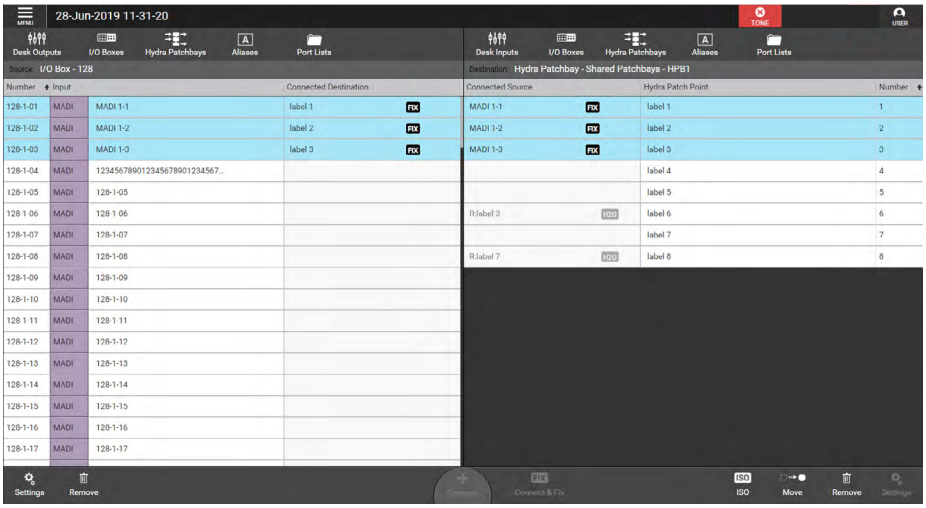
HPBs are virtual patchbays within the Hydra2 domain. Like physical patchbays, HPBs have a number of input ports which are 'hard wired' to output ports. For port patching purposes, Hydra2 patchbay inputs are destinations and Hydra2 patchbay outputs are sources.

Hydra2 patchbays allow the user to patch console inputs and outputs (which have been patched via Hydra2 patchbay ports) to physical I/O ports. H2O users can choose physical input ports to connect to Hydra2 patchbay inputs, and physical output ports to connect to Hydra2 patchbay outputs allowing them to choose and change source feeds and output destinations.

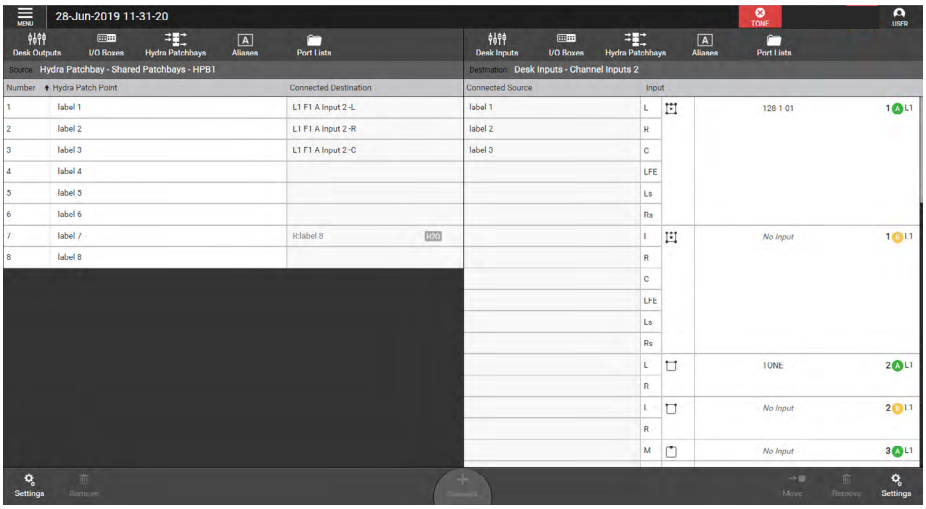
PATCHING - DESK OUTPUTS TO DESK INPUTS SELECTION



PATCHING - INPUT PORTS TO HYDRA PATCHBAYS SELECTION



PATCHING - HYDRA PATCHBAYS TO DESK INPUTS SELECTION



Viewing and Sorting
Ports are displayed within sortable tables. The sorting options vary between port types:

- Fixed format and Modular I/O boxes can be sorted by number (native label), port label or description (if available). To keep I/O boxes together in the viewing table, sort by 'number' as this includes the box's HID which will be the same for all ports in that I/O box.

- Hydra patchbays can be sorted by patchbay name or patch-point number.

- Desk connections can only be sorted by resource number e.g. Aux 1 to 4.

Making a Patch
To patch a source to a destination:

1. Select a source type from the source screen header.
2. Select a destination type from the destination screen header.
3. Click to select a source.
4. Click to select a destination.
5. Click on **CONNECT**.

Moving a Destination
Once a patch has been made, the destination can easily be changed:

1. Select a destination.
2. Click **MOVE** in the screen footer.
3. Select an alternative destination, (at this point you can select a new destination type).
4. Click on **MOVE** once more.

Protect a Patch from Memory Loads
Patches can be 'fixed', isolating them from memory load changes. Fixed patches are also protected under the port protection system in the same way as ports which are in use by multiple Hydra2 network users.

To Fix a patch:

1. Select one or more patched destinations.
2. Click **FIX** in the screen footer.
3. To un-fix the patch, click on **FIX** again.

Isolating a Patch
Isolating a patch protects it from changes due to memory loads, but it differs from patch fixing in that patch isolation only relates to actions performed on the local console.

Isolated patches can still be over-patched by other Hydra2 users and by memory loads on other consoles on the network.

To isolate a patch:

1. Select one or more patched destinations.
2. Click on **ISO** in the screen footer.
3. To de-isolate the patch, click on **ISO** again.

Removing a Patch
To remove a patch from the system:

1. Select either the source or destination (or one of the destinations if the source is patched to more than one).
2. Click on **REMOVE** in the screen footer. The patch is automatically removed, unless it is 'fixed' on the surface or was made by another Hydra2 user, in which case a pop-up appears requiring confirmation of the removal.

Inputs 1 and 2
Every channel has two inputs, labelled Input 1 and Input 2, to which two entirely separate feeds can be patched.

Input 2 is generally used for patching a back-up microphone so that if the feed to input 1 fails, you can quickly switch to use input 2, which has exactly the same processing, routing and output patching applied to it as input 1.

Patching Outputs to Inputs
Desk outputs and buses can be connected directly back into Desk Inputs and channels. This method of control is different to just attaching a console output to a fader and is shown at the top of the previous page.

From the I/O patching screen select Desk Outputs in the sources screen and Desk Inputs in the destinations screen and patch as normal.

V9 ASSIST
BUSES

CALREC

MAIN BUSES

The purpose of this screen is to configure and control the Main output buses. It provides the user with a page of controls related to up to 16 configurable main buses. On which they can control the name, width, output level, pre fader listen outputs, talkback and tone switches. They can also select the Downmix type to be applied, either LoRo and LtRt.

Main Bus Output Controls
After tapping on the menu selection **Buses & Outputs>Main Buses**, the image above right is displayed and arranged in rows for each main.

The following controls are available:-

Label window: Allowing the main to be renamed with a user label.

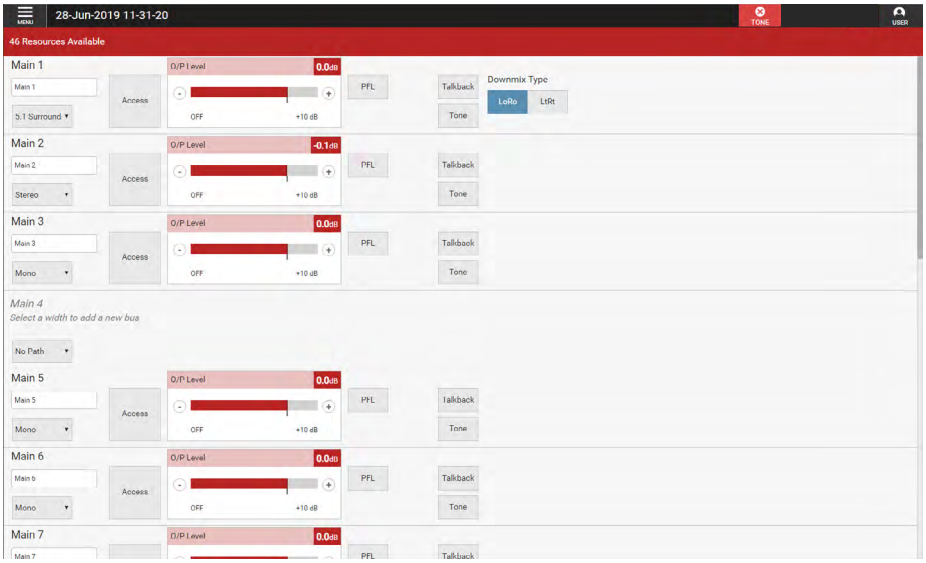
Width drop down box: Lets the user change the width of the main buses to either no path (to remove it), mono, stereo or 5.1 surround.

Note, that there is a pool of bus output legs that are shared between mains and groups which can be arranged to provide various bus width combinations. The red function header at the top of the content screen shows the main/group bus resources available.

Access button: Lets the user call the main to the access screens.

Main Output Level: Slide the level control or tap on the + or - icons to alter the output level between 'off' & 0dB.

MAIN BUSES



PFL: The user can listen to the individual buses' PFL (pre-fader listen) using the PFL button.

Talkback: Replaces the main output feed with whatever is routed to the talkback input. A talkback button allows the user to talk to that output. Note that a talkback input should be setup in the IO patching screen for this to work.

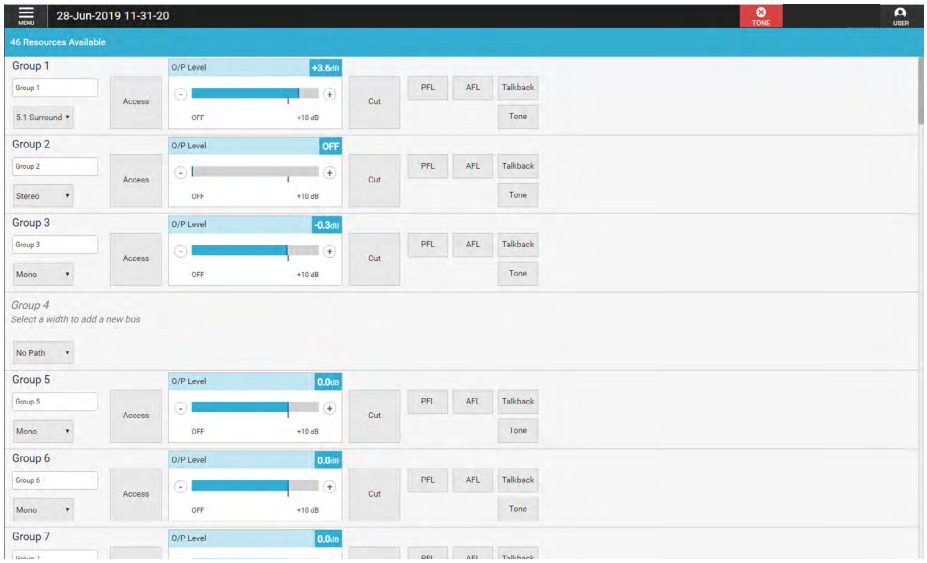
Tone: Select to inject tone into the main output, replacing the main output feed with the correct tone for the path width. A tone button applies a tone signal to that output.

Downmix Type: Select between LoRo stereo and LtRt encoded surround.

GROUP BUSES

The purpose of this screen is to configure and control the Group buses. It provides the user with a page of controls related to up to 48 configurable group buses. On which they can control the name, width, output level, cut, various listen outputs, talkback and tone switches.

GROUP BUSES



Group Bus Output Controls
After tapping on the menu selection **Buses & Outputs>Group Buses**, the image above right is displayed and arranged in rows for each group.

The following controls are available:-

Label window: Allowing the group to be renamed with a user label.

Width drop down box: Lets the user change the width of the group buses to either no path (to remove it), mono, stereo or 5.1 surround.

Note, that there is a pool of bus output legs that are shared between mains and groups which can be arranged to provide various bus width combinations. The teal function header at the top of the content screen shows the main/group bus resources available.

Access button: Lets the user call the group to the access screens.

Group Output Level: Slide the level control or tap on the + or - icons to alter the output level between 'off' & +10dB.

Group Cut: The user can cut/mute the output of the path by tapping on this button.

PFL & AFL: The user can listen to the individual buses' PFL (pre-fader listen) or AFL (after-fader listen) using the PFL or AFL buttons.

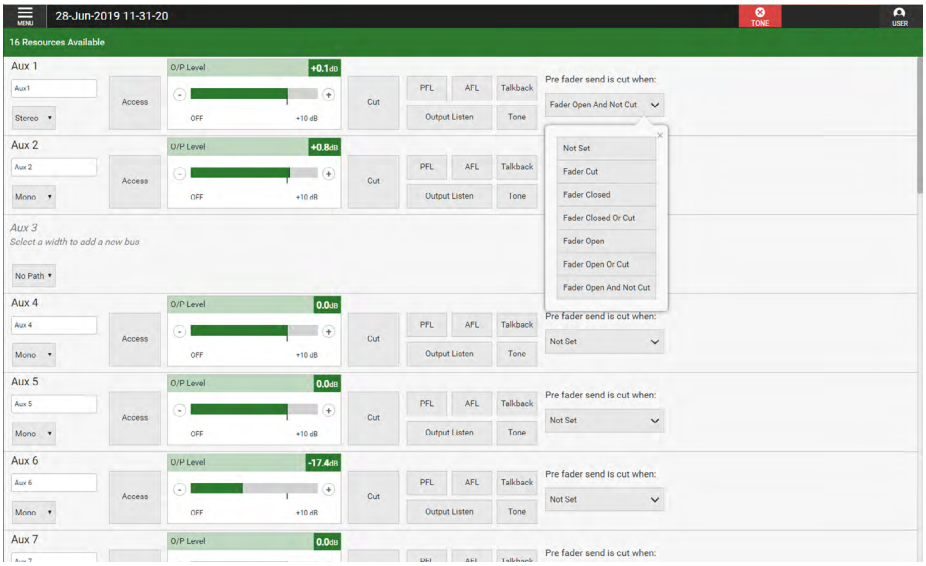
Talkback: Replaces the group output feed with whatever is routed to the talkback input. A talkback button allows the user to talk to that output. Note that a talkback input should be setup in the IO patching screen for this to work.

Tone: Select to inject tone into the group output, replacing the group output feed with the correct tone for the path width. A tone button applies a tone signal to that output.

AUX BUSES

The purpose of this screen is to configure and control the Auxiliary output buses. It provides the user with a page of controls related to up to 48 configurable aux buses. On which they can control the name, width, output level, cut, various listen outputs, talkback and tone switches and Pre-fader aux send cut options.

AUXILIARY BUSES



Aux Bus Output Controls

After tapping on the menu selection **Buses & Outputs>Aux Buses**, the image above right is displayed and arranged in rows for each aux.

The following controls are available:-

Label window: Allowing the aux to be renamed with a user label.

Width drop down box: Lets the user change the width of the aux to either no path (to remove it), mono or stereo.

Note, that there is a pool of aux legs which can be arranged to provide mono auxs or stereo auxs or any combination thereof. The green function header at the top of the content screen shows the aux bus resources available.

Access button: Lets the user call the aux to the access screens.

Aux Output Level: Slide the level control or tap on the + or - icons to alter the output level between 'off' & +10dB.

Aux Cut: The user can cut/mute the output of the path by tapping on this button.

PFL & AFL: The user can listen to the individual buses' PFL (pre-fader listen) or AFL (after-fader listen) using the PFL or AFL buttons.

Output Listen: Similar to AFL but the feed is taken post output delay.

Talkback: Replaces the aux output feed with whatever is routed to the talkback input. A talkback button allows the user to talk to that output. Note that a talkback input should be setup in the IO patching screen for this to work.

Tone: Select to inject tone into the aux output, replacing the aux output feed with the correct tone for the path width. A tone button applies a tone signal to that output.

Pre-fader send cut options

Path sends to Aux output buses can be configured to cut under certain conditions, such as the send path's fader being open/closed and/or the path being cut.

These options are set from the drop down menu as shown on the right hand side of the image above right.

The options are set on an output basis, but it is the send from each path feeding the outputs that are independently cut depending on the status of each path routed to the aux output.

For example, if pre-fader send cut When 'Fader Closed' is selected for Aux Output 1, the pre-fader sends from each path routed to Aux 1 will be muted whilst their fader is closed.

As soon as the fader is opened, the path will send audio to the aux at pre-fader level. Pre-fader sends whose faders are open, as well as any paths feeding post fader will still be passing audio to Aux 1.

The available options for Pre-fader send cut to each aux output are:-

- Not Set
- When 'Fader Cut' (or not 'on' if fader have path On buttons rather than cuts).
- When 'Fader Closed'
- When 'Fader Closed or Cut'
- When 'Fader Open'
- When 'Fader Open or Cut'
- When 'Fader Open And Not Cut'
  The send is active only if fader closed, or path cut (or not 'on' if on buttons fitted rather than cuts).

The pre-fader send cut when fader cut option can be selected in combination with either the cut when fader open or fader closed options, however other combinations would conflict with each other and as such, selecting one will cancel others.

Note: If there are more aux sends than can be fitted on the screen a scrollbar appears on the right hand side allowing the user to traverse to their required bus.

TRACK BUSES

The purpose of this screen is to configure and control the Track output buses. It provides the user with a page of controls related to up to 96 configurable track buses. On which they can control the name, width, output level, cut, various listen outputs, talkback and tone switches.

Track Bus Output Controls
After tapping on the menu selection **Buses & Outputs>Track Buses**, the image above right is displayed and arranged in rows for each track.

The following controls are available:-

Label window: Allowing the track to be renamed with a user label.

Width drop down box: Lets the user change the width of the aux to either no path (to remove it), mono odd, mono even which follows the panning of the source or mono which does not follow the panning of the source. The purple function header at the top of the content screen shows the track bus resources available.

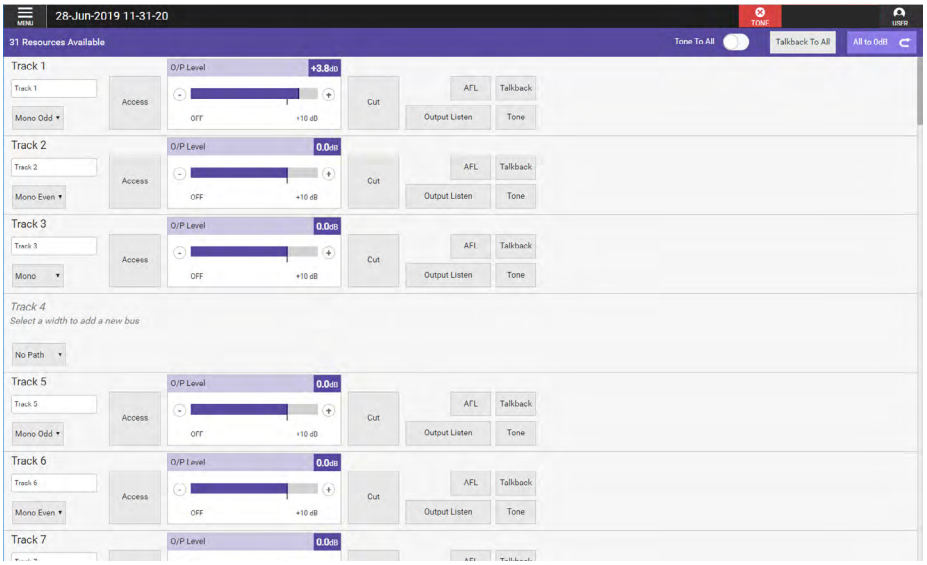
Access button: Lets the user call the track to the access screens.

Track Output Level: Slide the level control or tap on the + or - icons to alter the output level between 'off' & +10dB.

Track Cut: The user can cut/mute the output of the path by tapping on this button.

AFL: The user can listen to the individual buses' AFL (after-fader listen) using the AFL buttons.

TRACK BUSES



Output Listen: Similar to AFL but the feed is taken post output delay.

Talkback: Replaces the track output feed with whatever is routed to the talkback input. A talkback button allows the user to talk to that output. Note that a talkback input should be setup in the IO patching screen for this to work.

Tone: Select to inject tone into the track output, replacing the track output feed with the correct tone for the path width. A tone button applies a tone signal to that output.

Global Track Output options
In the function header are a number of controls which can be applied to all the tracks simultaneously:-

Tone To All: This slider switch allows the user to apply tone to all the track outputs at the same time.
This is useful as it provides a 'lineup' facility with all the track outputs being fed with tone at the same output level rather than turning each individual tone switch on for all the tracks. This is sometimes called 'Tone Omni'.

Talkback To All: Replaces the track output feed for all the tracks with whatever is routed to the talkback input. This is sometimes called Talkback Omni'.

All To 0dB: This prompts a pop-up asking the user if they really want to reset all the track output levels to 0dB. The user can either accept or cancel this function as required.

V9 ASSIST
ROUTING MATRIX

CALREC

ROUTING MATRIX

The purpose of the Routing Matrix is to simplify and speed up the routing process. The screen is arranged in a table X-Y format where the Rows as identified on the left represents the sources to be routed and the Matrix to the right represents the crosspoints where the Destination Columns intersect the Source Rows.

Matrix Access

After tapping on the menu selection **Accessed Path Routing>Matrix Routing**, the image above right is displayed. The left side of the routing matrix shows the various source rows that are available in this show. The right side of the routing matrix shows the various destination columns that are available in this show. The crosspoint where source & destination intersect can be selected and then a route established between them.

Routing Procedure

Routing and unrouting is a two stage process the user first selects the crosspoints to be connected and then clicks on the **Route** or **Unroute** buttons on the destination side of the footer. In order to route a single source to a single destination the user selects the crosspoint by tapping on it.

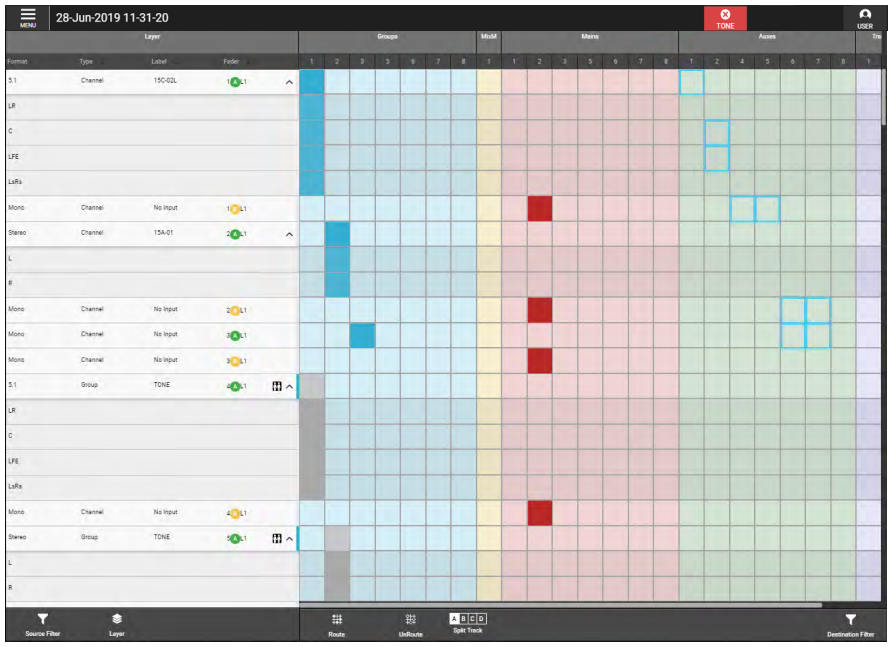
If the user wishes to route a number of sources to a destination they can click and drag vertically to make their selection. If the user wishes to route a source to a number of destinations they can click and drag horizontally to make their selection, or drag out a block of selected crosspoints. It is also possible to use control tapping to add crosspoints to the set say if a diagonal connection is to be made like routing channels to tracks on a one to one basis. Note that just tapping again clears the previous selection.

The open blue squares in the image above show the various crosspoint selections have been made ready to be routed:-

1. Fader 1A-L1 Master to Aux 1
2. Fader 1A-L1 C & LFE legs to Aux 2
3. Fader 1B-L1 to Auxs 4 & 5
4. Faders 2B-L1 & 3A-L1 to Auxs 6 & 7.

ROUTING MATRIX DISPLAY

ROUTING & UNROUTING SELECTION/STEREO & 5.1 SOURCE PATHS EXPANDED



The grey squares in the matrix indicate that those crosspoints cannot be routed to, such as routing to itself or other invalid destinations for a particular source.

Once the selection is made the user clicks on the Route or Unroute buttons in the destination side of the footer to connect or disconnect the crosspoint.

Sources Area
The following fields are displayed in the Sources Layer area:-

Format: This defines the width of the source which can be mono, stereo or 5.1.

Type: This defines the source path type the only paths that can act as sources are channels, groups and mains.

Label: The source label is shown here which can be a user label, bus label, port label or port number. If the path is a channel that has not yet been ported it appears as 'No Input'.

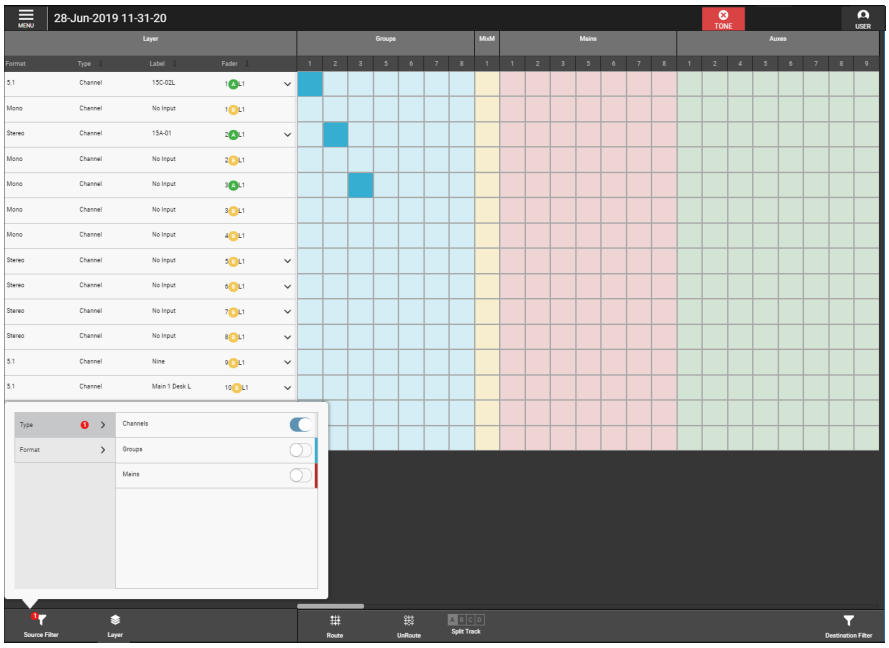
Fader: This field indicates the fader number that the source is associated with followed by the A or B sub-layer icon and the layer number. At the bottom of the source list which is scrolled to by either the vertical scrollbar on the right or by dragging the left source area, are the buses which do not have a fader number but still act as sources.

Note that if a source appears in more than one place in the matrix such as the groups as shown in the images to the right then a **Clone** symbol will appear.

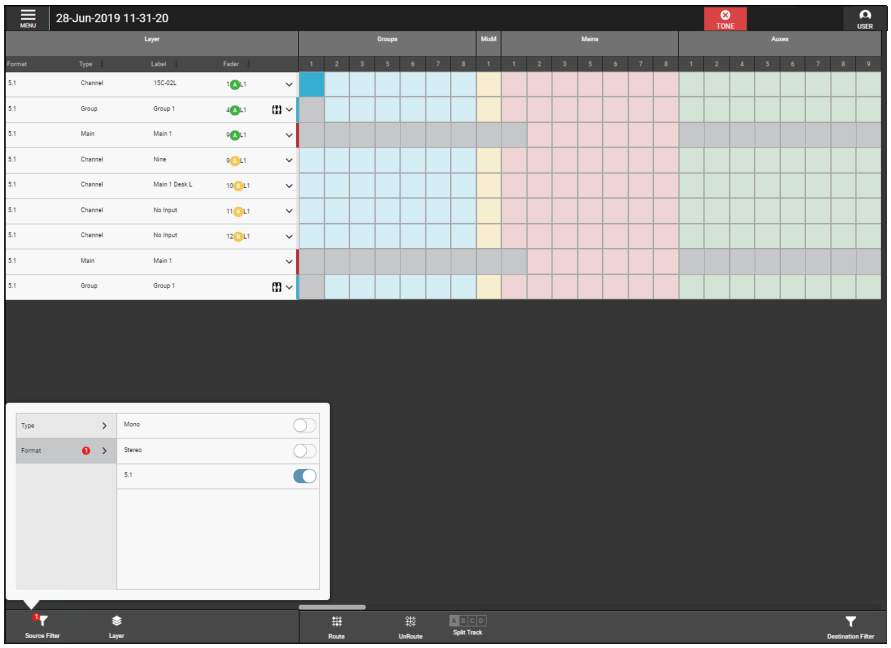
v & ^ expansion arrows: An expansion arrow indicates that this path is either a stereo or 5.1 source and tapping on the DOWN arrow '**v**' shows the individual legs of the path making them available for routing as shown for Faders 1A-L1, 2A-L1 & 3A-L1 on the previous page below right. Tapping on the UP arrow '**^**' hides the individual legs back into the 'Master' path row as shown for the same Faders 1A-L1, 2A-L1 & 3A-L1 on the page above right. Generally as all the legs of a source would be routed the default view is to show these paths closed up '**v**'.

Source Filters: In order to simplify the view, various source filters can be applied. Tapping on the Source Filter button on the source side of the footer opens the Source Filter Pop-up. A notification badge appears when a filter or number of filters are active, as shown in the footer buttons.

SOURCE TYPE FILTERING



SOURCE FORMAT FILTERING



Source Type filtering: The user can filter the view to only see channels as shown above right or groups or mains or any source types in combination.

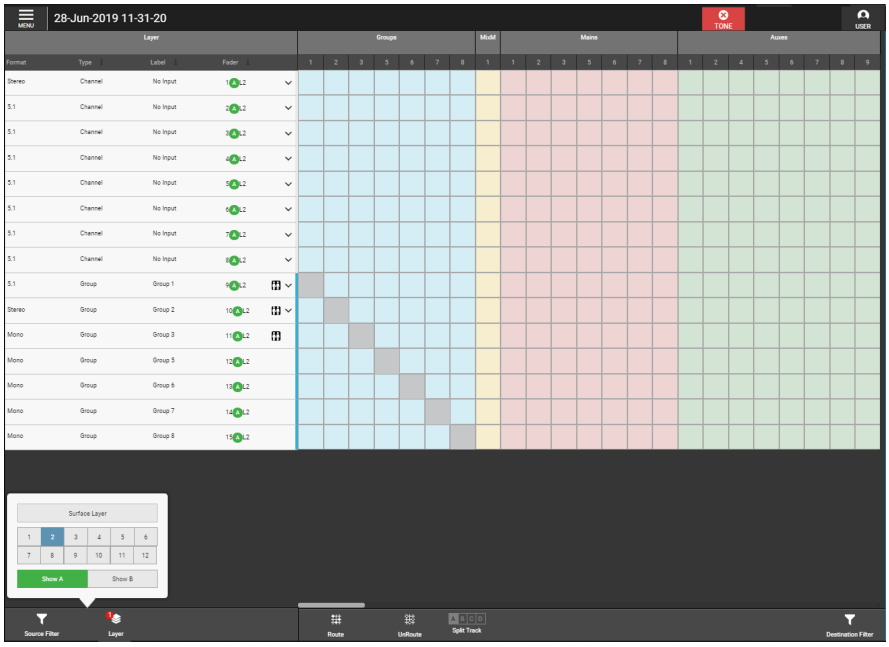
Source Format filtering: The user can filter the view to only see 5.1 sources as shown below right or stereo or mono or any source formats in combination.

SOURCE LAYER DISPLAY CONTROL

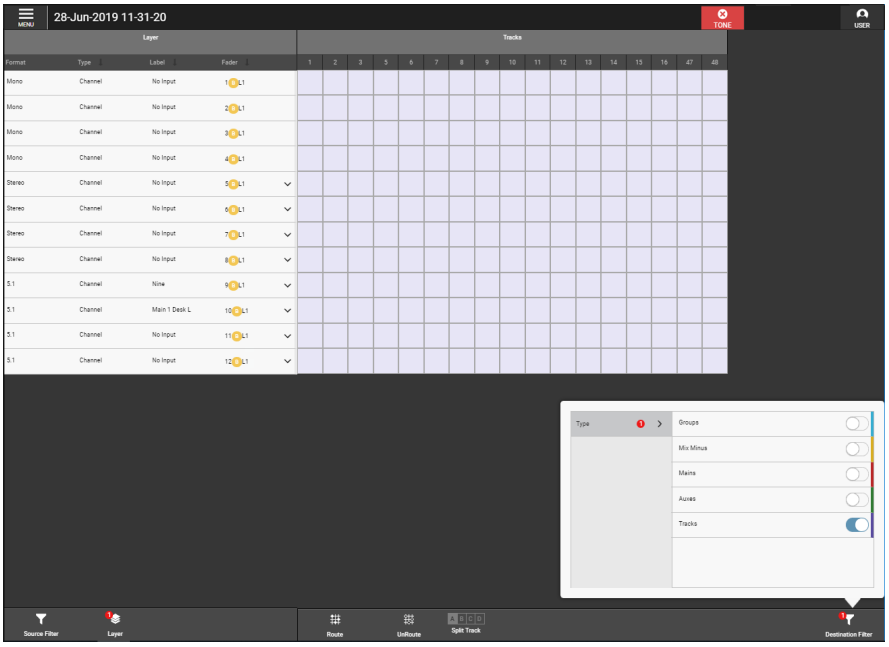
Source Layer Display Control is shown in the image above right. Tapping on the **Layer** button on the source side of the footer opens the 'Layer Control' pop-up. The page defaults to the Surface Layer which is the current fader surface arrangement of paths shows. The user can select any of the 12 Layers to display, and there are 2 sub-layer select buttons shown below the layer select buttons that work in combination with the layers.

With neither 'Show A' or 'Show B' buttons selected the source list shows all the available source paths on the A sub-layer, B sub-layer and shows all the buses that can act as routing sources.

With either the 'Show A' (as shown above right) or 'Show B' button or both selected the source list shows only the available source paths on the A sub-layer or B sub-layer faders or both as selected and hides all the sources not on faders. A notification badge appears when a filter or number of filters are active in the footer buttons.



DESTINATION FILTERS



Destination Area

The following buses are displayed in the Destination Area:-

Groups: This shows a number of Group columns which vary depending on the available Group buses.
Mix Minus: This shows the permanent single Mix Minus Bus column.
Mains: This shows a number of Main columns which vary depending on the available Main buses.
Auxs: This shows a number of Aux columns which vary depending on the available Aux buses.
Tracks: This shows a number of Track columns which vary depending on the available Track buses.

There are more buses available than can be displayed on the screen, there is a horizontal scrollbar provided at the bottom of the matrix area that can be used to scroll to the required destination or the user can apply the destination filter.

Destination Filters

Tapping on the Destination Filter button on the destination side of the footer opens a pop-up which allows the user to filter the destination view by group, mix minus, main, aux and track bus type.

There is a slider switch provided for each bus type which when on displays that bus type. These can be used individually or in combination. A notification badge appears when a filter or number of filters are active in the footer buttons.

Route and Unroute buttons
Once the crosspoint selections have been made the user clicks on the Route or Unroute button on the destination side of the footer to make or break the connection between sources and destinations.

Partial Leg Routing
If a stereo or 5.1 Path only has some of its legs routed the display shows this by displaying its master path with a corner cut off to show it is partially routed when the legs of the master are not shown.

The image above right shows both complete and partial routed 5.1 & stereo paths. Fader 1A-L1 is completely routed to Group 1, but only partially routed to Groups 2 (LR), 3 (C), 5 (Lfe) & 6 (LsRs).

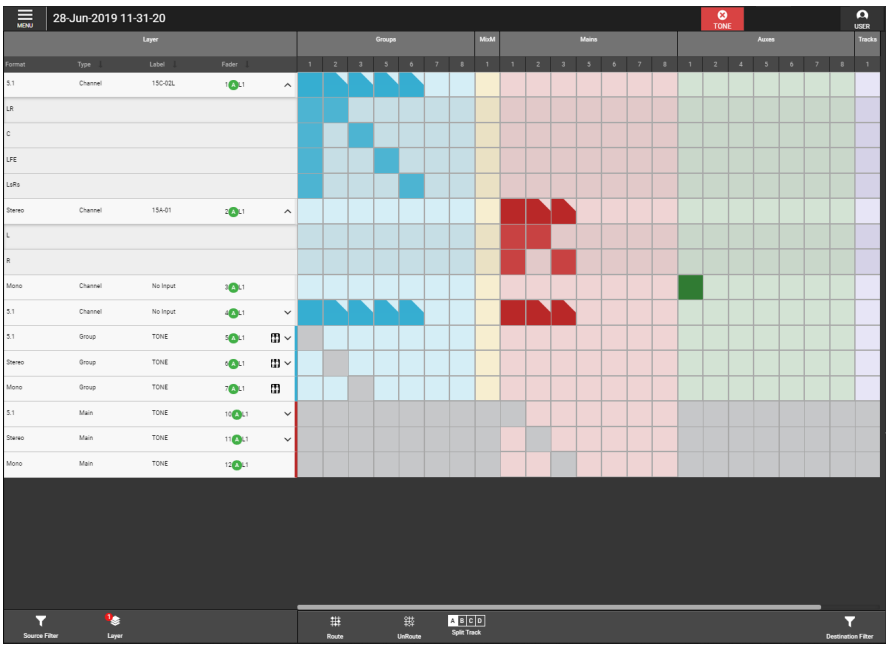
For partial routes the master path shows the corner cut off. Fader 4A-L1 has the same routing as Fader 1A-L1 but because the legs are hidden the master path corner cut off becomes an important indication of partial routing.

Partial Leg Unrouting
The image below right shows what happens when all the master paths are unrouted. The complete routes are fully removed but the partial routes appear as unrouted with the corner cut off indication.

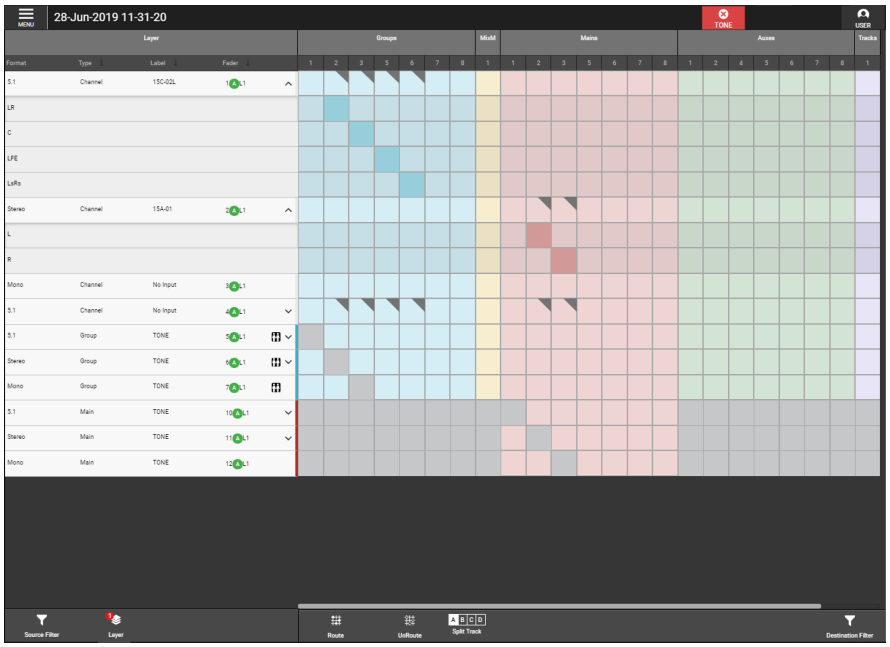
The partial routes are unrouted but are remembered allowing the user to easily restore partial routes by re-routing the master paths.

Note: In order to remove partial routes the user must first make the partial routes active again and then unroute the legs directly.

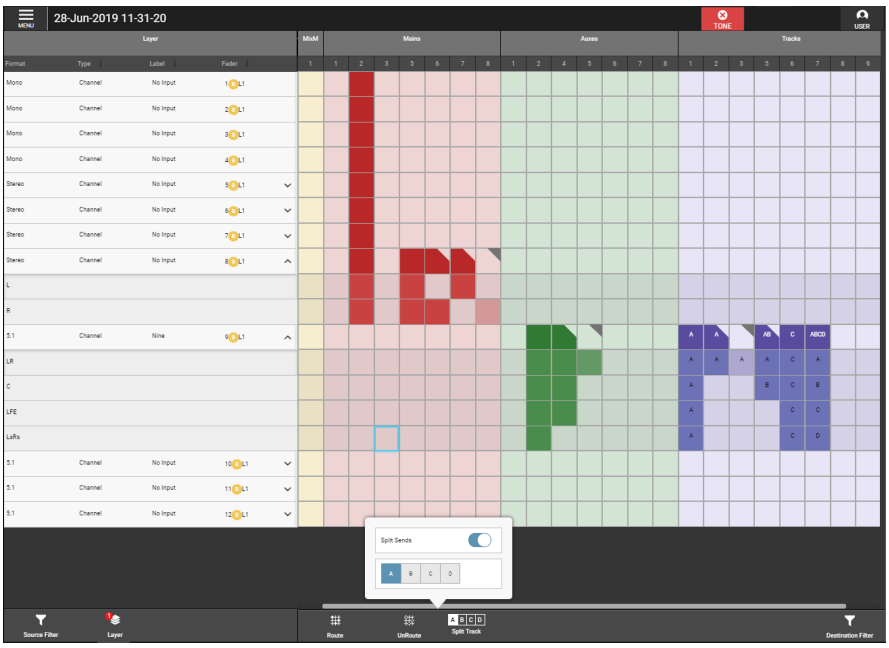
PARTIAL ROUTED INDICATIONS



PARTIAL UNROUTED INDICATIONS



TRACK AND SPLIT SENDS ROUTING



Track and Split Track Sends Routing
In normal operation the Split Sends option accessed from the **Split Track** button in the destination side of the footer is turned off. Any track routes made behave just as the groups, mix minus, mains and auxs do including partial route indication.

There are 4 track sends from each path and with Split Sends is off (default) the routes are all made via track send A and as such do not require identification as to which of the 4 sends are being used.

However when split sends is turned on any existing track route will appear with a letter A in it to show which send it is routed from. Looking at just the tracks area of the matrix above right, it can be seen that a number of routes have been made from Fader 9B-L1 (which is a 5.1 source channel) to Tracks 1, 2, 3, 5, 6 & 7 respectively as described below:-

Track 1 shows a complete route has been made, via track send A, this could either be made by routing the master or routing all 4 legs to make up the complete route. All the blocks show the track send A letter.

Track 2 is showing a partial route with just the left & right legs being routed via track send A. The master and the L & R legs show the track letter.

Track 3 is showing an unrouted partial track send A route with the unrouted left & right legs remembered as being from track send A. The master does not show a track send letter.

Track 5 was created by first partially routing the left & right legs via track send A with the letter A shown (just as Track 2 was), then the user selected the B button from the 'Split Send' pop-up and routed the centre leg via track send B. Note that the letter B is then shown in the routing block for the centre leg and that the master path routing indicator then shows AB with the corner cut off, indicating that not only is this a partial route, but is also connected via two different track sends A & B.

This allows the track send A from the left & right legs and the track send B from the centre leg to be set to different levels by adjusting the track send A and B level controls. For instance the vocal of the 5.1 channel on the centre leg may need to be louder than the left & right legs so track send B level can be increased in level without affecting the other leg levels.

Track 6 is a complete route from the channel via track send C. The user has selected the C button from the 'Split Send' pop-up and routed the master path via track send C, which means that the output to that track is determined by the track send C level control from the channel. All the blocks show the track send C letter.

Track 7 is an extreme case of controlling all four of the legs of a 5.1 channel from the four different track sends A, B, C & D, this is an unlikely routing arrangement but is shown here for completeness.

The Legs each show the A, B, C, D letters in their routing blocks to show which track send they are controlled from and the master path routing block shows as a complete route (as all legs are routed) with the ABCD letters shown.

It is important to note that routing and unrouting to and from tracks with the split sends option ON is affected by which send A, B , C or D has been selected. If a channel has been routed to a track using send C then send C must be selected when removing the route. Only routes made with the currently selected send may be removed.

As an example:-
To completely unroute Track 5 then the leg that has been routed via track send B can only be unrouted by selecting the split sends B button from the pop-up before the centre leg can be selected and then unrouted, otherwise that route would not be altered. The user would then select the split sends A button from the pop-up before the left & right legs previously routed via track send A can be selected and then unrouted at which point Track 5 would be completely unrouted.

Also note that if any route is made to any path via a send other than send A then it is not possible to turn off the split sends option. When all the routes are only via track send A the user can then turn off the split sends slider and the remaining routes will remove their letter A identifiers.

V9 ASSIST
MEMORIES

CALREC

MEMORIES

User memories are files which store processing, routing and patching information which can be recalled at any time.
To access memories, the user selects **Setup>Memories** from the menu as shown above right.

Storage Capacity

There is a capacity indicator highlighted at the top right of the memories screen which shows the available storage space. If more space is required, the user should delete any old shows and memories which are no longer needed.

The capacity indicator shows the amount of space available on the controller card for storing shows and memories, however, the controller card is also used for other files & folders, so the capacity may vary.

Creating a New User Memory

To create a new user memory with current surface settings:

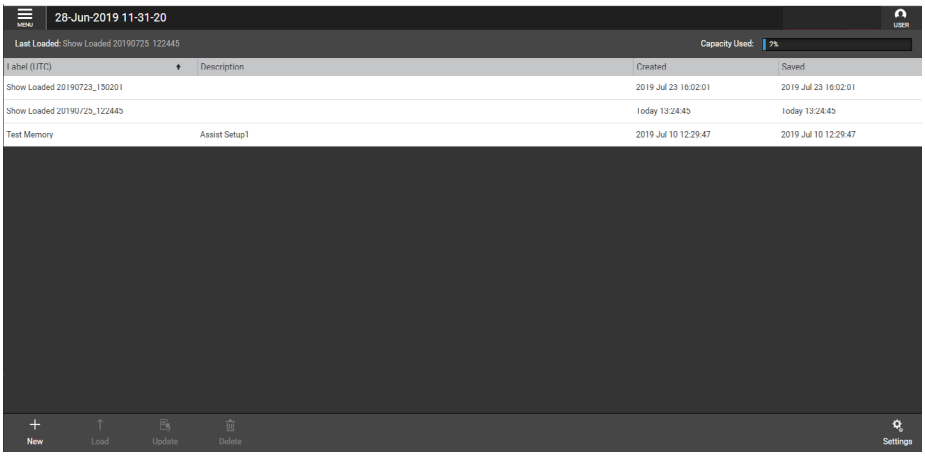
1. Tap on **'New'** in the memories screen footer.
2. Enter a name and a short description for the new user memory.
3. Tap on **'Save'** or **'Cancel'** .

Loading an Existing User Memory

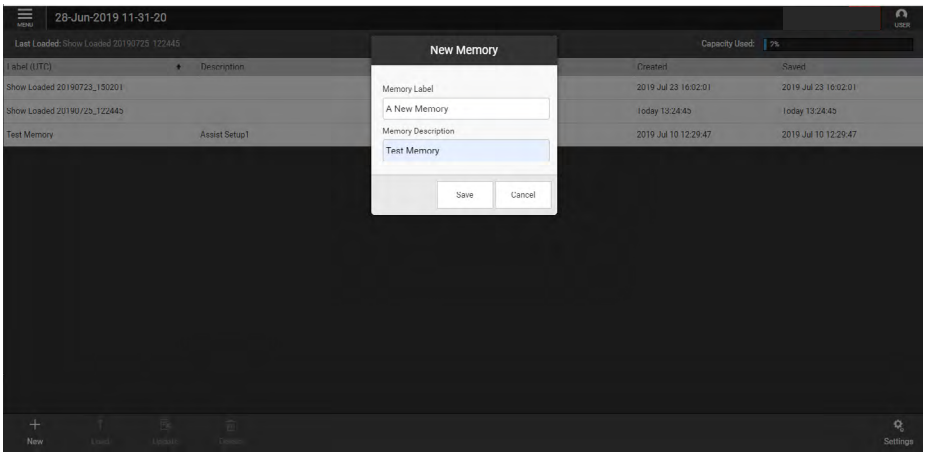
To load a user memory:

1. Tap to select the user memory required and tap on **'Load'**.
2. The loading symbol appears in the background and the name of the show loaded appears in the banner just below the function header.
3. Note there is a settings icon shown bottom right which allows the user to set a confirmation before loading a memory as a safety feature if required. Otherwise the memory loads without asking the user for confirmation.

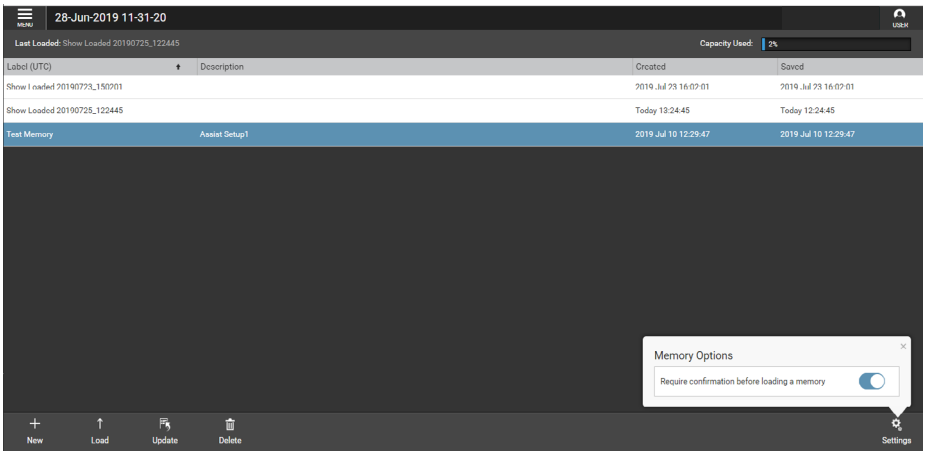
MEMORIES PAGE



NEW USER MEMORY



LOAD USER MEMORY



Loading with Confirmation On

To load a user memory with confirmation:

1. Tap to select the user memory required and tap on **'Load'**.
2. The footer changes to show the confirmation request which asks the user to confirm by tapping on either **'Load'** or **'Cancel'** as shown above right.

Updating a User Memory:

To update a previously saved user memory with the current surface settings:

1. Select the user memory that is to be updated and tap on **'Update'** in the memories screen footer.
2. A prompt will appear for the user to confirm by tapping on either **'Update'** or **'Cancel'** as shown above right.

Deleting a User Memory

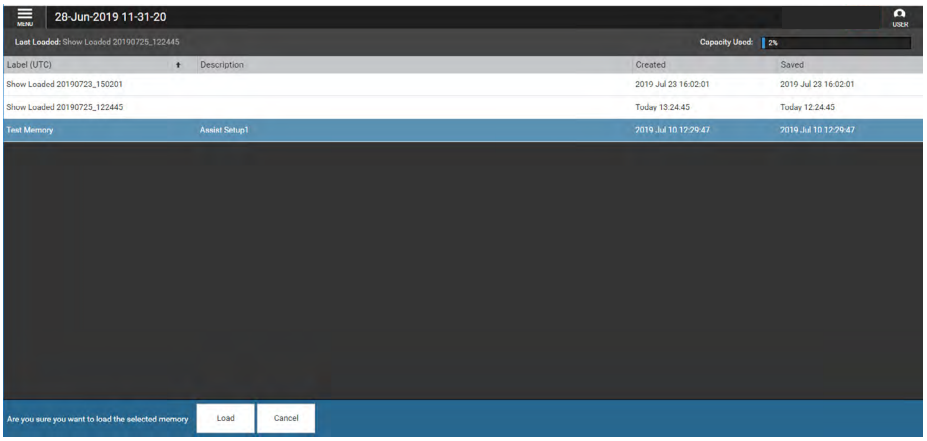
To delete a previously saved user memory that is not the current loaded memory:

1. Tap to select the user memory to be removed and tap on **'Delete'** in the footer.
2. This opens the delete dialogue in the footer which provides information about deleting multiple shows by tapping on all the shows to be deleted.

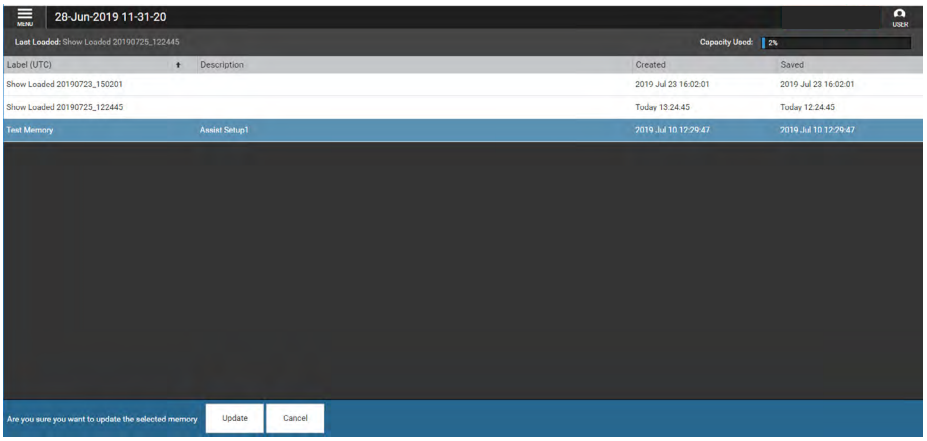
Note: The currently loaded memory cannot be deleted.

3. Once the templates to be deleted have been selected the user taps on the **'Delete'** button and this deletes those memories as shown below right or the user can **'Cancel'**.

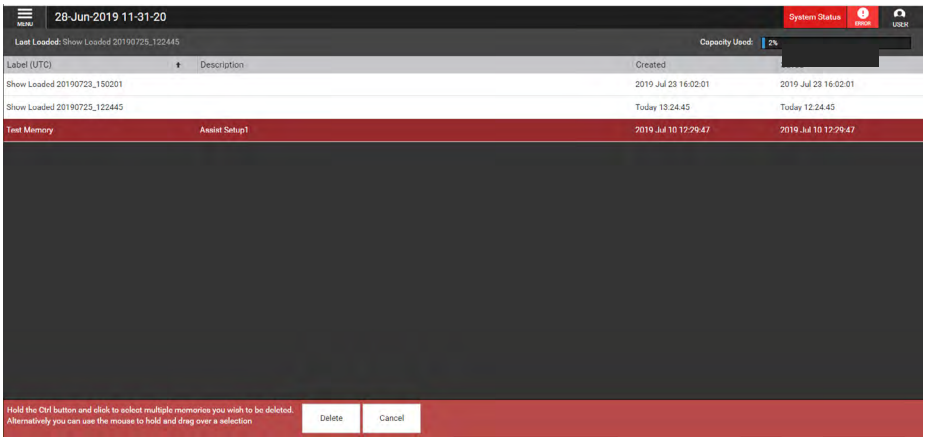
LOAD USER MEMORY WITH CONFIRMATION



UPDATE USER MEMORY



DELETE USER MEMORY



Creating Multiple User Memories

Best practice is to create one 'default' user memory, test it, make any necessary changes, and then use this as the basis for all other user memories in the show.

This speeds up the process by reducing the need to make the same changes to many different user memories.
To do this, create, test and update what is to be the 'default' user memory as described above, then, with this user memory still loaded on the surface, tap on **'New'**, and the information will be saved into a new user memory, effectively duplicating it.

V9 ASSIST
SHOWS

CALREC

SHOWS LIST

Accessing the Shows List
After tapping on the menu selection **Shows List** the image above right is displayed. Note if this is the first usage then there won't be any shows on the system and the **Shows List** screen will appear empty.

Along the footer of this screen are shown the various actions that the user can perform:- create a New show, Edit the show label and show description, Load the show, make a Duplicate of the show, Delete the show, Import a show typically from a USB memory stick plugged into a PC/Laptop or Export a show again typically from a USB memory stick plugged into a PC/Laptop.

When no shows are available in the shows list only the New and Import actions are possible.

New Show
As part of the system, a templates folder containing default shows can be made for this desk type and used to create any number of new shows as required.

Note, there is always at least one default template (which cannot be deleted) available for use to create a show.

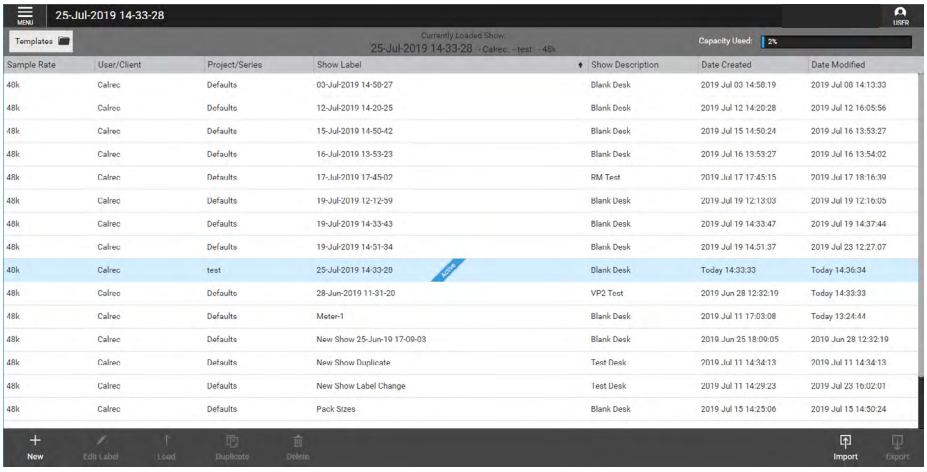
Tapping on the **'New'** icon in the footer of the shows list (above right) opens the create new show dialogue as shown right.

The user selects the default show to be used as the template in step 1 by tapping on it and then proceeds to step 2 by tapping on the **'Next'** button.

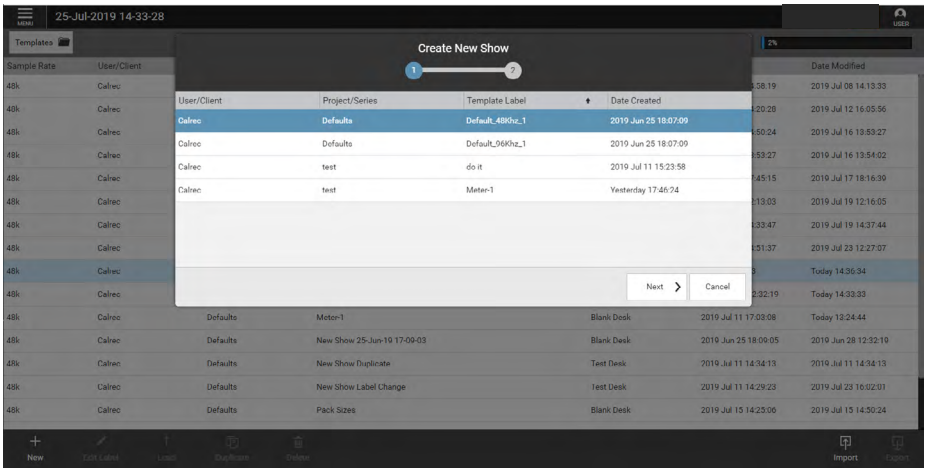
Step 2, shown below right, allows the user to change the Client, Series, Show Label & Show Description fields as required.

Once these fields have been entered the user then taps the **'Create New Show'** button and this new show is automatically loaded into Assist which then switches to the **Setup>Memories** screen so that the user can label the new memory in that show before going on to configure the required paths.

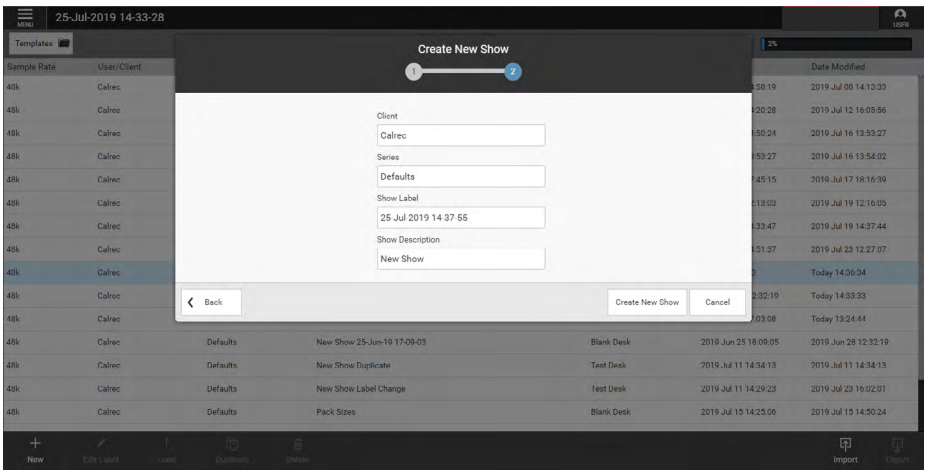
SHOWS LIST



CREATE NEW SHOW STEP 1



CREATE NEW SHOW STEP 2



Edit Show Label

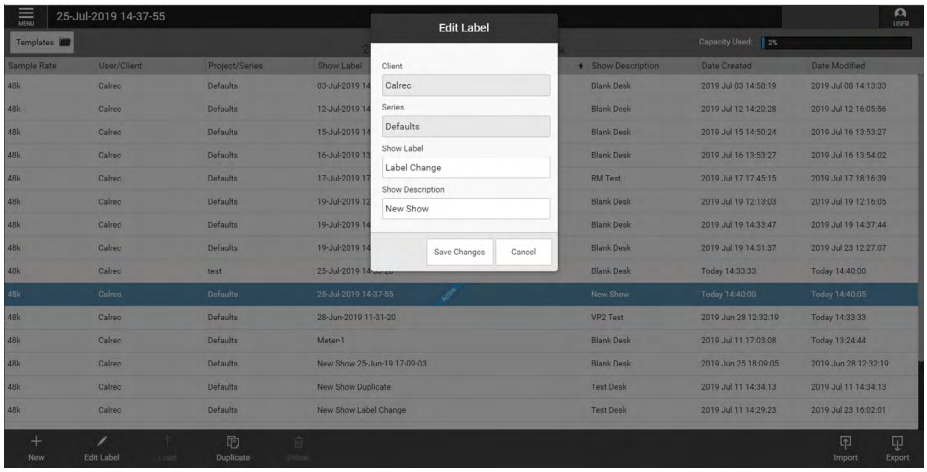
Once a show exists in the shows list the user can edit its show label and show description to make it more meaningful.

This is done by selecting the show, tapping on it and then tapping the **'Edit Label'** icon in the shows list footer.

This opens the 'Edit Label' pop-up and the user edits the show label and show description fields as required. See above right.

Note: In order to **Save Changes** the show label must have been edited.

EDIT LABEL



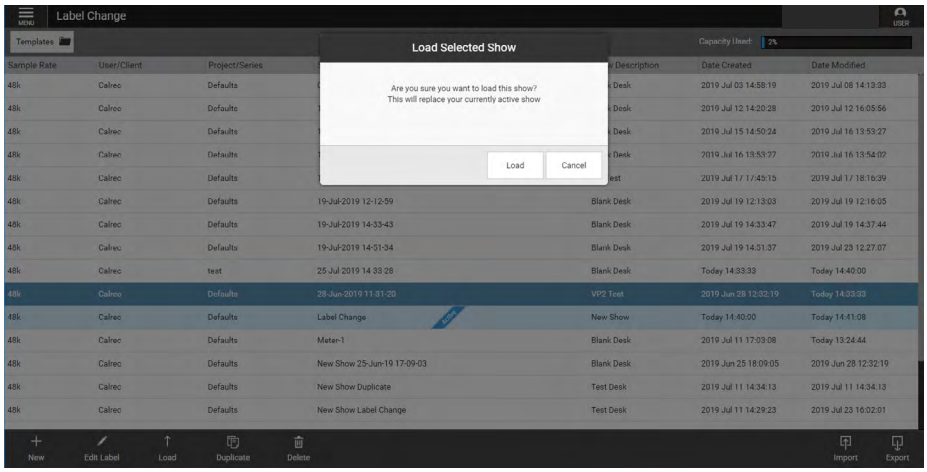
Load Show

To load a show the user selects the show to be loaded by tapping on it and then tapping on the **'Load'** icon in the footer.

This opens the 'Load Selected Show' confirmation pop-up and the user taps the '**Load**' button as shown right.

This loads the show into Assist which then switches to the **Setup>Memories** screen so that the user can select a particular memory or label a new memory before going on to configure the required paths.

LOAD SHOW



Duplicate Show

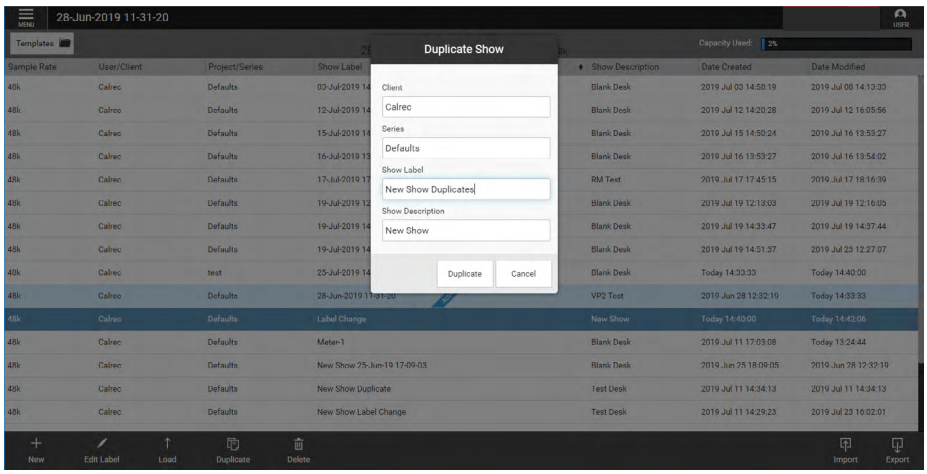
Sometimes it is useful to have an unedited or different copy or duplicate of a show.

In order to duplicate a show the user selects the show to be duplicated by tapping on it and then tapping on the **'Duplicate'** icon in the footer.

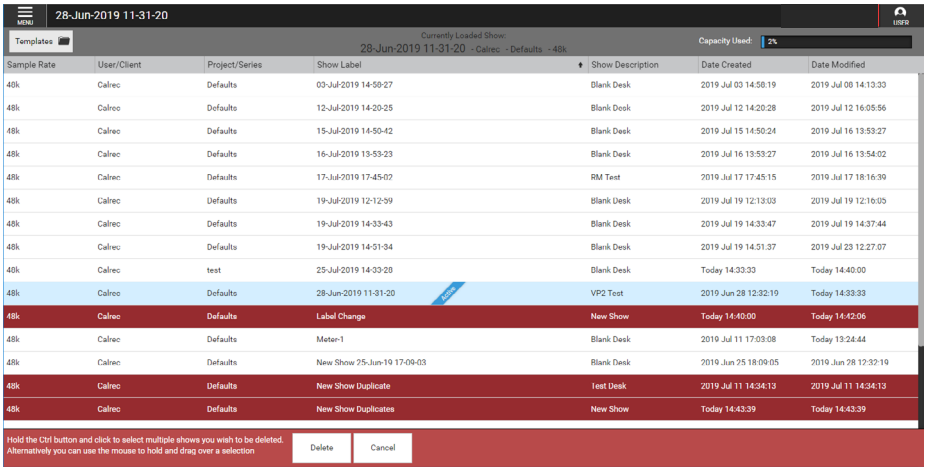
This opens the 'Duplicate Show' pop-up which allows the user to change the Client, Series, Show Label & Show Description fields as required.

Once these fields have been edited the user taps on the **'Duplicate'** button and this creates a duplicate copy of the show, as shown below right.

DUPLICATE SHOW



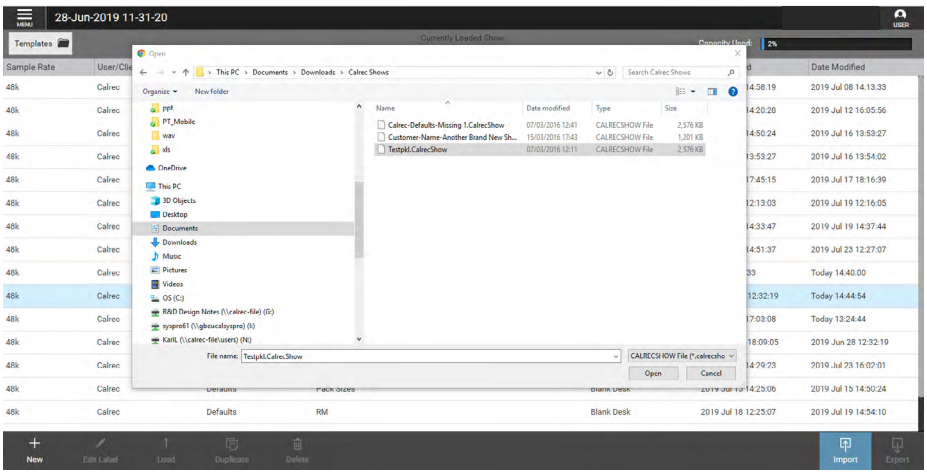
DELETE SHOWS



Delete Show

When shows are no longer required the user can select and delete them. In order to delete shows the user selects the shows to be deleted by tapping on them and then tapping on the **'Delete'** icon in the footer. This opens the delete dialogue footer which provides information about deleting multiple shows by Ctrl-clicking on all the shows to be deleted as shown above right. **Note: The loaded active show cannot be deleted.** Once the shows to be deleted have been selected the user taps on the **'Delete'** button in the dialogue footer and this deletes them.

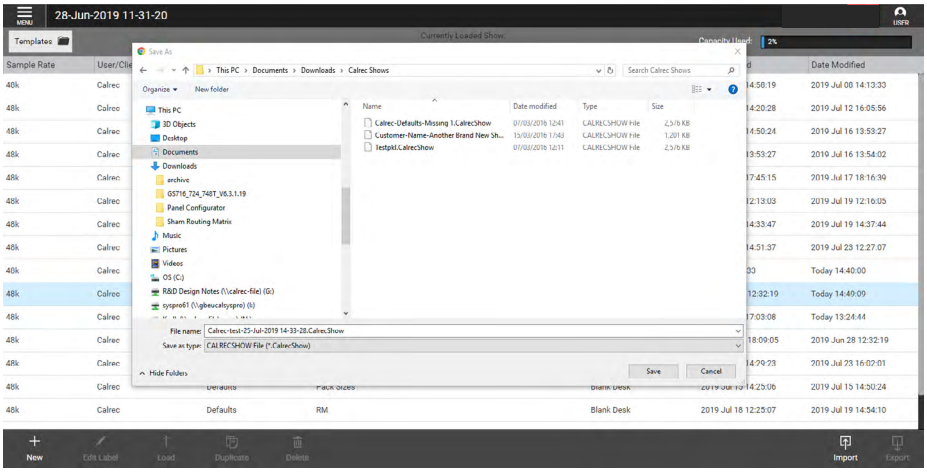
IMPORT SHOW



Import Show

In order to import a show the user taps on the **'Import'** icon in the footer.
This opens the Import dialogue box and the user should select the directory where the shows are held to find the shows to import as shown right. For example, the shows may be on a USB memory stick plugged into a PC/Laptop on which shows have previously been exported. This imports the show into the shows list ready to be loaded and edited as required.

EXPORT SHOW



Export Show

In order to export shows the user selects a show to be exported by tapping on it and then tapping on the **'Export'** icon in the footer. This opens the export dialogue which collects the data for the exports and then opens a 'Save As' window ready to archive the exported shows to the required location as shown below right. For example, a USB memory stick plugged into a PC/Laptop.

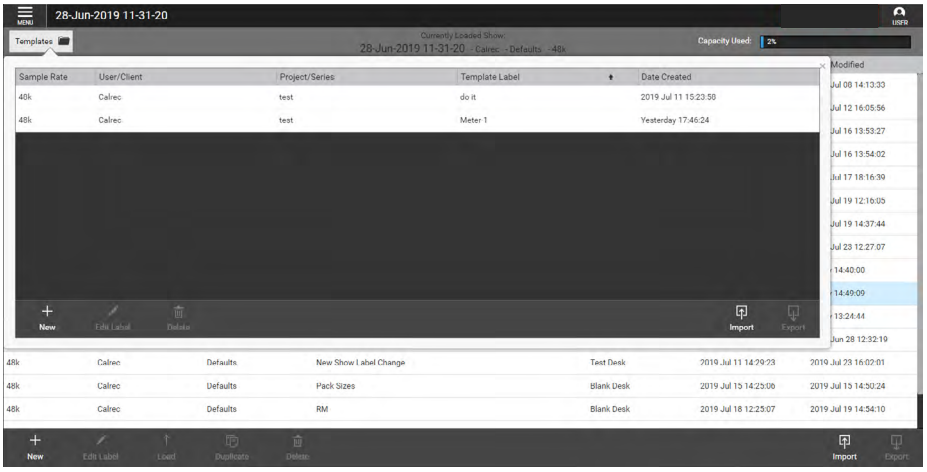
Note: If exporting multiple templates is blocked by the web browser, then resetting the browser settings and restarting the web browser is required.

We would also advise setting the **'Ask where to save each file before downloading'** option in the Chrome:// settings> show advanced settings> downloads section, so that the exports are saved to the users preferred destination e.g. a USB memory stick rather than the default destination on a PC/Laptop.

Templates

Once a show exists in the shows list it can be used as a template. This is done by loading the selected show then tapping on the templates button at the top left of the shows screen. This opens a templates window as shown above right.

SHOW TEMPLATES

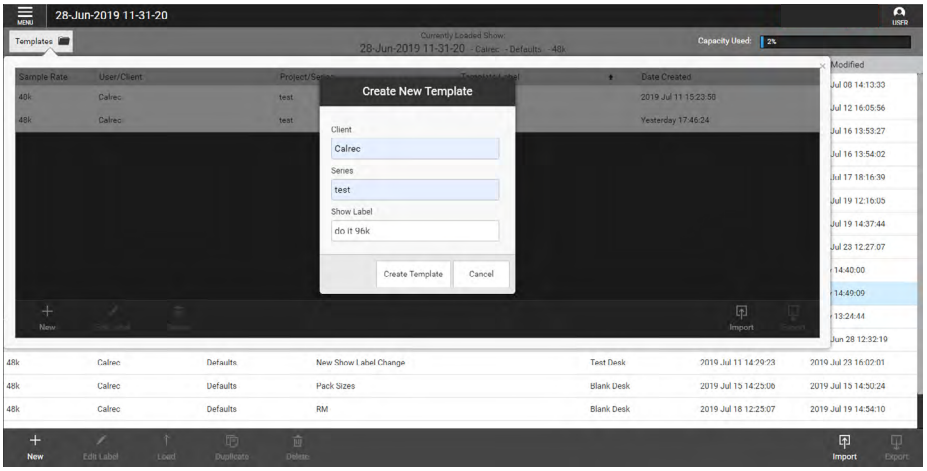


New Template

The User taps on **'New'** inside the templates dialogue box and is prompted to add Client, Series and Template Label as shown right.

Once the **'Create Template'** button is tapped the currently loaded 'Active Show' becomes a new template and is now saved as a template file.

NEW TEMPLATE



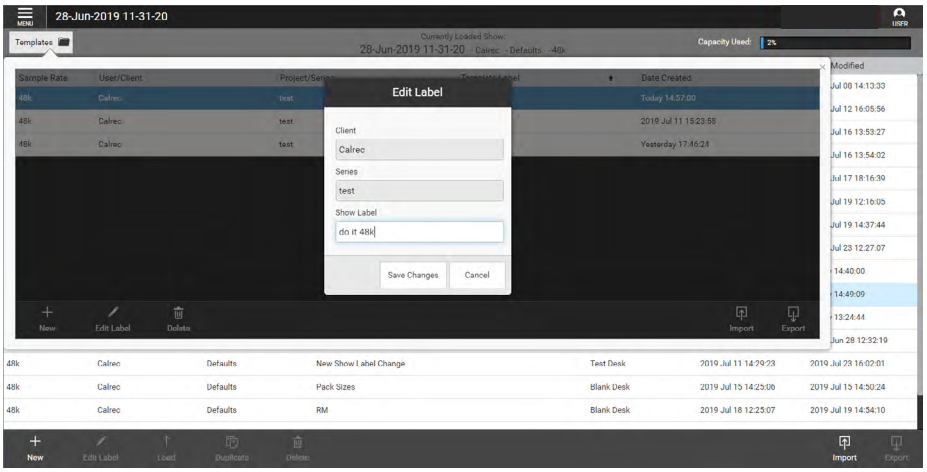
Edit Template Label

Once a template exists in the templates list the user can edit its template label and make it more meaningful. This is done by selecting the template and then tapping the **'Edit Label'** icon in the template list footer.

This opens the 'Edit Label' dialogue box and the user edits the 'Client', 'Series' and 'Template Label' as required as shown below right.

Note: In order to **Save Changes** the template show label must be edited.

EDIT TEMPLATE LABEL



Delete Template
When templates are no longer required the user can select and delete them. In order to delete templates the user selects a template to be deleted by tapping on it and then tapping on the **'Delete'** icon in the footer.

This opens the delete template dialogue footer which provides information about deleting multiple shows by tapping on all the shows to be deleted.
Note. The Calrec default template cannot be deleted.
Once the templates to be deleted have been selected the user taps on the **'Delete'** button and this deletes them, as shown above right.

Import Templates
In order to import templates, the user taps on the **'Import'** icon in the footer.

This opens the template import dialogue box which is the same as the show import dialogue box. The user should select the directory where the templates are held which allows the user to find the templates to import.

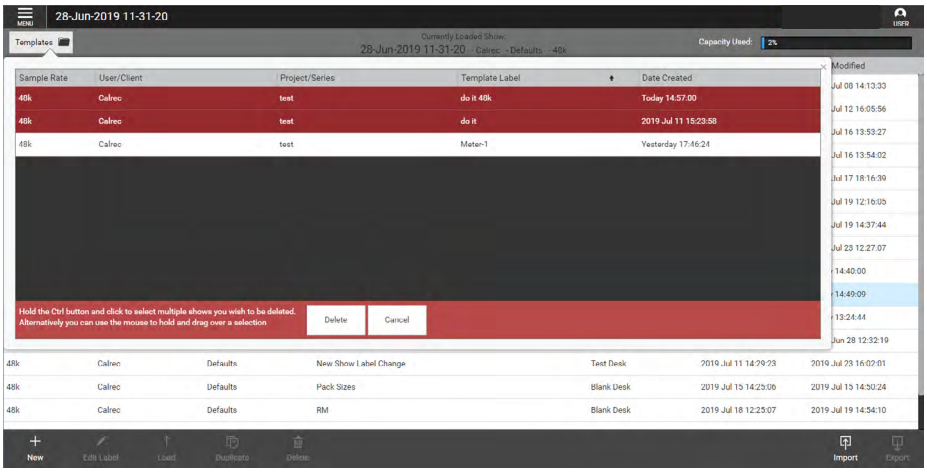
For example, the templates may be on a USB memory stick plugged into a PC/ Laptop on which shows have previously been exported.

This imports the template into the template list ready to be loaded and edited as required.

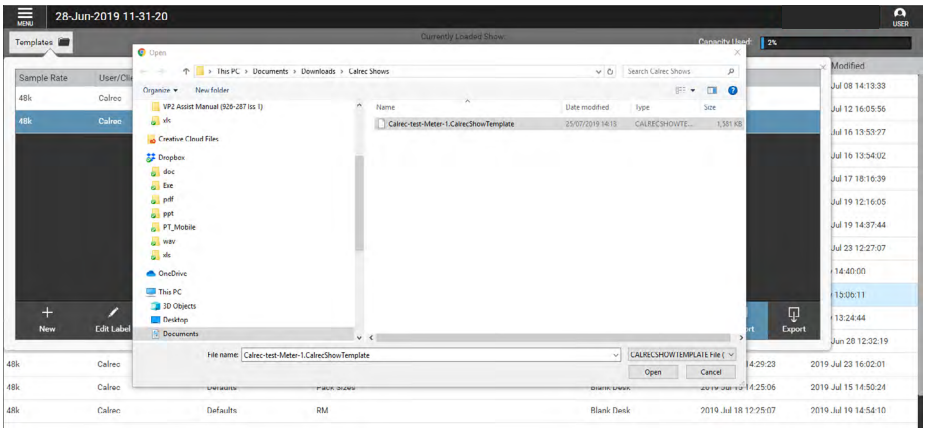
Export Templates
In order to export templates the user selects template to be exported by tapping on it and then tapping on the **'Export'** icon in the footer.

This opens the template export dialogue box which is the same as show export dialogue box. This then collects the data for the exports and opens a 'Save As' window ready to archive the exported templates to the required location. For example, a USB memory stick plugged into a PC/Laptop.

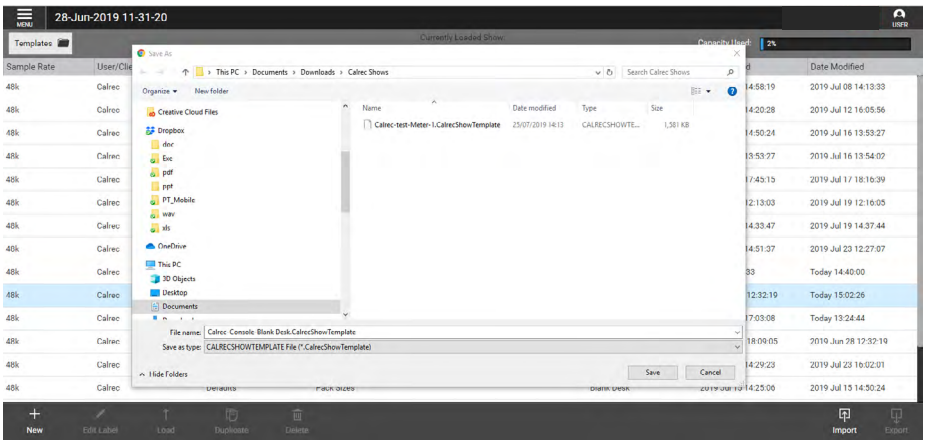
DELETE TEMPLATES



IMPORT TEMPLATES



EXPORT TEMPLATES



Note: If exporting multiple templates is blocked by the web browser, then resetting the browser settings and restarting the web browser is required. We would also advise setting the 'Ask where to save each file before downloading' option in the Chrome:// settings> show advanced settings> downloads section, so that the exports are saved to the users preferred destination e.g. a USB memory stick rather than the default destination on a PC/Laptop.

V9 ASSIST
SYSTEM SETTINGS

CALREC

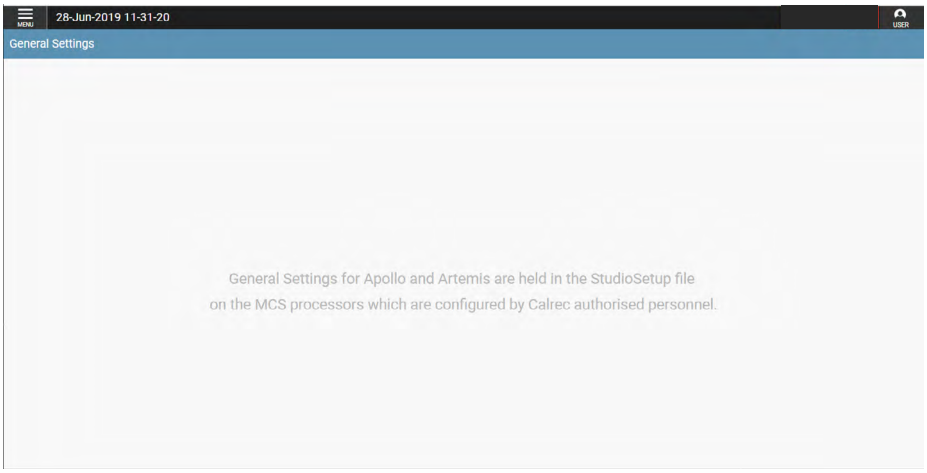
GENERAL SETTINGS

To access the General settings page, the user selects:
System Settings>General Settings from the menu.

Operational Settings
Up to and including V9 Assist for Apollo and Artemis, the General Settings are held in a file on each of the MCS control processors called ‘StudioSetup’.

These are not available to the user as shown above right.

REFERENCE LEVEL SELECTION



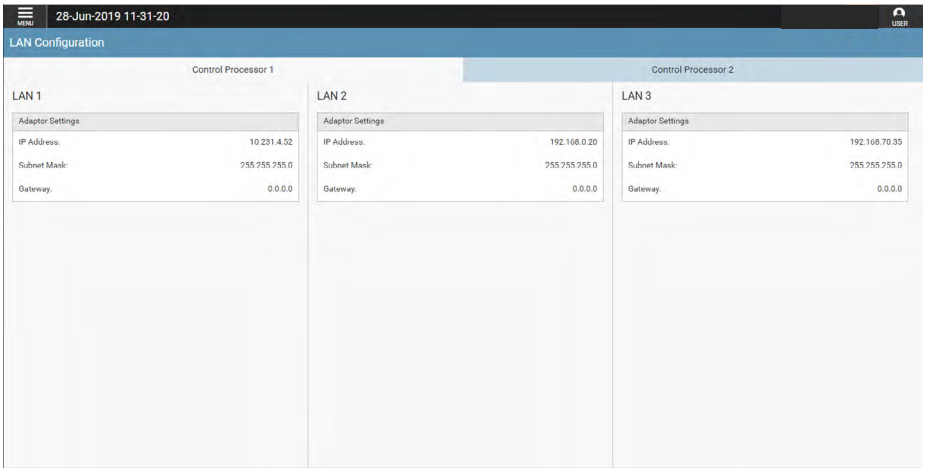
LAN CONFIGURATION

To access the LAN configuration settings page, the user selects:- **System Settings>LAN Configuration** from the menu on the left hand side. The screen above right displays the configuration settings for the 3 LAN ports on each of the two MCS control processor modules in the Apollo/Artemis core.

Up to and including V9 Assist for Apollo and Artemis the LAN Configuration settings are held in a file on each of the MCS control processors.

These are not available to the user but are displayed as shown above right.

LAN CONFIGURATION PAGE



REQUIRED IO BOXES

The IO Box resource page shows the IO resources that are currently online and available to this system.

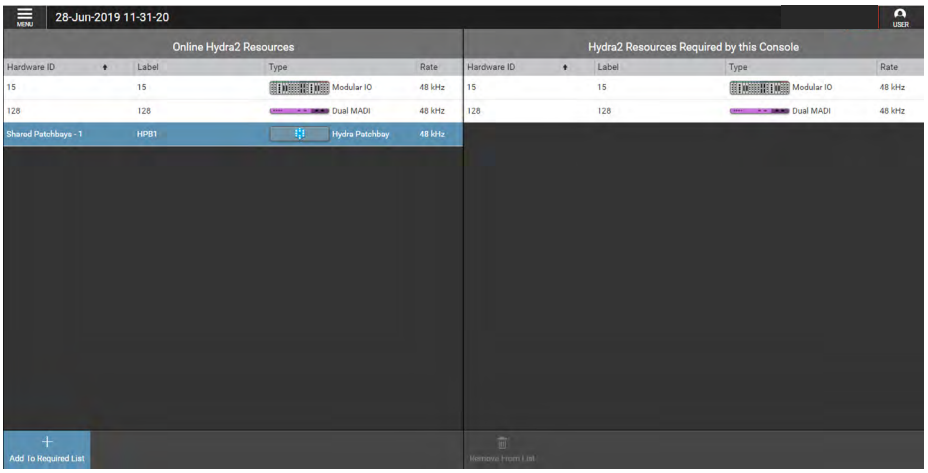
The IO Box resource page is accessed via **System Settings>Required I/O Boxes** from the menu and is shown in the image above right.

The screen is spilt in two halves:- the left side shows the 'Online Hydra2 Resources' available and the right side shows the 'Hydra 2 Resources Required by this Console'. Note that if the required resource does not appear in the right side list then it will NOT be available for use by this console.

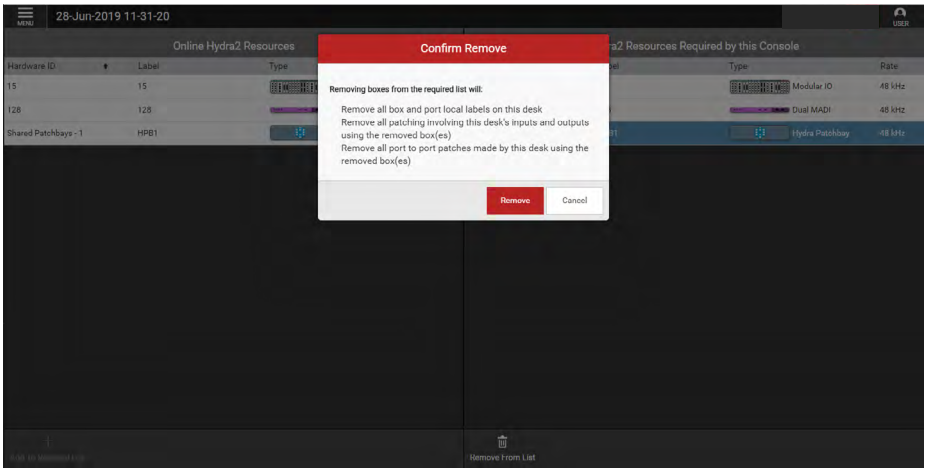
In order to add a resource to the required list, the user taps on the entry in the online resource list which then highlights, the **'Add to required list'** button then becomes available in the footer of the left side of the screen. Tapping on this adds those resources to the right side of the screen and the name of the added resource appears in the right side list as shown above right.

In order to remove a resource from the required list, the user taps on the resource that is no longer required from the list on the right side of the screen which then highlights, the **'Remove From List'** button becomes available in the footer of the right side of the screen. Tapping on this opens the **'Confirm Remove'** pop-up which informs the user of the consequence of removing this from the required list. If the user wants to proceed they tap on the **'Remove'** button which removes those resources from the right side of the screen, if not they can the operation.

IO BOX RESOURCES ONLINE AND REQUIRED



PORT CONFIGURATION



SYNCHRONISATION

It is strongly recommended that the Apollo/Artemis core is locked to the same external sync source as all the external equipment connected to Calrec digital IO to prevent audible interruptions to audio data.

The Apollo/Artemis core can run on its own synchronisation clock if no external source is provided and there are switchable sample rate converters on all AES3 and SDI digital inputs to adjust the sample rate of the incoming signal to match that of the core if required.

If the Apollo/Artemis core cannot receive the same sync source as the connected equipment, it is important to check the SRC's are switched in on the inputs of the equipment fed by AES3 outputs.

General rules of good practise dictate that all digital equipment in a facility are locked to the same house reference.

Synchronisation settings are in the **System Settings>Synchronisation** page, as shown above right.

The available 6 sync sources entries are displayed on the left. The selected sync source is displayed on the right.

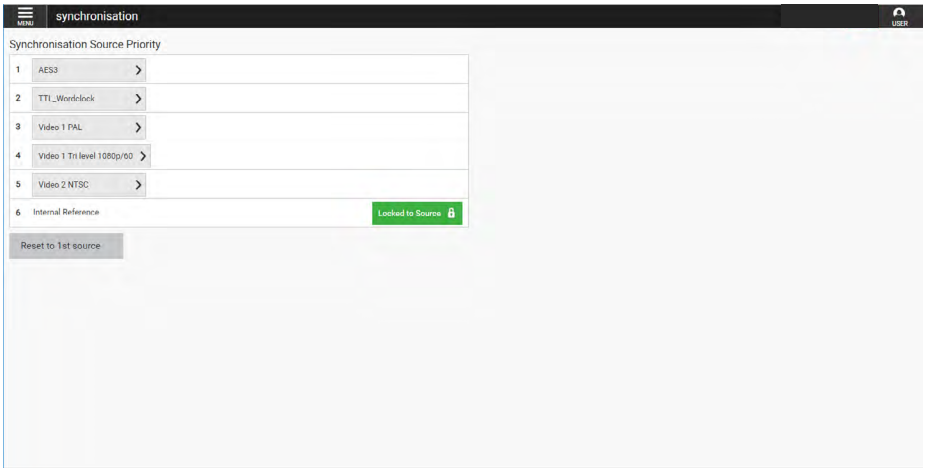
Each of the sync sources can via a pop-up select a sync source. The connectors on the rack are labelled for the format required on each.

There is an input for TTL Wordclock, one for AES digital audio reference as well as two video inputs. Both video inputs can take analogue or digital video in PAL, NTSC or a variety of HD / Tri-level formats.

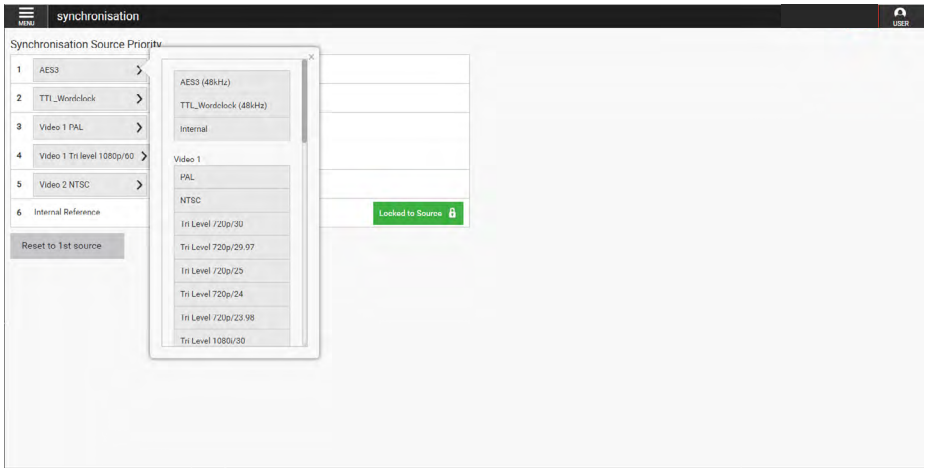
When selecting video as a sync source, the video format is selected for each instance of 'video' input.

Only one sync source can be active at any given time and this is displayed as 'Locked' by the main application.

SYNCHRONISATION PAGE



SYNCHRONISATION SOURCE OPTIONS



On boot up or reset, the system will attempt to sync to the 1st source at the top of the selected sync sources list. If it cannot lock to this source it will move down the list one at a time until a source is found that can be locked to.

The last item in the selected sources list cannot be changed, this is fixed as internal to ensure that if no suitable external sync can be found that the console will run on its own reference clock.

If the system is not locked to the highest priority source, clicking 'Reset to 1st' will cause it to retry, again moving down the list until a source is found that can be locked to.

When selecting video as a sync source, the video format is selected for each instance of 'video' input.

The current sync source is shown to the right hand side of the main application menu bar at all times.

Synchronisation at different sample rates

Hydra2 runs at 48kHz irrespective of whether the consoles and I/O boxes are running at 96kHz or not. It simply uses two samples per 96kHz signal.

Hydra2 always runs at 48kHz, the system will still require a 48kHz sync if using its AES3 or Wordclock inputs, even if all consoles and I/O are operating at 96kHz.

V9 ASSIST
ACCESS AND FUNCTION HEADER FACILITIES

CALREC

SYSTEM STATUS

V9 features System Status Messaging which reports warnings, faults and system information via Assist.

System status monitors all system components and connections.

System status notifications
Under normal operating circumstances, the system status notifications area to the right of the Access header containing the menu bar will show a 'tick' mark to show that everything is OK and that there are 'No events to display'. See the image above right.

In the event that a message needs to be displayed, the notifications area will display the relevant colour depending on the message type. Information (blue), a warning (amber) or an error (red) message. Tapping on this notification area will bring up the system status screen. The most serious notification will be shown as a priority i.e. error messages then warning messages then information.

Note, the screen to the right is an example showing Warning Messages.

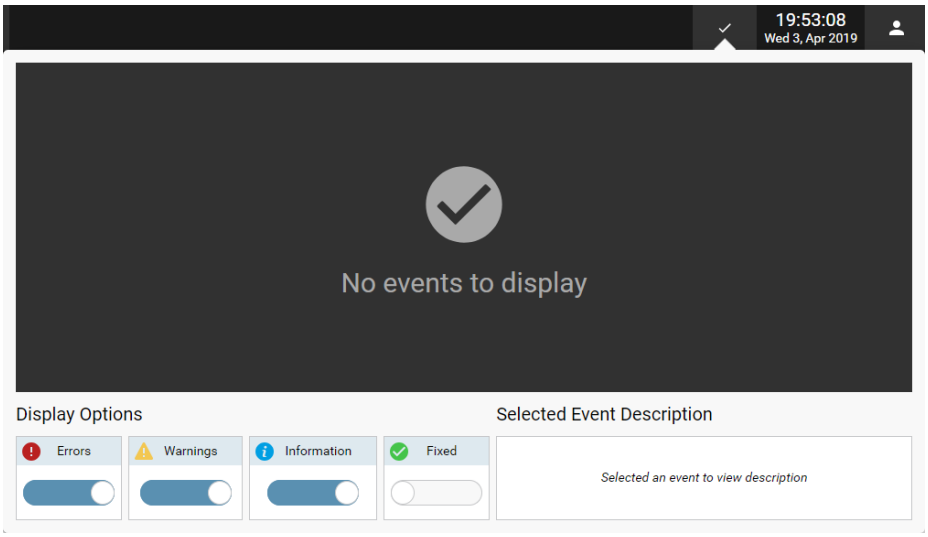
Message types
Three types of message are reported by system status:-

Error Messages - Report a serious error that could cause, or has caused the system to fail. Normally this requires user intervention to correct the problem before operation can continue.

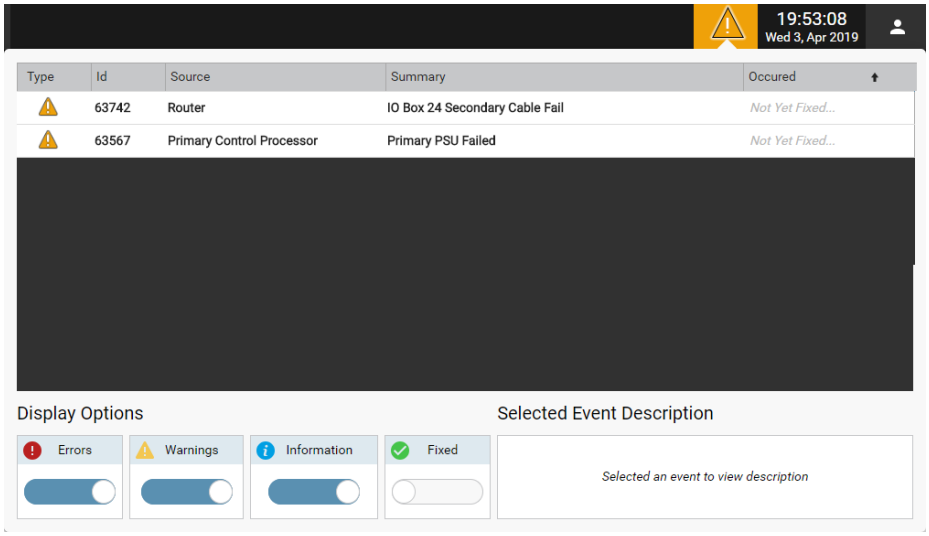
Warning Messages - Indicate where the system has located a fault or failure, but will still operate without intervention from the user. The message should be checked as the system may be running on its secondary components.

Information Messages - Inform the user when certain actions take place. They do not report errors, and no action needs to be taken to respond to them.

SYSTEM STATUS DROPDOWN FROM ACCESS HEADER



SYSTEM STATUS DROPDOWN FROM ACCESS HEADER



The messages are reported in a list.

Each message in the list has an associated icon shown in the left column. This identifies the type of message to the user. Message types can be filtered using the buttons above the list.
In addition items that have been Fixed can be included or excluded from the status display using the Fixed filter.

Selecting a message in the list will update the 'Selected Event Description' window area on the bottom right of the display to show the message in greater detail.

Clearing messages
Information messages can be cleared by selecting them and then leaving the system status screen. Warning and Error messages can only be cleared by correcting the error and restoring the system to its normal operational state.

Intermittent Cable Failures
If these exist on the system, the System Status screen now displays these and when the user taps on the message, a 30 second timer starts which clears the intermittent error from the message list automatically.

COPY AND PASTE

This facility in the function header makes it quick and easy to copy properties from one path and paste them to another

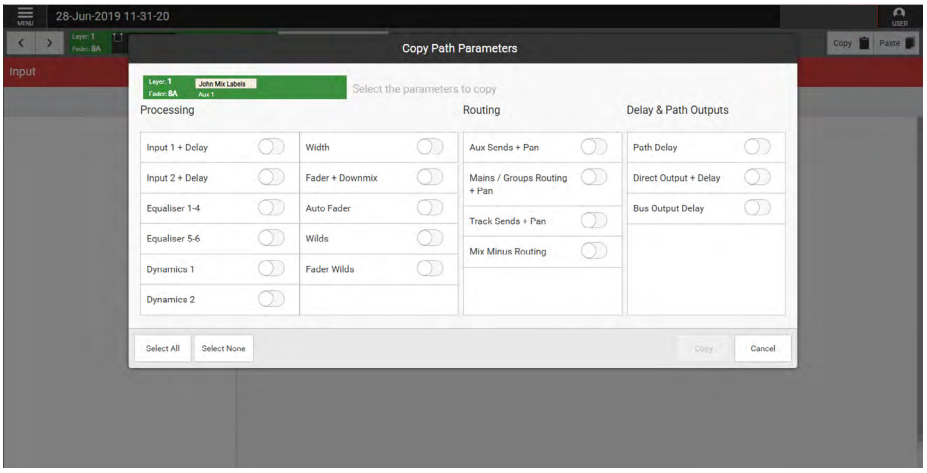
The user accesses the path to copy the properties from and taps **'COPY'** in the top right corner of the function header to open the 'Copy Path Parameters' pop-up as shown in the image to the right.

The user then selects the properties to copy or can tap on **'Select All'** or **'Select None'** if required and then taps on **'Copy'** or **'Cancel'** .

Note: if the **'Select None'** is selected the **'Copy'** button will grey out.

To apply the copied properties the user selects the path(s) to paste the properties to and taps **'Paste'** in the Function Header.

COPY AND PASTE FROM FUNCTION HEADER

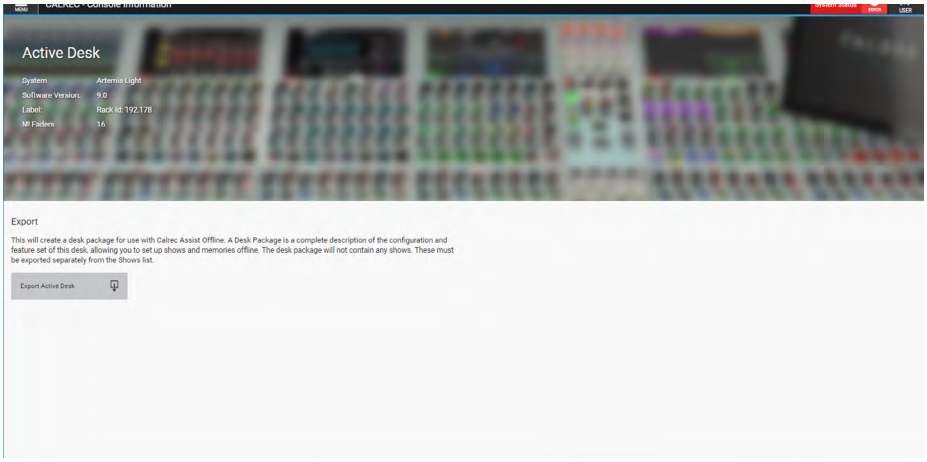


CONSOLE INFORMATION

This page is accessed via the **Console Information** entry in the menu and is shown in the image to the right.

It contains general information about the **System** Type, **Software Version**, System **Label**, **Number of Faders** and if the system was created from an Offline editor the **Package Created** filename.

CONSOLE INFORMATION

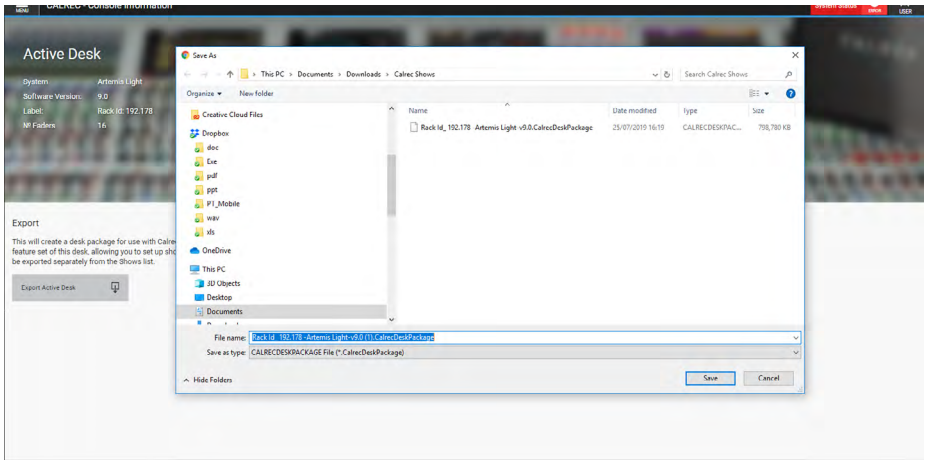


Note the Export Active Desk button on this page. This is used to create a Desk Package for use with the Offline version of Assist. In order to export the active desk package the user selects the **'Export Active Desk'** button.

This opens the 'Calrec Export Desk Package' dialogue box which collects the data for the export and opens a Save As window ready to archive the exported desk package to the required location.

For example, a USB memory stick plugged into a PC/Laptop.

EXPORT ACTIVE DESK PACKAGE



V9 Assist Offline

In order to use the V9 Assist in an Offline environment the Install VirtualBox and Configure Virtual Network Adapter procedure will need to be followed and the Calrec Virtual Machine downloaded and configured.

The attached Appendix describes this procedure. Once this has been completed the exported Calrec Desk Package as shown above can be imported into Offline Assist see "Importing Desk Packages to Assist" on page 91 and then shows can be created, imported and exported as required.

V9 ASSIST
APPENDIX – OFFLINE ASSIST INSTALLATION

CALREC

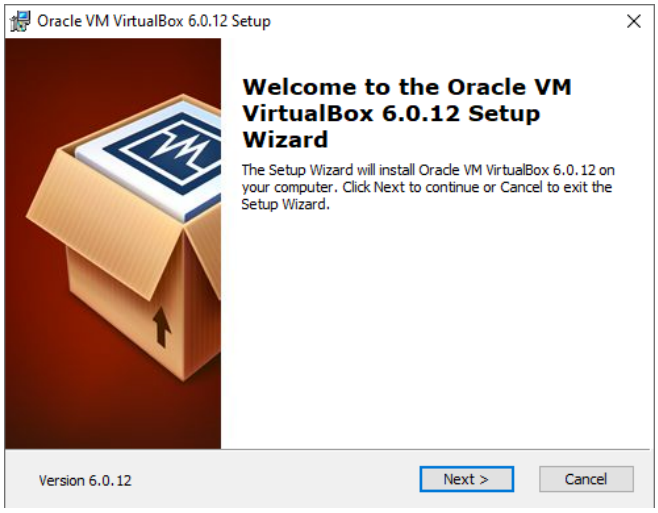
SETTING UP THE VIRTUAL MACHINE

Install VirtualBox and Configure Virtual Network Adapter

VirtualBox provides the environment for the Calrec Virtual Machine to exist in. The following instructions are used to setup this environment with Virtualbox connecting via a Virtual Network Adapter which are downloaded and configured as follows:-

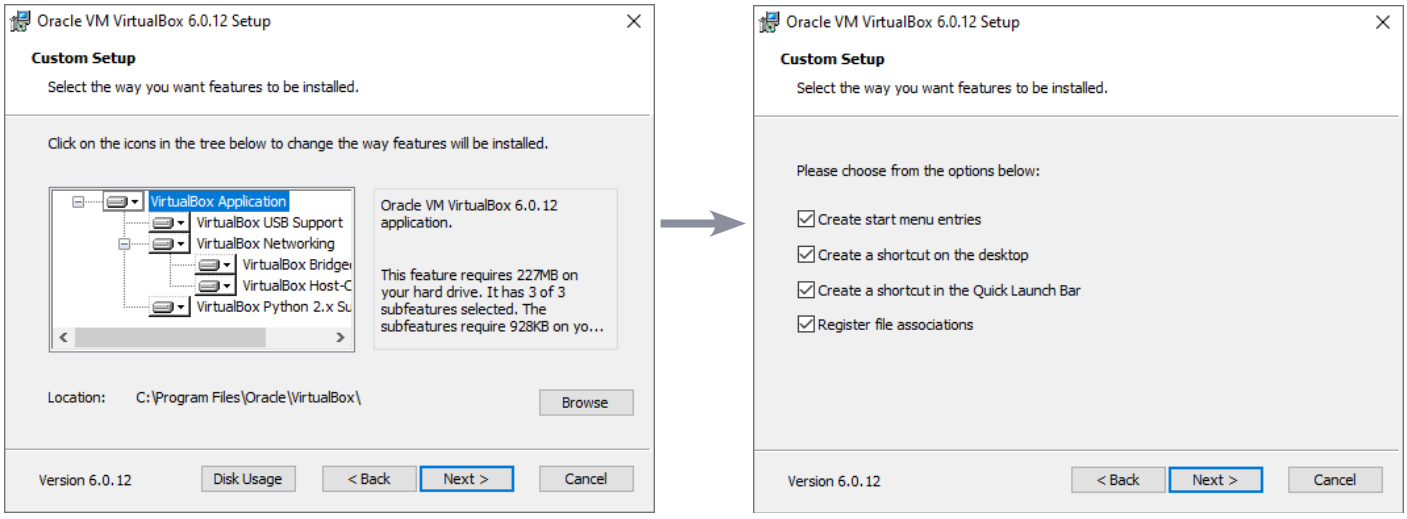
1. Go to https://www.virtualbox.org/ and download the latest version of VirtualBox compatible with your computer type and operating system. (Currently 6.0.12). Note: Windows/MAC OS X/Linux and Solaris hosts are supported. This manual covers the installation on a Windows machine.

2. Install VirtualBox.



3. If the Open File – Security Warning dialogue is displayed, please select Run, then click Next > to begin the installation (as shown above).

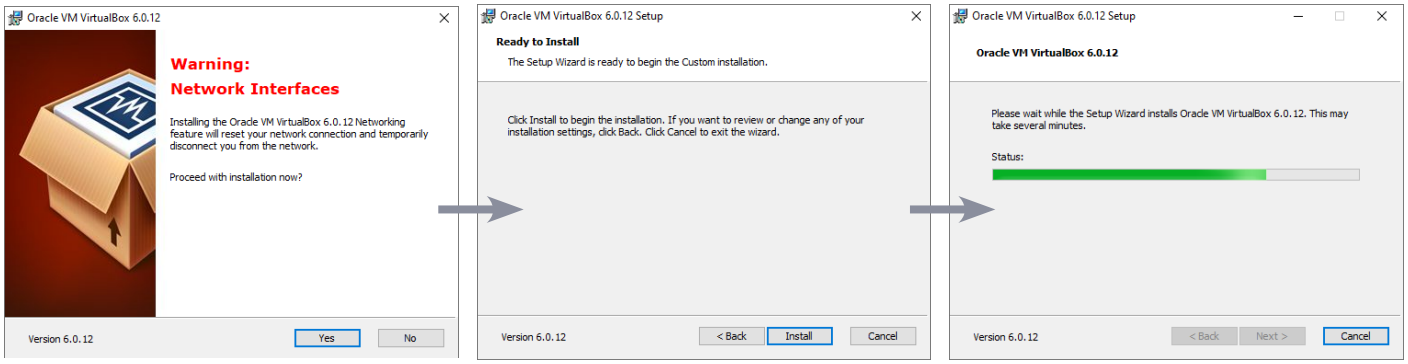
4. Install all VirtualBox components (below left). The default install location is C:\Program Files\Oracle\VirtualBox. To continue, select Next >, or to change this location, click Browse and manually choose a different install location.



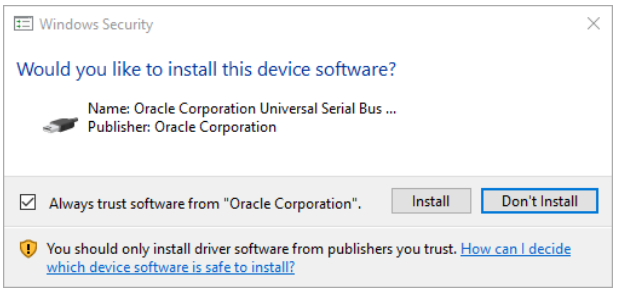
5. Ensure all options are ticked (above right), then click Next >.

6. You will receive a warning that your PC or laptop's network adapter will be reset during the next stage of this installation.

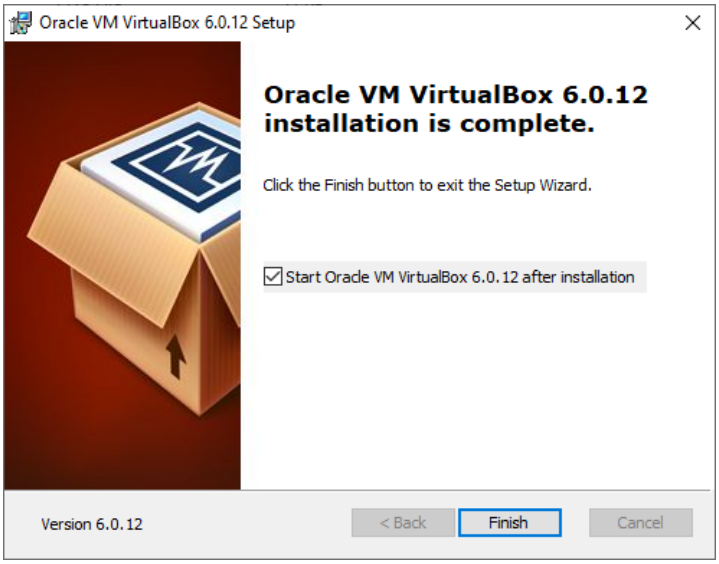
This is only a temporary interruption while VirtualBox installs a necessary virtual network adapter.
Please select Yes (below left), then Install (below centre).



7. You will then receive a Windows Security warning as the necessary Oracle drivers and network services are installed.



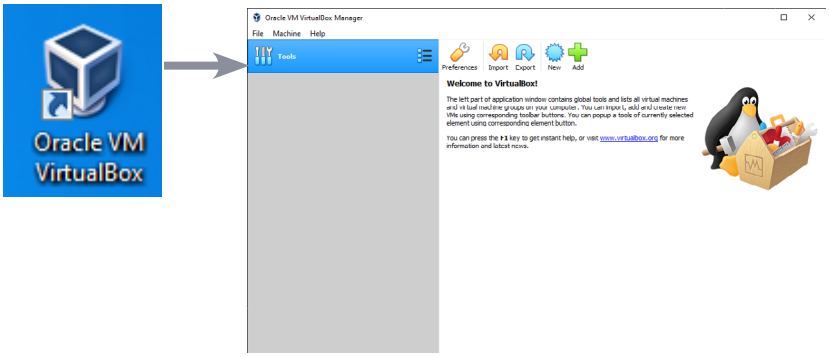
Once all the Drivers are installed the system informs that the installation is complete. See below.



8. Once the installation is complete (above left), it may be necessary to restart your PC / Laptop before VirtualBox can be run correctly. If this is the case, please ensure any open files are saved before restart. This will cause Windows to reboot.

9. Launch VirtualBox.
   If all options were ticked in step 5, a shortcut will be located on the desktop as shown below left.
10. The VirtualBox front page will open, presenting an empty list as shown below.

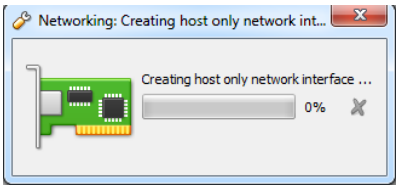
ORACLE VIRTUAL BOX - MANAGER



Configure a Host-only Virtual Network Adapter

11. In VirtualBox, click on 'Tools', then go to the "Network" view.
12. If the adapter VirtualBox Host-Only Ethernet Adapter already exists move on to step 13, otherwise,
    Click the + icon at the right to add an adapter and confirm any Windows dialogues that appear.
    If an adapter is to be created, its progress will be shown below.

ORACLE VIRTUAL BOX - HOST-ONLY VIRTUAL NETWORK ADAPTER CREATION

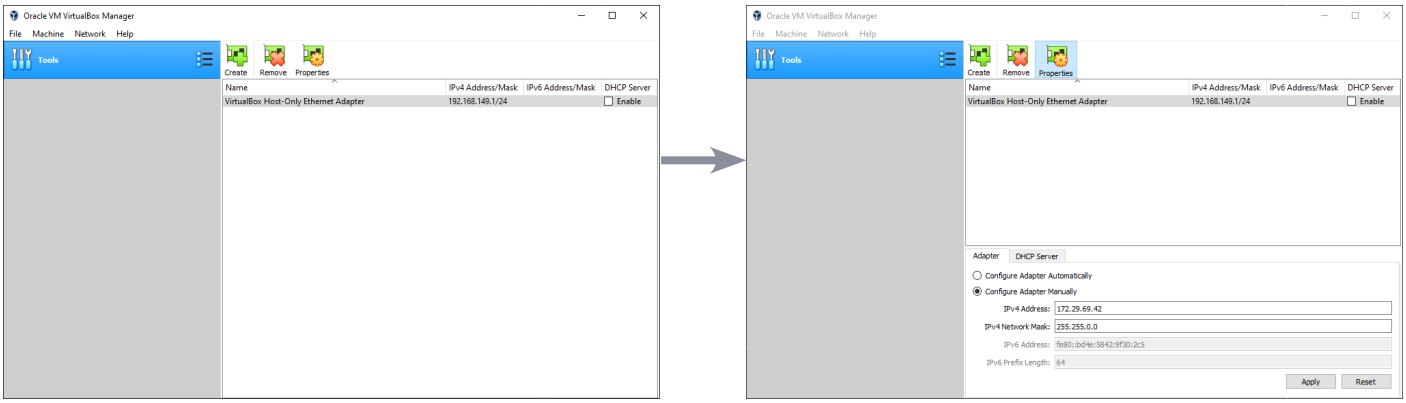


13. Highlight the new adapter in the list and configure the adapters settings, as shown below.
14. Set the IPv4 Address to 172.29.69.42.
    Set the IPv4 Network Mask to 255.255.0.0

    Then click Apply - This completes the creation and configuration of the Virtual Network adapter.

15. Enable the adapter with the Tick Box on the right of the adapter entry, then close the VirtualBox Manager.

ORACLE VIRTUALBOX - HOST-ONLY VIRTUAL NETWORK ADAPTER CONFIGURATION PROCESS



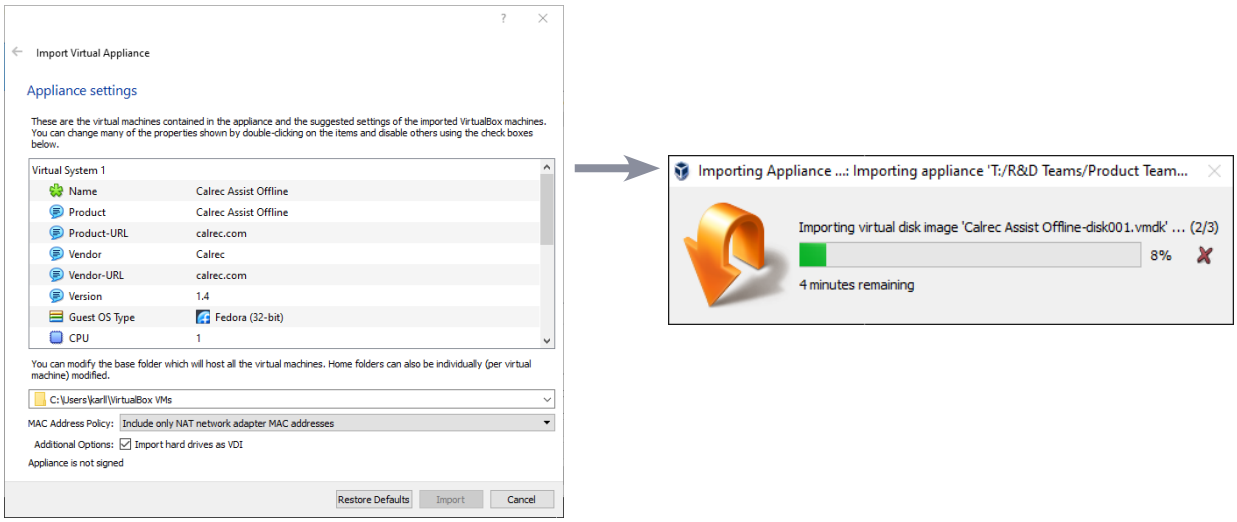
Download and Configure Calrec Virtual Machine

The Calrec Virtual Machine will be available on the Calrec FTP site, the latest release is called Calrec Assist Offline.ova which is downloaded using the login details shown below and configured following steps 16-24:-

URL: http://ftp.calrec.com
Username: Offline_Editor
Password: N7IVM9X4

16. The .ova file file should be installed from a C: Drive as it is a large file (approx 1.5GB) and will install faster.
17. Click on or Open “Calrec Assist Offline.ova”
18. VirtualBox should open automatically, and present an Import dialogue.
19. Leave the settings alone, and click “Import” as shown below.

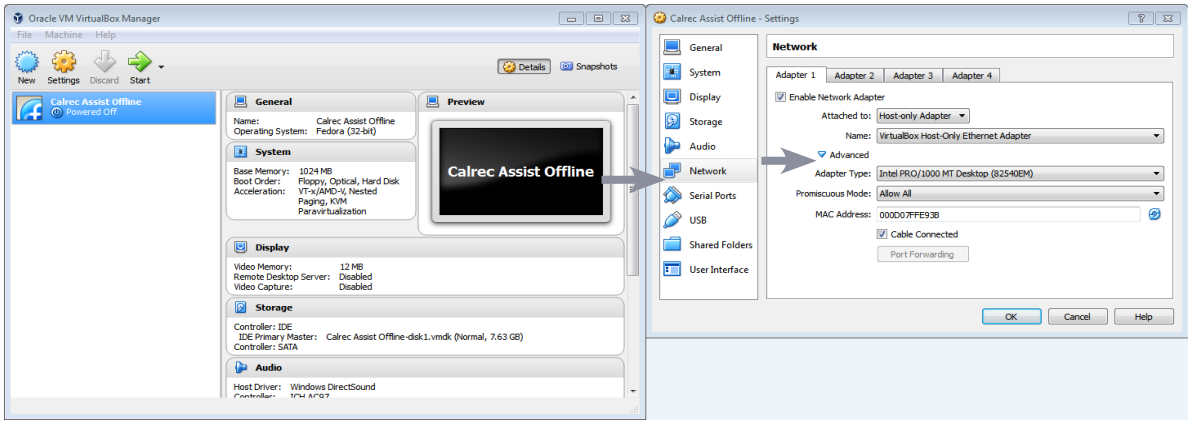
ORACLE VIRTUALBOX - IMPORT CALREC VIRTUAL MACHINE



Configure the Calrec Virtual Machine to use the correct network adapter

20. Select the “Calrec Assist Offline” virtual machine in the list and click the “Settings” button.
21. Select the “Network” view, make sure you’re on the “Adapter 1” tab and make sure the “Name” drop down box contains the Host-only network adapter you added earlier, then click on the Advanced arrow to reveal further options.
22. Ensure Enable Network Adapter is ticked, and that the name of the adapter matches that set in step 12 (VirtualBox Host-Only Ethernet Adapter). Disclose the “Advanced” settings.
23. Set Promiscuous mode to “Allow All”.
    Then click OK - This completes the configuration of the Calrec Virtual Machine.

ORACLE VIRTUALBOX - CONFIGURE CALREC VIRTUAL MACHINE



HARDWARE ASSISTED VIRTUALISATION

HAV Setup

In order to speed up the operation of the Calrec Virtual Machine it is advised that Hardware-Assisted Virtualisation (HAV) is enabled, if supported. This is usually found in the BIOS settings of the computer that Calrec Assist will be running on.

In most modern computers these hardware extensions are switched on by default, however some older machines will need these enabled they are typically called Intel VT-x or AMD-V or ViA VT depending on the Processor-Motherboard-BIOS combination.

Microsoft provide a detection tool and User Guide to help users set this up.

HAV Detection Tool Installation

- You can download the HAV detection tool valid for 32 bit and 64 bit machines from:- http://go.microsoft.com/fwlink/?LinkId=163321
- Download this tool (havdetectiontool.exe) to your local machine and save it to say c:\havtool
- Double click on the executable and follow the prompts to display the result.

Note: You need administrator privileges to run this tool.

Note: The tool is a self-extracting executable and does not install any folders or files. Rerun the executable if required. The tool deletes all the installed files on exit

There is also a User Guide available to download which helps the user through this process and shows how to interpret the result.

Supported Operating Systems

The HAV detection tool ONLY supports the following operating systems and editions/versions:

- Windows 7 (Home Basic, Home Premium, Professional, Enterprise, Ultimate).

On any operating system/edition/version outside of this list, the tool exits with an error message.

Note: Most Windows 8 and Windows 10 users will already have (HAV) enabled on their computers.

HAV Status Check

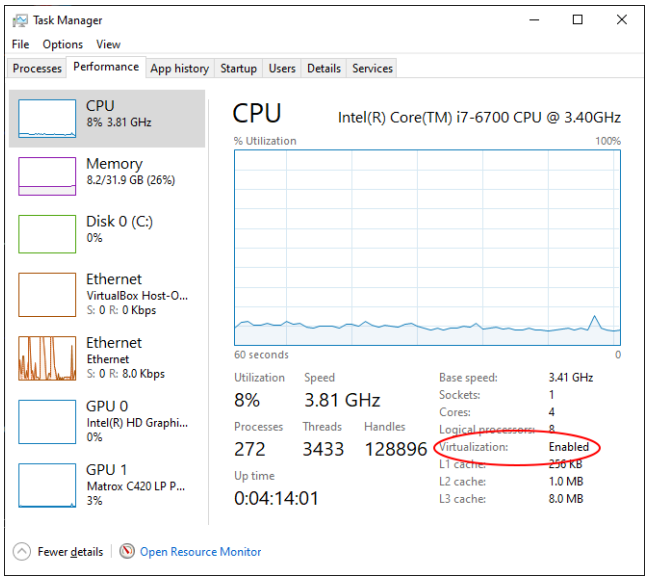
It is enabled by default in the BIOS/EFI for windows 8 & 10 and after you have booted into Windows, you can easily check the virtualization status using the Windows Task Manager.

You have to launch Task Manager using the hotkey Ctrl+Shift+Esc.

In the Task Manager, switch to the Performance tab and you will be able to view the Virtualization status under the CPU category see below right.

If it shows that Virtualisation is Disabled instead then it will need to be Re-Enabled and saved in the BIOS.

HARDWARE ASSISTED VIRTUALISATION STATUS



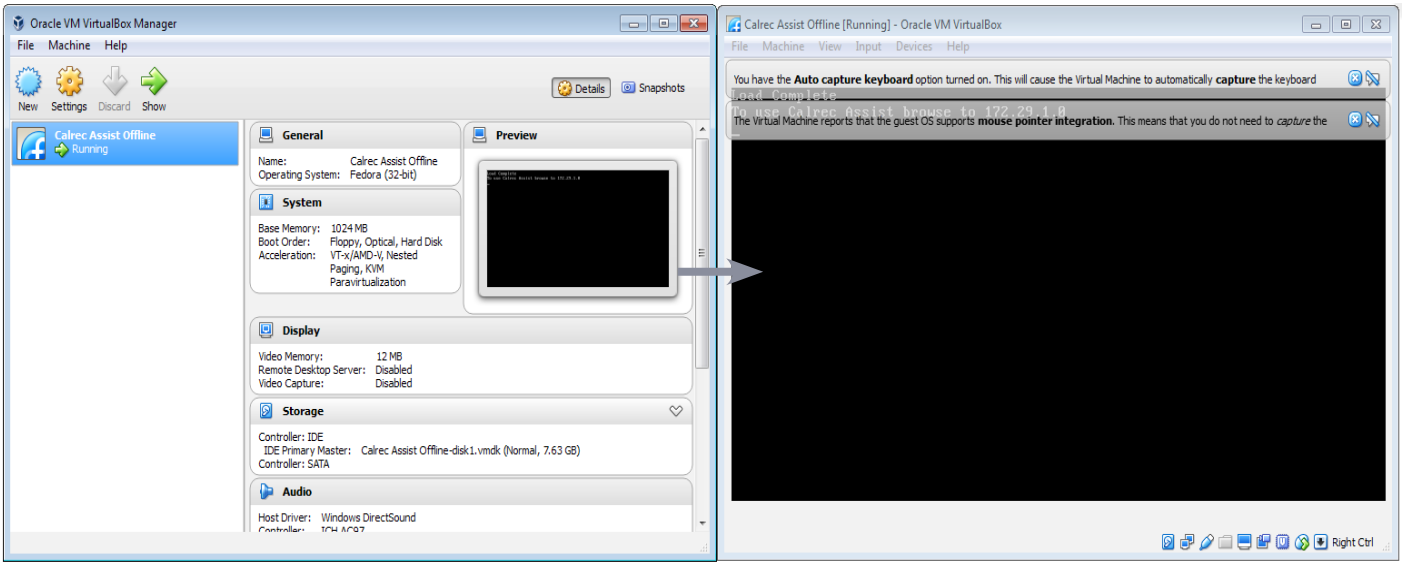
LAUNCHING CALREC ASSIST OFFLINE

Start the Calrec Virtual Machine and launch Calrec Assist Offline

Once configured the Calrec Virtual Machine can be started up ready to access the Assist program in a Web Browser.

1. Launch VirtualBox.
2. Double click the “Calrec Assist Offline” virtual machine to start it running. See below.

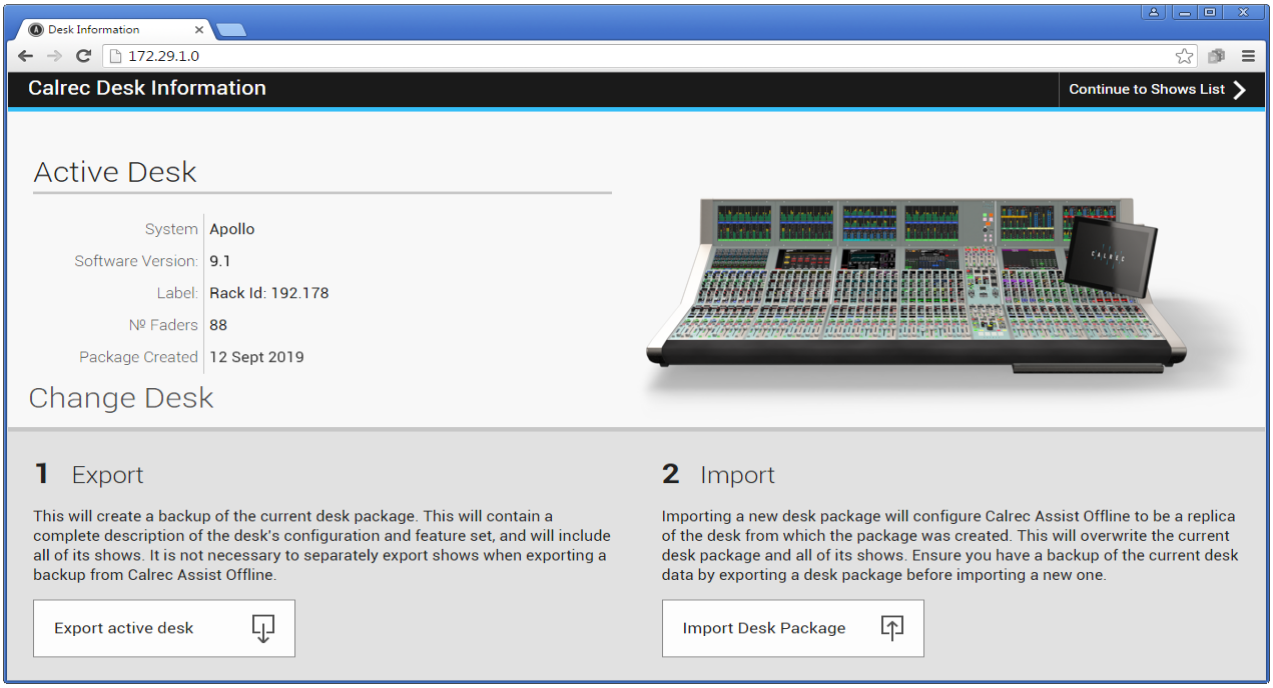
ORACLE VIRTUAL BOX - HOST-ONLY VIRTUAL NETWORK ADAPTER



3. When it’s loaded, these windows can be minimised but should not be closed as this will stop the Virtual machine.
4. Open Chrome and browse to the address of the Virtual Adapter i.e. 172.29.1.0 this will then launch Calrec Assist. See below.

This completes the Installation and Startup of Calrec Assist running in a web browser.

CALREC ASSIST- RUNNING IN CHROME BROWSER



EXPORTING DESK PACKAGES FROM DESKS

Calrec Assist Desk Packages from Apollo/Artemis
In order to use Calrec Assist Offline the user needs to get a Desk Package from an active desk and then import that Desk Package into the Offline application.

With the release of version 5.1 software a number of changes were made to the Apollo and Artemis PC application including changes to the grouped functions under the top-level menu items “Other Options” and “Fixed Options”. These menu items been changed to “Show Settings” and “System Settings” respectively. This arrangement is now consistent with Summa so that accessing Calrec Assist Online is a similar process on any Calrec Desk.

The method of accessing Calrec Assist Online on Apollo or Artemis to get a Desk Package is as follows:-

1. On the Apollo/Artemis Console PC application, go to ‘System Settings > Calrec Assist’

2. Follow the instructions as shown above right.
3. On Apollo/Artemis the user would normally be accessing the Calrec Assist UI from the Console PC so just tapping the Show Calrec Assist button will take them to the Chrome Web Server screen for Calrec Assist shown right.

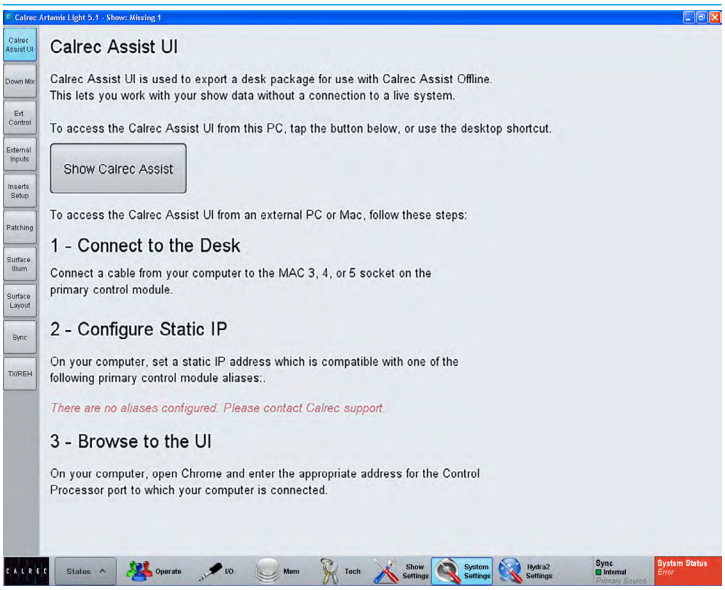
4. Calrec Assist Online opens by default in the Desk Information page which informs the user about the Active Desk and allows the User to Export a Desk Package from this Desk to use with Calrec Assist Offline later on.

Note: The user should ensure the Desk is configured with the Required I/O list before creating the Desk Package.

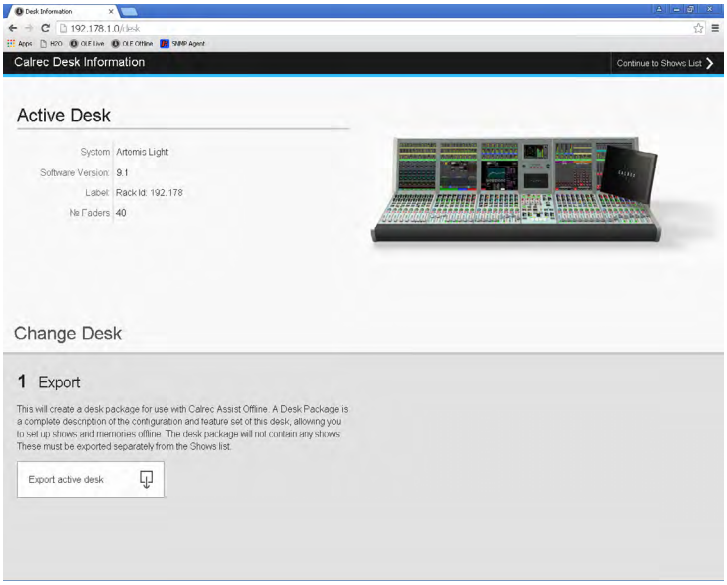
5. The user clicks/taps on the ‘Export active desk’ button. The desk then builds the Desk Package which contains a complete description of the configuration and feature set of this desk including Desk Type, Software Version, Fader count, Channel count, Bus Count, Surface Layout, DSP Pack Size, Hydra Network I/O, Hydra Patchbays and the Default Show which is used to build new shows and memories. This provides everything the user needs other than utilise existing user shows which are exported and imported separately.

6. When the Desk Package is built the Save as Pop-up appears as shown below right. The user decides where to save the desk package to, which will typically be a USB memory stick. The user can subsequently load this desk package into Calrec Assist Offline and use it to either build New Shows and Memories offline or use it together with exported shows from the same console type to modify them offline for later importing back to this desk type.

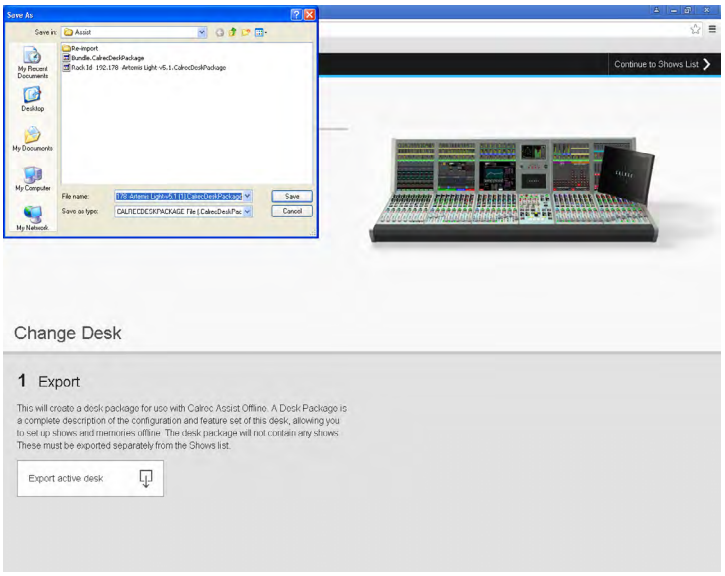
CALREC ASSIST UI - ACCESS FROM APOLLO/ARTEMIS PC APP



CALREC ASSIST UI - CHROME BROWSER SCREEN ARTEMIS



CALREC ASSIST UI - SAVE DESK PACKAGE ARTEMIS



IMPORTING DESK PACKAGES TO ASSIST

Calrec Assist Offline
Once the Desk Package has been obtained from the target desk and saved onto a USB memory stick it can then be imported into Calrec Assist Offline for further editing.

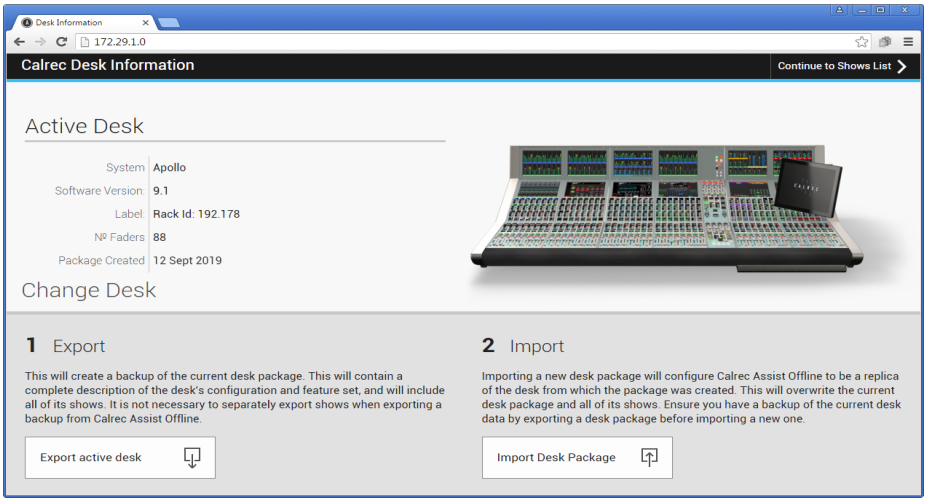
Clicking on the Import Desk Package button opens explorer to find the Desk Package directory on the USB memory stick. The Desk Package files usually show the Rack Id, Console Type and Software Version Number of the Desk the Package was exported from. They also have the suffix '.CalrecDeskPackage'

Once the new Desk Package has successfully imported, Calrec Assist Offline will be a replica of the desk from which the package was created.

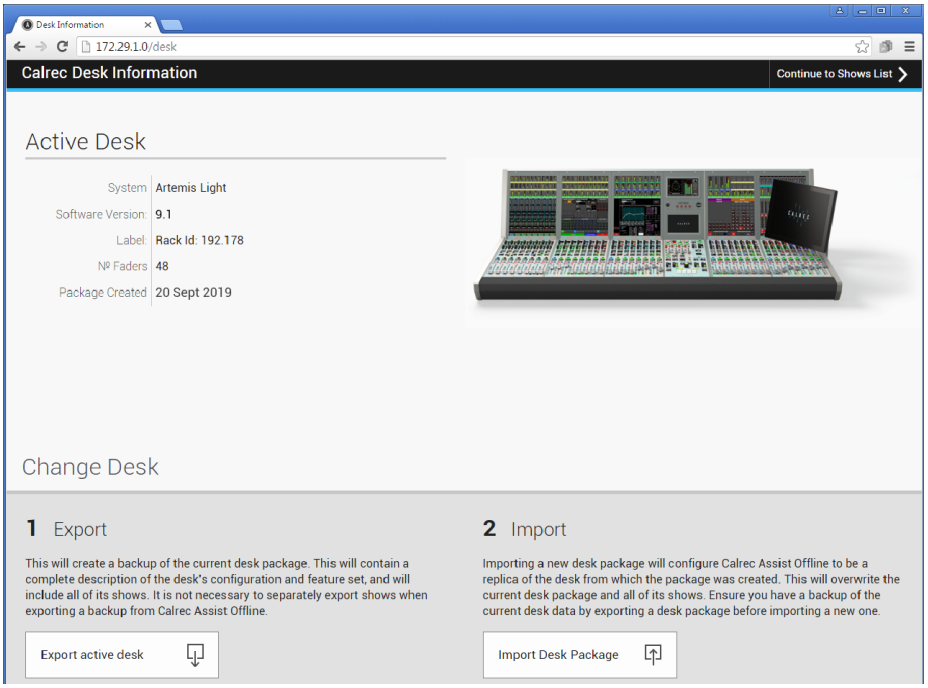
It should be noted that this will overwrite the current desk package and all of its shows, it is therefore advised that a backup of the current desk data is made by exporting the current desk package before importing a new one. See below right for newly imported Artemis Desk Package which has replaced the current Apollo Desk Package.

The final step is to either import the required shows for editing or to create new shows offline. This process is described in the Shows section of this manual, see "Shows List" on page 68.

CALREC ASSIST OFFLINE - HOME PAGE



CALREC ASSIST OFFLINE - ARTEMIS DESK PACKAGE IMPORTED



Calrec Audio Ltd
Nutclough Mill
Hebden Bridge
West Yorkshire
England UK
HX7 8EZ

Tel +44 (0)1422 842159
Fax +44 (0)1422 845244
Email Enquiries@calrec.com

calrec.com

(926-217 Iss.5)