

ALLEN & HEATH

Understanding dLive Multi-Surface

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Multi-Surface Overview

Multi-Surface mode allows the connection of up to 4 Surfaces to a single DM MixRack or 2 Surfaces to a single CDM MixRack.

Any combination of C Class and S Class Surfaces can be used in a Multi-Surface system. Dual-cable redundancy is available on S Class hardware.

Multi-Surface Connection

All connected Surfaces require a discrete IP address before connection, for example:

Surface 1: 192.168.1.81

Surface 2: 192.168.1.82

Surface 3: 192.168.1.83

Surface 4: 192.168.1.84

The Primary Surface connects to the internal gigaACE socket on the MixRack. This can be a dual-cable redundant connection with a DM MixRack and S Class Surface.

Secondary Surfaces connect to gigaACE or fibreACE I/O modules installed in the MixRack.

Each I/O module supports one Secondary Surface connection - this can be a dual-cable redundant connection if connecting to an S Class Surface.



Multi-Surface I/O Module Configuration

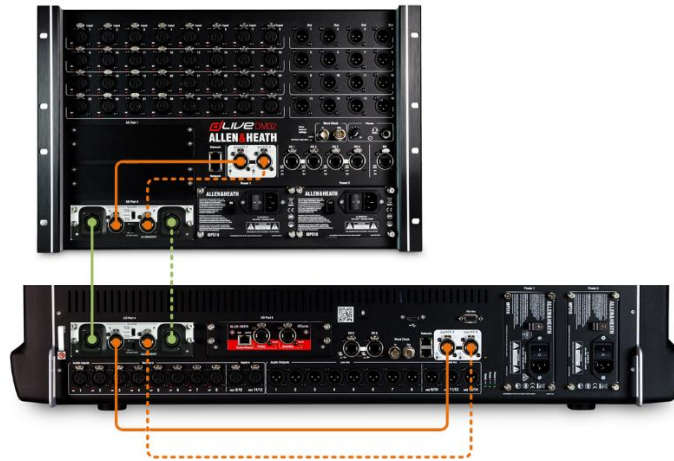


All gigaACE I/O modules in the MixRack connected to Secondary Surfaces require the front panel **Control Network Bridge** switch to be in the **ON** position.

① gigaACE modules installed in a Surface cannot be used for connection to a MixRack.

fibreACE modules in the MixRack require the front panel **Control Network Bridge** switch to be in the **ON** position, and the **Mode** switch to be set to **Copper Active** or **Optical Active** mode depending on the cable used.

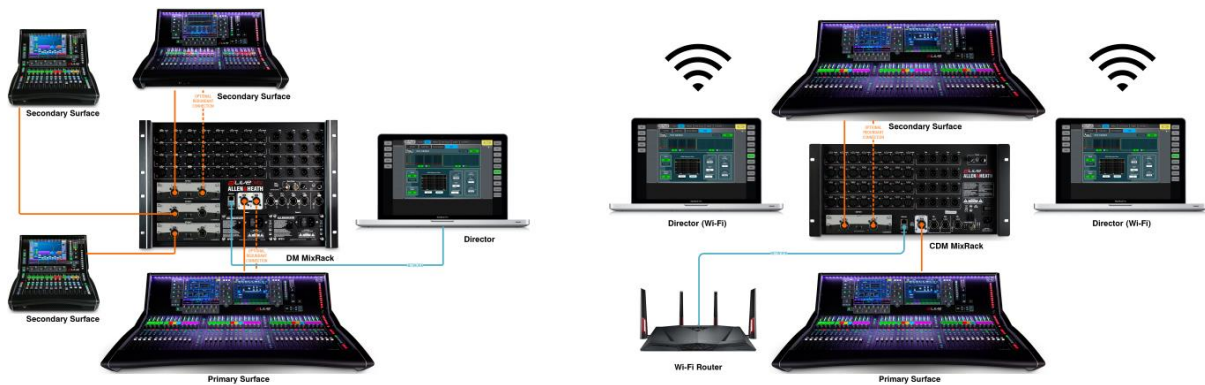
fibreACE modules installed in Secondary Surfaces and used for the MixRack connection require the front panel switch to be set to **Convert**.



Multi-Surface Director

dLive Director can be implemented within a Multi-Surface system.

Director can be used instead of a Surface, or in addition to Surfaces already connected to the system.



When Director is connected in **MixRack Only** mode, any of the available Surface Roles can be assigned to Director without impacting any of the other Surfaces.

When Director is connected in **Surface and MixRack** mode, Director will inherit the Surface Role of the connected Surface. Any changes to the Surface Role will be followed by both Director and the Surface.

The PC/Mac running Director can be connected to a Network port on the MixRack or Surface, either directly via CAT5 (or higher) cable or via a wireless router.

Multi-Surface **Surface I/O**



- 1 **I/O Modules** – I/O modules installed in the Primary Surface are accessible throughout the system. I/O modules in Secondary Surfaces are not accessible.
- 2 **Analogue & AES** – Analogue and AES I/O on Primary and Secondary Surfaces are accessible throughout the system.
- 3 **DX Expanders** – DX Expanders connected to Primary and Secondary Surfaces are accessible throughout the system.

Multi-Surface **Firmware Update**

In a Multi-Surface system, Surfaces should be updated individually, either connected as a Primary Surface directly to the MixRack gigaACE socket or with no MixRack connected via the Connection Failed screen on startup.

ⓘ Disconnect all Secondary Surfaces connected to the MixRack via I/O modules when performing a firmware update.

Multi-Surface **PAFL**

Each Surface can have a dedicated PAFL bus. PAFL busses can be added to the system via **MixRack / Config / Mixer Config** and assigned via **Surface / Audio / PAFL**

ⓘ PAFL assignment is stored in the Show file. Surface Roles do not include the PAFL assignments.

The **RTA** function is fixed to PAFL bus 1

Wedge and **IEM** strips are fixed to PAFL bus 1

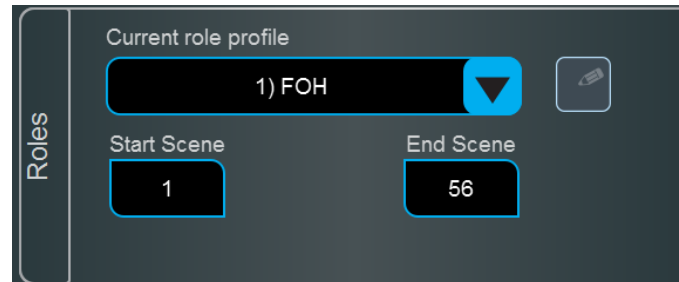
The headphones socket on the MixRack is fixed to PAFL bus 1

Ext IP to PAFL Source and **PFL Trim** is not present on PAFL bus 9 and 10.

Multi-Surface Surface Roles

Surface Roles can be used to differentiate Surfaces in a Multi-Surface system. However, they will not be appropriate for all applications. For instance, a FOH/MON system would benefit from dedicated Surface Roles whereas a Parallel/Backup system may not require them.

Up to 4 Surface Roles can be configured within a Show file and each Surface Role contains a **Scene Range** and a **Role Filter**. Surface Roles are configured on the **Surface / Control / Surface Prefs** page.

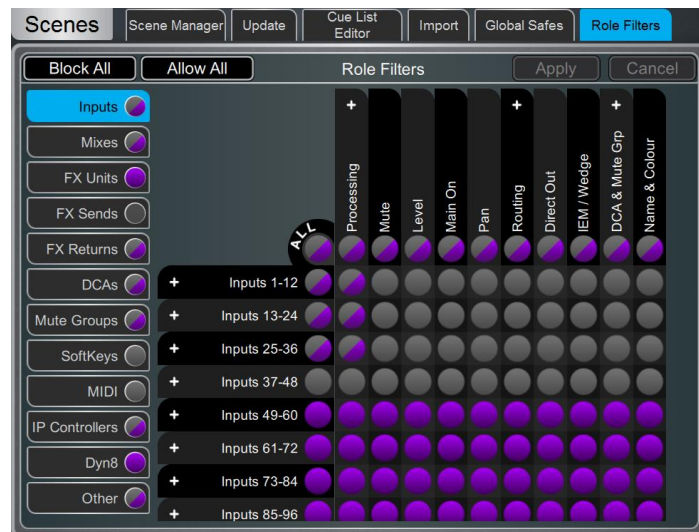


The **Scene Range** is defined using the Start Scene and End Scene boxes.

Scenes outside of the specified range will not be accessible from this surface role. This is useful for multi-surface setups where the engineers require independent scene ranges.

The **Role Filter** is used to block or allow parameters when a Scene is recalled.

In a typical FOH/MON Multi-Surface configuration, the Role Filters would be configured on each Surface to allow relevant changes when a Scene recall is performed.



Example:

FOH Surface uses Inputs 1-64 and blocks Inputs 65-128
MON Surface uses Inputs 65-128 and blocks Inputs 1-64

FOH Surface uses FX 1-8 and blocks FX 9-16
MON Surface uses FX 9-16 and blocks FX 1-8

FOH Surface blocks AUX 1-8
MON Surface uses AUX 1-8

FOH Surface uses MTX 1-6
MON Surface blocks MTX 1-6

ⓘ Changes made to the Mixer Config – for instance adding or removing an AUX, GRP or MTX – would need to be reflected in the Role Filters for each Role.

Multi-Surface Gain Tracking

Many Multi-Surface applications involve a preamp being accessed by more than one Surface.

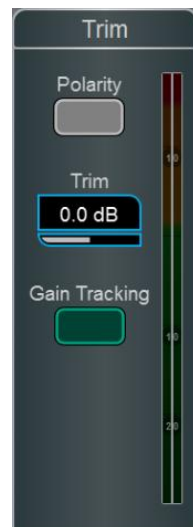
Example:

In a FOH/MON system, both Surfaces would access the same physical preamps but they would be patched to dedicated FOH or MON processing channels.

With Gain Tracking disabled, a change to preamp gain made by the MON surface would result in increased level to both FOH and MON.

With Gain Tracking enabled on the FOH Surface, changes to preamp gain by the MON Surface will be compensated by the TRIM on the FOH surface. This allows the MON engineer to make changes that are required to optimise gain structure without causing any jumps in level on the FOH system.

ⓘ Pad status changes are not compensated by Gain Tracking



Multi-Surface Shows

In a typical Multi-Surface system, each Surface would store and recall its own Show independently of other Surfaces. Although the MixRack data would be the same in each Surface's Show file, the Surface data would be unique to the Surface that stored the Show.

ⓘ If a Show stored on the FOH Surface is recalled on the MON Surface, it will recall the FOH Show memories and Scene memories including the FOH Surface configuration (i.e. strip layouts)

When loading Multi-Surface shows, the last user to store the Show would recall the Show as normal. Additional operators would recall their Shows in **Surface Only Recall** mode to prevent making any changes to the MixRack configuration.

ⓘ Enable **Allow Surface Only Recall** by pressing **Setup** when on the **Utility / Memory / Show Manager** page

Multi-Surface Scenes

In a typical Multi-Surface system, each Surface would store and recall its own Scene(s) independently of other Surfaces.

The **Surface Roles** menu allows the user to define a Scene Range for each Surface Role and can be accessed by pressing **Edit** whilst on the **Surface / Control / Surface Prefs** page.

For example, in a FOH/MON Multi-Surface configuration, the FOH Surface Role could be assigned to Scenes 001-249 and the MON Surface Role could be assigned to Scenes 250-500.

As a Scene also contains MixRack settings it would be typical to configure **Role Filters** to block unwanted Surface and MixRack parameter changes when recalling a Scene.

ⓘ If a Scene stored on the FOH Surface is recalled on the MON Surface, it will recall the FOH Surface memories (i.e. FOH strip assignments etc.) in addition to all MixRack settings.

Multi-Surface Patching between Surfaces

There are many scenarios where patching inputs between Surfaces is useful.

For example, signals may need to be patched between Surfaces via Tie-Lines. This can be useful for “shout” communications between engineers when it is not desirable to consume an input processing channel.

As Secondary Surfaces are connected to the MixRack via gigaACE or fibreACE I/O modules, patching between Surfaces is performed on the I/O screen via the MixRack I/O Port tabs.

To patch the signals use the Tie Lines tab in the I/O screen and refer to the [gigaACE I/O module channel mapping](#) for the relevant gigaACE I/O channel numbers.

- ① Primary Surface I/O can only be patched to Input Channels from the Primary Surface itself.
- ① All Surfaces have the ability to change the patching of I/O modules fitted to the rack. Care should be taken to prevent accidental changes to the patching of gigaACE I/O modules that are being used for connection to Secondary Surfaces.

Multi-Surface **FOH/MON** Application

For applications with up to 64 input channels, Multi-Surface allows engineers to utilise a two surface FOH/MON split without the addition of a second MixRack.

Both Surfaces share the MixRack bus configuration, but with unique Surface scene ranges, role filters, strip layouts and PAFL settings optimised for each role.

The 128 input processing channels on the MixRack are divided between both Surfaces with 64 unique channels available at both FOH and MON allowing discrete processing, patching and routing at both positions. Gain Tracking is enabled to provide real-time trim compensation.

The available buses are split between both Surfaces according to their role.

This example FOH/MON system comprises:

- 1 MixRack
- 1 gigaACE I/O Module
- 2 Surfaces

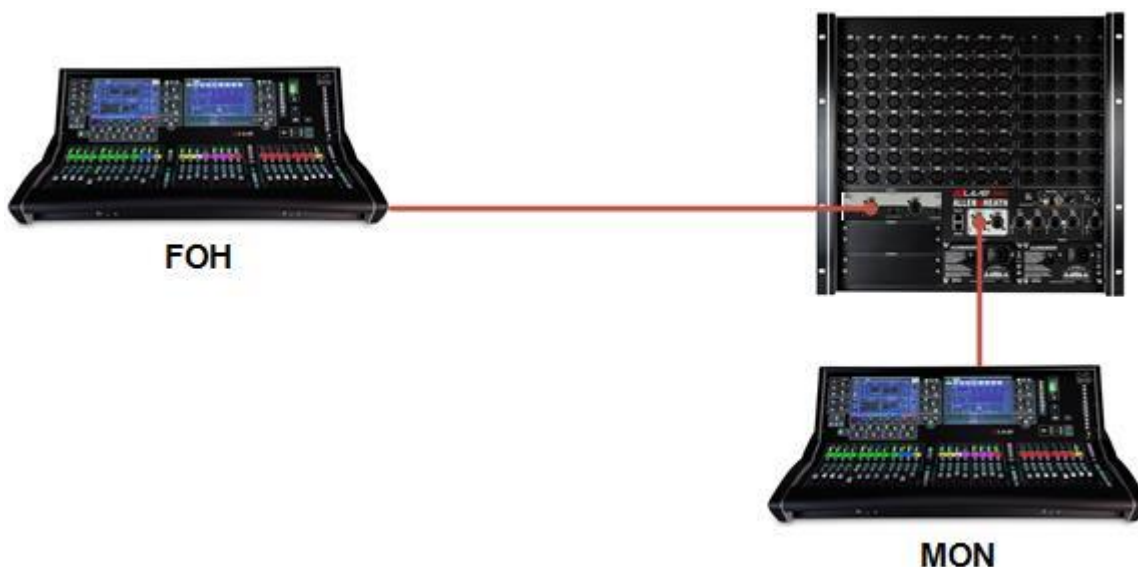
Accessible on the FOH Surface:

- 250 Scenes
- 64 Inputs
- 12 DCA
- 6 Groups
- 8 Mono FX Sends
- 6 Matrix
- 1 LR
- 1 PAFL

Accessible on the MON Surface:

- 250 Scenes
- 64 Inputs
- 12 DCA
- 8 Mono Aux
- 4 Stereo Aux
- 8 Mono FX Sends
- 1 PAFL w/ Wedge, IEM, RTA

Note: This configuration is included in the **Multi-Surface FOH** and **Multi-Surface MON** template shows.



Multi-Surface **Parallel Mixing** Application

There are many scenarios where it is desirable to have two (or more) Surfaces working in parallel.

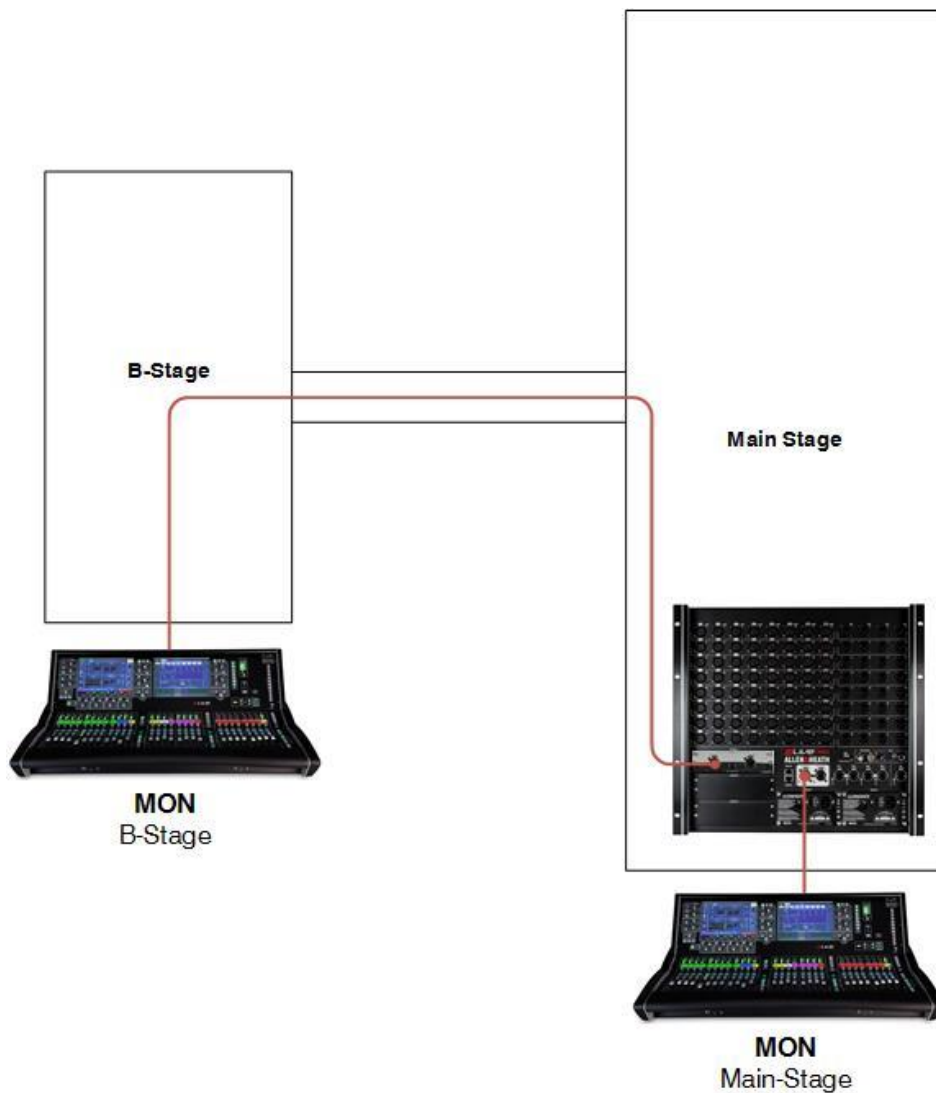
Shows at larger venues with B-Stages are a typical example of where it would be beneficial to have an additional MON Surface that would be used for part of the show.

dLive Multi-Surface enables the use of two or more “parallel” Surfaces allowing the MON engineer to move to another Surface and stay within the performers line of sight whilst retaining their familiar Surface configuration and strip layout.

The system below shows an example of a Multi-Surface configuration allowing the use of two MON Surfaces at different physical locations in the venue. Both Surfaces could easily be configured to have the same strip layouts, SoftKey assignments and other Surface preferences.

This example MON system comprises:

- 1 MixRack
- 1 gigaACE I/O Module
- 2 MON Surface



Multi-Surface **Sub-Mix** Application

In some high channel count applications, it is desirable to have more than one engineer working on the FOH mix. Traditionally this would have been carried out by a secondary mixer which created a stereo sub-mix which was fed to the main mixer.

Using dLive Multi-Surface it is possible for 2 engineers to have simultaneous control of the same mix without the need for a second mix engine.

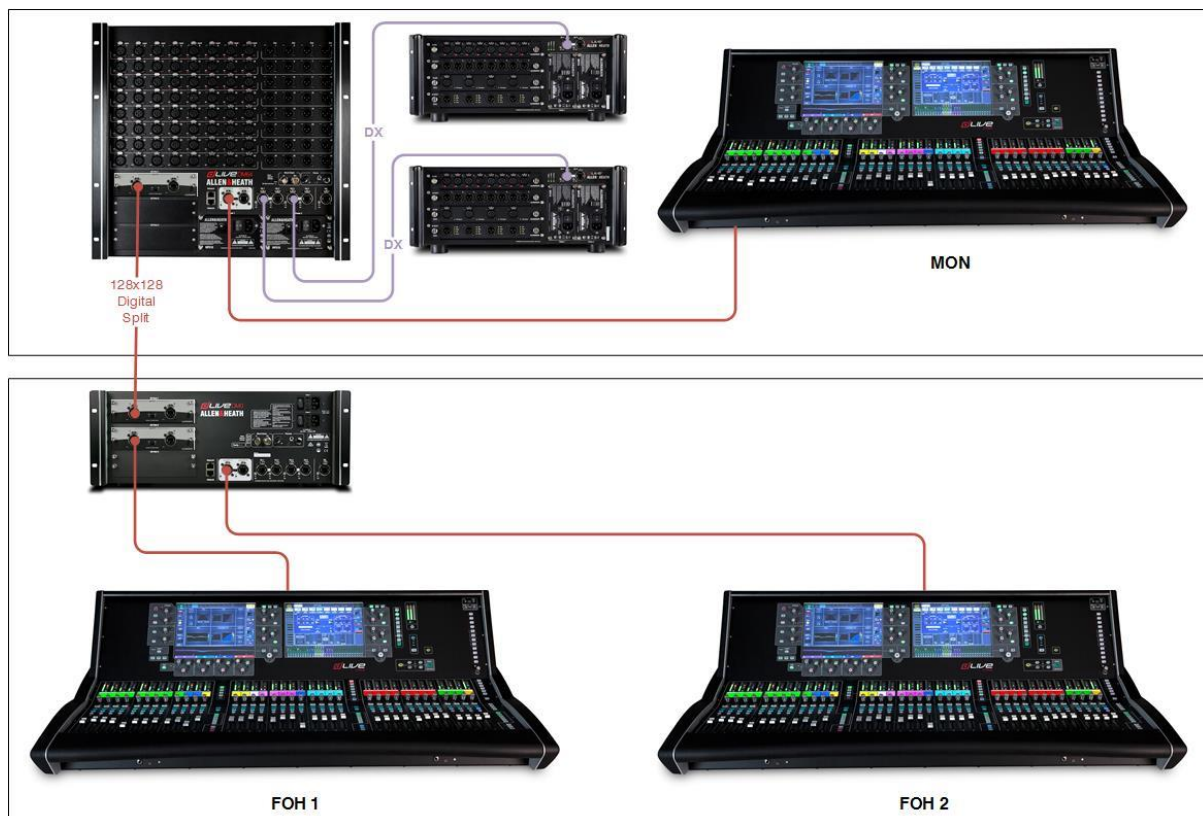
The system below shows a high channel count application with 128 analogue inputs on stage via a DX MixRack and DX Expander units, with performer mixes controlled by a dLive Surface at the MON position.

There is a 128-channel digital split to the FOH system where 2 dLive Surfaces have simultaneous control of the FOH mix. Surface Roles are used to provide both FOH operators with a discrete Scene Range, and each Surface is assigned a dedicated PAFL bus.

Both FOH Surfaces have unique strip layouts giving each engineer control of a defined set of sources (i.e. FOH 1 = Band, FOH 2 = Orchestra)

This example system comprises:

- 2 MixRack
- 2 DX32 Expander
- 3 gigaACE I/O Module
- 2 FOH Surfaces
- 1 MON Surface



Multi-Surface **Install** Application

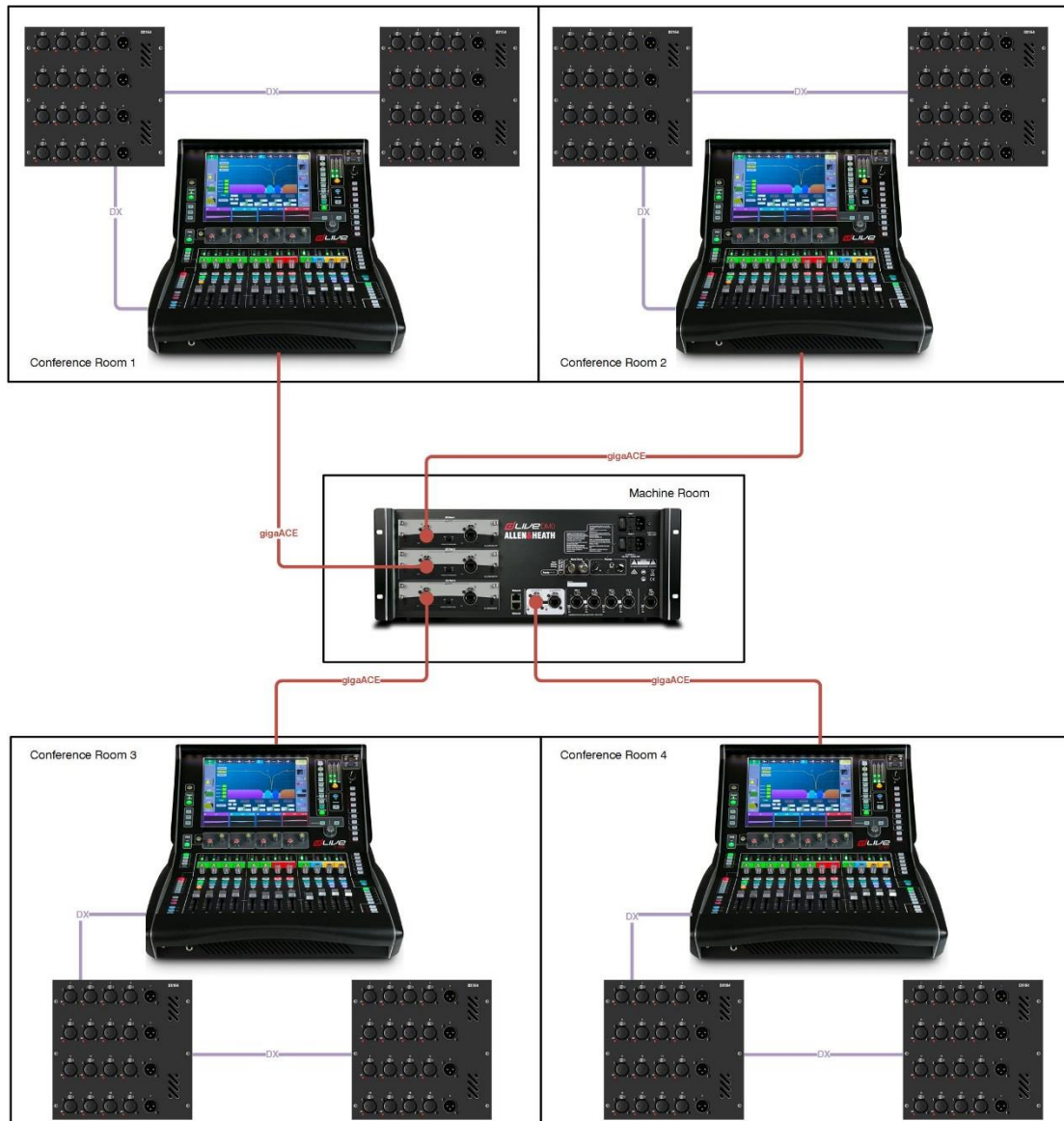
In this example, a dLive Multi-Surface system is being used to control audio in 4 conference rooms. Each room has 32 input channels, 38x22 analogue I/O plus a dedicated Automatic Mic Mixer (AMM) for up to 16 microphones per room.

The system comprises:

- 1 DM0 MixRack
- 3 gigaACE I/O Modules
- 4 C1500 Surfaces
- 8 DX164-W Expanders

Each Conference Room/Surface has access to:

- 1 AMM
- 1 PAFL
- 1 Stereo Mix Bus (AUX)
- 32 Input Processing Channels
- 38 Analogue Inputs (6 Surface, 32 DX Expander)
- 14 Analogue Outputs (6 Surface, 8 DX Expander)
- 125 Scenes



Multi-Surface **gigaACE I/O Module Channel Mapping**

Use the channel mapping table below when [patching between Surfaces](#) without using an input processing channel.

All channel mapping is from the perspective of the MixRack I/O modules and patching is performed on the I/O page via the MixRack I/O Port tabs.

gigaACE Channel	Output	gigaACE Channel	Input
1	Surface Analogue Output 1	1	Surface Analogue Input 1
2	Surface Analogue Output 2	2	Surface Analogue Input 2
3	Surface Analogue Output 3	3	Surface Analogue Input 3
4	Surface Analogue Output 4	4	Surface Analogue Input 4
5	Surface Analogue Output 5	5	Surface Analogue Input 5
6	Surface Analogue Output 6	6	Surface Analogue Input 6
7	Surface Analogue Output 7	7	Surface Analogue Input 7
8	Surface Analogue Output 8	8	Surface Analogue Input 8
9	Surface Digital Output 9	9	Surface Digital Input 9
10	Surface Digital Output 10	10	Surface Digital Input 10
11	Surface Digital Output 11	11	Surface Digital Input 11
12	Surface Digital Output 12	12	Surface Digital Input 12
13	Surface Digital Output 13	13	DX Input 1
14	Surface Digital Output 14	14	DX Input 2
15	PAFL L	15	DX Input 3
16	PAFL R	16	DX Input 4
17	DX Outputs 1	17	DX Input 5
18	DX Outputs 2	18	DX Input 6
19	DX Outputs 3	19	DX Input 7
20	DX Outputs 4	20	DX Input 8
21	DX Outputs 5	21	DX Input 9
22	DX Outputs 6	22	DX Input 10
23	DX Outputs 7	23	DX Input 11
24	DX Outputs 8	24	DX Input 12
25	DX Outputs 9	25	DX Input 13
26	DX Outputs 10	26	DX Input 14
27	DX Outputs 11	27	DX Input 15
28	DX Outputs 12	28	DX Input 16
29	DX Outputs 13	29	DX Input 17
30	DX Outputs 14	30	DX Input 18
31	DX Outputs 15	31	DX Input 19
32	DX Outputs 16	32	DX Input 20
33	DX Outputs 17	33	DX Input 21
34	DX Outputs 18	34	DX Input 22
35	DX Outputs 19	35	DX Input 23
36	DX Outputs 20	36	DX Input 24
37	DX Outputs 21	37	DX Input 25
38	DX Outputs 22	38	DX Input 26
39	DX Outputs 23	39	DX Input 27
40	DX Outputs 24	40	DX Input 28
41	DX Outputs 25	41	DX Input 29
42	DX Outputs 26	42	DX Input 30
43	DX Outputs 27	43	DX Input 31
44	DX Outputs 28	44	DX Input 32
45	DX Outputs 29		
46	DX Outputs 30		
47	DX Outputs 31		
48	DX Outputs 32		

ⓘ All Surfaces can change the patching of I/O modules fitted to the rack. Care should be taken to prevent accidental changes to the patching of gigaACE I/O modules that are being used for connection to Secondary Surfaces.

Multi-Surface FAQ

Q. What's the difference between a Primary Surface and a Secondary Surface?

A. The Primary Surface connects to the integrated gigaACE socket on the MixRack. Secondary Surfaces connect to gigaACE or fibreACE I/O modules in the MixRack. Primary Surfaces can also be fitted with I/O modules. Secondary Surface I/O modules are not supported in Multi-Surface mode.

Q. Does Multi-Surface add more channels to a dLive system?

A. No, there are still 128 input processing channels available.

Q. How many channels does each Surface have access to?

A. All Surfaces can access all 128 input processing channels from the MixRack, but typically each Surface would be configured to only "see" the required channels. This would be configured via a combination of Strip Layout (to show or hide channels on the Surface) and Role Filters (to prevent making changes to channels that other Surfaces are working with)

Q. Do I store a Show on each Surface?

A. Yes, each Surface should store its own Show file.

Q. Do I store different Scenes on each Surface?

A. Yes, each Surface should store its own Scene files. Each Surface can be assigned a Surface Role with a dedicated scene range to prevent accidentally storing over another Surfaces scenes.

Q. How do I recall a Show in a Multi-Surface system?

A. One Surface would load the show in its entirety before the other Surfaces. The other Surfaces would load their Show files in Surface Recall Only mode – this prevents any changes to the MixRack data.

Q. Do all Surfaces have to be the same model?

A. No, you can use any combination of Surfaces sizes from both the S Class and C Class range.

Q. How far can each Surface be from the MixRack

A. 100m if connected via gigaACE I/O module. If connected via a fibreACE module, and using fibre, then the distance could be up to 500m.

Q. Does Multi-Surface support redundant connections between MixRack and Surface(s)?

A. Yes.

Q. Can I connect more than one Surface to a gigaACE module in the MixRack?

A. No, each MixRack gigaACE module supports one Surface connection (single cable or dual-redundant)

Q. Can I use I/O modules fitted into Surfaces?

A. I/O modules fitted to the Primary Surface can be used. However, I/O modules installed into Secondary Surfaces are not supported.

Q. What is a Surface Role?

A. A Surface Role consists of a user defined name (i.e. FOH, MON, REC), a Role Filter and a Scene Range.

Q. Can each Surface have a unique PAFL?

A. Yes

Q. Is RTA available on all PAFL busses?

A. No, RTA is available on PAFL 1 only. Please see the RTA section for more information.