

PKSOUND™
.dynamics
System Control Software



USER MANUAL
v1.14.0

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1. Getting Started

1.1 System Requirements

CPU	7th Gen Intel i7, i9, or AMD64 Quad Core; Ryzen 5, 7, 9, M1/M2 (Base, Pro, Max, Ultra)
CPU Clock	Base Frequency of 3.0 GHz
RAM	16 GB
OS	Windows 10 64-bit Home/Professional/Enterprise (22H2) Windows 11 64-bit Home/Professional/Enterprise macOS 11 Big Sur or newer
GPU	2 GB GPU with 50 GB/s Bandwidth
HDD	20 GB free space (16 GB on OS disk if separate or partitioned)
Direct X	Version 12
SDK, .NET	Microsoft VC++ 2013 Redistributable; .NET framework 4.7.2+; Bonjour Print Services

1.2 Installation Instructions — Windows

Download and run latest installer from: https://dynamics.pksound.live/latest/win/PK_Sound_Dynamics_Installer.exe

Prerequisite Software (included in the installation; direct links listed here for reference):

- Microsoft VC++ 2013 Redistributable
 - Available from: <https://www.microsoft.com/en-US/download/details.aspx?id=40784>
- .NET Framework 4.7.2+
 - Included in Windows 10 April 2018 Update (Version 1803) and newer
 - Available from: <https://support.microsoft.com/en-us/topic/microsoft-net-framework-4-7-2-offline-installer-for-windows-05a72734-2127-a15d-50cf-daf56d5faec2>
- Bonjour Print Services
 - Available from: https://support.apple.com/kb/dl999?locale=en_US

1.3 Installation Instructions — macOS

Download latest installer package from: https://dynamics.pksound.live/latest/mac/PK_Sound_Dynamics_Installer.pkg

- Open Finder on the Mac, locate the downloaded .pkg file, control-click the app icon, then select “Open” from the shortcut menu.
 - See the macOS User Guide topic “Open a Mac app from an unidentified developer” for more information: <https://support.apple.com/en-ca/guide/mac-help/mh40616/mac>
- .dynamics application should now be available from Launchpad and Applications folder on the Mac.
- If the application launches and is not functional, you may need to reboot the Mac. Additional compatibility workaround instructions are available from PK Sound Support.

2. Network Requirements

2.1 Prerequisites

PK loudspeaker systems require an Ethernet computer network connection between every module, as well as the device running the .dynamics software. Every module requires a unique Internet protocol (IP) address to allow remote control and monitoring capabilities.

2.2 Network

Providing IP addresses to devices on a network is generally achieved by connecting a router with Dynamic Host Configuration Protocol (DHCP) capabilities.

Note: Although they look similar, most network switches do NOT provide IP addresses to connected devices. PK Sound recommends only using the PK SW1 Network Switch with company-approved routers.

When connecting network cables to the router, only use the LAN port(s) and NOT the WAN port.

Refer to the Networking Setup Guide for more details.

2.3 Router Operation Checklist

1. Connect Ethernet/Multipin cables for speaker modules and front of house computers to the LAN ports of the router, or to the SD1 Patch Panel.
2. Power on the router.
3. Wait at least 1 minute for the router to initialize.
4. Power on the SW1 Ethernet Switch.
5. Power on the loudspeaker modules.
6. Wait at least 1 minute for modules to retrieve an IP address from the router.
7. Power on computer with .dynamics installed.
8. Start .dynamics application and follow Discovery protocol.

3. Startup Screen

3.1 Dark or Light Mode

Select dark or light UI colour scheme.

3.2 Recent Projects

Open one of five recently saved projects.

3.3 Create Blank Project

Create a new blank project.

3.4 Create from Drawing

1. Import COLLADA file (.dae)
2. Import 2D image

3.5 Create from Template

Loudspeaker Template: Open a pre-saved loudspeaker configuration without venue information. Choose from pre-built Systems:

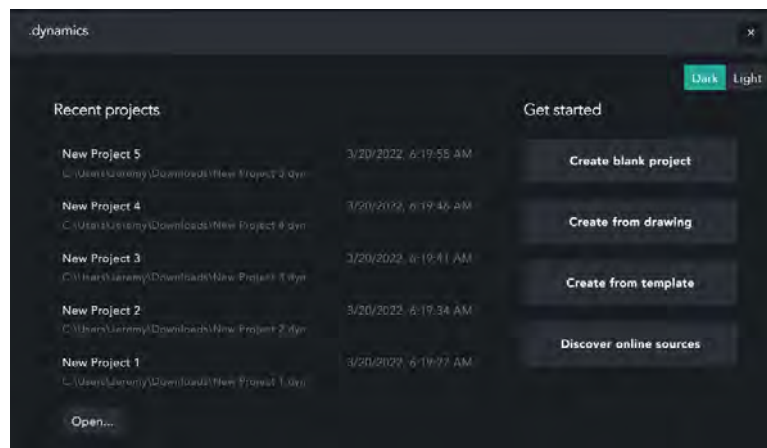
- T10A System
- PK Alliance Hub System
- PK Alliance Arena System

Venue Template: Create one of three venue types via a Venue Wizard:

- Arena
- Theater
- Amphitheater

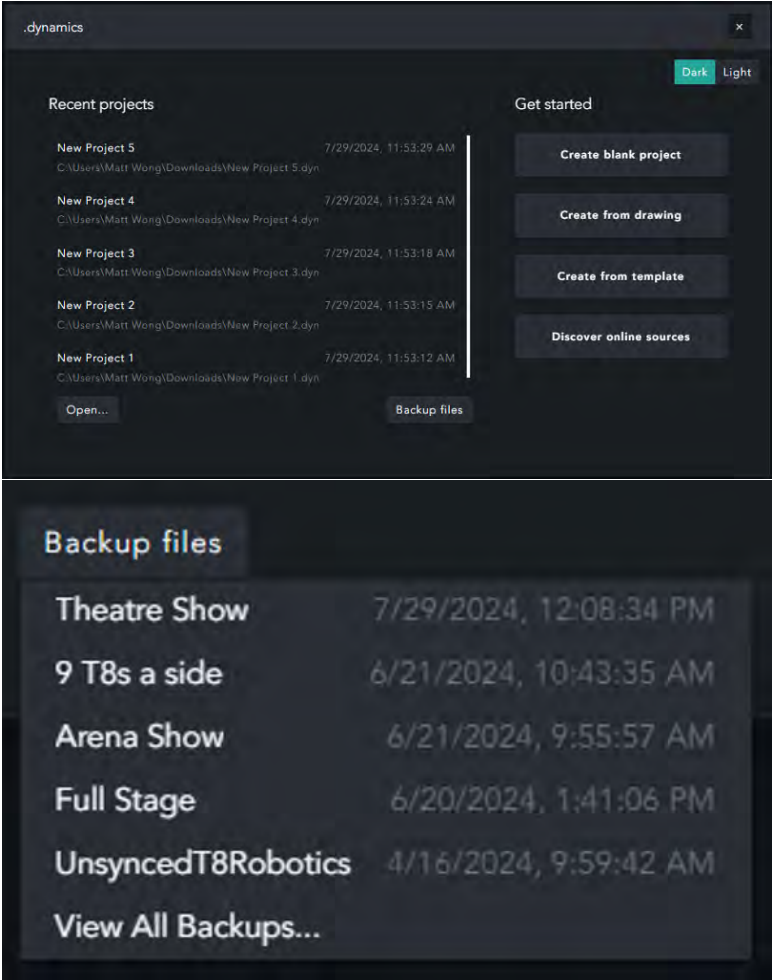
3.6 Discover Online Sources

Launch the Discovery mode for online sources within the System tab of the Workflow Menu.



3.7 Backup Files

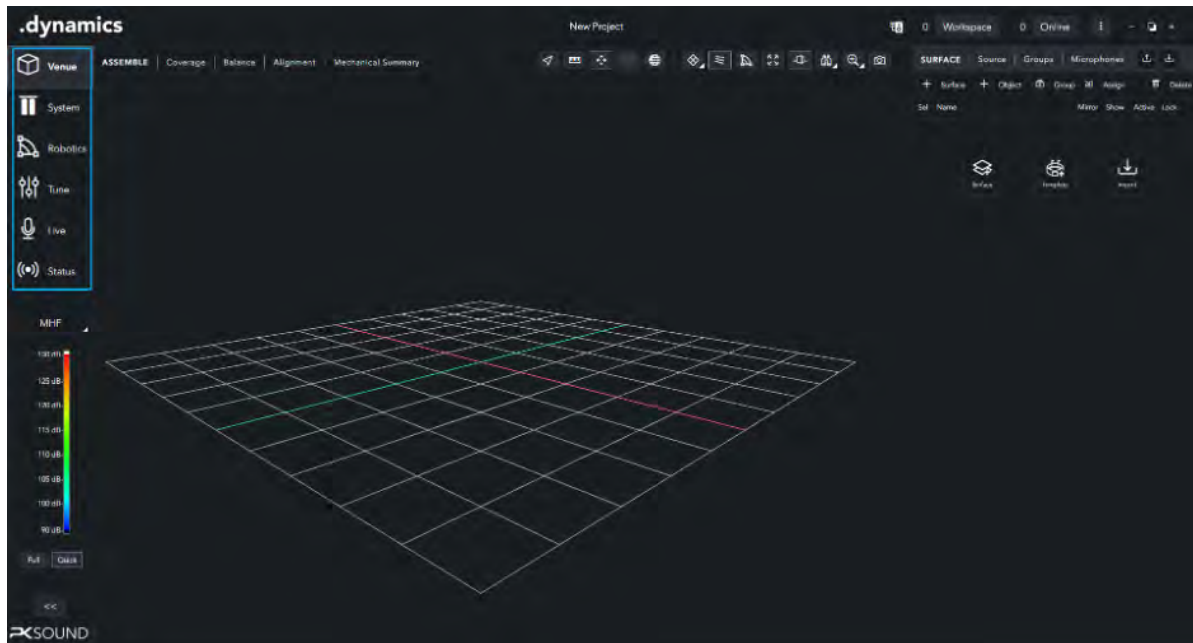
During use, .dynamics will save a backup file every 15 minutes. These files are temporarily stored on the computer. Load a backup file from this dropdown button or view all temporary backup files in the folder by clicking "View All Backups...".



4. Navigation Overview

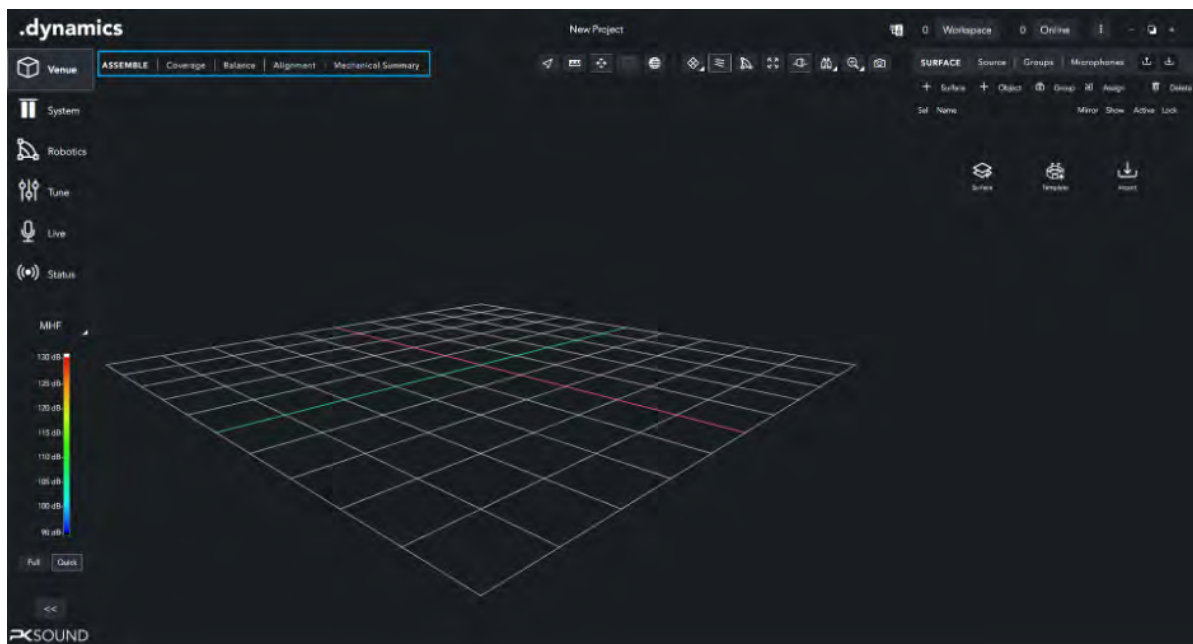
4.1 Workflow Menu

The Workflow Menu is organized to represent the standard operational flow of a system deployment from beginning to end. Each Workflow Menu function is described in detail later in the document.



4.1.1 Process Menu

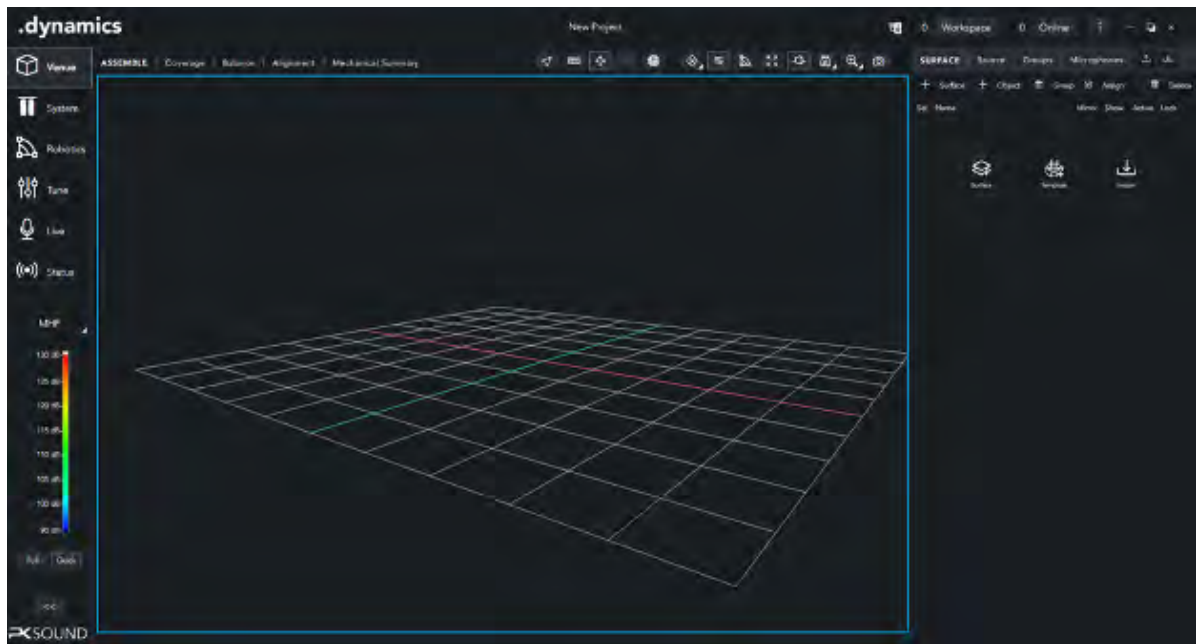
The Process Menu comprises individual process steps for each Workflow Menu function from left to right. Each Process Menu function is described in detail later in the document.



4.1.2 Workspace Navigation

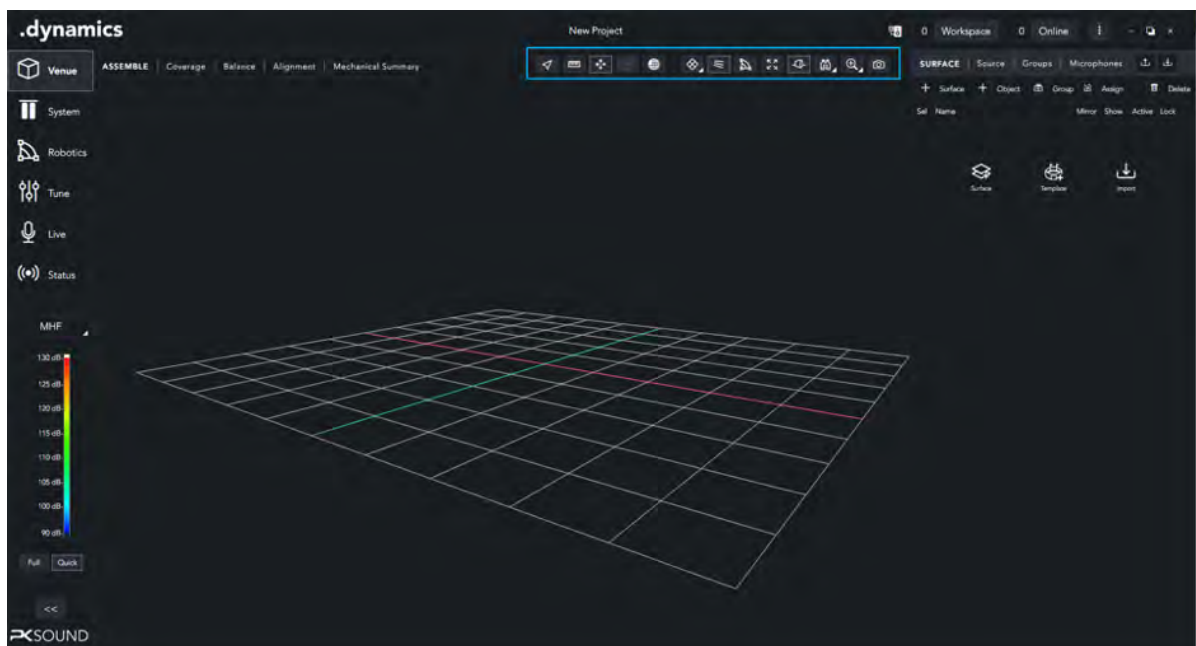
- **Orbit:** Left mouse button
- **Pan:** Right mouse button

- **Zoom:** Centre mouse scroll



4.1.3 Workspace Toolbar

The Workspace Toolbar comprises the controls for the 3D workspace environment.



Cursor (q) enables selection of 3D surfaces, objects, and sources.

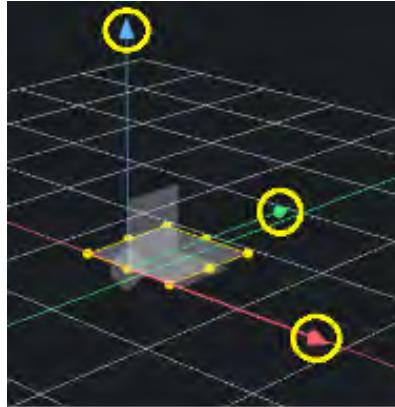


Measure (w) enables the measuring of distance by selecting two points on a surface in the 3D workspace.

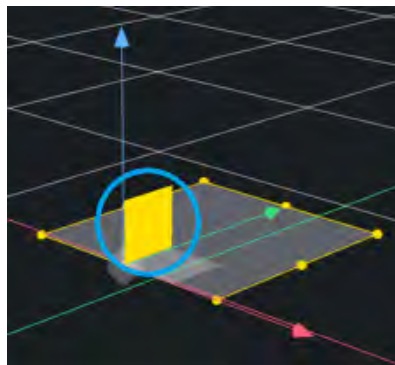


Move (e) enables the movement of surfaces, objects, and sources in the 3D workspace. Movement is controlled via two main features:

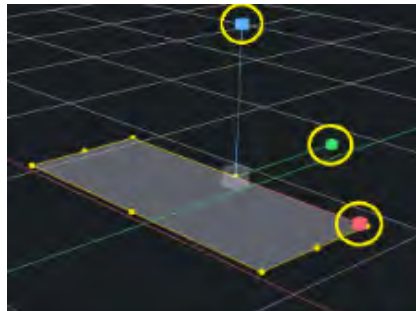
1. Selecting and dragging a coordinate arrow will move the object along the selected axis.



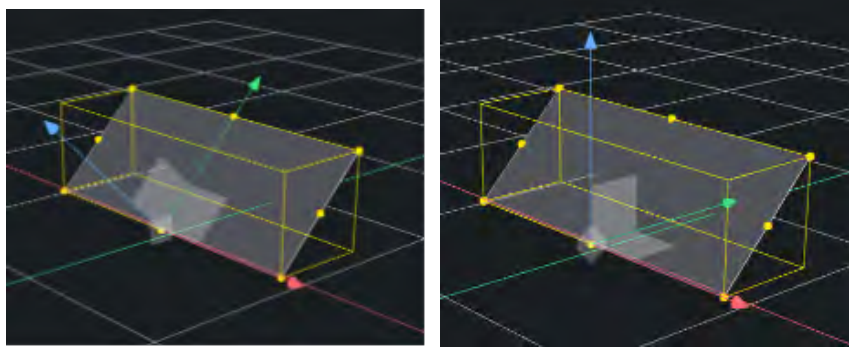
2. Selecting and dragging a coordinate plane will move that object along one of the axis planes (x-y; x-z; y-z).



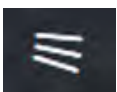
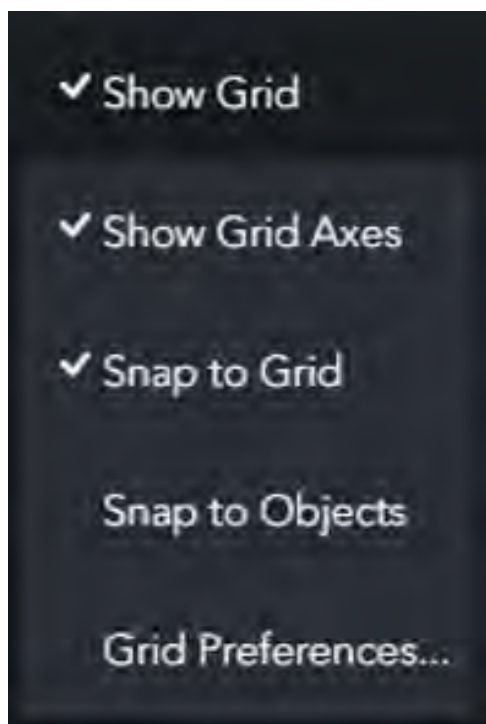
Scale (r) enables the scaling of surfaces by selecting and dragging the square coordinate axis anchors. To return to normal object manipulation, revert to the Move (e) tool.



USC World (t) changes the coordinate axis to align with either the selected shape or the 3D workspace.



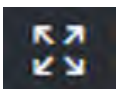
Grid Preferences allows for the quick selection of specified grid and snapping features.



Vertical Rays (y) toggles vertical projected rays for source elements on/off.



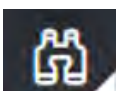
Horizontal Rays (u) toggles horizontal projected rays for source elements on/off.



Zoom to Fit (f) automatically resizes the 3D view to fit within the window extents.



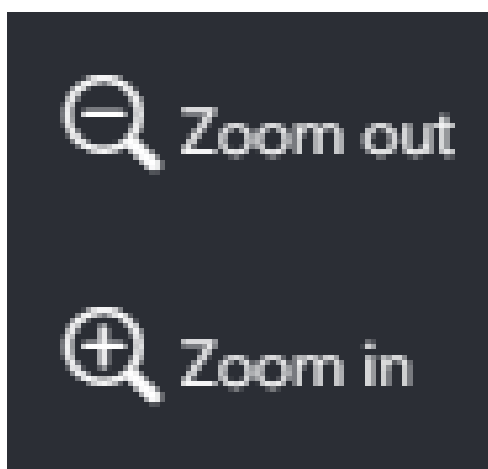
Perspective (p) changes the view from the standard isometric view to a perspective view.



View allows for the quick selection of specified 3D views.

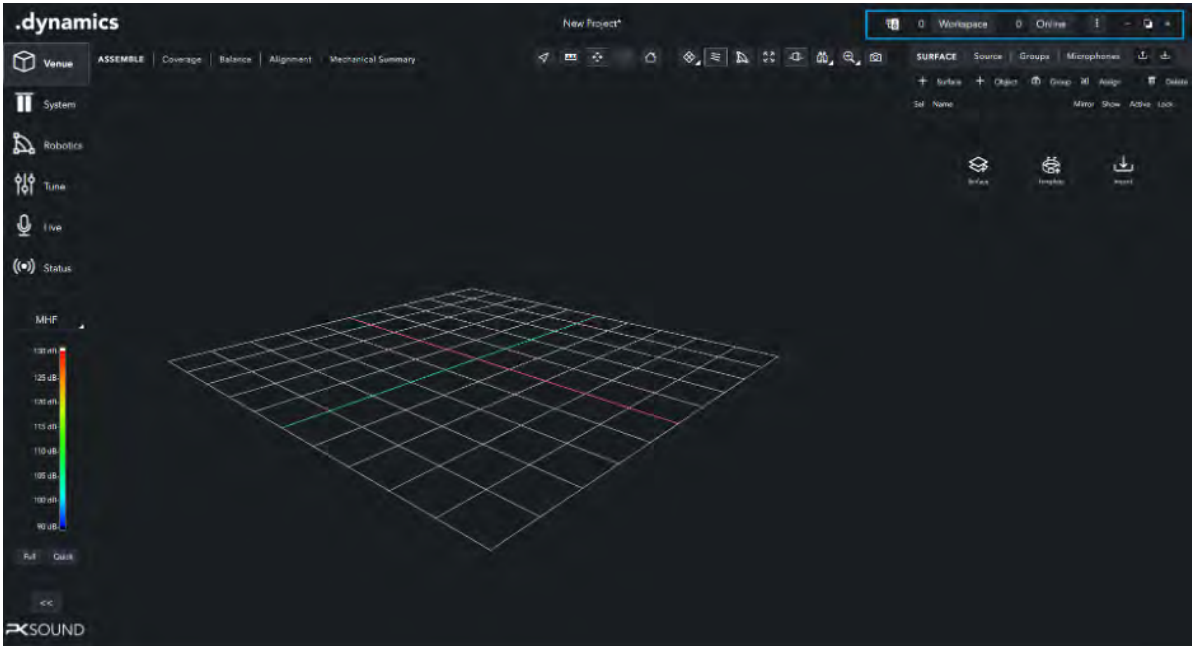


Zoom In/Out controls the perceived proximity to the workspace via the centre mouse scroll.



Take Picture (shift + p) saves screen captures of the 3D space for later use in the Report Builder.

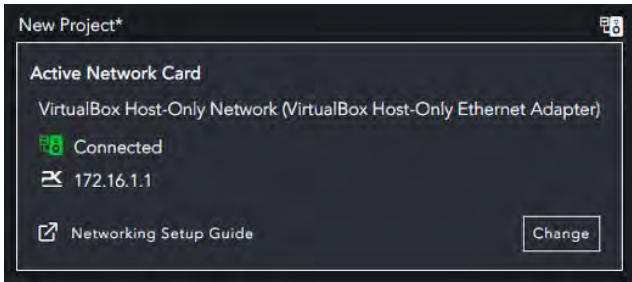
4.2 Toolbar Menu



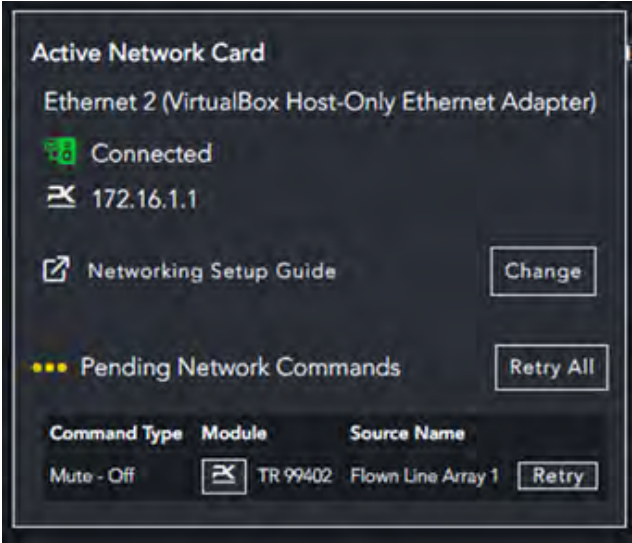
Network Card Status displays the active network card, its IP address, and its connection status. A link to the Networking Startup Guide can be accessed here.



Network Card Status when DSP or LED changes are in transit on the network.



Network Card Status when DSP or LED changes are pending on the network.

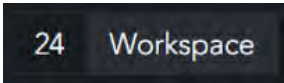
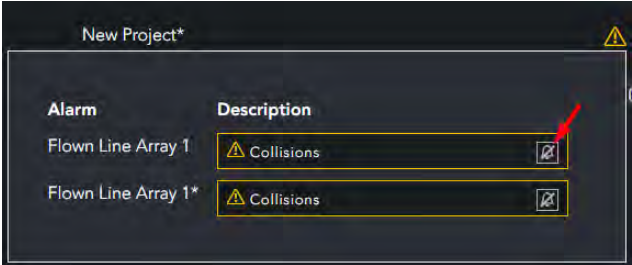


Errors Dropdown displays any errors or warnings for the instance of dynamics.

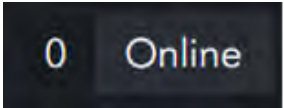
Each individual error or warning can be silenced by pressing the bell icon.

Note: Similar alarms regarding different modules are considered unique, therefore some alarms may need to be silenced multiple times for each unique module or source.

All silenced alarms can be displayed again by selecting **Show All Silenced Alarms** in the Preferences dialog in the General tab.

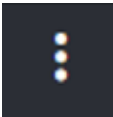


Workspace Counter identifies the total number of virtual source elements existing within the Venue workspace.



Online Counter identifies the number of real source elements discovered on the network. Clicking “Online” will jump to the Online Discovery section of the System tab.

4.2.1 File Menu



- **New:** Creates a new project.
- **Open:** Opens a saved project.
- **Open Recent:** Displays a list of recently saved projects to open.
- **Import:** Import selected project elements (COLLADA, Image, Loudspeaker Template, Venue).
- **Export:** Export selected project elements (Venue, Sources).

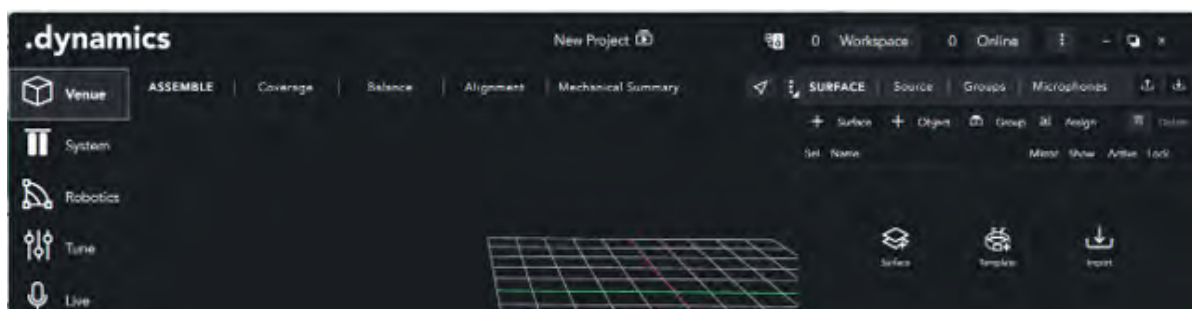
- **Report:** Generate the 3D Acoustic Report, Mechanical Report, or Rigging Layout Report (.pdf). The current calculator can also be accessed from here.
- **Save:** Saves the current project.
- **Save As:** Saves the current project with a new file name.
- **Preferences:** Opens the Preference menu. (Described in detail in Section 11..)
- **Check for Updates / Download Update / Install Update:** Check for, download, and/or install new software updates.
- **Export Logs:** Exports logs to a .zip file to a user-specified location.
- **Firmware Update:** Opens Firmware Updater window.
- **Info:** Displays .dynamics version information and notes from each previous release.
- **User Manual:** View this user manual.
- **Networking Setup Guide:** View Network Setup Guide.
- **Timestamp Log:** Timestamp a moment for further logging investigation.
- **Feedback / Report Bug:** Opens a link to a feedback page.

4.2.2 Snapshots

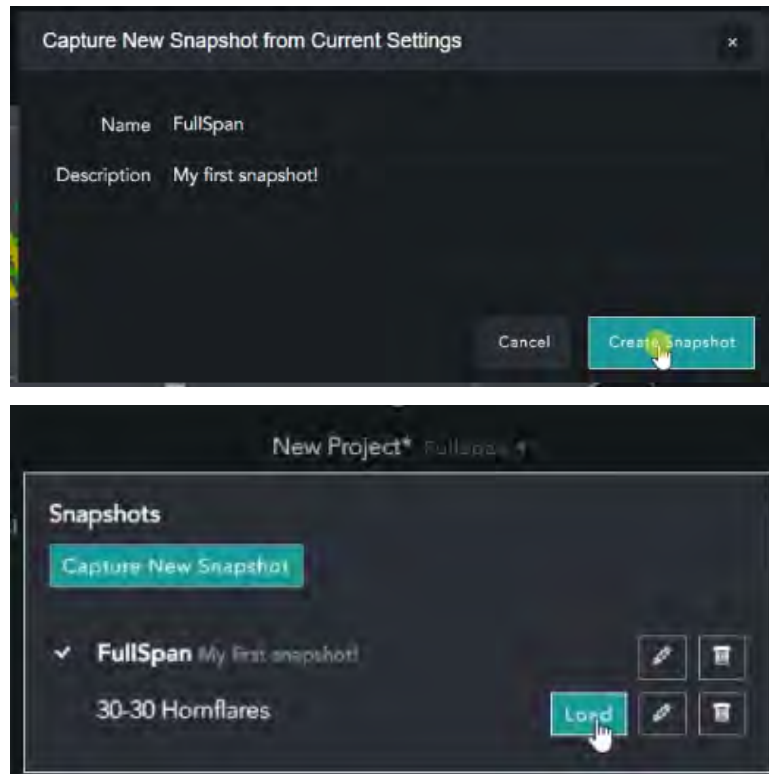
Snapshots allow you to save the current configuration state of your workspace, including all sources, cabinets/modules, and their settings. You can create multiple named Snapshots to capture different setups, then quickly switch between them by loading a saved Snapshot to restore that exact configuration. The saved properties include:

- Robotic Angles
- Group Arrangement & EQ Filters Applied
- Muting
- Crossover & Low Latency Presets
- Point Source Modes
- Hang Inclination
- LED State
- Input Routing (potential rebooting required)

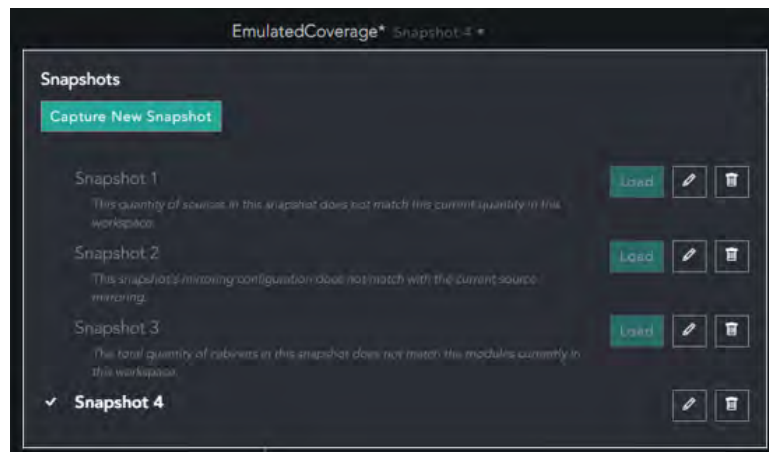
All settings will be automatically applied to matched loudspeakers connected to the network (not including robotics).



Click on the Snapshot button next to the Project Name on the top bar to create the first snapshot.



When loading a Snapshot, the system validates that it's compatible with your current workspace hardware (matching or lower number and type of sources and modules). Loading Snapshots may require rebooting modules if input selections have changed.

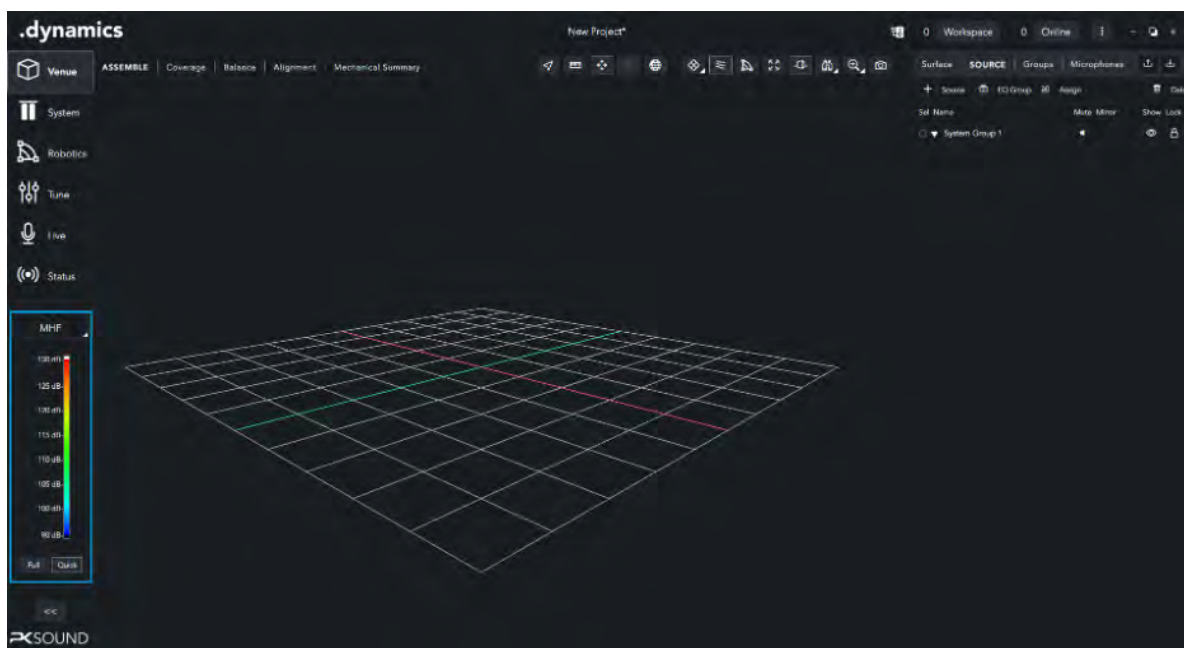


4.2.3 Current Calculator

The Current Calculator dialog is used to predict the overall peak current draw from the simulated system (for modules playing at limit). The desired voltage can be selected and an itemized summary will be generated based on the quantity and models of the system in the workspace. For 208 V selections, the calculator assumes the system is Wye (Y/star) connected and balanced across all phases. Values may have a margin of error of 15%.

Current Calculator			
System total Current Draw: 288.4A @ 235V			
Current Breakdown			235V
▼ Stage Left Main Array			52.5A
11x	Trinity (3.7A)		40.8A
5x	T10 (2.3A)		11.7A
▼ Stage Right Main Array			52.5A
11x	Trinity (3.7A)		40.8A
5x	T10 (2.3A)		11.7A
▼ Ground Sub Array 1			91.7A
12x	T218 (7.6A)		91.7A
▼ Stage Left Flown Sub Array			45.8A
6x	T218 (7.6A)		45.8A
▼ Stage Right Flown Sub Array			45.8A
6x	T218 (7.6A)		45.8A

4.3 Calculation Toolbar



4.3.1 SPL Calculation Weighting

Select the decibel weighting of the projected SPL calculation based on the desired output. SPL calculation is directly related to the Preference Menu setting of 8dBu or 16dBu (Max). See Section 11. for more information.

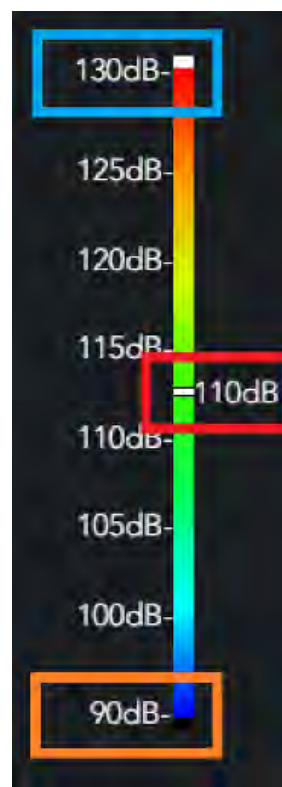


4.3.2 Calculation Mode

- Quick** Displays a quick view via impact points on 3D surfaces (default).
- Full** Displays a complete SPL map on the 3D surfaces.
- Cancel** Cancels the in-progress SPL calculation.

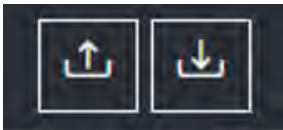
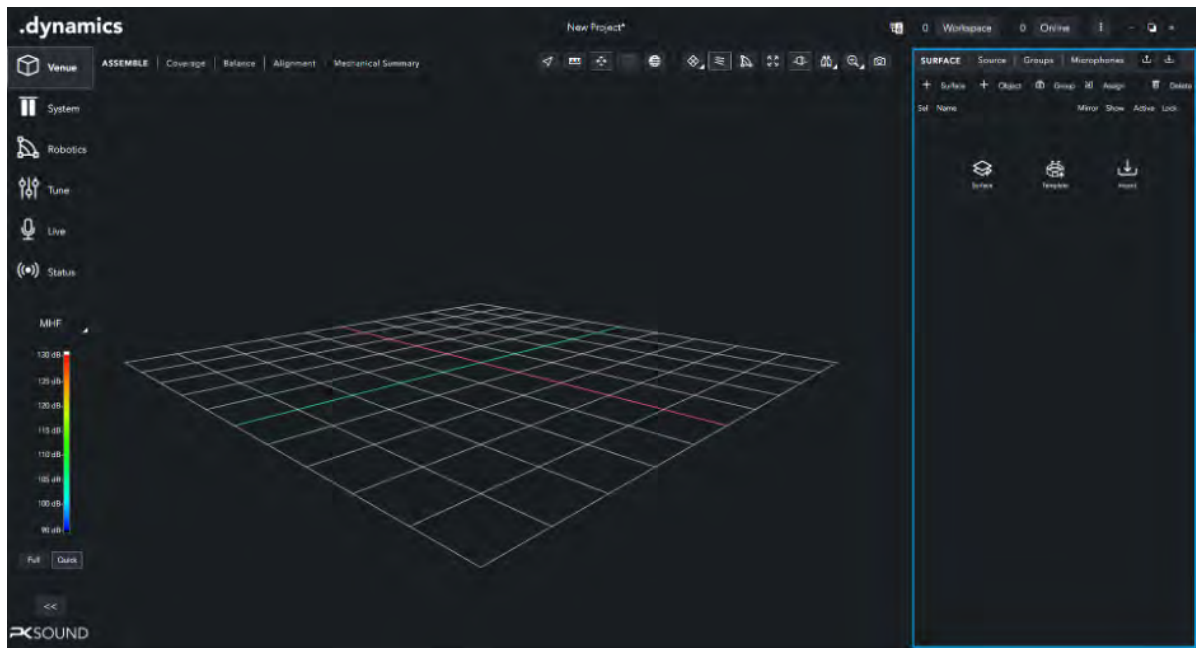
4.3.3 SPL Legend

- **Upper Range:** Adjusts the top of the displayed SPL scale.
- **Lower Range:** Adjusts the bottom of the displayed SPL scale.
- **Workspace SPL:** Indicates the SPL of the location currently selected in the 3D workspace.



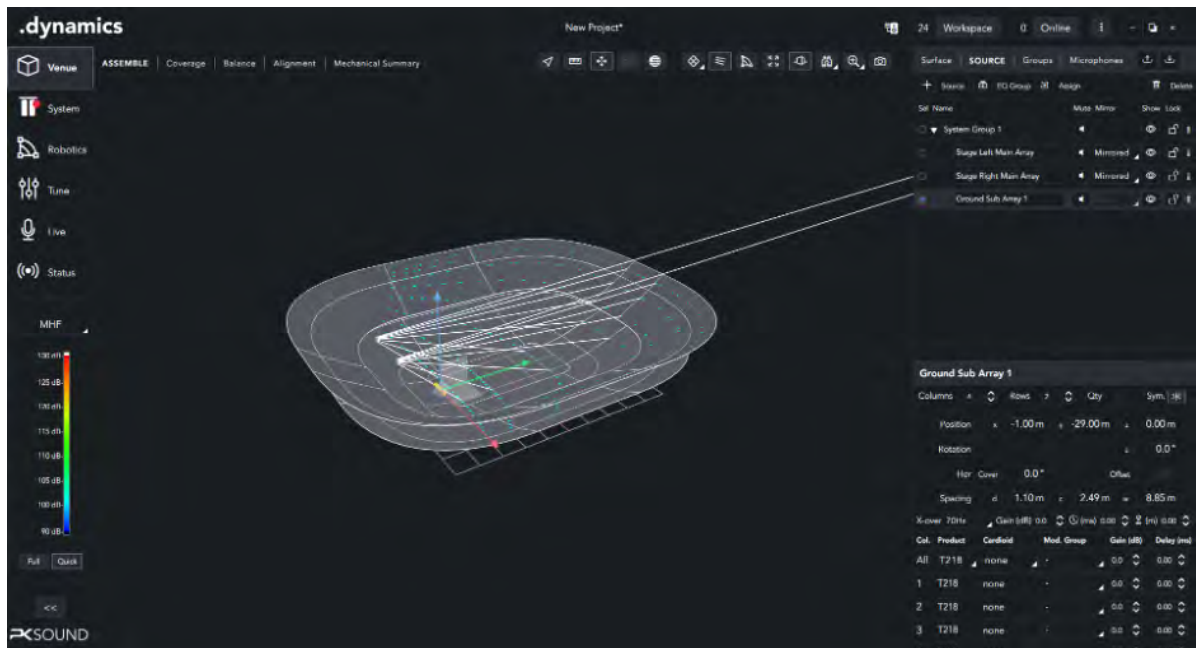
4.4 Object Editor

The Object Editor is a contextual menu which will change depending on the selected workflow process and object. Through this editor, the properties of surfaces and sources can be modified.



The import/export buttons are used to import and export Collada (.dae), 2D image, Venue (.sim), and Loudspeaker (.loud) file formats into the .dynamics file.

5. Venue

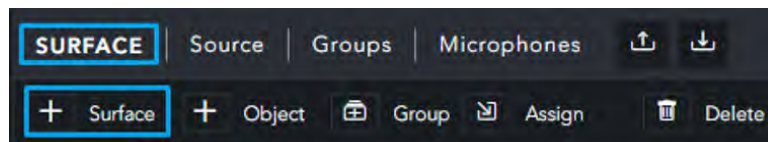


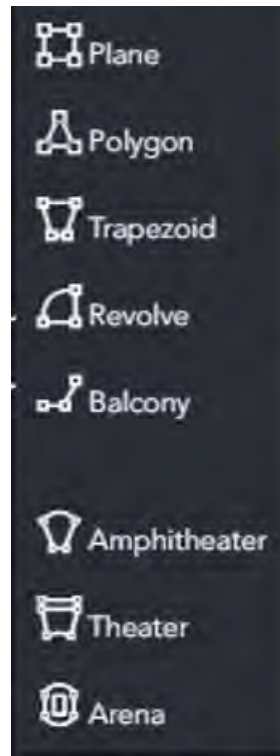
5.1 Assemble

The Assemble tab is used to construct the venue, as well as add sources, objects, and microphones.

5.1.1 Surface Selection

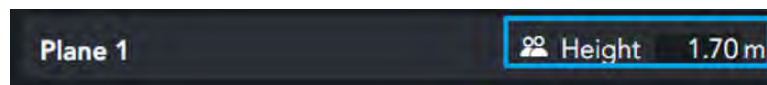
Surface selection is used to create various geometric shapes or import venue templates.





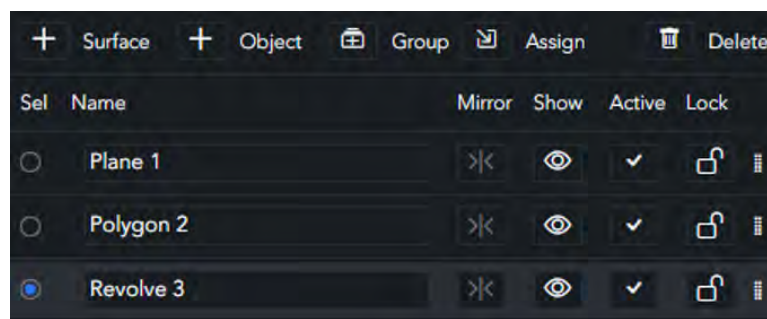
5.1.2 Audience Height

All surfaces have an audience height input which can be adjusted to seated or standing audiences.



5.1.3 Surface Controls

- **Group:** Create a surface group.
- **Assign:** Assign surfaces to a surface group.
- **Mirror:** Create an identical second surface, mirrored along the Y axis.
- **Show:** Show or hide the selected surface.
- **Active:** Determine whether the selected surface is included in the calculation engine.
- **Lock:** Lock the surface from being moved or modified.



5.1.4 Plane / Trapezoid

Geometric shapes that can be used to draw simple surfaces.

- **Position:** Moves the shape to a specified location in the workspace referenced from the origin.
- **Rotation:** Rotates the shape around a given axis.

- **Dimension (Plane):** Used to modify the depth and width of a rectangle.
- **Front (Trapezoid):** Used to modify the depth and front width of a trapezoid.
- **Back (Trapezoid):** Used to modify the width of the back of a trapezoid.

Plane 1

Height

1.70 m

Position

x

0.00 m

y

0.00 m

z

0.00 m

Rotation

x

0°

y

0°

z

0°

Dimension

D

10.00 m

w

10.00 m

Number of Points

4

Shape

P1

x

5.00 m

y

0.00 m

z

0.00 m

P2

x

5.00 m

y

10.00 m

z

0.00 m

P3

x

-5.00 m

y

10.00 m

z

0.00 m

P4

x

-5.00 m

y

0.00 m

z

0.00 m

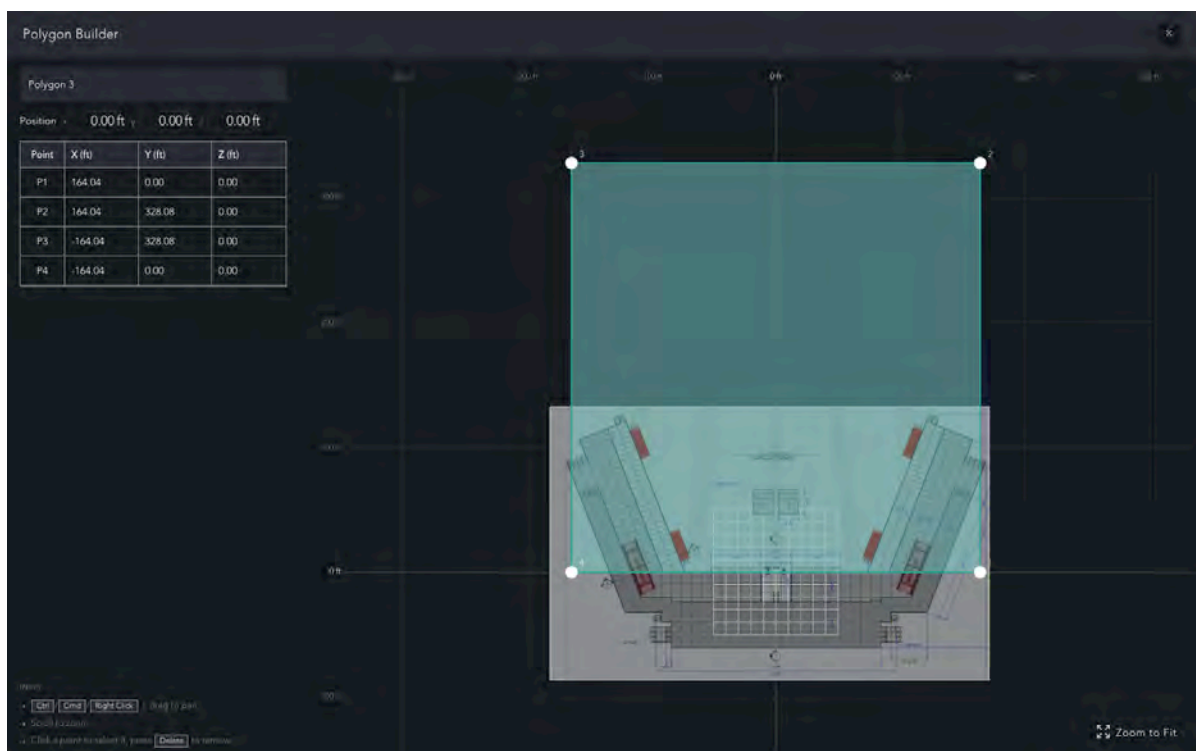
5.1.5 Polygon

A Polygon surface is a custom surface defined by any number of points. It can be used to create irregular floor plans, balcony cutouts, or any other custom shape that cannot be expressed with a plane or trapezoid. The shape of the polygon is created and edited in the **Polygon Builder** — a dedicated dialog that shows a flat, top-down view of the venue.

Creating a Polygon Select **Polygon** from the new surface dropdown in the Surface Selection toolbar. The Polygon Builder opens with a default four-point polygon placed in the workspace.



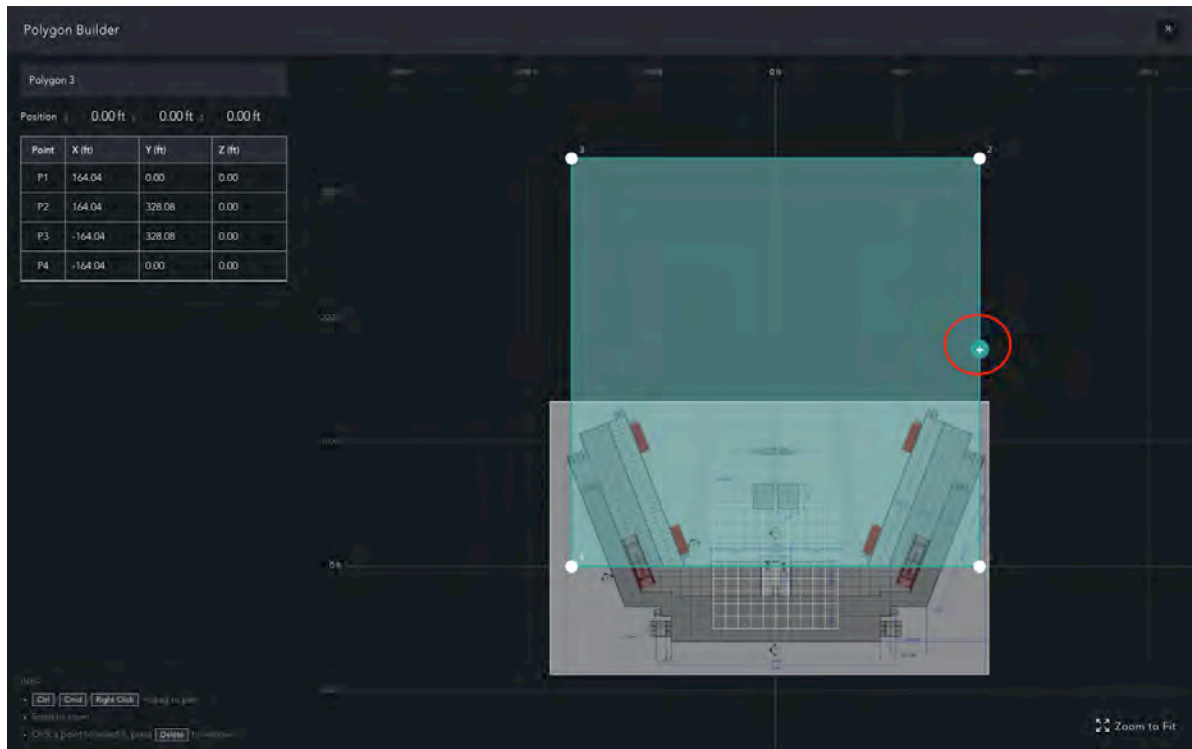
The Polygon Builder shows all other objects in the venue — surfaces, imported images, objects, and sources — as context, so the polygon can be shaped relative to the real venue. The polygon being edited is drawn with a **glacial blue outline** and a draggable handle at each corner.



Editing the shape The polygon can be modified directly in the canvas or through the points table on the left

side of the dialog.

- **Move the whole polygon:** Click anywhere inside the polygon and drag to reposition it on the canvas. The Position fields at the top of the side panel can also be used to enter exact X, Y, and Z coordinates.
- **Move a single point:** Drag any of the corner handles on the canvas, or edit the X, Y, and Z values for that point in the points table. Rows in the table and points on the canvas are linked — hovering a row highlights the corresponding point and vice versa.
- **Add a point:** Hover over the line segment between two existing points and click the **+** icon that appears. A new point is inserted on that edge and can then be dragged into position.



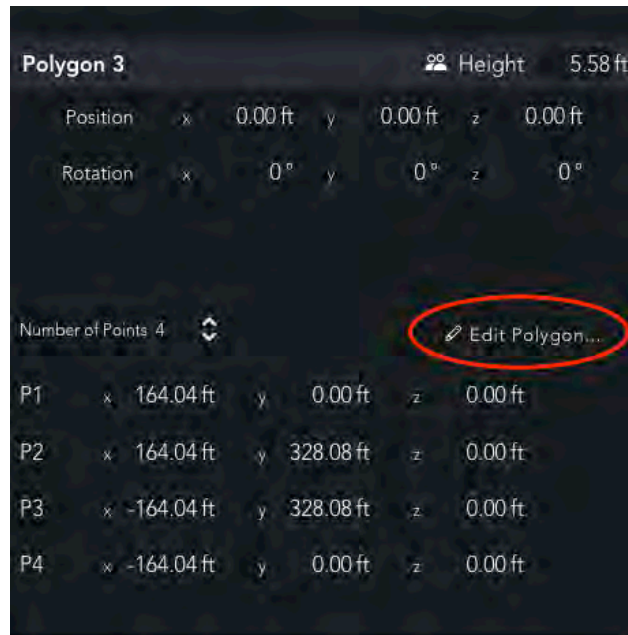
Removing a point A polygon must have at least three points, so removal is only available once the polygon has four or more. A point can be removed in any of the following ways:

- Click the point on the canvas to select it, then press **Delete** or **Backspace**.
- Click the row in the points table to select it, then press **Delete** or **Backspace**.
- Hover the row in the points table and press the **trash icon** at the end of the row.

Navigating the canvas

- **Zoom:** Scroll the mouse wheel over the canvas to zoom in and out.
- **Pan:** Hold **Ctrl**, **Cmd**, or the **right mouse button** and drag to pan the view.

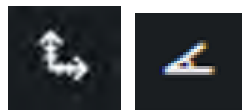
Editing an existing Polygon A polygon that already exists in the venue can be reopened in the Polygon Builder at any time by selecting it and pressing **Edit Polygon** in the surface parameters.



5.1.6 Revolve

Revolve is used to construct curved seating sections or approximate curved features.

- **Number of Sections:** Specifies the number of vertical sections in the Revolve feature.
- **Segments:** Specifies the number of horizontal segments used in the Revolve feature.
- **Angle:** Specifies the total angle of rotation for the feature.



These switches are used to toggle between polar and cartesian coordinate systems to enter the point locations of the Revolve feature.

- **Polar Coordinate Measurement Location:** Specifies the point in space from which the polar coordinate distance and angle are measured. This can be used to measure the point locations via laser range finder.
- **Add Balcony:** Add a Balcony feature to the end of a Revolve feature.

Revolve 1

Height

1.70 m

Position

x

0.00 m

y

0.00 m

z

0.00 m

Rotation

x

0°

y

0°

z

0°

Add Balcony

L

R

Polar coordinate measurement location

Y

0.00 m

z

0.00 m

Number of Sections

1

Angle

180°

Segments

6

Shape

P1

y

2.00 m

z

0.00 m

P2

y

6.00 m

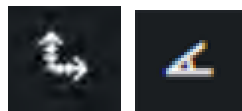
z

3.00 m

5.1.7 Balcony

Balcony is used to create tiered venue features such as seating segments or bleachers.

- **Number of Sections:** Specifies the number of vertical sections in the feature.
- **Width:** Specifies the width of the feature.



These switches are used to toggle between polar and cartesian coordinate systems to enter the point locations of the Balcony feature.

- **Polar Coordinate Measurement Location:** Specifies the point in space from which the polar coordinate distance and angle are measured. This can be used to measure the point locations via laser range finder.
- **Add Revolve:** Add a Revolve feature to the end of a Revolve feature.

Balcony 4

Height1.70 m

Position

x0.00 m

y0.00 m

z0.00 m

Rotation

x0°

y0°

z0°

Add Revolve

L

R

Polar coordinate measurement location

Y0.00 m

z0.00 m

Number of Sections3

Width10.00 m

Shape

P1	Range	0.00 m	Angle	0.00°
P2	Range	9.43 m	Angle	32.00°
P3	Range	11.18 m	Angle	26.60°
P4	Range	19.72 m	Angle	30.50°

5.1.8 Templates

5.1.8.1 Theater

Create a basic Theater using the Template Wizard by selecting the number of orchestra (floor) and balcony (raised) sections, then adjusting the size of the template using coordinate measurements.

Theater Template

Orchestra Sections3

Balcony Sections1

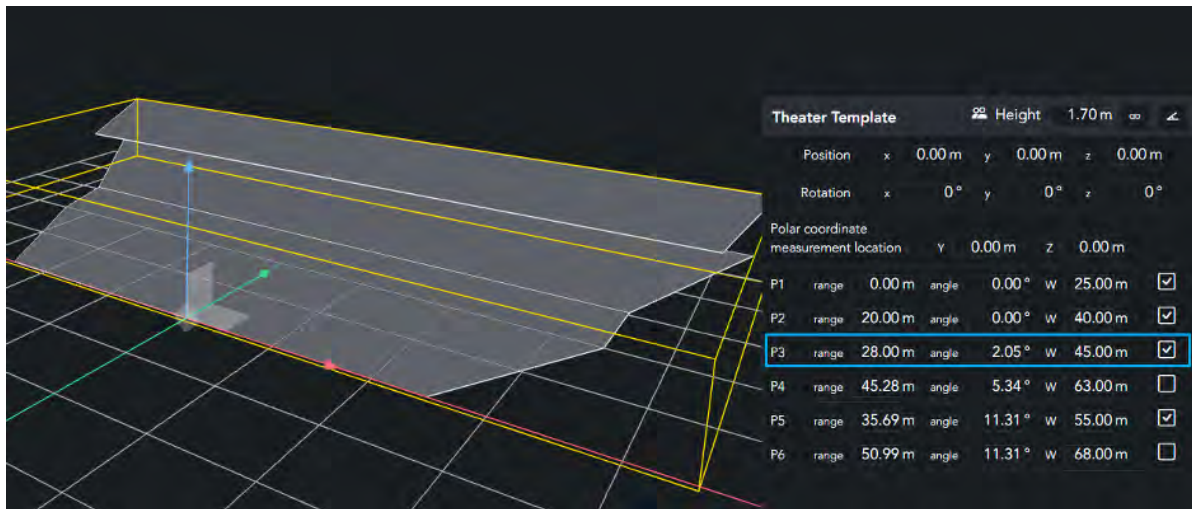
Create

Balcony Sections

Orchestra Sections

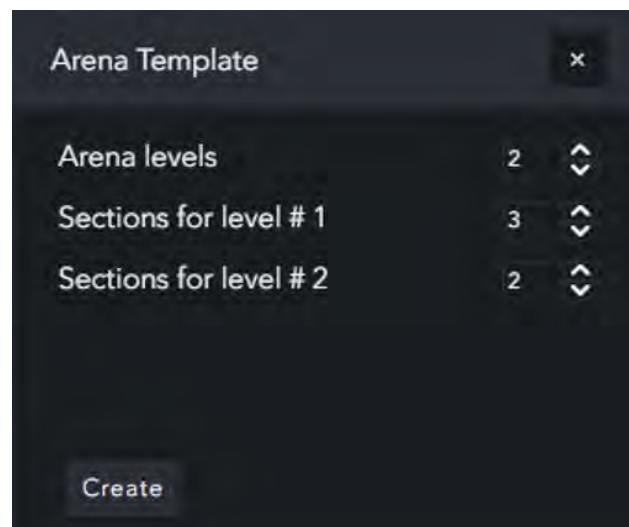
Theater Template Scale Adjustment

1. Select the reference location for the polar coordinate measurements. In the example below, 0,0 is set to be downstage centre.
2. Using a laser range finder device, measure the distance and inclination for P1, P2, P3, etc.



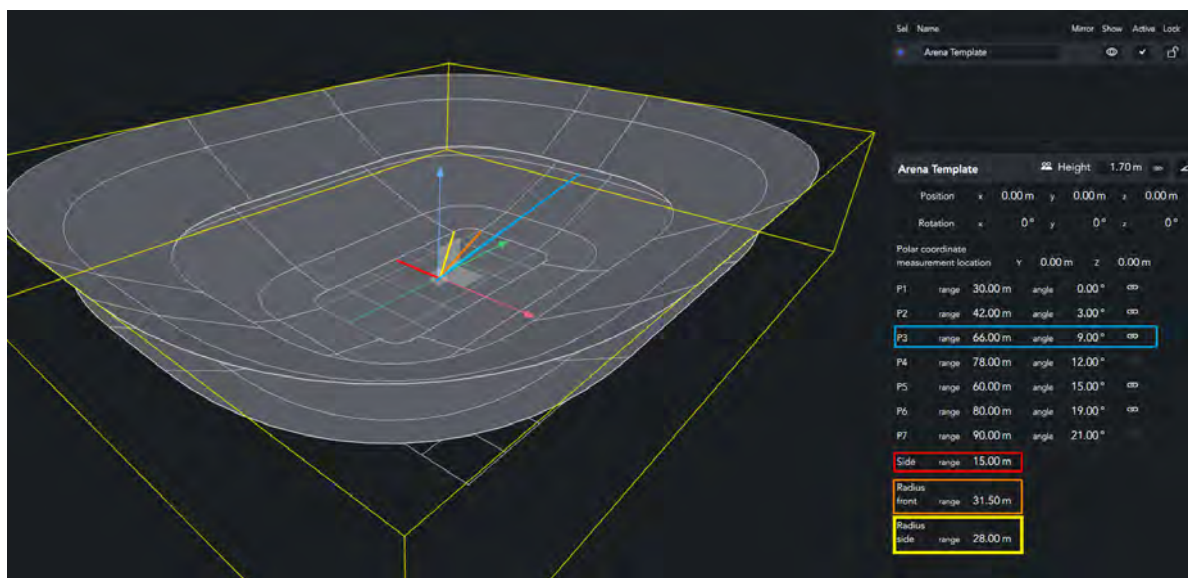
5.1.8.2 Arena

Create a basic Arena using the Template Wizard by selecting the number of balcony levels and sections for each balcony.



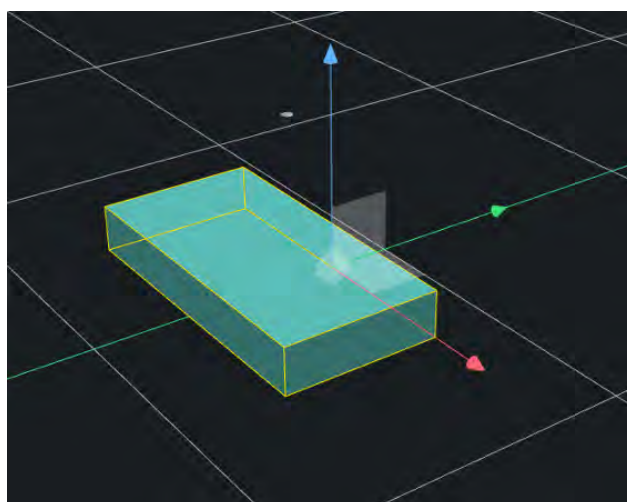
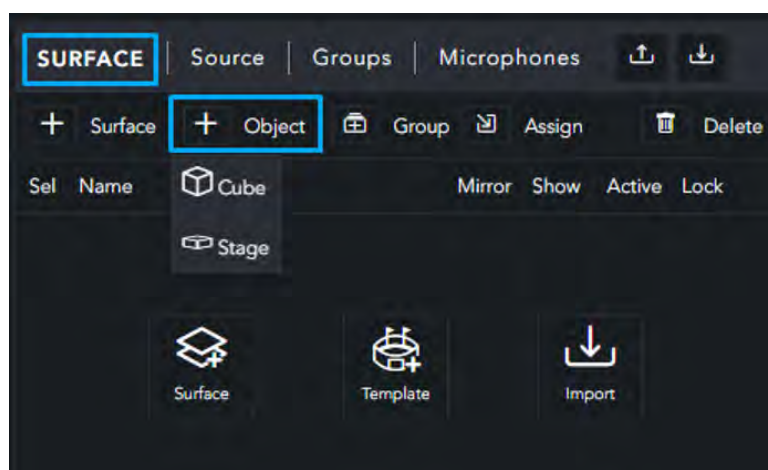
Arena Template Scale Adjustment

1. Select the reference location for the polar coordinate measurements. In the example below, 0,0 is set to be downstage center.
2. Using a laser range finder device, measure the distance and inclination for P1, P2, P3, etc.
3. Measure the side distance.
4. Measure the distance to the front inside of the corner.
5. Measure the distance to the outside of the corner.



5.1.9 Objects

Objects are 3D surfaces that can be added into the 3D workspace to represent various shapes. The default shapes are Cube and Stage. Objects are inactive when inserted; to show corresponding SPL mapping, change the object to active.



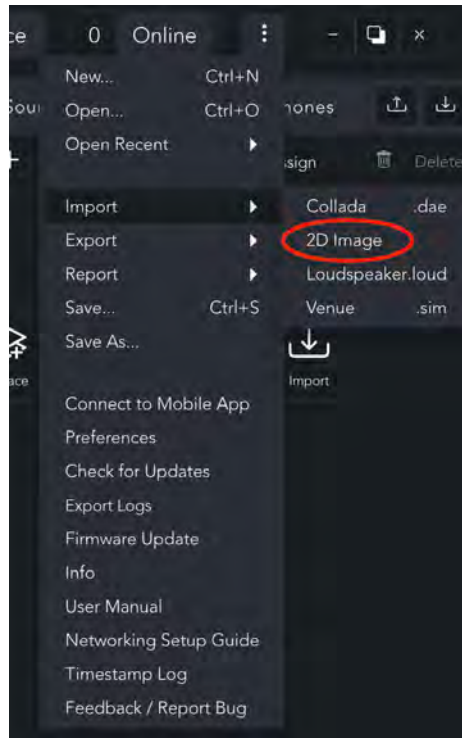
5.1.10 2D Image Import

A 2D image (for example, a venue blueprint, stage plot, or floor plan) can be imported into the workspace as a reference surface. Once imported, the image is placed flat on the floor at real-world scale and can be used as a tracing background while building the rest of the venue.

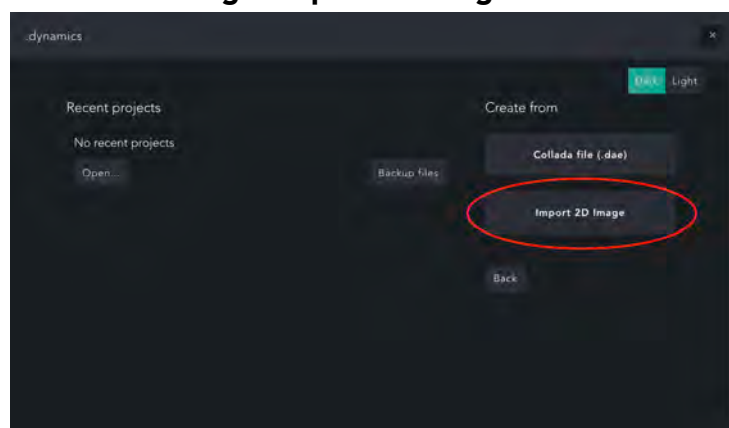
5.1.10.1 Opening the Image Map Editor

The Image Map Editor can be opened from three places:

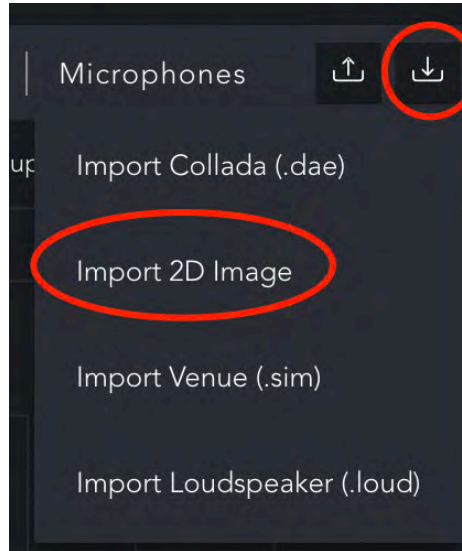
- **File menu > Import > 2D image.**



- **Startup screen > Create from Drawing > Import 2D image.**



- **Venue tab > Import > 2D image.**



All three entry points open the same Image Map Editor dialog.

5.1.10.2 Loading the Image

When the editor first opens, the canvas shows a placeholder prompting for an image. An image can be loaded in three ways:

- **Click the placeholder** and choose an image file from the file picker.
- **Drag an image file** from the desktop or a folder and drop it onto the placeholder.
- **Paste an image** from the clipboard with **Ctrl + V** (Windows) or **Cmd + V** (macOS) while the dialog is open.

Any common image format supported by the browser can be loaded (PNG, JPEG, WebP, etc.).

5.1.10.3 Navigating the Canvas

Once an image is loaded, the canvas can be navigated to inspect the image at any zoom level:

- **Zoom:** Scroll the mouse wheel over the canvas.
- **Pan:** Hold **Ctrl**, **Cmd**, or the **right mouse button** and drag.

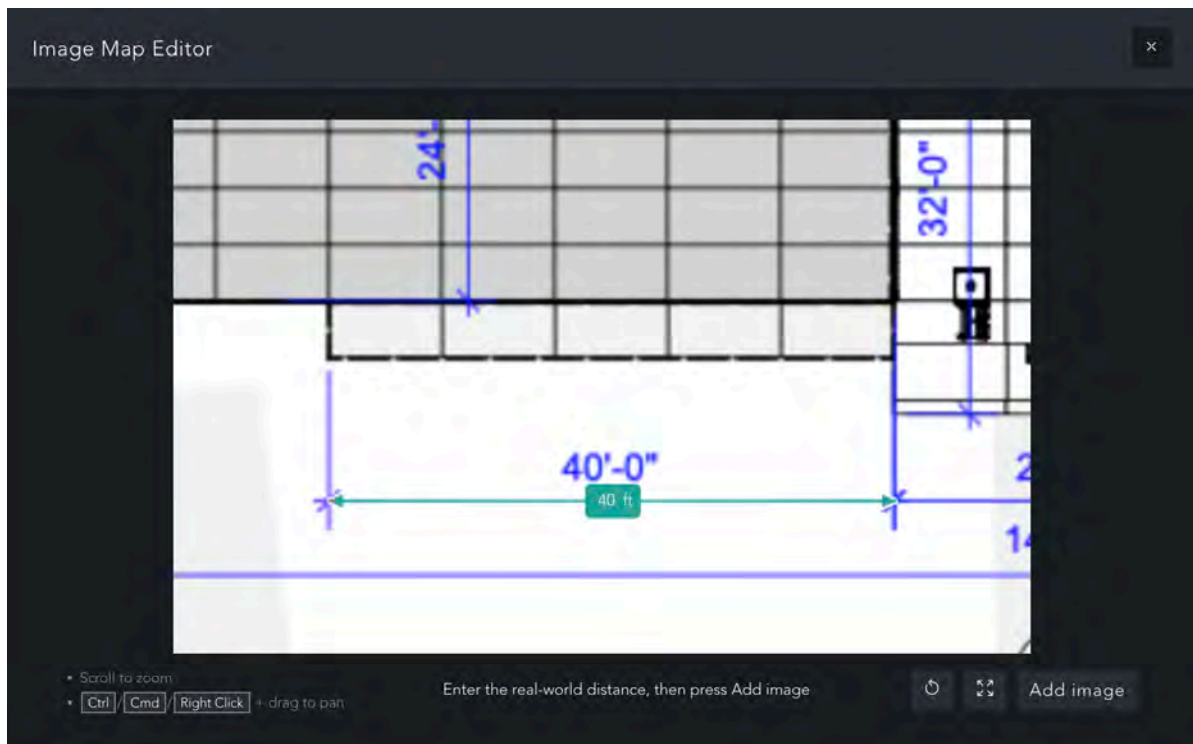


Reset View returns the canvas to its default zoom and position.

5.1.10.4 Setting the Scale

Before the image can be added to the workspace, a real-world scale must be defined so that distances measured on the image translate to distances in the venue. The scale is set by placing a measurement line across a feature of known length:

1. **Place the first point.** Click on the canvas where the measurement should start.
2. **Place the second point.** Click on the canvas where the measurement should end. A line is drawn between the two points.
3. **Enter the real-world distance.** The measurement line shows an input field for the actual distance the line represents. Type the value in the current length unit.



Reset Measurement clears the current measurement line so a new one can be placed. The current line can also be removed by pressing **Delete** or **Backspace** while the dialog is focused.

5.1.10.5 Adding the Image

Once both the measurement line and a real-world distance have been entered, the **Add Image** button becomes enabled.

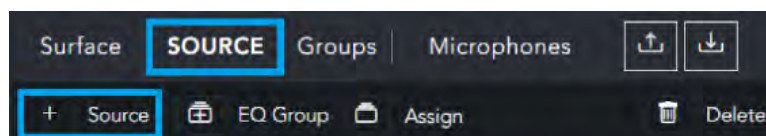
Add image

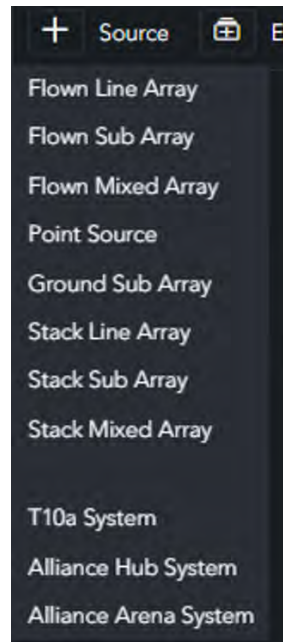
Add Image adds the image to the workspace as a blueprint surface at the correct real-world scale and closes the dialog.

5.2 Source

5.2.1 Source Selection

Source selection is used to add loudspeaker and array sources to the 3D workspace.





5.2.2 Source Controls

- **Mute:** Mutes the specified source.
- **Mirror:** Identifies if the source is Mirrored (all properties, DSP, and robotics), Vert. Only (all properties, DSP, and only vertical robotics), or None.
- **Show:** Shows/hides the specified source.
- **Lock:** Locks the properties and location of the specified source.



5.2.3 Safety Warnings

Center of Gravity

Indicates that the center of gravity is either behind or ahead of the Suspension Frame rigging points. This leads to an unsafe configuration where the angle of the array is not possible without one of the dual suspension points holding no weight.



Unsafe Configuration

Indicates that the mechanical safety engine has determined that the configuration is outside of engineered safety limits.



Collision

Indicates that the selected array is colliding with another source element.



Coherence

Indicates that a greater-than-recommended amount of inter-module delay has been applied, which will lead to a degradation in transient response.



5.2.4 Flown Line Array

Flown vertical arrays are line array elements intended to be suspended via a Suspension Frame.

- **Qty:** Specifies the quantity of modules in the array.
- **Frame:** Specifies the orientation of the Suspension Frame arm.
- **Z-bot:** Specifies the distance to the bottom of the array from the x,y zero plane.
- **Position:** Specifies the position of the array relative to 0.0.0.
- **Rotation:** Specifies the rotation of the array around the x (vertical inclination) and z (horizontal rotation) axes.
- **Suspension:** Selects either dual or single configuration for the Suspension Frame.
- **Weight:** Displays the resultant weight on the suspension points as calculated from the mechanical safety engine.
- **Gain Array:** Adjusts the gain of the array.
- **Delay (Time / Distance):** Adjusts the delay settings of the array.
- **Low Latency:** Toggles whether the source is in low latency mode.
- **Product Type:** To select the type of loudspeaker module, select the product dropdown.

Flown Line Array 2*

Qty 12 Frame Forward Z-bot 4.99 m

Position x -1.00 m y 0.00 m z 8.00 m

Rotation x 0.0° z 0.0°

Suspension Dual point

Weight f 287 kg b 98 kg

Gain (dB) 0.0 Delay (ms) 0.00 Delay (m) 0.00

Low Latency ☐

N°	Product	Mod. Group	Angle (v)	+L SL	H	SR R	Gain (dB)
All	T8	-		60°	120°	60°	0.0
1	T10	-		60°	120°	60°	0.0
	T10 Install	-	0.0°	60°	120°	60°	0.0
2	T8	-	0.0°	60°	120°	60°	0.0
	Trinity	-	0.0°	60°	120°	60°	0.0
3	Trinity Install	-	0.0°	60°	120°	60°	0.0
4	T8	-	0.0°	60°	120°	60°	0.0

- **Module Group:** Selects the Module Group (created within the Groups tab) for individual modules within the array.
- **Vertical Angle:** Adjusts the inter-module angles to control the vertical directivity of the array.
- **Horizontal Angle:** Adjusts the L/R or symmetric angles for the waveguides to control the horizontal directly of each module.
- **Gain Module:** Adjusts the gain of individual modules in the array independently.

Flown Line Array 2*

Qty 12 Frame Forward Z-bot 4.99 m

Position x -1.00 m y 0.00 m z 8.00 m

Rotation x 0.0° z 0.0°

Suspension Dual point

Weight f 287 kg b 98 kg

Gain (dB) 0.0 Delay (ms) 0.00 Delay (m) 0.00

Low Latency ☐

N°	Product	Mod. Group	Angle (v)	+l SL	H	SR l→	Gain (dB)
All	T8	-		60°	120°	60°	0.0
1	T8	-	0.0°	60°	120°	60°	0.0
2	T8	-	0.0°	60°	120°	60°	0.0
3	T8	-	0.0°	60°	120°	60°	0.0
4	T8	-	0.0°	60°	120°	60°	0.0
5	T8	-	0.0°	60°	120°	60°	0.0
6	T8	-	0.0°	60°	120°	60°	0.0
7	T8	-	0.0°	60°	120°	60°	0.0

5.2.5 Flown Subwoofer Array

Flown Subwoofer Arrays are subwoofers intended to be suspended via a Suspension Frame.

- **Qty:** Specifies the quantity of modules in the array.
- **Frame:** Specifies the orientation of the Suspension Frame arm.
- **Z-bot:** Specifies the distance to the bottom of the array from the x,y zero plane.
- **Position:** Specifies the position of the array relative to 0.0.0.
- **Rotation:** Specifies the rotation of the array around the x (vertical inclination) and z (horizontal rotation) axes.
- **Suspension:** Selects either dual or single configuration for the Suspension Frame.
- **Weight:** Displays the resultant weight on the suspension points as calculated from the mechanical safety engine.
- **X-over:** Selects either 70 Hz or 100 Hz crossover (if available) to be modified on the selected product.
- **Gain Array:** Adjusts the gain of the array.
- **Delay (Time/Distance):** Adjusts the delay settings of the array.
- **Low Latency:** Toggles whether the source is in Low Latency Mode.
- **Product Type:** To select the module type, choose the appropriate selection from the Product dropdown.
- **Cardioid:** To select the source cardioid configuration, choose from the Cardioid dropdown.

N°	Product	Cardioid	Mod. Group	Gain (dB)	Delay (ms)
All	T218	none	-	0.0	0.00
1	T218	none	-	0.0	0.00
2	T218	all	-	0.0	0.00
3	T218	BF	-	0.0	0.00
4	T218	FB	-	0.0	0.00
		BFF	-	0.0	0.00
		FBF	-	0.0	0.00
		FFB	-	0.0	0.00
		FFBBFF	-	0.0	0.00

- **Module Group:** Selects the Module Group (created within the Groups tab) for individual modules within the array.
- **Gain Module:** Adjusts the gain of individual modules in the array independently.
- **Delay Module:** Adjusts the delay of individual modules in the array independently.

Vertical sub 4*

Qty 9 Frame Forward Z-bot 3.32 m

Position x 14.00 m y 0.00 m z 8.00 m

Rotation x -1.3° z 0.0°

Suspension Single point

Weight f 967 kg

Gain (dB) 0.0 Delay (ms) 0.00 Delay (m) 0.00

X-over 70Hz Low Latency ☐

N°	Product	Cardioid	Mod. Group	Gain (dB)	Delay (ms)
All	T218	none	-	0.0	0.00
1	T218		-	0.0	0.00
2	T218		-	0.0	0.00
3	T218		-	0.0	0.00
4	T218		-	0.0	0.00

5.2.6 Flown Mixed Array

Flown Mixed Arrays are a combination of line source modules and subwoofers intended to be suspended via a Suspension Frame. In this configuration, the subwoofers are directly on top of the line source modules.

- **Qty:** Specifies the quantity of modules for each type (subwoofers or line array) of loudspeaker in the array.
- **Frame:** Specifies the orientation of the Suspension Frame arm, if available.
- **Z-bot:** Specifies the distance to the bottom of the array from the x,y zero plane.

- **Position:** Specifies the position of the array relative to 0.0.0.
- **Rotation:** Specifies the rotation of the array around the x (vertical inclination) and z (horizontal rotation) axes.
- **Suspension:** Selects either dual or single configuration for the Suspension Frame.
- **Weight:** Displays the weight on the suspension points as calculated from the mechanical safety engine.
- **Gain Array:** Adjusts the gain of the array.
- **Delay (Time/Distance):** Adjusts the delay settings of the array.
- **Low Latency:** Toggles whether the source is in Low Latency Mode.
- **Cardioid:** To select the source cardioid configuration, choose from the Cardioid dropdown.
- **Module Group:** Selects the Module Group (created within the Groups tab) for individual modules within the array.
- **Gain Module:** Adjusts the gain of individual modules in the array independently.
- **Delay Module (Subs Only):** Adjusts the delay of individual modules in the array independently.

Flown Mix Array 6*

Frame Forward

Z-bot 4.33 m

Position

x 16.00 m y 0.00 m z 8.00 m

Rotation

x 0.0° z 0.0°

Suspension

Dual point

Weight

f 323 kg b 177 kg

Gain (dB) 0.0

Delay (ms) 0.00

Delay (m) 0.00

Low Latency

Subs

Qty 3

N°	Product	Cardioid	Mod. Group	Gain (dB)	Delay (ms)
All	T18	none	-	0.0	0.00
1	T18		-	0.0	0.00
2	T18		-	0.0	0.00
3	T18		-	0.0	0.00

Line Array

Qty 8

N°	Product	Mod. Group	Angle (v)	+ISL	H	I→SR	Gain (dB)
All	T8	-	0.0°	60°	120°	60°	0.0
1	T8	-	0.0°	60°	120°	60°	0.0
2	T8	-	0.0°	60°	120°	60°	0.0
3	T8	-	0.0°	60°	120°	60°	0.0

5.2.7 Point Source

Point Source are sources of 1 Point Source loudspeaker. This can be placed and rotated in the venue to any position.

NOTE: Rigging safety is not calculated or indicated for Point Source loudspeakers.

- **Mode:** Specifies the mode of the Point Source: Mains or Monitor
- **Z-bot:** Specifies the distance to the bottom of the array from the x,y zero plane.
- **Position:** Specifies the position of the array relative to 0.0.0.
- **Rotation:** Specifies the rotation of the array around the x, y and z axes.
- **Gain Array:** Adjusts the gain of the source.
- **Delay (Time/Distance):** Adjusts the delay settings of the source.

Point Source 1

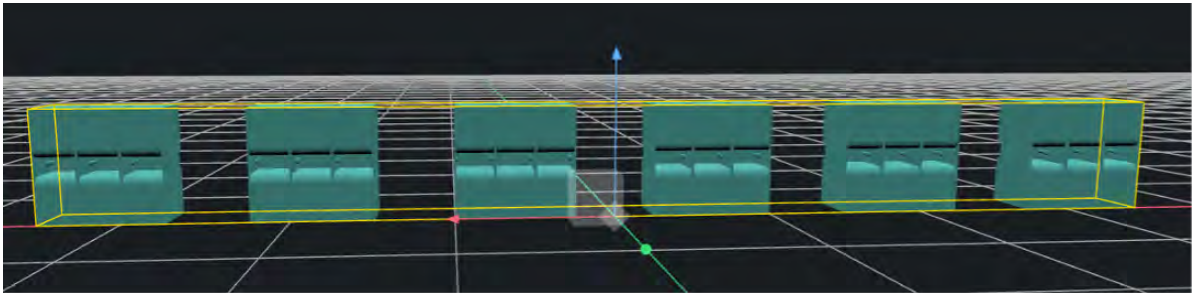
Model	TX14	Mode	Mains	Z-bot	5.59 ft	
Position	x	0.00 ft	y	0.00 ft	z	6.56 ft
Rotation	x	0.0°	y	0.0°	z	0.0°
Gain (dB)	0.0	Delay (ms)	0.00	Distance (ft)	0.00	

5.2.8 Ground Subwoofer Array

Ground Subwoofer Arrays are columns of 2 or more subwoofers intended to be positioned on the ground.

Note: Subwoofers are displayed as columns in the Detail view to conserve space for large subwoofer arrays.

- **Columns:** Specifies the number of vertical subwoofer columns.
- **Rows:** Specifies the number of subwoofers in each column.
- **Qty:** Displays the resultant quantity of modules in the array.
- **Sym:** Specifies the gain and delay settings symmetrically, relative to the centre of the array.
- **Position:** Specifies the position of the array relative to 0.0.0.
- **Rotation:** Specifies the rotation of the array around the x (vertical inclination) and z (horizontal rotation) axes.
- **Horizontal Cover:** Specifies the horizontal coverage angle of the subwoofer array.
- **Spacing:** Specifies the following spacing parameters within an array:
 - d = spacing between modules
 - c = centre-to-centre spacing
 - w = overall width of array
- **Offset:** Specifies the offset angle of the horizontal coverage angle to create asymmetric directivity.
- **X-over:** Selects either 70 Hz or 100 Hz crossover if available to be modified on the selected product.
- **Gain Array:** Adjusts the gain of the array.
- **Delay (Time/Distance):** Adjusts the delay settings of the array.
- **On End:** Toggles whether the source is in On End (upright).



- **Low Latency:** Toggles whether the source is in Low Latency Mode.
- **View Mode:** Toggle the table view to either show 1 column per row or 1 module per row.

Col.	Product	Cardioid	Mod. Group	Gain (dB)	Delay (ms)
All	T218	none	-	0.0	0.00
1	T218	none	-	0.0	0.00
2	T218	none	-	0.0	0.00

N°	Product	Cardioid	Mod. Group	Gain (dB)	Delay (ms)
All	T218	none	-	0.0	0.00
1	T218		-	0.0	0.00
2	T218		-	0.0	0.00
3	T218		-	0.0	0.00
4	T218		-	0.0	0.00
5	T218		-	0.0	0.00
6	T218		-	0.0	0.00

- **Product Type:** To select the module type, choose the appropriate selection from the Product dropdown.
- **Cardioid:** To select the source cardioid configuration, choose from the Cardioid dropdown.

Col.	Product	Cardioid	Mod. Group	Gain (dB)	Delay (ms)
All	T218	none	-	0.0	0.00
1	T218	none	-	0.0	0.00
2	T218	all	-	0.0	0.00
3	T218	BFF	-	0.0	0.00
4	T218	FBF	-	0.0	0.00
5	T218	BFF	-	0.0	0.00
6	T218	FBF	-	0.0	0.00
7	T218	FFB	-	0.0	0.00
8	T218	none	-	0.0	0.00

- **Module Group:** Selects the Module Group (created within the Groups tab) for individual modules within the array.

- **Gain Module:** Adjusts the gain of individual modules in the array independently.
- **Delay Module:** Adjusts the delay of individual modules in the array independently.

Ground Sub Array 1

Columns 6 Rows 3 Qty 18 Sym. ☒

Position x 0.00 m y 0.00 m z 0.00 m

Rotation z 0.0 °

Horizontal Cover 0.0 ° Offset 0.0 °

Spacing d 1.10 m c 2.49 m w 16.64 m

Gain (dB) 0.0 Delay (ms) 0.00 Delay (m) 0.00

X-over 70Hz On End ☐ Low Latency ☐

Col.	Product	Cardioid	Mod. Group	Gain (dB)	Delay (ms)
All	T218	none	-	0.0	0.00
1	T218	none	-	0.0	0.00
2	T218	none	-	0.0	0.00
3	T218	none	-	0.0	0.00
4	T218	none	-	0.0	0.00
5	T218	none	-	0.0	0.00
6	T218	none	-	0.0	0.00

5.2.9 Stack Line Array

Stack Line Arrays are line array elements intended to be used with their Carts or ground stack adapters.

- **Qty:** Specifies the quantity of modules in the array.
- **Frame:** Specifies the dolly for the stack.
- **Z-bot:** Specifies the distance to the bottom of the array from the x,y zero plane.
- **Position:** Specifies the position of the array relative to 0.0.0.
- **Rotation:** Specifies the rotation of the array around the x (vertical inclination) and z (horizontal rotation) axes.
- **Gain Array:** Adjusts the gain of the array.
- **Delay (Time/Distance):** Adjusts the delay settings of the array.
- **Low Latency:** Toggles whether the source is in Low Latency Mode. This is only available for T8 and T10.
- **Product Type:** To select the desired module, select the Product dropdown.

N°	Product	Mod. Group	Vert Splay	Stage Left	Total	Stage Right	Gain (dB)
All	T10	-	0.0°	60°	120°	60°	0.0
1	T10	-	0.0°	60°	120°	60°	0.0
2	T10	-	0.0°	60°	120°	60°	0.0
3	T10	-	0.0°	60°	120°	60°	0.0
4	T10	-	0.0°	60°	120°	60°	0.0

- **Module Group:** Selects the Module Group (created within the Groups tab) for individual modules within the array.
- **Vertical Angle:** Adjusts the inter-module angles to control the vertical directivity of the array.
- **Horizontal Angle:** Adjusts the L/R or symmetric angles for the waveguides to control the horizontal directly of each module.
- **Gain Module:** Adjusts the gain of individual modules in the array independently.

Ground Line Array 1*

Qty 4 Frame Frame Z-bot 0.00 m

Position x 11.00 m y 0.00 m z 0.00 m

Rotation x 0.0° z 0.0°

Weight f - kg b - kg

Gain (dB) 0.0 Delay (ms) 0.00 Delay (m) 0.00

Low Latency ☐

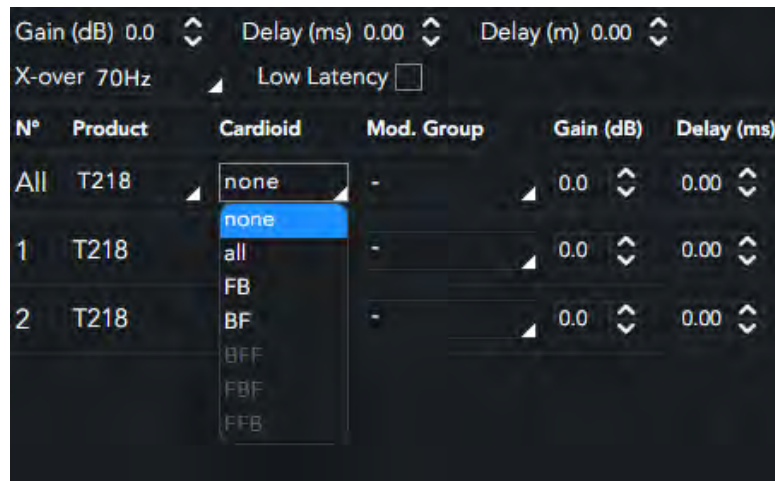
N°	Product	Mod. Group	Angle (v)	← L SL	H	SR R →	Gain (dB)
All	T10	-		60°	120°	60°	0.0
1	T10	-	0.0°	60°	120°	60°	0.0
2	T10	-	0.0°	60°	120°	60°	0.0
3	T10	-	0.0°	60°	120°	60°	0.0
4	T10	-	0.0°	60°	120°	60°	0.0

5.2.10 Stack Subwoofer Array

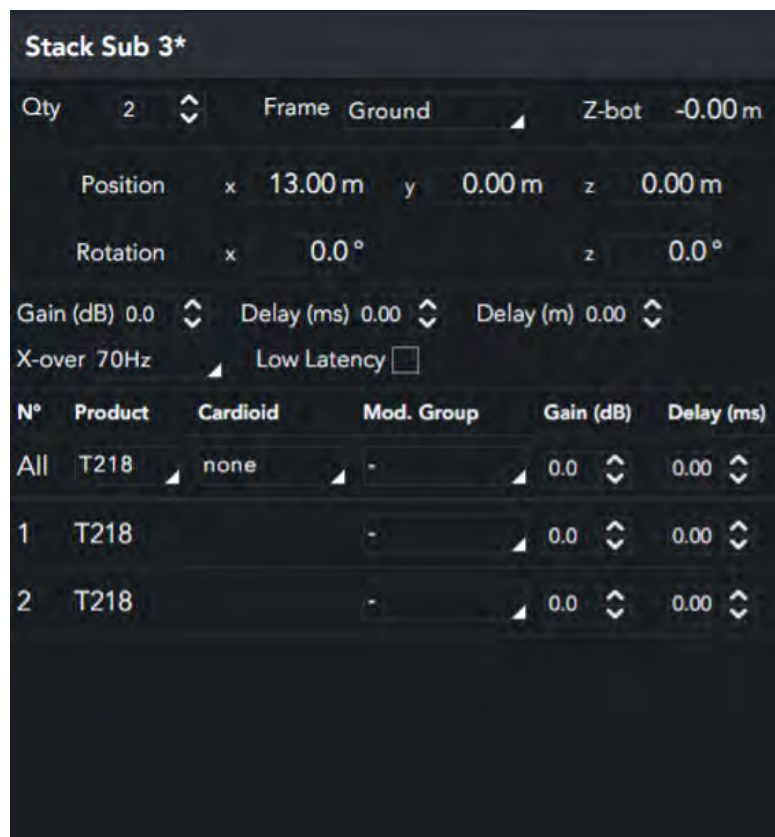
Stack Subwoofer Arrays are a pair of mirrored stacks of 2 or more subwoofers intended to be positioned on the ground.

- **Qty:** Displays the resultant quantity of modules in a stack.
- **Position:** Specifies the position of the array relative to 0.0.0.

- **Rotation:** Specifies the rotation of the array around the x (vertical inclination) and z (horizontal rotation) axes.
- **X-over:** Selects either 70 Hz or 100 Hz crossover if available to be modified on the selected product.
- **Gain Array:** Adjusts the gain of the array.
- **Delay (Time/Distance):** Adjusts the delay settings of the array.
- **Low Latency:** Toggles whether the source is in Low Latency Mode.
- **Product Type:** To select the module type, choose the appropriate selection from the Product dropdown.
- **Cardioid:** To select the source cardioid configuration, choose from the Cardioid dropdown.



- **Module Group:** Selects the Module Group (created within the Groups tab) for individual modules within the array.
- **Gain Module:** Adjusts the gain of individual modules in the array independently.
- **Delay Module:** Adjusts the delay of individual modules in the array independently.



5.2.11 Stack Mixed Array

Stack Mixed Arrays are a stack of both subwoofers and line source modules on top connected with a Suspension Frame or rigging adapter. Robotic control is available for the line source modules.

- **Qty:** Specifies the quantity of modules for each type (subwoofers or line array) of loudspeaker in the array.
- **Frame:** Specifies the physical stack configuration.
- **Position:** Specifies the position of the array relative to 0.0.0.
- **Rotation:** Specifies the rotation of the array around the x (vertical inclination) and z (horizontal rotation) axes.
- **Gain Array:** Adjusts the gain of the array.
- **Delay (Time/Distance):** Adjusts the delay settings of the array.
- **Low Latency:** Toggles whether the source is in Low Latency Mode.
- **Module Group:** Selects the Module Group, created within the Groups tab for individual modules within the array.
- **Gain Module:** Adjusts the gain of individual modules in the array independently.
- **Vertical Angle:** Adjusts the inter-module angles to control the vertical directivity of the array.
- **Horizontal Angle:** Adjusts the L/R or symmetric angles for the waveguides to control the horizontal directivity of each module.

Stack Mix Array 5*

Frame Ground Z-bot -0.00 m

Position x 15.00 m y 0.00 m z 0.00 m

Rotation x 0.0° z 0.0°

Weight f - kg b - kg

Gain (dB) 0.0 Delay (ms) 0.00 Delay (m) 0.00

Low Latency

Line Array Qty 3

N°	Product	Mod. Group	Angle (v)	+ISL	H	I→SR	Gain (dB)
All	T8	-	0.0°	60°	120°	60°	0.0
1	T8	-	0.0°	60°	120°	60°	0.0
2	T8	-	0.0°	60°	120°	60°	0.0
3	T8	-	0.0°	60°	120°	60°	0.0

Subs Qty 3

N°	Product	Cardioid	Mod. Group	Gain (dB)	Delay (ms)
All	T18	none	-	0.0	0.00
1	T18		-	0.0	0.00
2	T18		-	0.0	0.00
3	T18		-	0.0	0.00

Note: The vertical angle on the bottom robotic module is only manually adjustable on the Transition Frame and will not robotically adjust to that position.

3 T8 0.0° 60° 120° 60°

4 T18 This module's vertical angle is only manually adjustable on the transition frame.

At the end of a robotic movement, if the inclination does not match the selected angle, the user will be reminded to adjust the frame manually.

Adjust angle on bottom T8

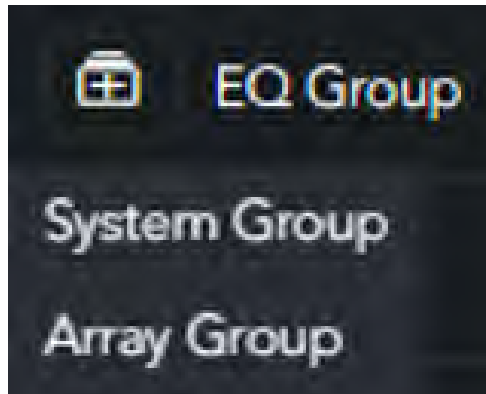
The actual angle on the bottom T8 does not match the selected angle. Please adjust it manually on the frame.

✓ Ok

5.2.12 Groups

Source Groups are used to apply DSP parameters to groups of loudspeakers within the application. By default, when a source is added to the workspace, a System Group is created. A single module can only be in 1 System Group, 1 Array Group, and 1 Module Group. For example, a single module can not be part of 2 Module Groups.

- **System Group:** The highest level of group, which can contain both Array Groups and Array Sources.
- **Array Group:** The second level of group, which can contain Array Sources.
- **EQ Group:** Creates a System Group or an Array Group.



Assign: Assigns sources to the selected Group.

When Assign mode is enabled, select a group to assign or un-assign sources. Click the '+' button to assign and the '-' button to un-assign. Changing the Group selection will remain in Assign mode. Click the Assign button again to exit Assign mode.

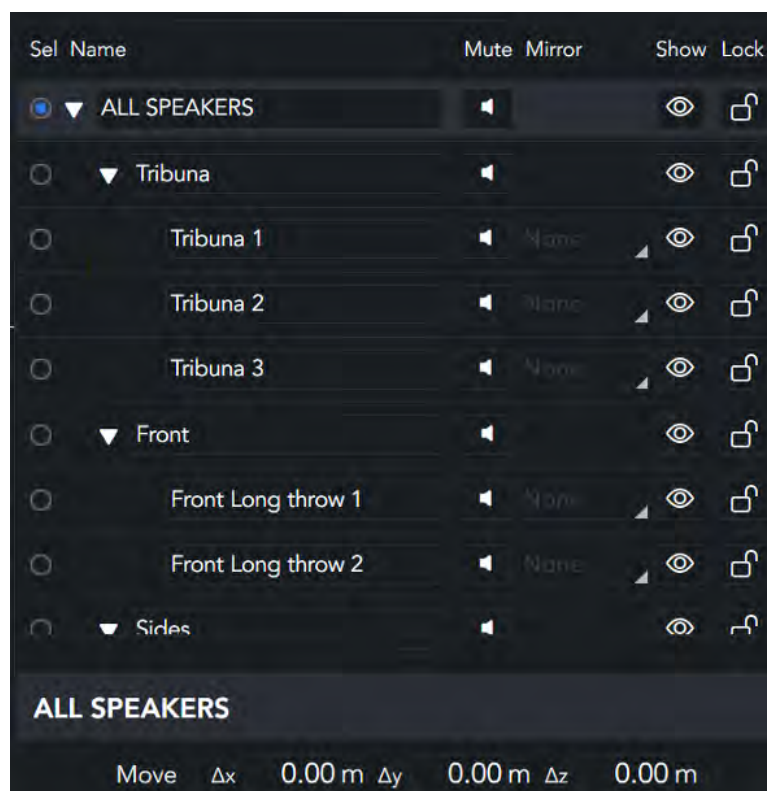


Note: When sources are grouped, the Mute, Gain, and Delay functionality will apply to all members of a Group when the top-level function is toggled or changed.

- **Mute by Group:** Mutes selected Group.
- **Gain by Group:** Adjusts the gain of the selected Group.
- **Delay by Group (Time/Distance):** Adjusts the delay settings of the selected Group.



Note: Groups can also allow for grouped movement of loudspeakers using a positive or negative integer to change the values.

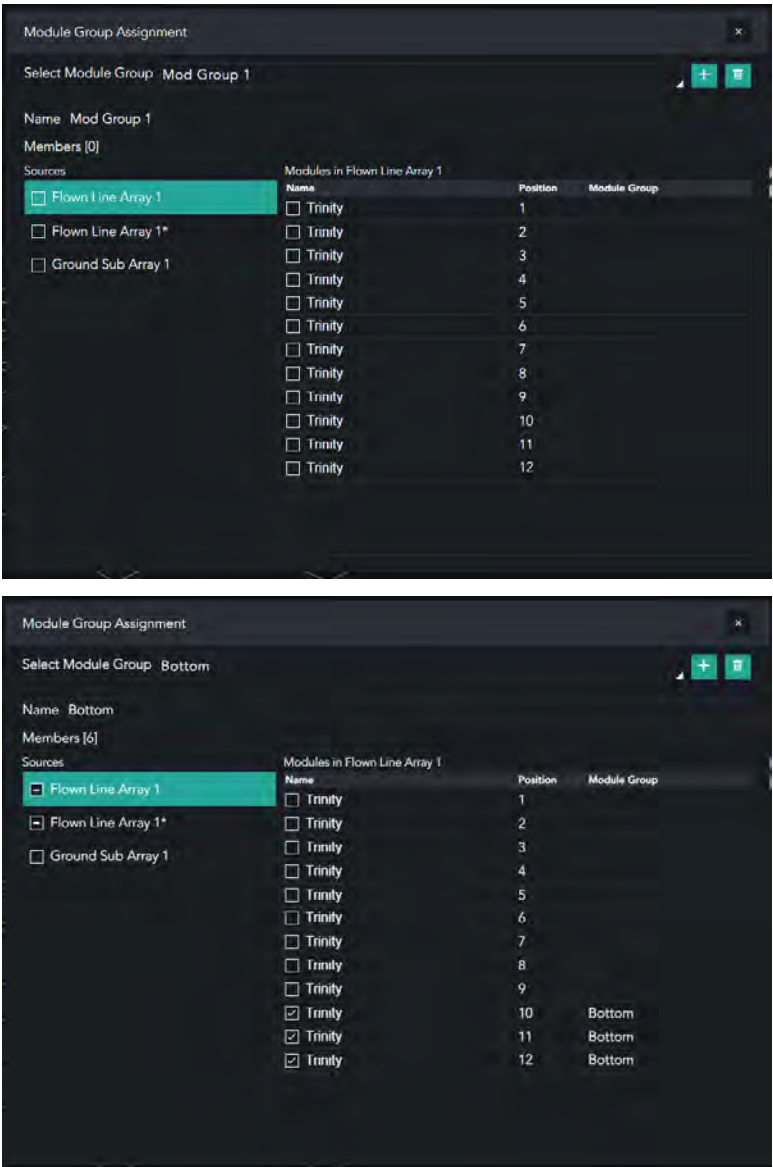


5.2.12.1 Module Groups

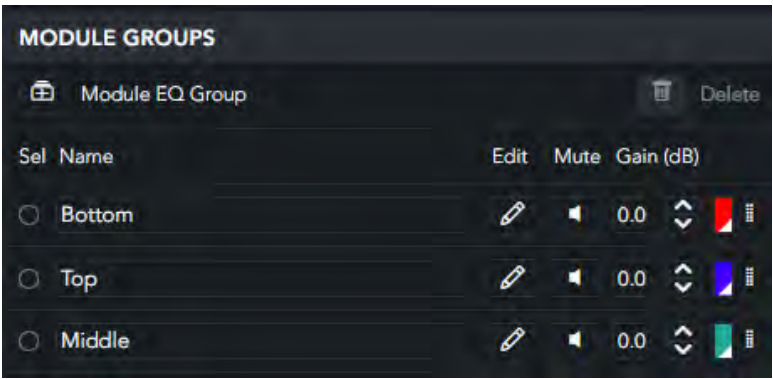
Module Groups are the third level of Group which can contain individual modules. These Groups can be used within an array to enable zone control or to balance the near and far fields. Module Groups can only be assigned to modules in the Assemble, Coverage, and Mechanical Summary windows.

Module EQ Group: Creates a new module group via the "Create Module Group" dialog. From this dialog, all modules in the project can be assigned to the new module group, and the module group can be renamed

immediately.

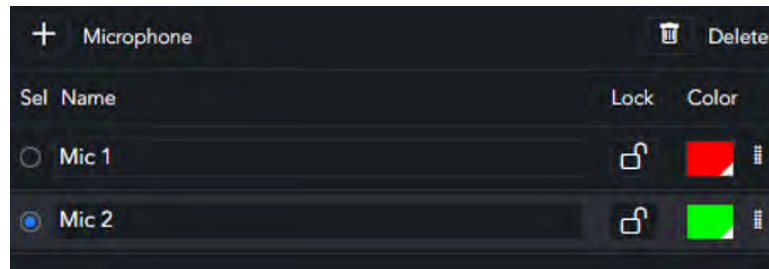


- **Mute Group:** Mutes the selected Group.
- **Gain Group:** Adjusts the gain of the selected Group.



5.2.13 Microphones

Virtual microphones can be placed in the 3D workspace to provide feedback on the response and alignment of the system at various points.



5.3 Coverage

The Coverage menu is used to optimize both the vertical and horizontal coverage parameters for a given 3D space. The vertical coverage should always be optimized first as the horizontal coverage of each module is dependent on the vertical orientation.

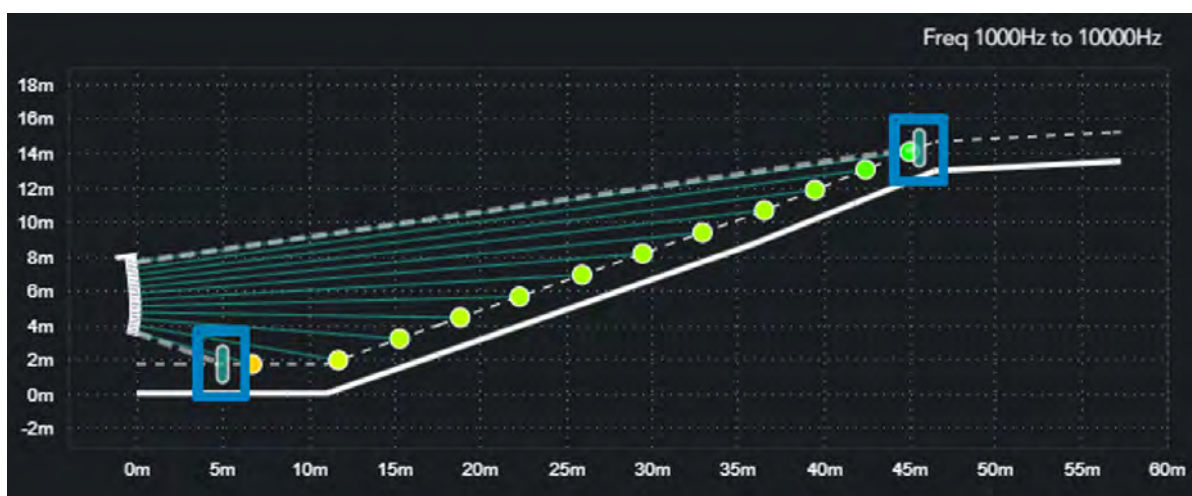
5.3.1 Vertical Coverage / SPL Over Distance

Vertical coverage is used to adjust the inter-module angles within the array to obtain consistent coverage from the front to the rear of the audience area.



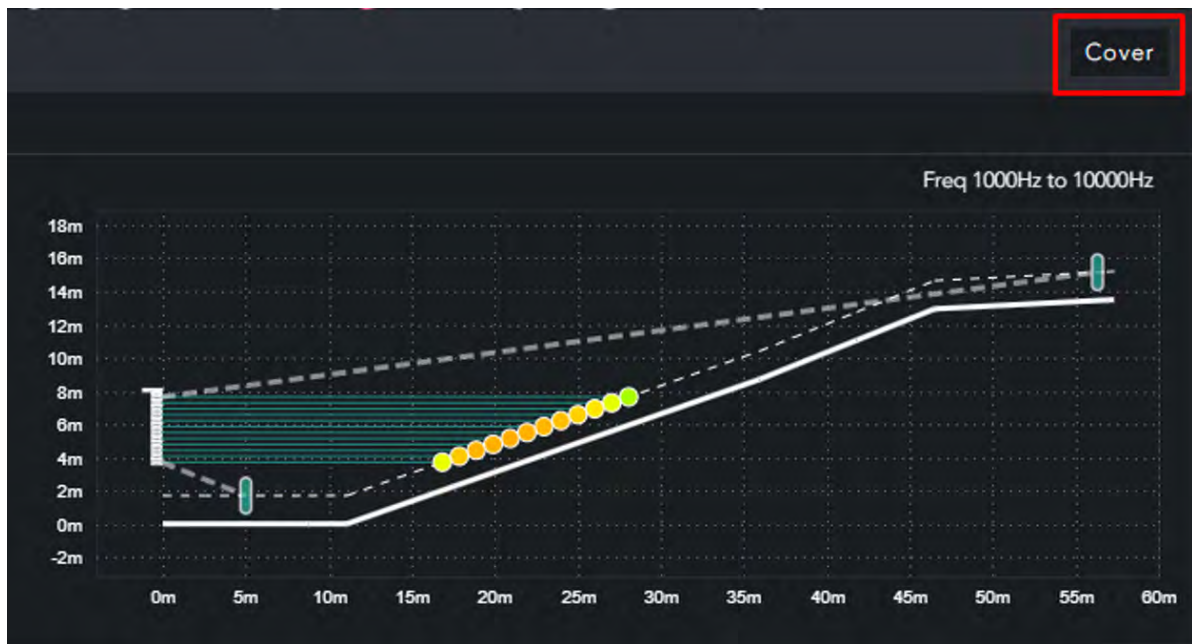
5.3.1.1 Coverage Distance

The minimum and maximum coverage indicators can be moved to specify the target coverage area by clicking and dragging. The minimum and maximum coverage distances define the coverage area that the optimization algorithm will reference to achieve consistent SPL from front to back along the intended listening planes.



5.3.1.2 Auto Cover — Line Array

Auto Cover is used to automatically provide a recommended starting point for array inclination and curvature. The application will iterate a best fit scenario and users can then manually adjust parameters to fine-tune coverage.



5.3.1.3 Frequency Response

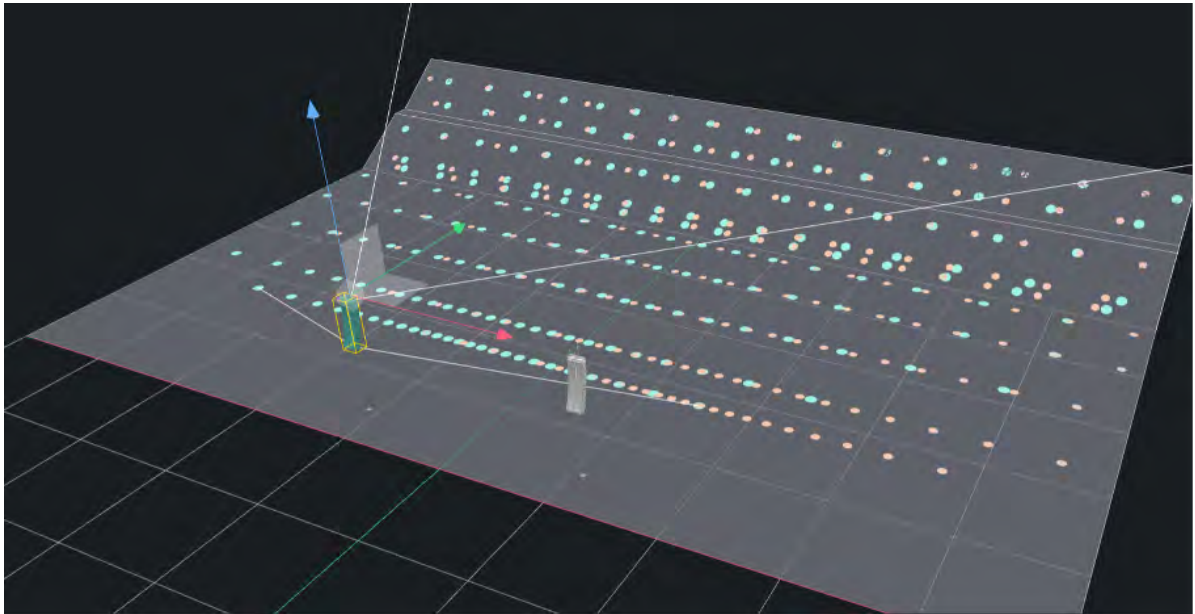
The Frequency tab displays the calculated frequency response at the impact points for each module on axis from the minimum to the maximum coverage distance. If a module does not impact a surface, the frequency response of the module will not be displayed.



5.3.2 Horizontal Coverage / SPL Across

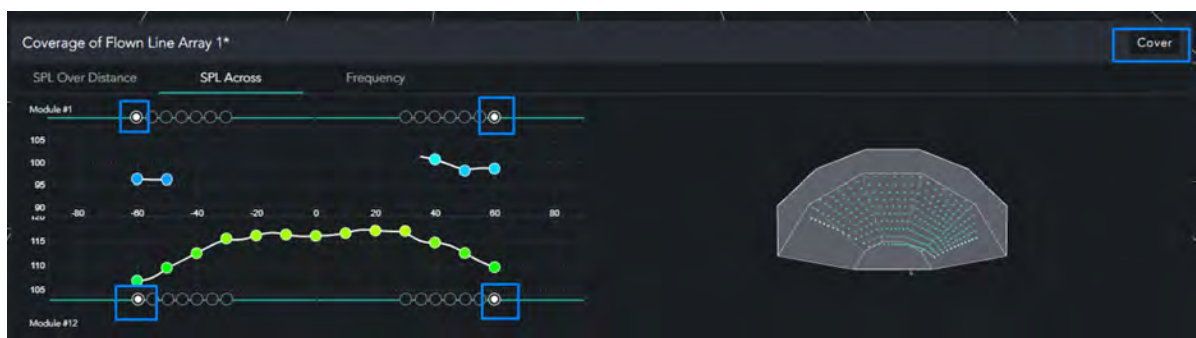
Horizontal coverage is modified via the SPL Across window or by changing the parameters of individual modules through the Object Editor.

In the 3D workspace, the selected array source will have blue impact points designating the coverage area of that array. Projected rays from the top and bottom cabinets indicate the coverage angle for the respective modules.



5.3.2.1 SPL Across

The SPL Across window displays the SPL of the top and bottom modules of the array in 10-degree increments across the horizontal coverage plane. This view is used to define the top and bottom coverage angles of the array. Once selected, the Cover button will interpolate the angles from the top module to the bottom, creating a consistent coverage angle across the surface.



5.3.2.2 Individual Module Aiming

The vertical and horizontal angles of each module can be manually adjusted through the Object Editor.

N°	Product	Mod. Group	Angle (v)	←l SL	H	SR →	Gain (dB)
All	Trinity	-		60°	120°	60°	0.0
1	Trinity	-	0.0°	60°	120°	60°	0.0
2	Trinity	-	0.4°	60°	120°	60°	0.0
3	Trinity	-	0.6°	60°	120°	60°	0.0

5.4 Balance

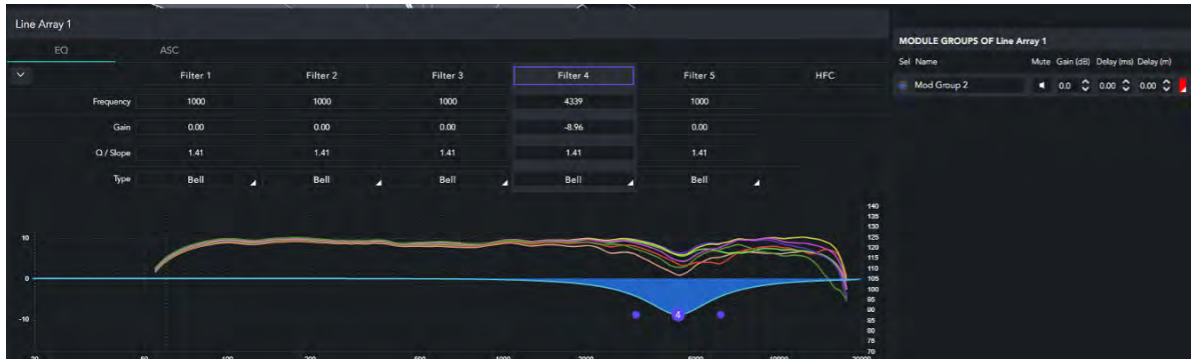
The Balance tab consists of two sub-tabs: EQ and ASC (Array Size Compensation).

The EQ sub-tab allows users to adjust the EQ settings of Module Groups to create a consistent frequency response at various distances from the array.

NOTE: Module Groups can be created and assigned to individual modules in the Assemble tab.

5.4.1 Module Group Selection

Select the Module Group to which the EQ adjustments will be applied from the Module Group list in the Object Editor, or the Module Group drop-down in the EQ editor.



5.4.2 Array Size Compensation

Array Size Compensation is automatically applied to flown line arrays such that all flown arrays, regardless of the number of modules, have the same initial frequency response. The ASC sub-tab works by applying a low-shelf filter on all modules in the selected source. The affected frequency response is displayed on the right-side chart as well. This feature is only available for flown line arrays.



5.4.3 Expanded Equalizer

- **Expand Arrow:** Opens and closes the Equalizer Detail window.
- **Filter 1,2,3,4,5:** Turns the selected filter on and off.
- **Frequency:** Adjusts the centre frequency of the selected filter.
- **Gain:** Specifies the gain of the selected filter.
- **Q/Slope:** Specifies the Q of the selected filter.
- **Type:** Specifies the type of filter (Bell, Low Shelf, Hi Shelf).
- **Module Group:** Selects the Module Group to which the EQ adjustments will be applied.
- **Equalizer Curve Controls:** Adjust EQ variables by dragging visual indicators within the Frequency Response window.



5.5 Alignment

5.5.1 Source Alignment

The Alignment tab can be used to align two sources with a virtual microphone at a given location. This can provide a starting point for system alignment and ensure various elements are correctly time aligned. Because .dynamics provides a complex summation of subwoofer and source arrays, it is important to note that alignment will affect the SPL coverage map.

- **Frequency:** Displays the frequency response of individual sources at the microphone location.
- **Sum Frequency:** Displays the summation of all non-muted sources at the microphone location.
- **Phase:** Displays the phase response of all non-muted sources at the microphone location.
- **Arrival Time:** Displays the arrival time of sources relative to the Time Reference. Coloured circles represent the sources.
- **Time Reference:** The source that provides the zero time reference for the system, to which all other sources will be delayed.

Alignment Procedure:

1. Select a microphone that will define the location in 3D space to which the sources will be time aligned.
2. Mute all sources other than the two sources to be aligned.
3. Select the Time Reference.
4. Select the SUM Frequency, Phase, and Arrival Time.
5. Adjust the Arrival Time slider to adjust the non-reference source delay. When the dots are overlaid, the arrival time will be close.
6. Fine tune the source using the phase response overlay and meet at the source crossover point so that the phase traces match and the frequency response summation is highest.

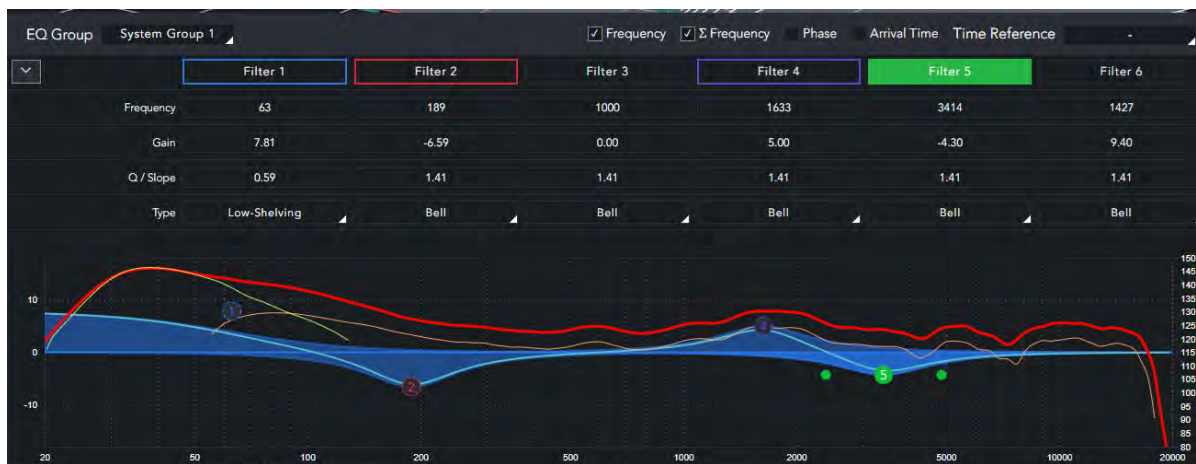


5.5.2 System & Array Equalization

System and Array Group equalization is accessible through the Alignment tab.

- **EQ Group:** Selects the System or Array group to which the equalization will be applied.
- **Expand Arrow:** Opens and closes the equalizer detail window.

- **Filter 1,2,3,4,5:** Turns the selected filter on and off.
- **Frequency:** Adjusts the centre frequency of the selected filter.
- **Gain:** Specifies the gain of the selected filter.
- **Q/Slope:** Specifies the Q of the selected filter.
- **Type:** Specifies the filter type (Bell, Low Shelf, Hi Shelf).
- **Equalizer Curve Controls:** Adjust EQ variables by dragging visual indicators within the frequency response window.



5.6 Mechanical Summary

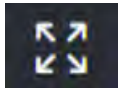
The Mechanical Summary tab provides dimensions and rigging locations based on the selected source.



6. System

The System menu is used to discover, match, add, and organize live modules connected to the network.

6.1 System Toolbar



Zoom to Fit (f): Automatically resizes the 3D view to fit within the window extents.



Grid Layout (g): Arranges the source cards into an equally spaced grid.



Expand All (e): Expands and collapses all source cards.



Zoom In/Out: Controls the perceived proximity to the workspace via the centre mouse scroll.



Module Overlay Visibility: Toggle visibility of module overlays.



LED Bar (L): Turns the LED indicator on all modules on/off. A left-click toggles every LED on with the default **Glacial Blue** color; right-click to open the color picker and apply one of eight fixed colors to all modules at once.

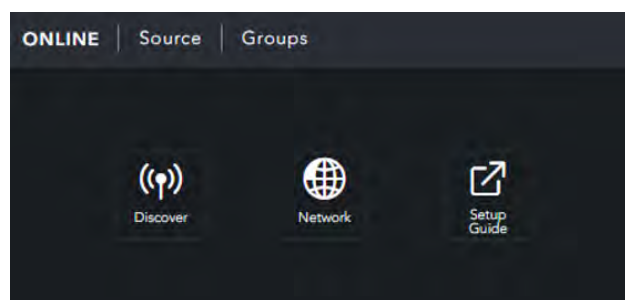


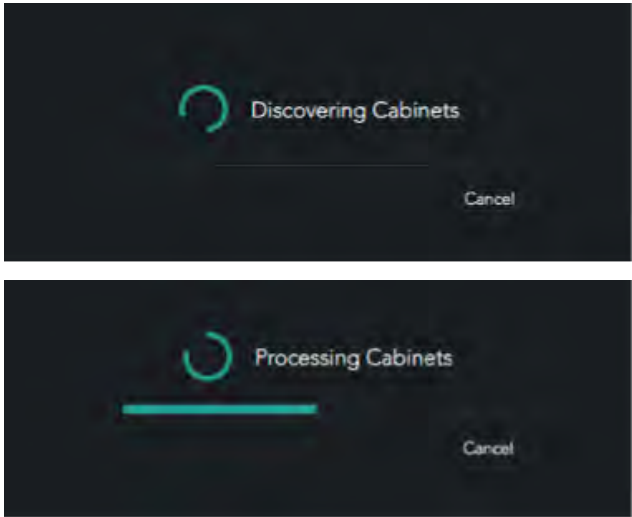
Mute All: Mutes all sources in the application.

6.2 Online

6.2.1 Discovery

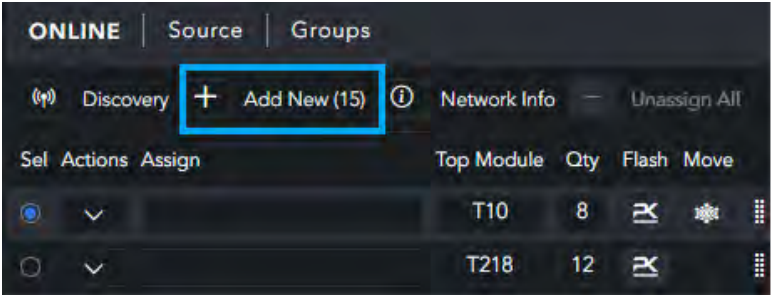
Discovery communicates to all PK devices with an IP address on the selected network. It will automatically arrange all discovered modules into sources and display those sources on the Object Editor when discovery is complete.





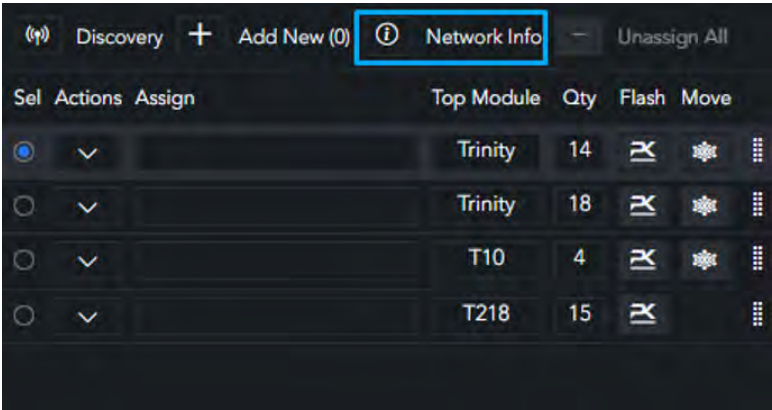
6.2.2 Add New

When additional modules are connected to the network after .dynamics discovers the existing modules, the Add New button will display the count of new devices found on the network. Clicking Add New will discover and arrange the new modules into sources and add those new sources alongside the existing sources.



6.2.3 Network Info

The Network Info window can be used to view the state of modules discovered in the network.



6.2.4 Network Tab

In the Network tab, the table shows each module in the network and associated IP addresses, MAC addresses, firmware versions, and serial numbers. If any of the modules have duplicated identifiers, the duplicated field will be highlighted with red text. Module service notes and service flags can be found on this tab as well.

Serial	DSP IP	DSP MAC Address	DSP F/W Version	PK Controller Serial	PK Controller IP	PK Controller MAC Address	PK Controller F/W Version	Service Required	Service Notes
144	172.16.6.14	70:C8:4E:7F:B1:4C	99.99.99	22734	172.16.6.13	80:88:90:13:83:EC	1.2.3.0		
389	172.16.6.48	3D:0A:AD:BC:BF:FE	99.99.99	2505	172.16.6.47	39:D1:BC:12:45:AA	1.2.3.0		
387	172.16.6.6	11:97:DB:98:D1:E5	99.99.99	25507	172.16.6.5	24:7A:16:3F:ED:9F	1.2.3.0		
389	172.16.6.58	A1:35:FC:40:48:C1	99.99.99	37994	172.16.6.55	B0:CB:F1:6C:A7:BF	1.2.3.0		
362	172.16.6.2	14:0D:2C:A1:F8:0C	99.99.99	45661	172.16.6.1	EF:5A:26:89:F6:AF	1.2.3.0		
172	172.16.6.64	AC:68:82:17:2C:D0	99.99.99	47498	172.16.6.63	5D:F4:AA:C7:E3:57	1.2.3.0		
102	172.16.6.80	0E:90:8D:FD:C2:E0	99.99.99	49957	172.16.6.59	83:A7:D8:C2:59:8A	1.2.3.0		
103	172.16.6.42	ED:C3:82:B7:ED:81	99.99.99	50573	172.16.6.41	B4:E1:25:FF:85:C4	1.2.3.0		
186	172.16.6.4	63:34:47:91:F5:0B	99.99.99	51251	172.16.6.3	94:E4:8F:48:68:30	1.2.3.0		
376	172.16.6.28	C0:F6:17:72:EF:4E	99.99.99	52623	172.16.6.27	C8:F0:7F:50:20:AD	1.2.3.0		
358	172.16.6.8	45:53:0D:53:AB:33	99.99.99	54244	172.16.6.7	26:12:4A:51:34:ED	1.2.3.0		
387	172.16.6.54	80:A5:F0:2C:C1:74	99.99.99	55961	172.16.6.53	54:90:83:23:16:22	1.2.3.0		
330	172.16.6.12	10:CC:7B:85:1E:15	99.99.99	56435	172.16.6.11	D7:3C:9C:32:B8:B8	1.2.3.0		
376	172.16.6.44	D8:AB:32:F5:E6:19	99.99.99	56561	172.16.6.43	87:3E:3B:A7:0E:DF	1.2.3.0		
335	172.16.6.16	D4:7F:98:9A:BD:4F	99.99.99	57740	172.16.6.15	97:94:33:1E:0A:38	1.2.3.0		
343	172.16.6.26	33:10:FE:B7:F2:CF	99.99.99	59116	172.16.6.25	EC:CC:E7:DD:C8:CD	1.2.3.0		
109	172.16.6.30	62:14:1C:0A:92:F5	99.99.99	59639	172.16.6.19	A1:02:74:69:70:17	1.2.3.0		

Columns can be sorted by clicking on their header text.

ISP Serial	DSP IP	DSP MAC Address	DSP F/W Version	PK Controller Serial	PK Controller IP	PK Controller MAC Address	PK Controller F/W Version	Service Required	Service Notes
60869	172.16.6.48	3D:0A:AD:BC:BF:FE	99.99.99	2505	172.16.6.47	39:D1:BC:12:45:AA	10.0.0		
76667	172.16.6.6	11:97:DB:98:D1:E5	99.99.99	25507	172.16.6.5	24:7A:16:3F:ED:9F	10.0.0		
79496	172.16.6.34	49:1D:37:95:AF:D7	99.99.99	41347	172.16.6.33	C4:8B:20:76:6C:7E	10.0.0		
28262	172.16.6.2	14:0D:2C:A1:F8:0C	99.99.99	45661	172.16.6.1	EF:5A:26:89:F6:AF	10.0.0		
49903	172.16.6.42	EB:C3:82:B7:EB:81	99.99.99	50573	172.16.6.41	B4:E1:25:FF:85:C4	10.0.0		
50486	172.16.6.4	63:34:47:91:F5:0B	99.99.99	51251	172.16.6.3	94:E4:8F:48:68:30	10.0.0		
40858	172.16.6.8	45:53:0D:53:AB:33	99.99.99	54244	172.16.6.7	26:12:4A:51:34:ED	10.0.0		
53530	172.16.6.12	10:CC:7B:85:1E:15	99.99.99	56435	172.16.6.11	D7:3C:9C:32:B8:B8	10.0.0		
02376	172.16.6.44	D8:AB:32:F5:E6:19	99.99.99	56561	172.16.6.43	87:3E:3B:A7:0E:DF	10.0.0		
86835	172.16.6.16	D4:7F:98:9A:BD:4F	99.99.99	57740	172.16.6.15	97:94:33:1E:0A:38	10.0.0		
47708	172.16.6.20	62:14:1C:0A:92:F5	99.99.99	59639	172.16.6.19	A1:02:74:69:70:17	10.0.0		
74307	172.16.6.18	70:D4:13:73:20:63	99.99.99	61985	172.16.6.17	3F:38:5F:29:66:34	10.0.0		
40932	172.16.6.36	CE:DC:44:B9:86:5D	99.99.99	65366	172.16.6.35	32:73:12:F8:EB:C1	10.0.0		
34862	172.16.6.46	18:99:77:AD:3F:06	99.99.99	80181	172.16.6.45	16:CF:D4:F5:F9:D4	10.0.0		
34255	172.16.6.50	3C:43:78:44:72:D5	99.99.99	83809	172.16.6.49	69:78:C0:7E:AS:99	10.0.0		
12659	172.16.6.40	AA:F2:EB:D3:BC:44	99.99.99	88656	172.16.6.39	D5:6C:C7:A3:2C:F2	10.0.0		
46835	172.16.6.38	13:ED:06:3E:50:6C	99.99.99	99402	172.16.6.37	03:98:86:C0:77:AE	10.0.0		

To identify a module on the network, the flash button can be used to flash the LED logo of the associated module.

Flash	Reboot	Source	Name	Product	DSP Serial	DSP IP	DSP MAC Address	DSP F/W Version	PK Controller Serial	PK Controller IP	PK Controller MAC Address
⚡	⏻	Unmatched Source 1	T10 49957	Trinity	119102	172.16.6.40	0E:90:5D:FD:C2:ED	99.99.99	49957	172.16.6.59	83:A7:D8:C2:59:8A
⚡	⏻	Unmatched Source 2	TR 45661	Trinity	128262	172.16.6.2	14:0D:2C:A1:F8:0C	99.99.99	45661	172.16.6.1	EF:5A:26:89:F6:AF
⚡	⏻	Unmatched Source 2	TR 12335	Trinity	134414	172.16.6.10	79:47:11:AF:A5:D9	99.99.99	12335	172.16.6.9	7F:8F:B8:10:75:28
⚡	⏻	Unmatched Source 1	TR 65366	Trinity	140932	172.16.6.36	CE:DC:44:B9:86:5D	99.99.99	65366	172.16.6.35	32:73:12:F8:EB:C1
⚡	⏻	Unmatched Source 1	TR 50573	Trinity	149903	172.16.6.42	EB:C3:82:B7:EB:81	99.99.99	50573	172.16.6.41	B4:E1:25:FF:85:C4
⚡	⏻	Unmatched Source 1	T10 7147	T10	163763	172.16.6.52	94:63:20:F1:20:D8	99.99.99	7147	172.16.6.51	90:7F:F8:20:84:FE
⚡	⏻	Unmatched Source 1	T10 37994	T10	260589	172.16.6.56	A1:35:FC:40:48:C1	99.99.99	37994	172.16.6.55	B0:CB:F1:6C:A7:BF
⚡	⏻	Unmatched Source 2	TR 61985	Trinity	274307	172.16.6.18	70:D4:13:73:20:63	99.99.99	61985	172.16.6.17	3F:38:5F:29:66:34
⚡	⏻	Unmatched Source 2	TR 59639	Trinity	347708	172.16.6.20	62:14:1C:0A:92:F5	99.99.99	59639	172.16.6.19	A1:02:74:69:70:17
⚡	⏻	Unmatched Source 3	T218 33906	T218	380177	172.16.6.72	10:19:B3:D8:2F:11	99.99.99	33906	172.16.6.71	C9:2F:4F:F4:A9:5D
⚡	⏻	Unmatched Source 1	TR 11419	Trinity	408269	172.16.6.32	76:6F:AD:0C:4A:2B	99.99.99	11419	172.16.6.31	10:19:25:7D:01:F4
⚡	⏻	Unmatched Source 1	T10 84732	T10	419338	172.16.6.58	B3:FB:5C:51:51:CF	99.99.99	84732	172.16.6.57	88:93:BD:31:95:C2
⚡	⏻	Unmatched Source 3	T218 75907	T218	439068	172.16.6.62	F4:24:3A:54:CC:44	99.99.99	75907	172.16.6.61	34:31:D2:47:68:DD
⚡	⏻	Unmatched Source 2	T10 93646	T10	447400	172.16.6.22	31:BA:4C:93:A1:89	99.99.99	93646	172.16.6.21	53:26:F2:20:05:1D
⚡	⏻	Unmatched Source 2	TR 51251	Trinity	450486	172.16.6.4	63:34:47:91:F5:0B	99.99.99	51251	172.16.6.3	94:E4:8F:48:68:30
⚡	⏻	Unmatched Source 2	TR 56435	Trinity	453530	172.16.6.12	10:CC:7B:85:1E:15	99.99.99	56435	172.16.6.11	D7:3C:9C:32:B8:B8
⚡	⏻	Unmatched Source 2	T10 59116	T10	523643	172.16.6.26	33:10:FE:B7:F2:CF	99.99.99	59116	172.16.6.25	EC:CC:E7:DD:C8:CD

The Reboot button will trigger a remote reboot on the loudspeaker robotics controller from .dynamics. Only one module can be rebooted at a time.



Flash	Reboot	Source	Name	Product	DSP Serial	DSP IP	DSP MAC Address	DSP F/W Version	PK Controller Serial	PK Controller IP	PK Controller MAC Address
		Unmatched Source 3	T10 16667	T10	687443	172.16.6.24	3F:62:3B:94:E9:13	99.99.99	16667	172.16.6.23	77:28:8B:15:CC:19
		Unmatched Source 1	T10 37994	T10	260589	172.16.6.56	A1:35:FC:40:48:C1	99.99.99	37994	172.16.6.55	B0:CB:F1:6C:A7:BF
		Unmatched Source 1	T10 49957	T10	119102	172.16.6.60	0E:90:6D:FD:C2:E0	99.99.99	49957	172.16.6.59	83:A7:D8:C2:59:8A
		Unmatched Source 3	T10 52623	T10	918676	172.16.6.28	C0:F6:17:72:EF:4E	99.99.99	52623	172.16.6.27	C6:ED:7F:5D:20:AD
		Unmatched Source 1	T10 55961	T10	738587	172.16.6.54	60:A5:F0:2C:C1:74	99.99.99	55961	172.16.6.53	54:90:83:23:16:22
		Unmatched Source 3	T10 59116	T10	523643	172.16.6.26	33:10:FE:B7:F2:CF	99.99.99	59116	172.16.6.25	EC:CC:E7:DD:C8:CD
		Unmatched Source 1	T10 7147	T10	163763	172.16.6.52	94:63:20:F1:20:D8	99.99.99	7147	172.16.6.51	90:7F:E8:20:84:EE
		Unmatched Source 3	T10 74895	T10	547755	172.16.6.30	42:23:07:2C:BC:52	99.99.99	74895	172.16.6.29	27:38:2D:35:98:BA
		Unmatched Source 1	T10 84732	T10	419538	172.16.6.58	B3:F8:5C:51:51:CF	99.99.99	84732	172.16.6.57	88:93:8D:31:95:C2
		Unmatched Source 3	T10 93646	T10	447400	172.16.6.22	31:BA:4C:93:41:89	99.99.99	93646	172.16.6.21	53:26:F2:20:05:1D
		Unmatched Source 2	T218 14088	T218	624172	172.16.6.70	C6:46:A9:05:61:C7	99.99.99	14088	172.16.6.69	B8:43:D1:38:0E:49
		Unmatched Source 2	T218 33906	T218	380177	172.16.6.72	10:19:B3:DB:2F:11	99.99.99	33906	172.16.6.71	C9:2F:4E:E4:A9:5D
		Unmatched Source 2	T218 47498	T218	728972	172.16.6.64	AC:68:82:17:2C:D2	99.99.99	47498	172.16.6.63	5D:F4:AA:C7:E3:57
		Unmatched Source 2	T218 54413	T218	925711	172.16.6.66	78:B4:79:8E:75:30	99.99.99	54413	172.16.6.65	58:69:6A:50:A2:B5
		Unmatched Source 2	T218 75907	T218	439068	172.16.6.62	F4:24:3A:54:CC:44	99.99.99	75907	172.16.6.61	34:31:D2:47:68:DD
		Unmatched Source 2	T218 79756	T218	570880	172.16.6.68	5C:3C:2B:7A:78:FE	99.99.99	79756	172.16.6.67	25:C1:96:86:C2:D4
		Unmatched Source 1	TR 11419	Trinity	408269	172.16.6.32	76:6F:AD:0C:4A:28	99.99.99	11419	172.16.6.31	10:19:25:7D:01:F4

6.2.5 DSP Tab

In the DSP tab, all DSP settings can be viewed for each module in the network, including gain, delay, mute state, channel mute state, EQ filters applied, Array Size Compensation applied, input selection, digital mode, and current preset. A detailed tooltip will appear if the user hovers the mouse over the preset.



Flash	Reboot	Source	Name	Product	DSP Serial	Gain (dB)	Delay (ms)	Muted	Muted Channels	System Group EQ	Array Group EQ	Module Group EQ	Array Size Comp
		Unmatched Source 3	T10 16667	T10	687443	0.0	0.00			no EQ	no EQ	no EQ	no EQ
		Unmatched Source 1	T10 37994	T10	260589	0.0	0.00			no EQ	no EQ	no EQ	no EQ
		Unmatched Source 1	T10 49957	T10	119102	0.0	0.00			no EQ	no EQ	no EQ	no EQ
		Unmatched Source 3	T10 52623	T10	918676	0.0	0.00			no EQ	no EQ	no EQ	no EQ
		Unmatched Source 1	T10 55961	T10	738587	0.0	0.00			no EQ	no EQ	no EQ	no EQ
		Unmatched Source 3	T10 59116	T10	523643	0.0	0.00			no EQ	no EQ	no EQ	no EQ

6.2.6 Online Editor

The Online Editor is used to organize and configure modules and sources to ensure they match the real-world arrangement. Sources must be arranged and configured correctly before matching or adding them to the workspace as they can not be modified afterward. The Editor will also display any errors or warnings pertaining to the sources after discovery.

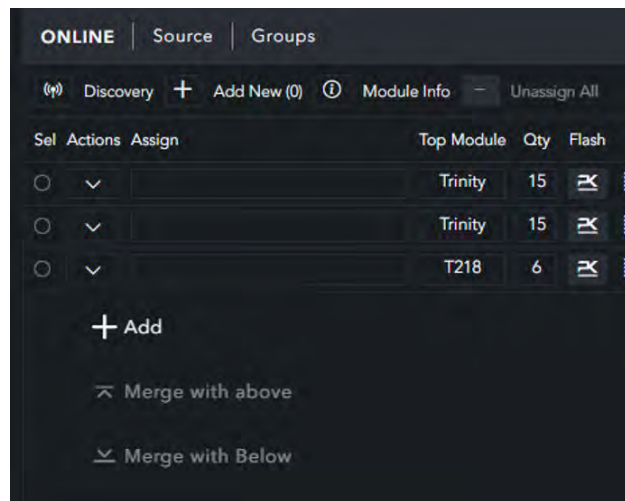
Actions:

- **Add:** Adds the selected source to the workspace and creates a new source to match the given configuration.
- **Merge with Above:** Moves the selected module into the source above.
- **Merge with Below:** Moves the selected module into the source below.

Assign: Matches the selected source to an existing source within the workspace. Only sources of the same type and quantity can be matched.

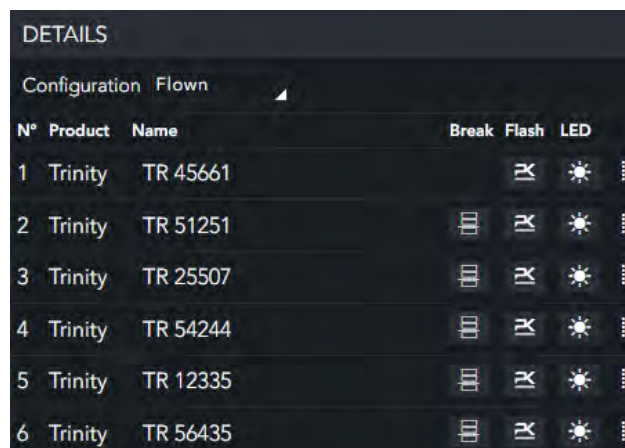
- **Top Module:** Displays the top module of the source.
- **Qty:** Displays the number of modules in a source.

- **Flash:** Blinks the LED indicators on the selected source.



6.2.6.1 Online Editor Details

The Details pane provides the detailed list of modules within the selected source. Within this view, modules can be identified then reordered by dragging or removing them from the source using the Break function. Any source errors can also be viewed in more detail by hovering over the icon for each individual module.



For subwoofer arrays, the size and orientation of the source must be selected prior to matching or adding the source to the workspace.

- **Columns:** Displays the number of subwoofer columns in the source.
- **Rows:** Displays the number of subwoofers in each column.
- **Mirror Columns:** Reverses the module order in the case that the subwoofer source has been wired backwards.
- **Cardioid:** Selects the cardioid arrangement, if any, for the subwoofer source.

DETAILS

Columns 5 Rows 3 Qty 15 Mirror columns

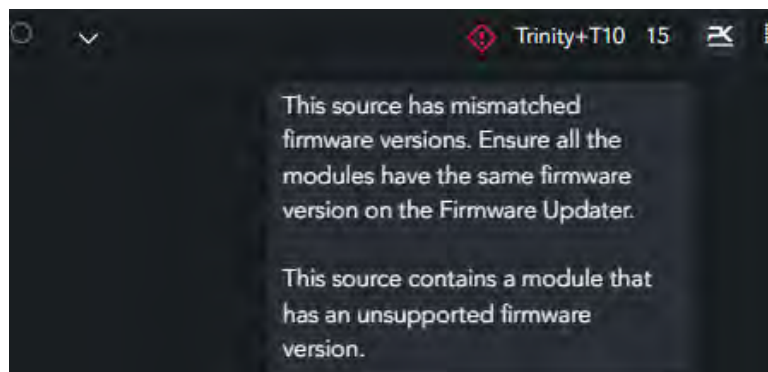
Configuration Ground

N°	Model	Name	Break	Flash	LED	Cardioid
1	T218	T218 6127				
2	T218	T218 89674				
3	T218	T218 36859				

Note: When the modules in the online discovery list aren't in the same order as the physical modules, they can be dragged vertically to match.

6.2.6.2 Warnings & Errors

Firmware & Preset Version Warnings: A warning may be displayed on a source if its firmware version and/or preset version is either out of date or unsupported. A warning will also show if firmware versions are mismatched within the same source.

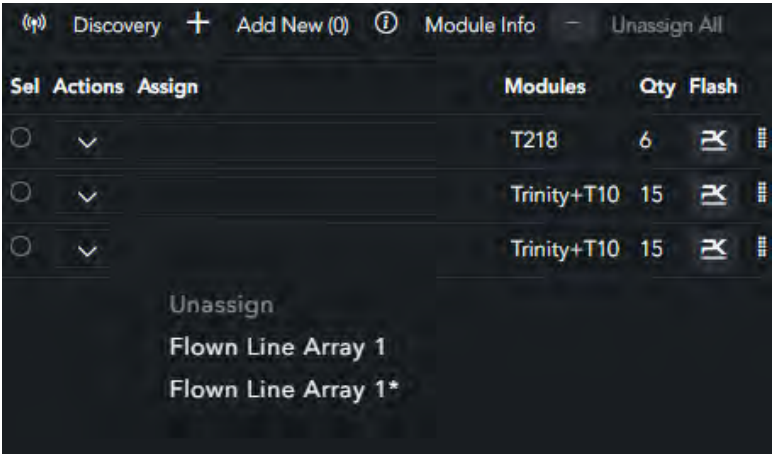


In these cases the Firmware Updater tool in .dynamics can reconcile this error. If this is not possible, the sources may still be added to the workspace unless there is an unsupported preset version detected.

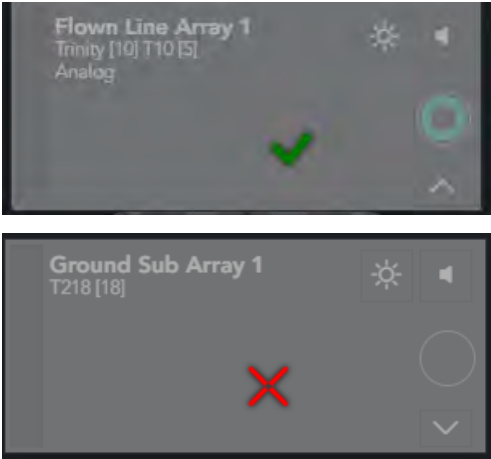
Network Errors: A source may present an error stating it is missing its robotics controller or has an unmatched robotics controller. First, attempt a rediscovery. If the problem persists, diagnose the module physically or contact PK Sound Support.

6.2.7 Add to Workspace

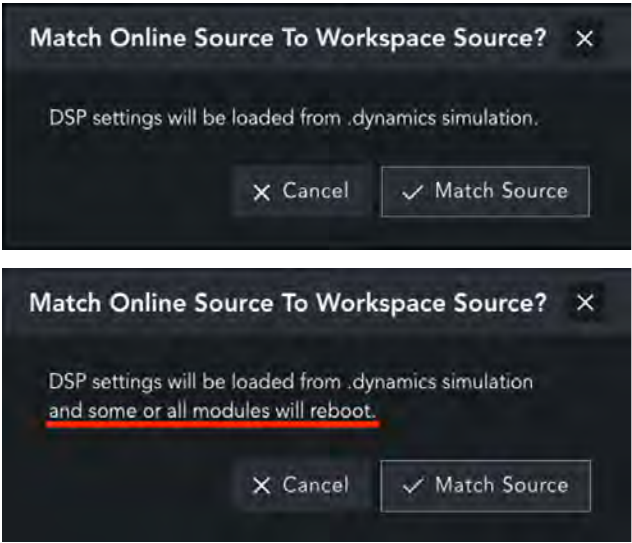
Sources and modules can be added to the workspace by either adding a new item or matching with an existing source. Within the Assign field, sources and modules can be matched with existing sources of the same type and size. Only sources of the correct size and type will be shown within the assign field for the specified source.



Sources can be dragged from the Online Editor onto the source cards in the existing workspace. If the source is of the correct type and equal quantity, a match is allowed as indicated by the green check mark; otherwise, the match will not be allowed as indicated by the red X.

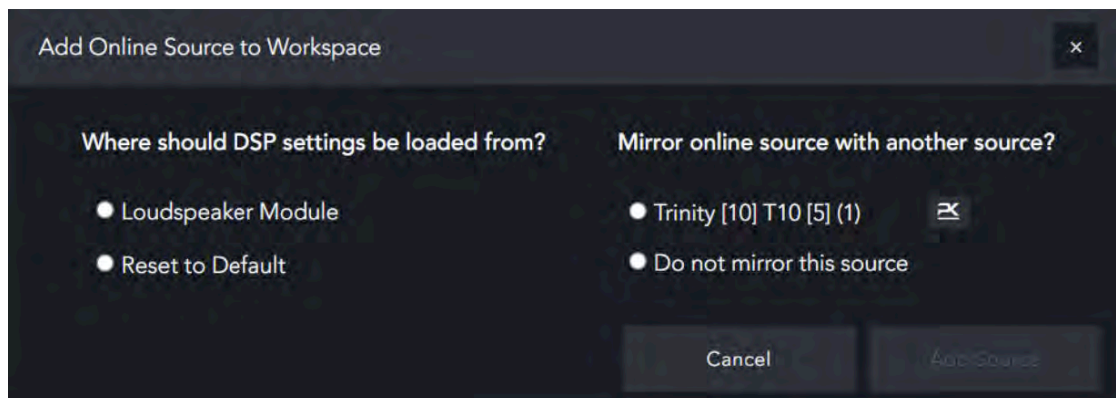


A dialog box will pop up to confirm the matching action, noting that DSP settings will be loaded from the workspace simulation. The matching action also sets the input routing to AES. As such, if this requires a reboot, the confirmation dialog box will present this information.

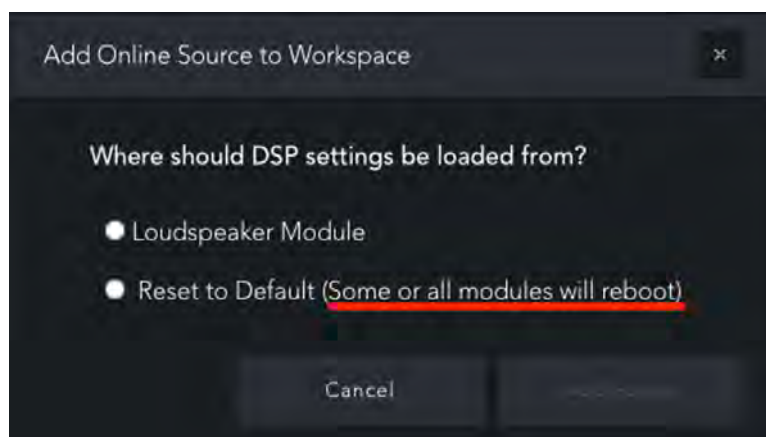


If a source is dragged into the workspace without a matching source, a dialog will pop up prompting the user to select where the DSP settings should be loaded from to add the source. An option is also presented to

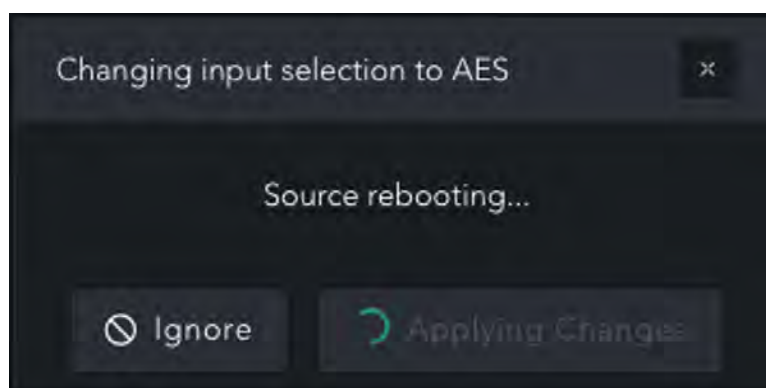
mirror the flown array with another array of the same quantity and composition.

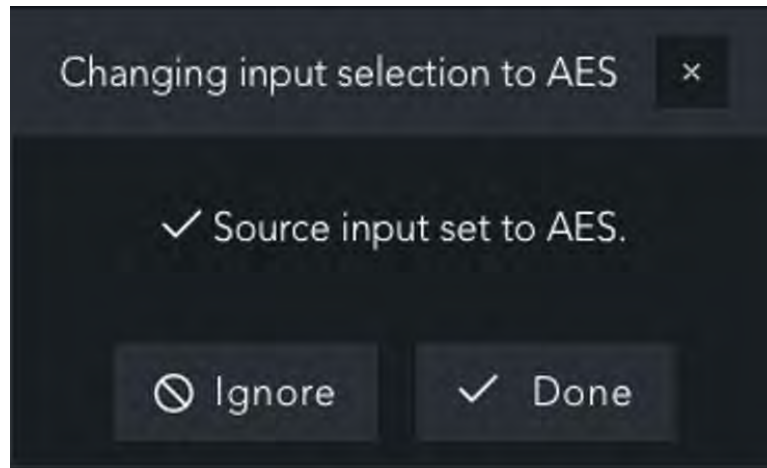


The user can load DSP settings from the discovered modules or can reset to default settings when adding to the workspace. The pop-up will also show if the selected sources would require some modules to reboot if resetting to default DSP settings on some VE Series amplifier models.



When modules are rebooting due to an input selection change, .dynamics will present a dialog box highlighting the action and its completion. The result of the action will also be shown.





6.2.8 Force Match



WARNING: Safety and rigging calculations for an array that contains virtual modules may not reflect the real mechanical state of the source, therefore the safety calculation might be affected. Move robotics at your own risk and closely monitor the array as it moves.

Force Match allows a discovered source to be matched to a workspace source even when some of the physical modules are missing from the network. The missing modules are represented as **virtual modules** in the workspace so the rest of the source can still be controlled and tuned from .dynamics.

Force Match is only allowed when at least one module of the source is online and the number of missing modules does not exceed the limit for the source configuration:

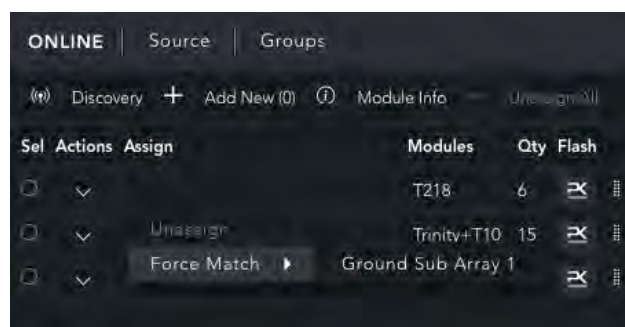
- **Subwoofer arrays:** up to **3 virtual modules**.
- **Line arrays and all other source types:** up to **2 virtual modules**.

If the number of missing modules exceeds this limit, the workspace source will not be offered as a Force Match target.

6.2.8.1 Starting a Force Match

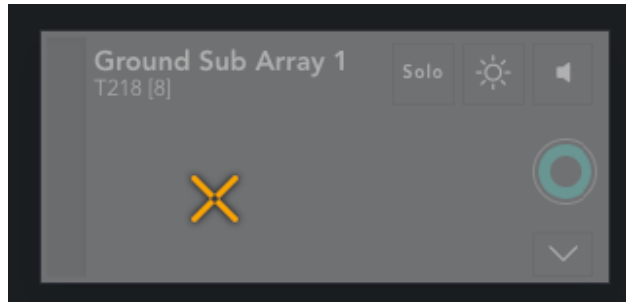
A Force Match can be started in two ways:

1. From the discovered source's Assign menu. In the Online Editor, open the Assign dropdown on the discovered source and select **Force Match**. A submenu lists the workspace sources that are eligible for a Force Match. Selecting one opens the Force Match dialog.

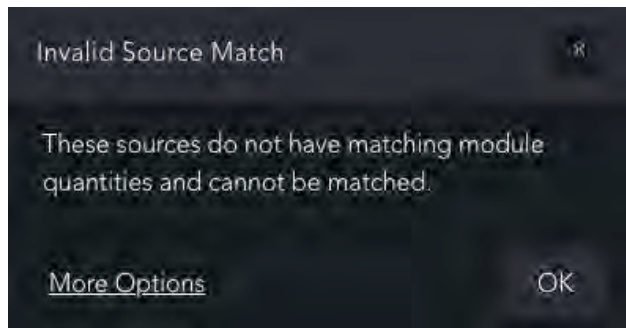


2. By dragging the discovered source onto a workspace source card. Drag a discovered source with missing modules over the workspace source cards. A workspace source card that can accept a Force Match

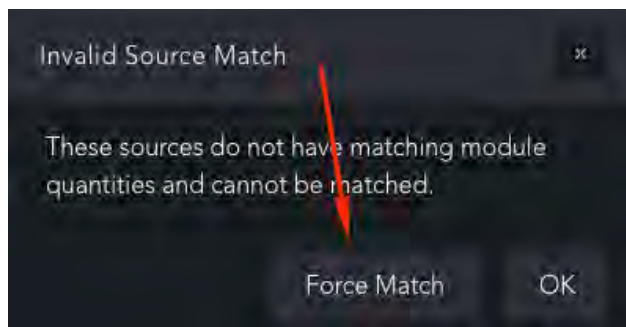
shows an **orange X**, indicating that a Force Match is possible. Workspace cards that show the standard red X cannot accept this source even as a Force Match.



Releasing the source on a card that shows the orange X opens a confirmation dialog. Because this is not an exact match, the match is not offered directly — press **More Options** to reveal the additional matching actions.

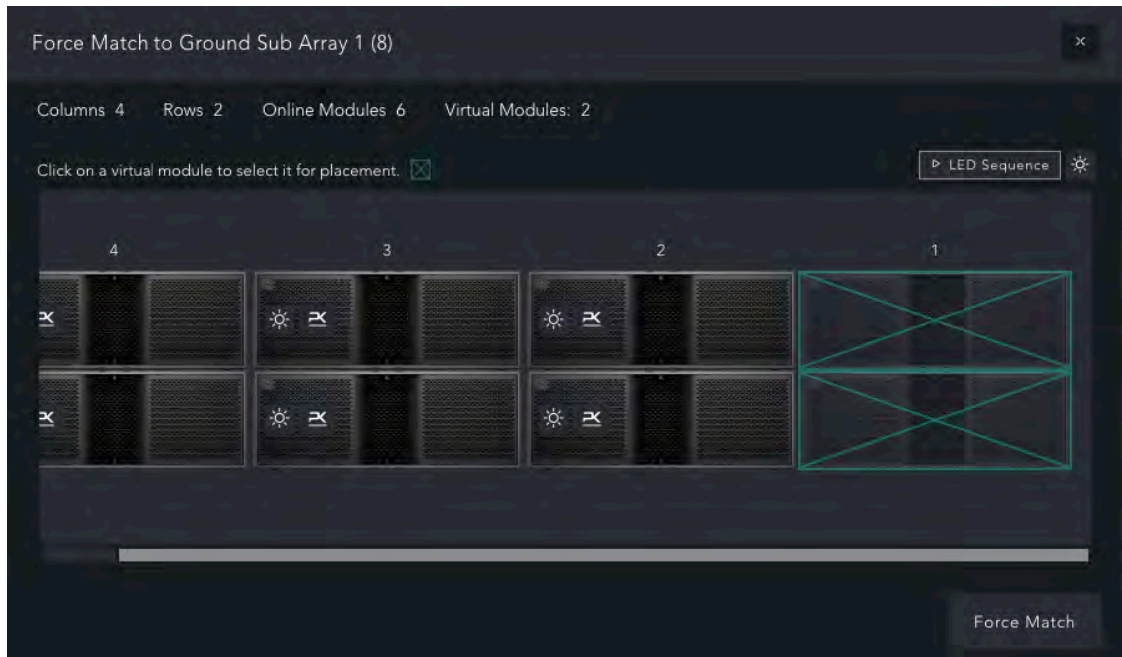


Then press **Force Match** to open the Force Match dialog.



6.2.8.2 Force Match Dialog

The Force Match dialog shows the full workspace source layout with the online modules already placed in their default positions. The missing modules appear as **virtual modules** with a glacial blue X overlay. The header summarizes the source: total quantity (or columns and rows for subwoofer arrays), number of online modules, and number of virtual modules.



Placing virtual modules Virtual modules can be moved to the correct positions in the array using a two-click action:

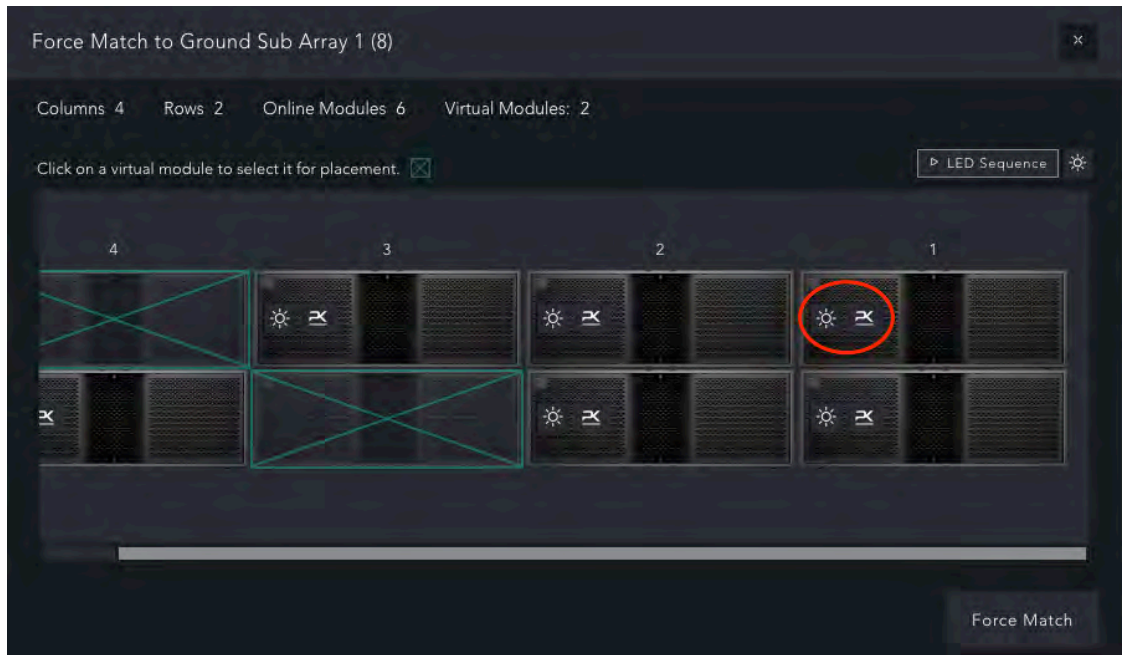
1. Click a **virtual module** to select it. The selected virtual module is highlighted and the other modules indicate which slots are valid targets.
2. Click the **module position** where the virtual should be placed.

Clicking the selected virtual a second time, or clicking the background, cancels the selection. Virtual modules can only be swapped with online modules of the same model group.

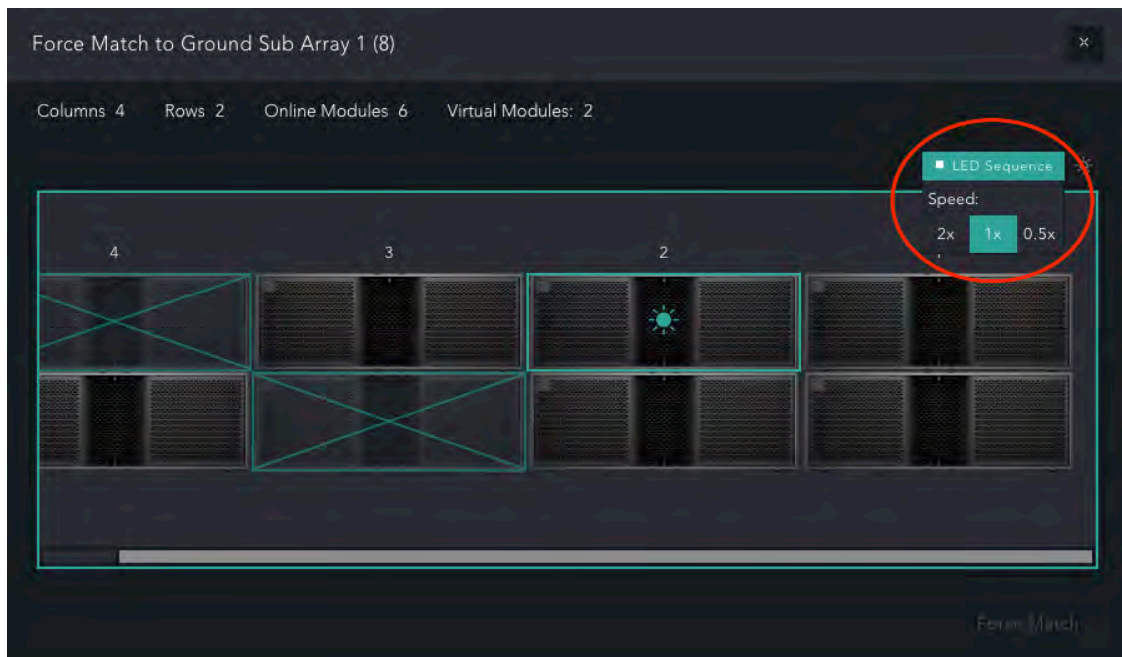
6.2.8.3 Identifying Modules

Before placing virtual modules, the online modules in the dialog can be identified physically using their LED and Flash controls.

Per-module LED and Flash buttons Each online module in the dialog has its own LED toggle and Flash button, allowing the module to be identified individually.



LED Sequence The **LED Sequence** button triggers a LED sequence through every module in the source in order of virtual position. This can be used to confirm the physical and virtual modules are in the same order. While the sequence is running, the speed can be set to **0.5x**, **1x**, or **2x**. Force Match placement is disabled while the sequence is active; stop the sequence to resume placing virtual modules.



All LEDs The **LED** button beside the LED Sequence button turns on the LED on every online module in the source at once, so the whole source can be identified at a glance.



6.2.8.4 Applying the Force Match

Once the virtual modules are in their correct positions, press **Force Match** at the bottom of the dialog to apply the match. The discovered source is matched to the workspace source and the missing modules remain in the source as virtual modules.

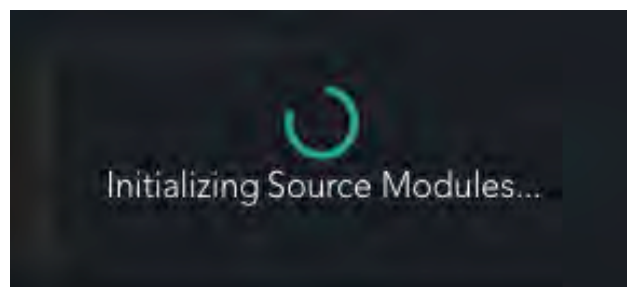
6.2.8.5 Virtual Modules in the Workspace

After a Force Match, the source appears in the workspace like any other matched source. When the source card is expanded, the virtual modules are shown with a **green overlay** and are inactive: they cannot be muted, soloed, tuned, or controlled individually, and they do not display LED, inclinometer, or other live data. The online modules in the same source continue to behave normally.

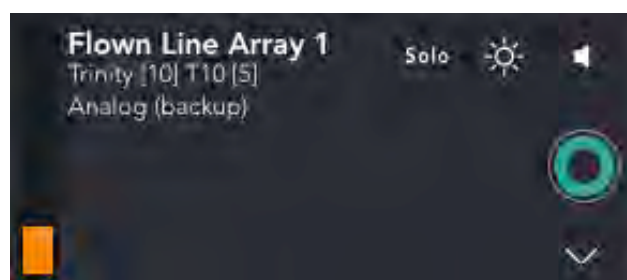


6.3 Source Card

When a source is matched or added into the workspace, some DSP and Robotics controller initialization may occur. This is how the loudspeaker settings are initially synchronized with the workspace settings. A spinner will appear briefly on the source card to indicate this process is still in progress.

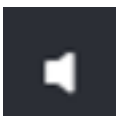
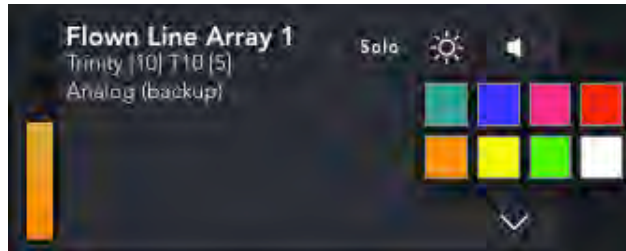


The Source Card provides an at-a-glance view of a source's status and is contextual dependent on the loudspeaker management tab that is currently selected.





LED On/Off: Turns the LED indicator of a selected source on or off. A left-click toggles the LED, turning it on with the default **Glacial Blue** color. Right-click the button to open the color picker and set the LED to one of eight fixed colors. The same left-click / right-click behavior applies to the per-cabinet LED buttons in the Expanded Source View, so individual cabinets can be given their own color.

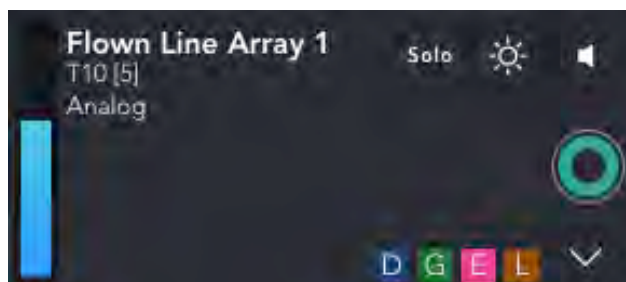


Mute: Mutes/unmutes the source.



Solo: Mute all other sources.

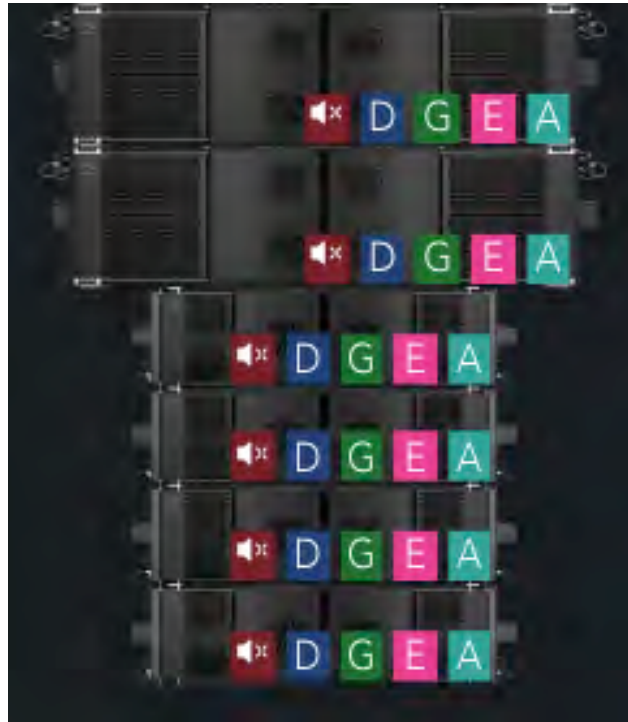
Source Card Overlay: Indicates if any modules within the source have delay, gain, Low Latency, or EQ applied.



6.3.1 Expanded Source View

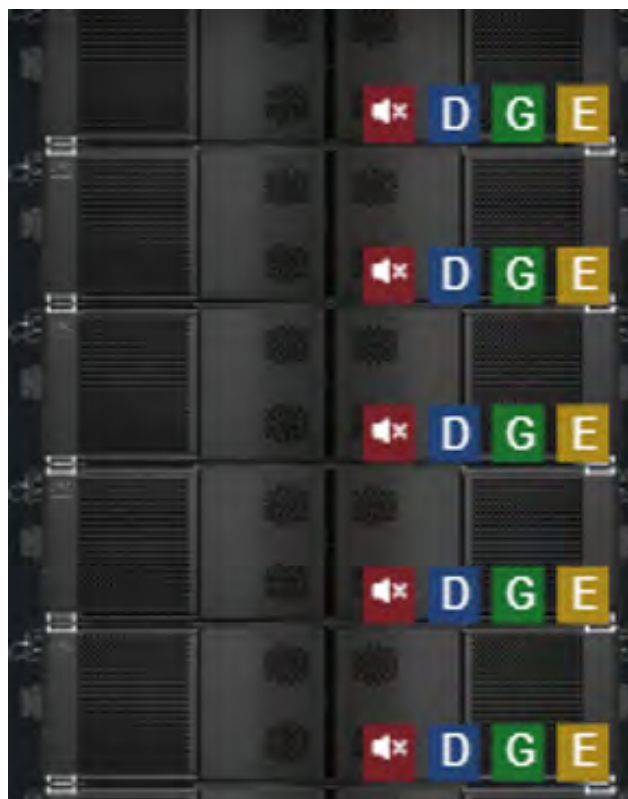
The Expanded Source view is used to display, inspect, and drill down on array module status. The status of individual modules is contextual and changes depending on the corresponding menu.

For Point Sources, the Y-orientation will determine whether the image is horizontal or vertical in this view.



6.3.2 Module Overlays

Indicate which modules have Mute, Channel Mute, Delay, Gain, Array Size Compensation (ASC), or EQ applied. More information is provided upon clicking on the overlay badges.

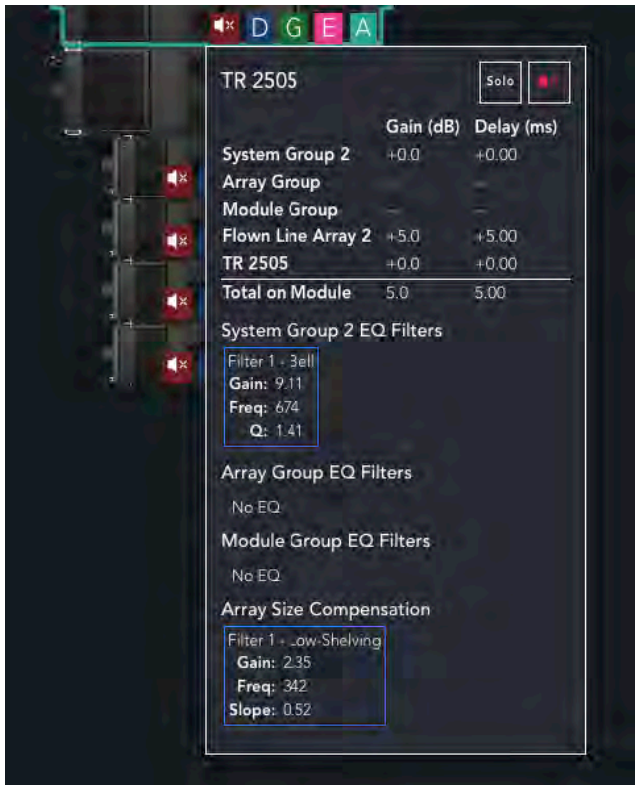


6.3.3 Mute Shortcut

The keyboard shortcut Control + Shift + M (Windows) or Command + Shift + M (macOS) will mute and unmute the selected source card or individual module.

6.3.4 Source Details

For the selected workspace source, the details panel is found at the bottom of the Editor panel.



6.3.5 Inclinometer

If the selected source is connected to the network, the average incline of the source is displayed here. Clicking the eye button will activate constant inclinometer polling in .dynamics to refresh the average incline as the array is flown. This value can be compared with the simulated rotation of the source to ensure safety.

Line Array 1

Inclinometer

-

Simulation Rotation

0.0°

Input

AES

▲

Digital Ch.

Monomix

▼

Gain (dB)

0.0

↕

Delay (ms)

0.00

↕

Delay (m)

0.00

↕

Low Latency

☐

N°	Product	Mod. Group	Gain (dB)
All	-	-	▲ 0.0 ↕
1	Trinity	-	▲ 0.0 ↕
2	Trinity	-	▲ 0.0 ↕
3	Trinity	-	▲ 0.0 ↕
4	Trinity	-	▲ 0.0 ↕
5	Trinity	-	▲ 0.0 ↕
6	Trinity	-	▲ 0.0 ↕
7	Trinity	-	▲ 0.0 ↕
8	Trinity	-	▲ 0.0 ↕
9	Trinity	-	▲ 0.0 ↕
10	Trinity	-	▲ 0.0 ↕
11	T10	-	▲ 0.0 ↕

6.3.6 Input Routing

The audio input of the source can be selected as either AES or Analog signal. In AES mode, one of three digital channels can be selected: Left, Right, or Monomix. When selecting a desired routing, loudspeakers employing VE Series amplification modules may require a reboot.

7. Robotics

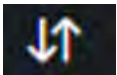
The Robotics menu allows users to apply changes to module robotics within arrays.

The Operator Presence Control feature is intended to keep the operator cognizant of the location of any people or obstacles near the cabinets that are under the operator's control. Always ensure that the surrounding area is clear before initiating a movement.

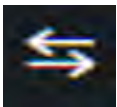
Safety is paramount when remotely moving line array modules, particularly when workers or other people are present. To mitigate risk of injury or damage, fail-safe mechanisms are built into each module's operating system which will disable all motor functions in the event of network communication issues or sudden operator absence. The Operator Presence Control feature ensures that the default operating state is safe.

Statics Calculations

As the user inputs vertical angles, .dynamics continually performs calculations to determine the location of the array's centre of gravity and the forces experienced by the connections within the array. Any configuration outside of engineered specifications will be determined to be unsafe and will restrict movement of the robotics.



Move Vertical (v): Press and hold the icon or the "v" key to adjust the vertical actuators in the array to match the angles within the Object Editor.

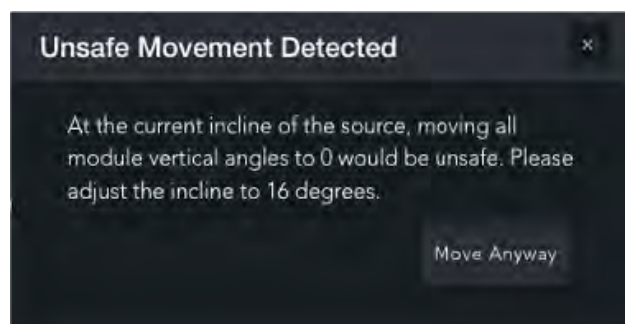


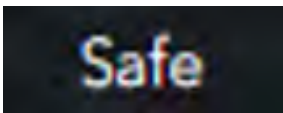
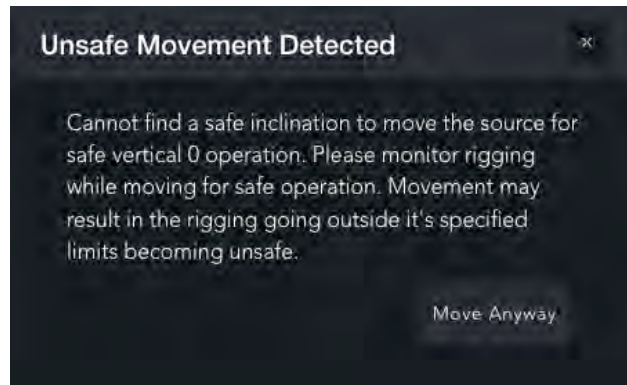
Move Horizontal (h): Press and hold the icon or the "h" key to adjust the horizontal actuators in the array to match the angles within the Object Editor.



Flatten/Zero angles (z): Press and hold the icon or the "z" key to adjust the vertical actuators to zero degrees first, if they are not already. Then the second stage will adjust the horizontal actuators to it's factory configuration if they are not already.

When attempting to flatten the source, if the source has non-zero vertical angles, then .dynamics will calculate if it is safe to flatten the source. If so, the flatten operation will begin on the vertical actuators. Otherwise a prompt will be shown to the user on what inclination angle would be safe to flatten the array. If no safe angle can be determined, .dynamics will warn the user before allowing them to continue.





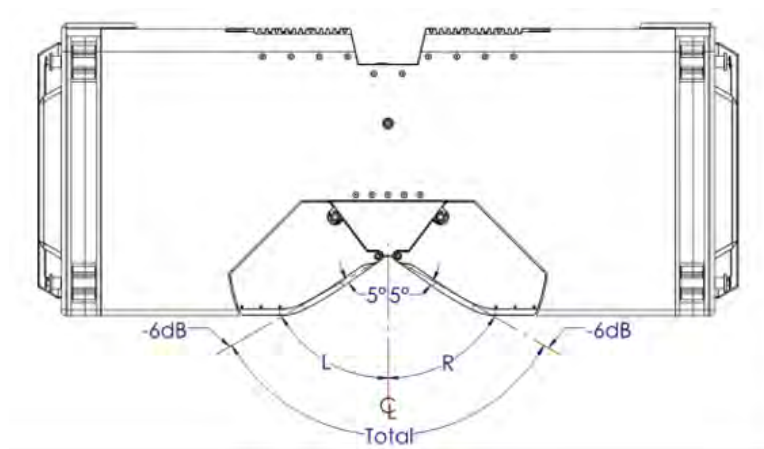
Safety: Indicates the status of the mechanical safety engine. Unsafe configurations will disable the move features for both vertical and horizontal actuators.



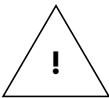
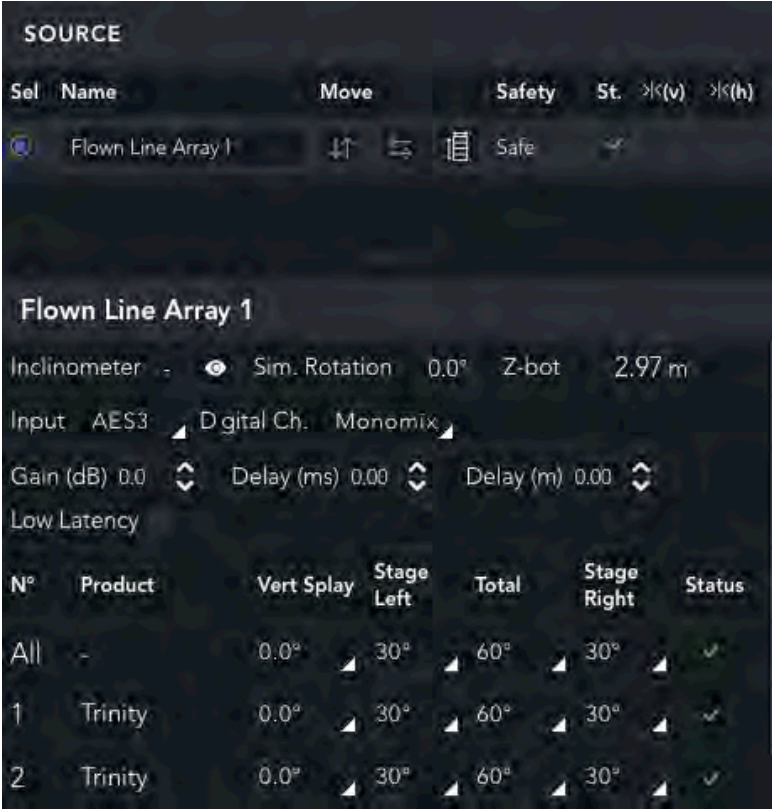
Actuator Status: Indicates the status of the actuator. It will display a green check when the actuator is in the correct state/location; otherwise, the user can hover over the indicator to display the error via tooltip.

7.1 Horizontal Angle Adjustment

Each visual element has three numeric entry boxes: one for the left horn flare, one for the right horn flare, and another to control both horn flares.



ALL: To adjust all the horizontal or vertical angles within an array to the same setting, enter the value within the ALL row at the top of the Detail pane.



WARNING: It is up to the user to ensure that the area around the array is clear of people, equipment, and other objects. Damage or injury may occur if moving the array while obstructed!

8. Tune

The Tune menu consists of two tabs: Group Tuning and Array Size Compensation filter selection.

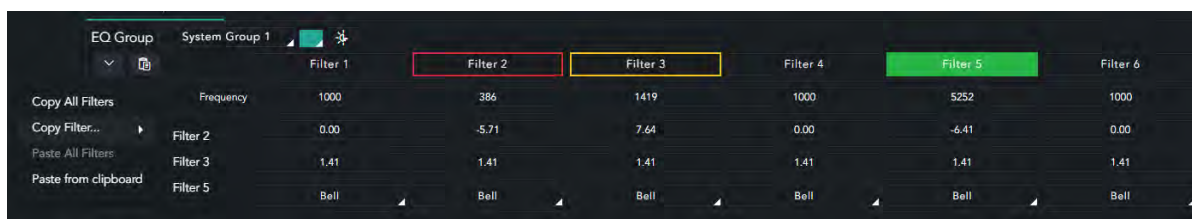
The Groups tab enables the adjustment of input level EQ, gain, delay, and mute to EQ groups as created within the Group menu. Adjustments will be applied to the matched modules on the network, updating the DSP settings as you tune.

- **EQ Group:** Selects the system or array group to which EQ adjustments will be applied.
- **Expand Arrow:** Opens and closes the EQ detail window.
- **Filter 1,2,3,4,5:** Turn the selected filter on and off.
- **Frequency:** Adjusts the centre frequency of the selected filter.
- **Gain:** Specifies the gain of the selected filter.
- **Q/Slope:** Specifies the Q of the selected filter.
- **Type:** Specifies the filter type (Bell, Low Shelf, Hi Shelf).
- **Equalizer Curve Controls:** Adjust EQ variables by dragging visual indicators within the frequency response window.



8.1 Copy & Paste Filters

The clipboard button is used to copy and paste one or all of the Filters in the selected EQ group.



- **Copy All Filters:** Copy all filters in the group.
- **Copy Filter...:** Copy a single filter in the group.
- **Paste All Filters:** Enabled if there are filters are on the clipboard. Paste all filters into the selected group. Filter 6 will be ignored if there is no slot in the destination group.
- **Paste from Clipboard:** Paste from external clipboard. The data must be in the JSON format as follows:

An array of IIR Filters:

```
{
  index: number;
```

```

enabled: boolean;
frequency: number;
gain: number;
q: number;
type: IIRFilterTypes;
}

```

Where IIRFilterTypes can be 'Peak', 'hiShelving', or 'lowShelving'.

Example:

```

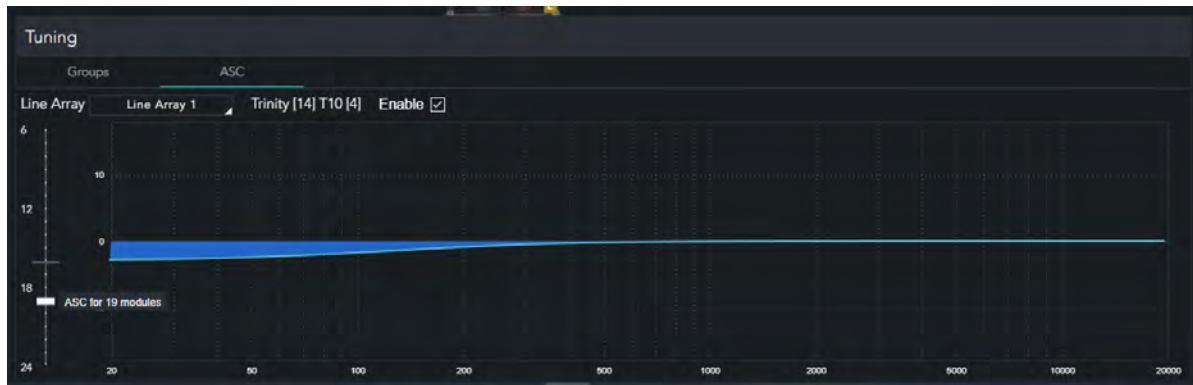
[
  {
    index: 0,
    enabled: true,
    frequency: 100,
    gain: 3,
    q: 0.7,
    type: 'lowShelving',
  },
  {
    index: 1,
    enabled: true,
    frequency: 500,
    gain: -2,
    q: 1.0,
    type: 'hiShelving',
  },
  {
    index: 2,
    enabled: false,
    frequency: 1000,
    gain: 0,
    q: 1.2,
    type: 'peak'...
  }
]

```

8.2 Array Size Compensation

The ASC (Array Size Compensation) tab is used to apply a low-shelf filter to all modules in the selected Line Array.

- **Line Array Selector:** Select the line array source to which Array Size Compensation will be applied.
- **Enabled Checkbox:** Enable or disable the proposed filter in the graph below.
- **ASC Slider:** Adjust the ASC filter to the desired magnitude. The wider tick mark denotes the suggested filter based on the number of modules in the source.



8.3 Groups

- **System Group:** The highest level of group which can contain both Array Groups and Array Sources.
- **Array Group:** The second level of group which can contain array sources.
- **EQ Group:** Creates a System Group or an Array Group.
- **Assign:** Assigns sources to the selected Group.
- **Mute Group:** Mutes selected Group.
- **Gain Group:** Adjusts the gain of the Group.
- **Delay Group (Time/Distance):** Adjusts the delay of the Group.

GROUPS					
EQ Group		Assign		Delete	
Sel	Name	Mute	Gain (dB)	Delay (ms)	Delay (m)
☒	System Group 1	☐	0.0	0.00	0.00
☐	Flown Line Array 1	☐	0.0	0.00	0.00
☐	Flown Line Array 1*	☐	0.0	0.00	0.00

9. Live

The Live menu is used for system monitoring during operation. Each Source Card displays the key array parameters and is a roll-up of all modules within that array. If any module reports a change in status (i.e., limiting, over temperature, etc.) the Source Card will display that information.

9.1 VU Meters

The Source Card displays the input and output meters for the module with highest user-set gain within each array. (This doesn't include gain from EQ settings.) In the case that the module(s) with the highest user-set gain are muted, the Source Card will display meters from the module with the next-highest user-set gain.

The VU meters show the signal and gain reduction for the input and output channels. Gain reduction is indicated as a reverse overlay on the VU meter in red.

Each channel has a frequency band label, an output level indicator, a limit indicator, a gain reduction indicator, and a channel mute toggle button. The four channels are labeled:

- **LF** — Low Frequency
- **MF** — Mid Frequency
- **HF** — High Frequency
- **VHF** — Very High Frequency



The Input meter indicates whether the main signal or the backup signal is active (e.g., analog backup will play if the selected AES3 signal is lost). A blue meter indicates the main signal is playing. An orange meter indicates the backup signal is playing.

For newer products using the VE Amp platform, the Input meter displays both the main and backup signals simultaneously and the main signal is always shown in blue. The signal currently playing is represented with a wider bar.

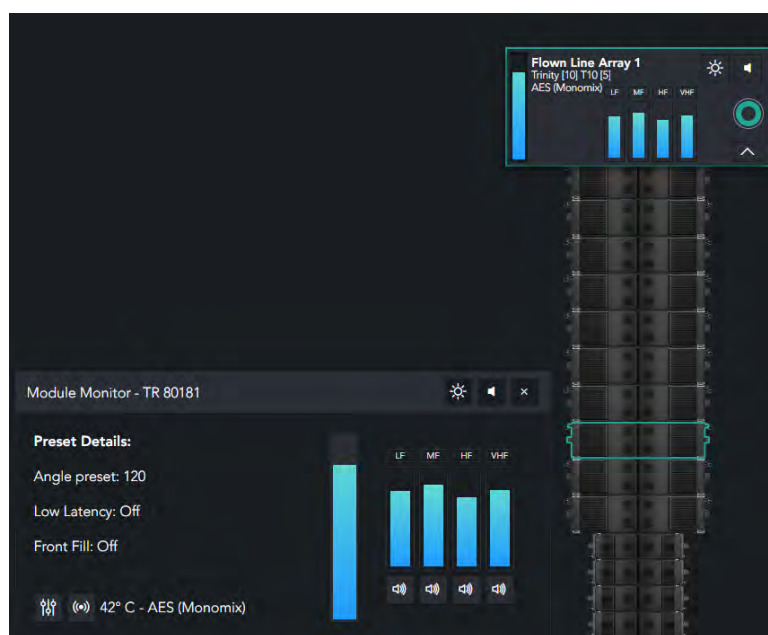
If input selections are mismatched within the same array, the Input Routing label will turn orange and display all active input selections within that array.



For Mixed Sources, there are two sets of VU meters: one for subwoofers and one for the line source modules.



Selecting an individual module within an expanded source card will display the status and levels for the specific module. This can be used to drill down to inspect the status of individual elements within the array.



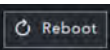
10. Status

The Status menu contains detailed information about each module, including service notes, serial numbers, network information, and a shortcut to update the module’s firmware (if supported).

Service notes are used to log information about the loudspeaker, such as notes to inspect or repair a unit.



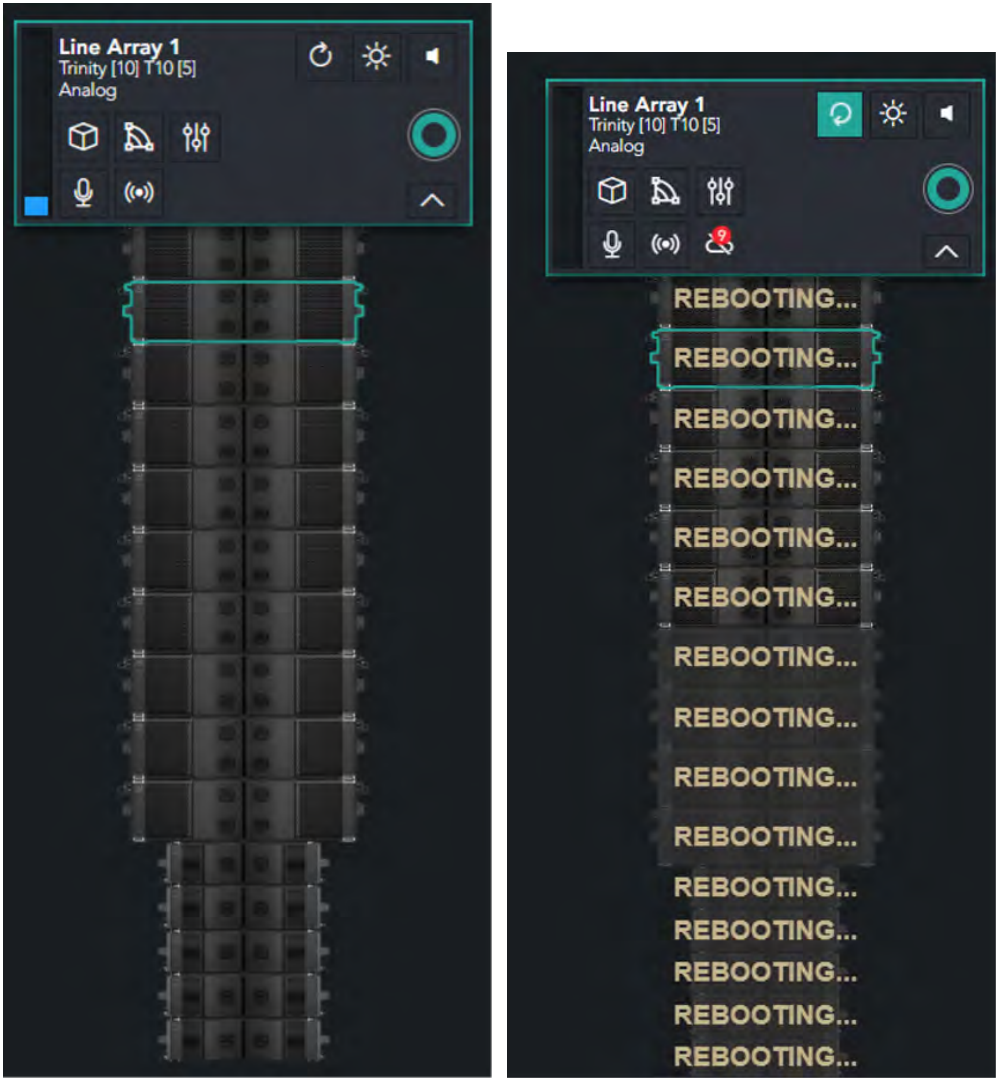
Service Note Flag: When the service note flag is set, the LCD on the rear of the loudspeaker will appear red for 5 seconds upon start-up. This is a useful communication tool to let service technicians easily note that a module may need service when being checked into the warehouse.



Reboot: A Reboot button can be found in Module Status for single module rebooting.

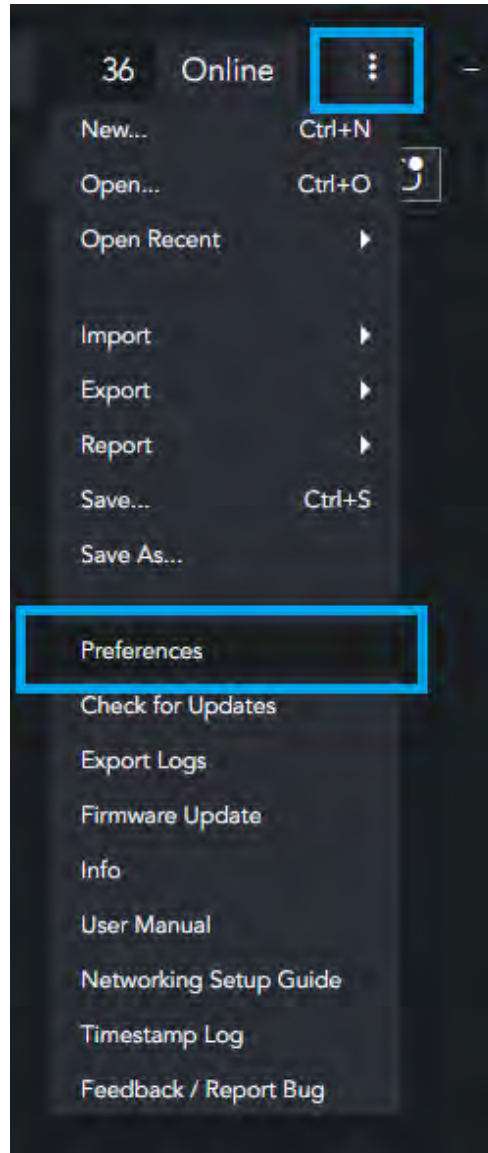


In the Status tab, the entire source can be rebooted remotely from the Reboot button on the Source Cards.



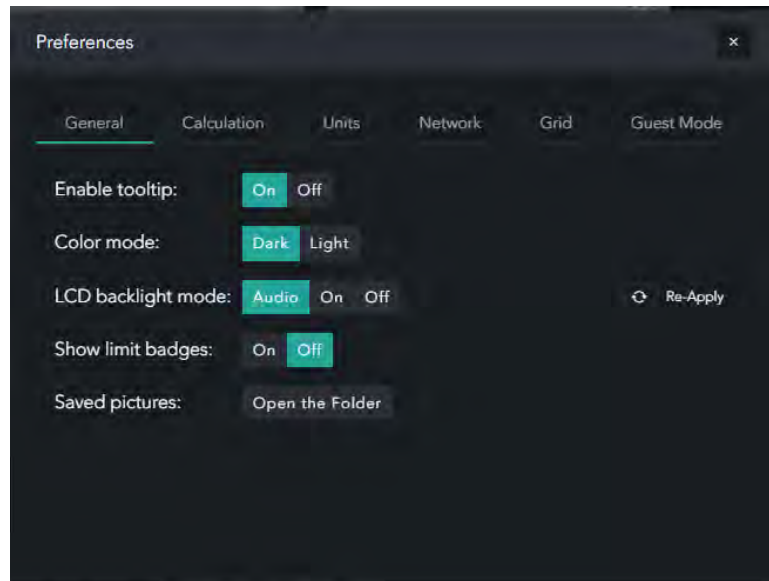
11. Preferences

The Preferences menu, found within the File Menu (see Section 4.2.1), offers several options for users to customize various parameters of .dynamics to best suit their workflow.



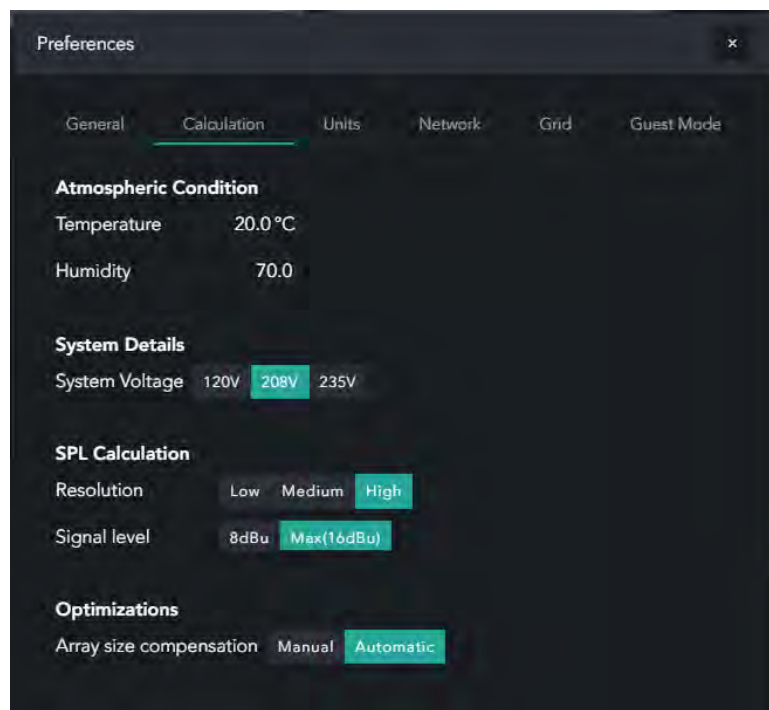
11.1 General

- **Enable Tooltip:** Turns tooltips on/off.
- **Color Mode:** Toggle light and dark UI mode.
- **LCD Backlight Mode:** Select LCD backlight settings for all matched modules on the network.
- **Re-Apply:** Re-apply LCD backlight settings for all matched modules on the network.
- **Show Limit Badges:** Changes visibility of Limit badges in Live view.
- **Saved Pictures:** Open container folder for pictures taken in the Venue view.



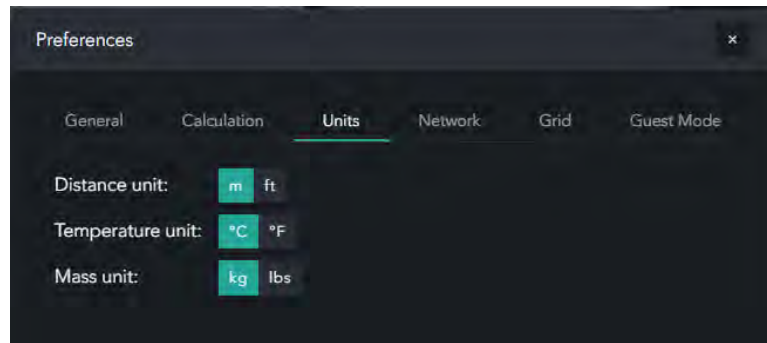
11.2 Calculation

- **Atmospheric Condition:** Displays the temperature and humidity for the calculation engine.
- **System Details:** Adjust the Current Calculator voltage setting.
- **SPL Calculation:** Adjusts the resolution for the SPL calculation and choose the input signal level for simulation.
- **Array Size Compensation:** Select if Array Size Compensation is automatically applied on new flown line arrays or if it needs to be.



11.3 Unit

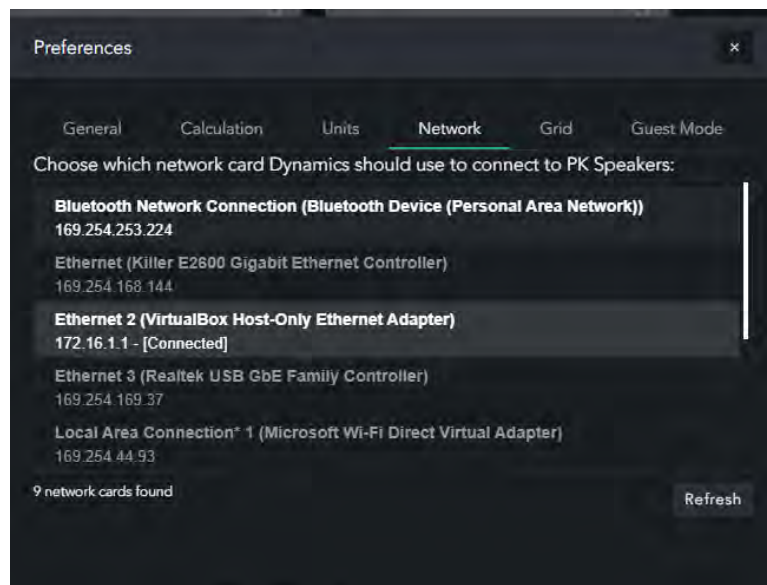
Change units from metric to imperial.



11.4 Network

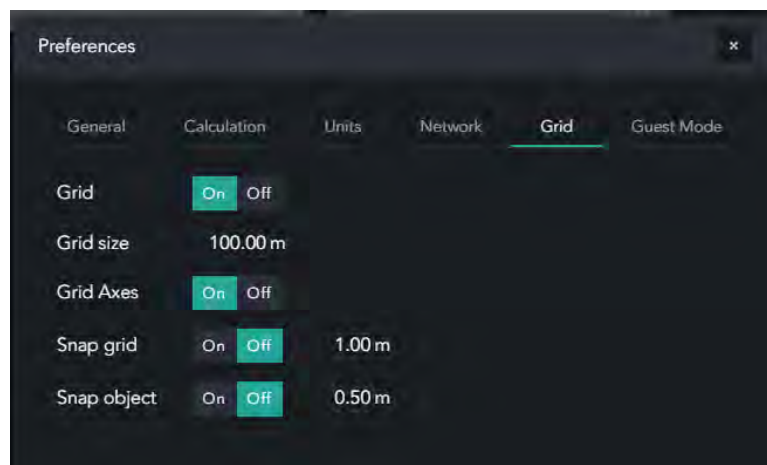
Select the desired network adaptor to connect and communicate with loudspeaker modules.

Refresh: Refreshes the full list of available network adapters along with up-to-date IP address and connectivity state. Use this in the case you've plugged in a new network adapter which did not appear in the list.



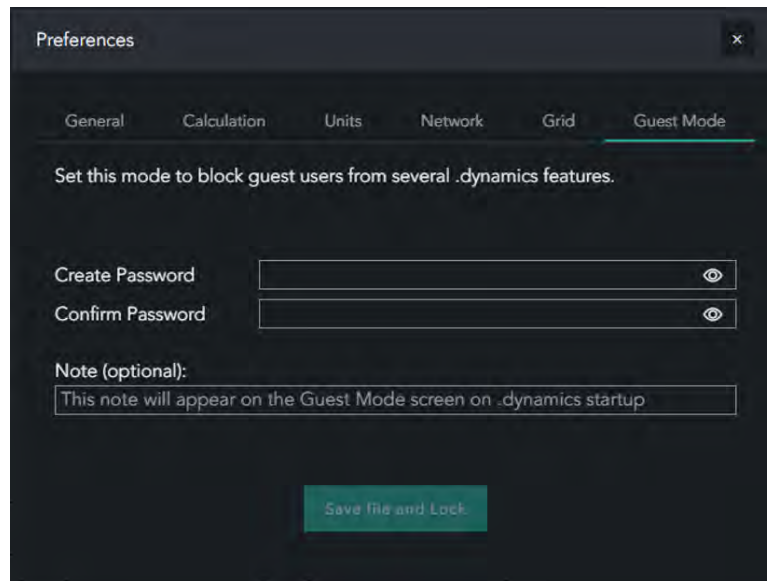
11.5 Grid

Adjust settings for the grid in the 3D workspace.



11.6 Guest Mode

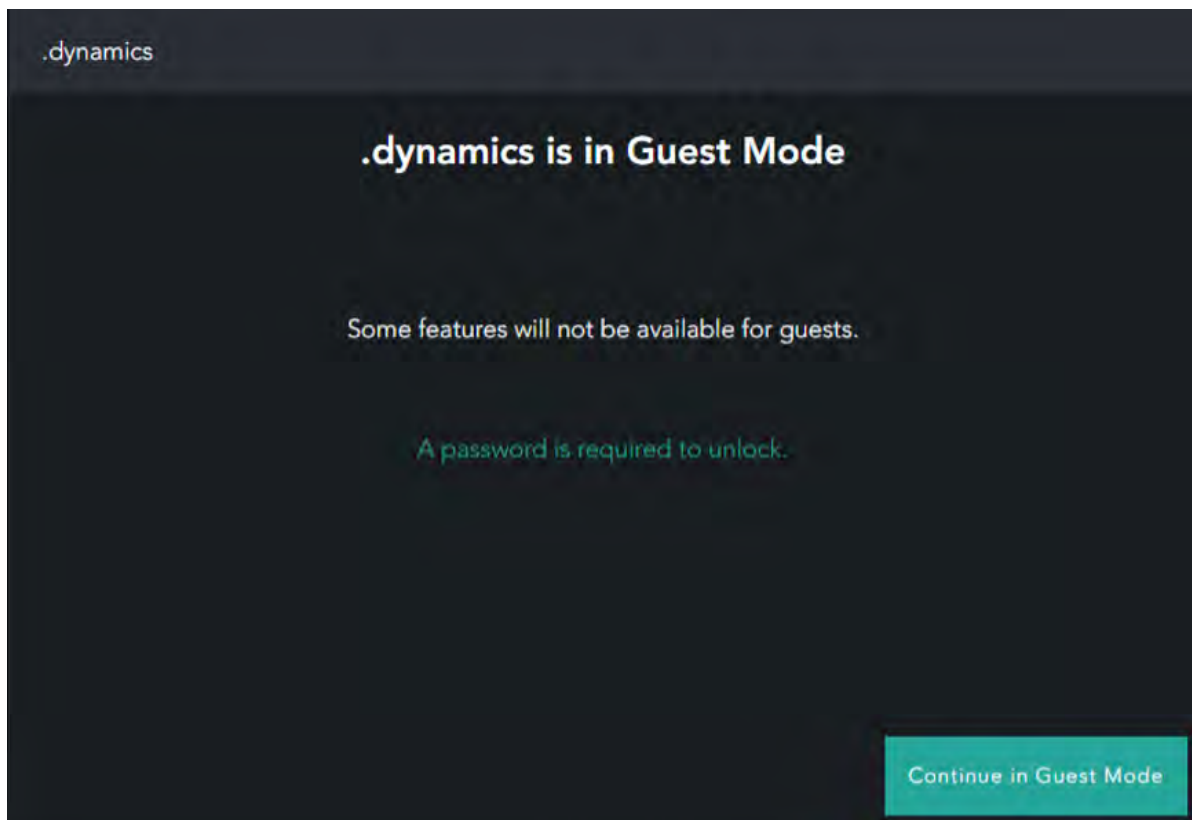
When setting up a deployment for a guest engineer, Guest Mode will block them from changing any settings that may compromise the system's mechanical configuration and / or performance.



The screenshot shows the 'Preferences' window with the 'Guest Mode' tab selected. The window has a dark theme. At the top, there are tabs for 'General', 'Calculation', 'Units', 'Network', 'Grid', and 'Guest Mode'. Below the tabs, the text reads: 'Set this mode to block guest users from several .dynamics features.' There are two password input fields labeled 'Create Password' and 'Confirm Password', each with a toggle icon to its right. Below these is a 'Note (optional):' section with a text area containing the text 'This note will appear on the Guest Mode screen on .dynamics startup'. At the bottom center is a green button labeled 'Save File and Lock'.

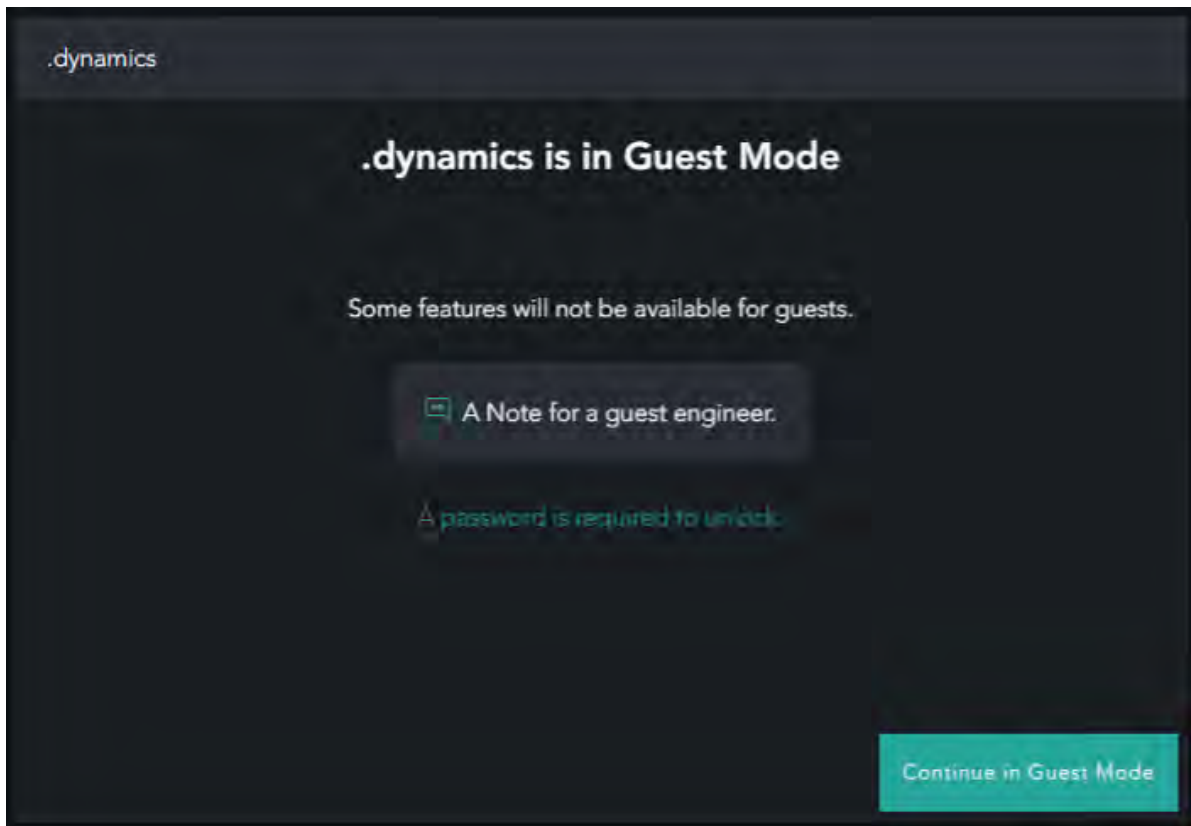
To initiate Guest Mode, the system administrator will create a password, confirm it, write an optional note, then save the current file and lock. After these steps, a large portion of .dynamics features will be hidden for guest users.

If .dynamics is closed while in Guest Mode, the next time the application launches, a lock screen will appear.

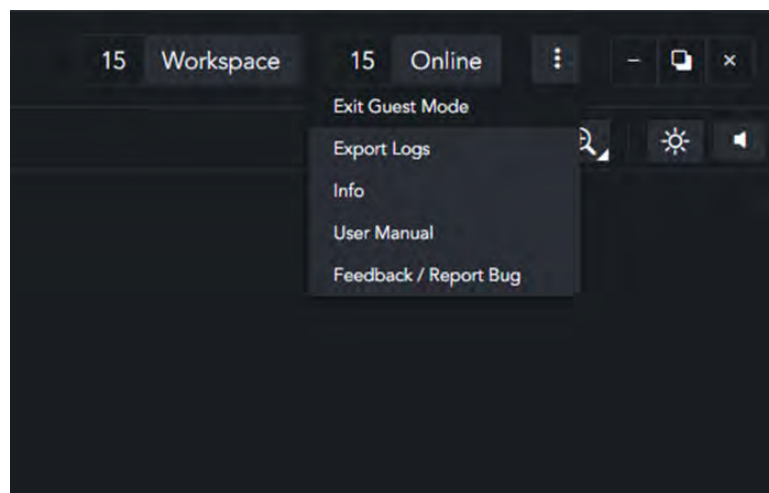


At this point, the Guest user can simply click on "Continue in Guest Mode." The save file will load and network module will automatically be discovered and connected.

To exit Guest Mode, the system administrator can click “A password is required to unlock”, then enter the password.

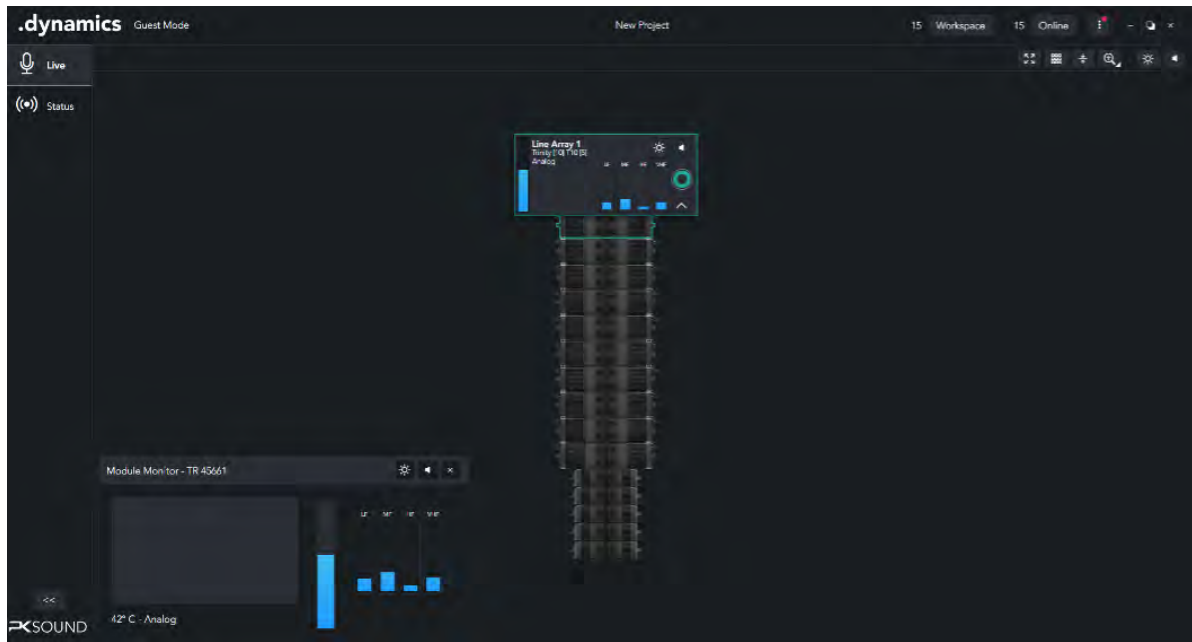


This window can be opened from “Exit Guest Mode” as well, found in the “three dots” menu in the top right toolbar.



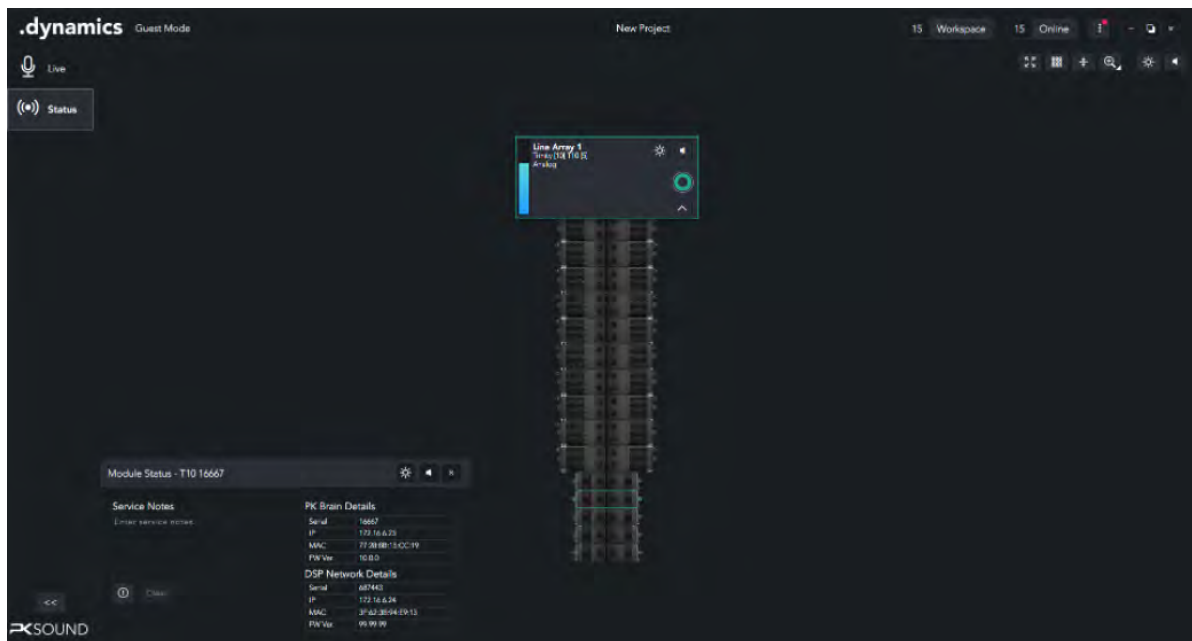
The features available in Guest Mode are:

- **Live Tab**
 - Mute
 - LED Logo Controls
 - Meter Monitoring
 - Temperature Monitoring



• Status Tab

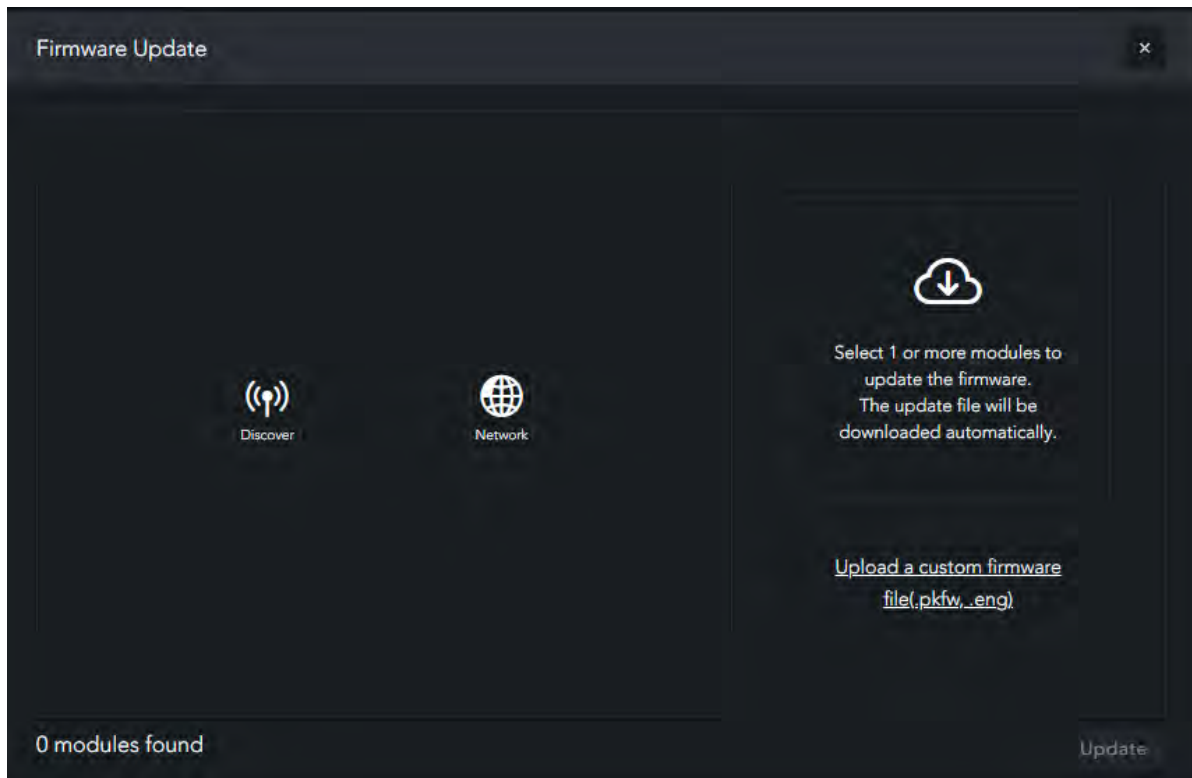
- Mute
- LED Logo Controls
- Module Status Information
- Service Flagging
- Service Notes



12. Updating Firmware & Product ID Re-Assignment

12.1 Firmware Update

The firmware update dialog is accessible through the File menu, Network Info Dialog on the System module, or in the Status module.



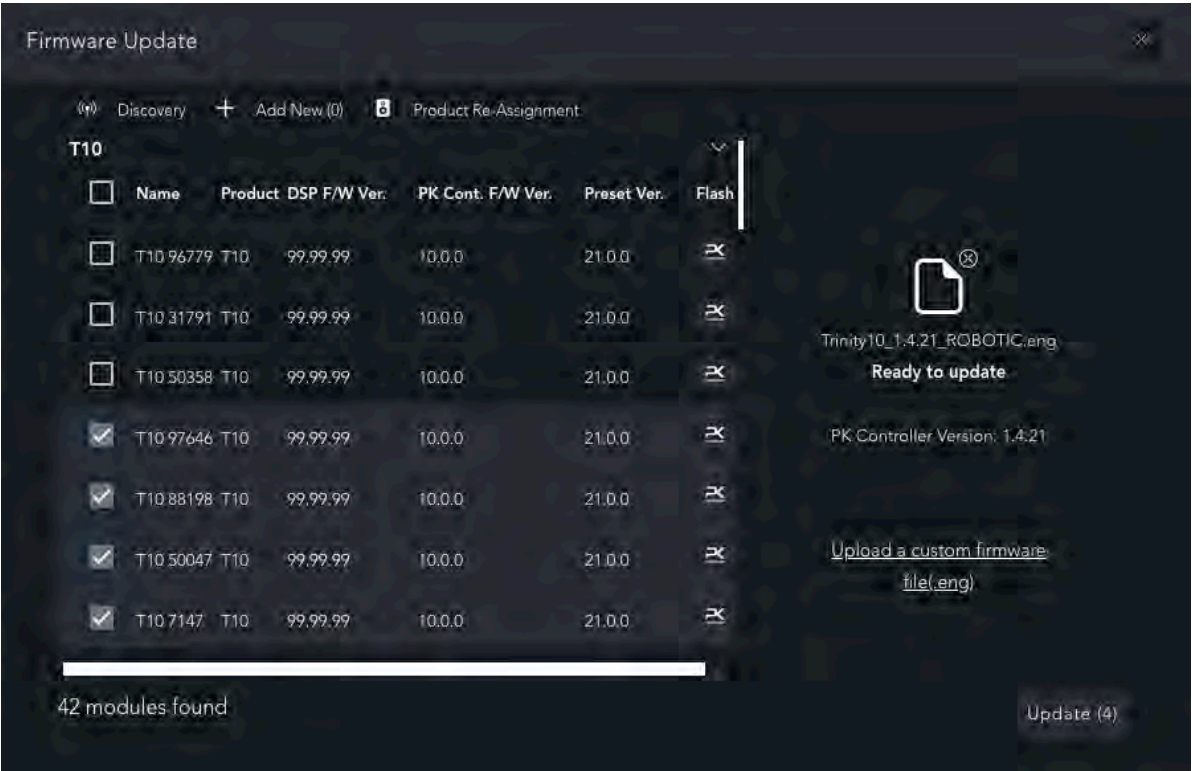
Modules are updated by:

1. Discovering the modules on the network
2. Selecting the module(s) to be updated
3. Clicking the Update button in the bottom right corner.

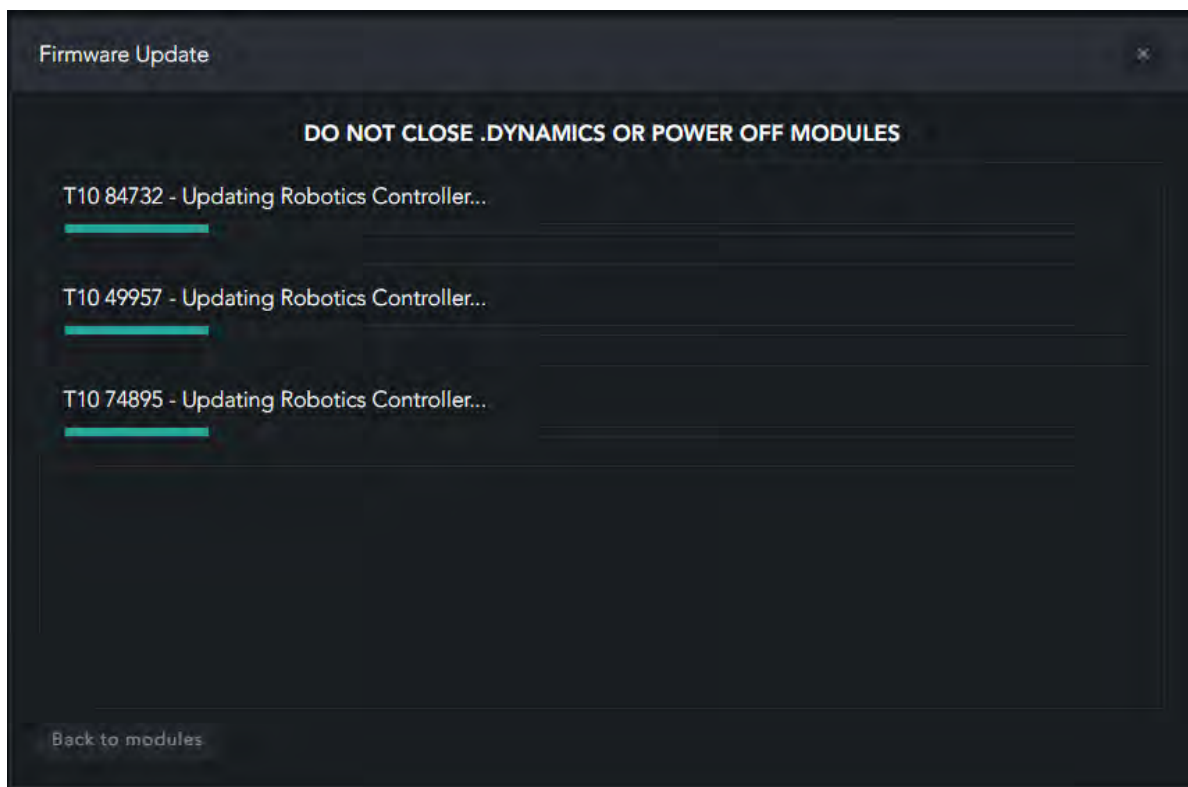
If the device has a internet connection, the latest firmware will be downloaded and the firmware update will start immediately. Firmware files will be cached for future use such that an internet connection will no longer be required.



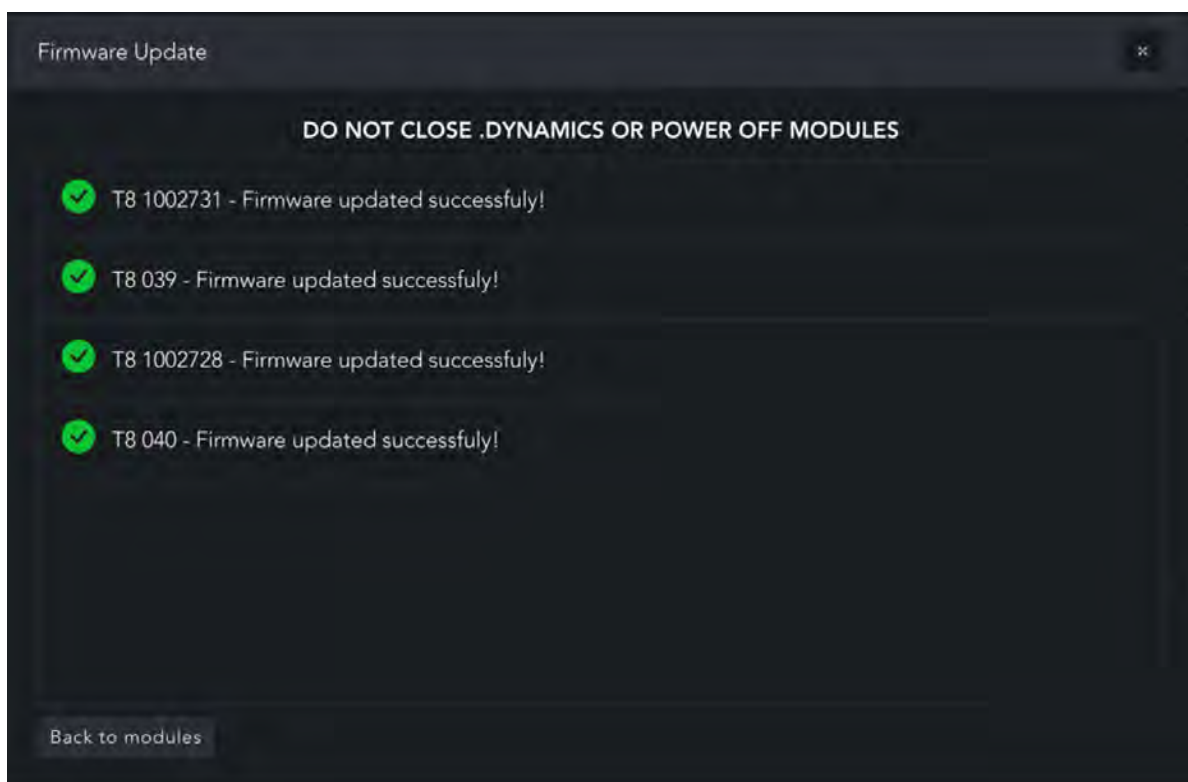
Note: Firmware package files (.pkfw and .eng) can be uploaded manually and selected before updating. Clicking the X on the file icon will revert this behaviour and automatically select and download the latest firmware file again.



Progress of the firmware update will be displayed and the module will require a reboot during the process.



Return to the dialog by clicking "Back to Modules," or close it once the firmware update is complete.

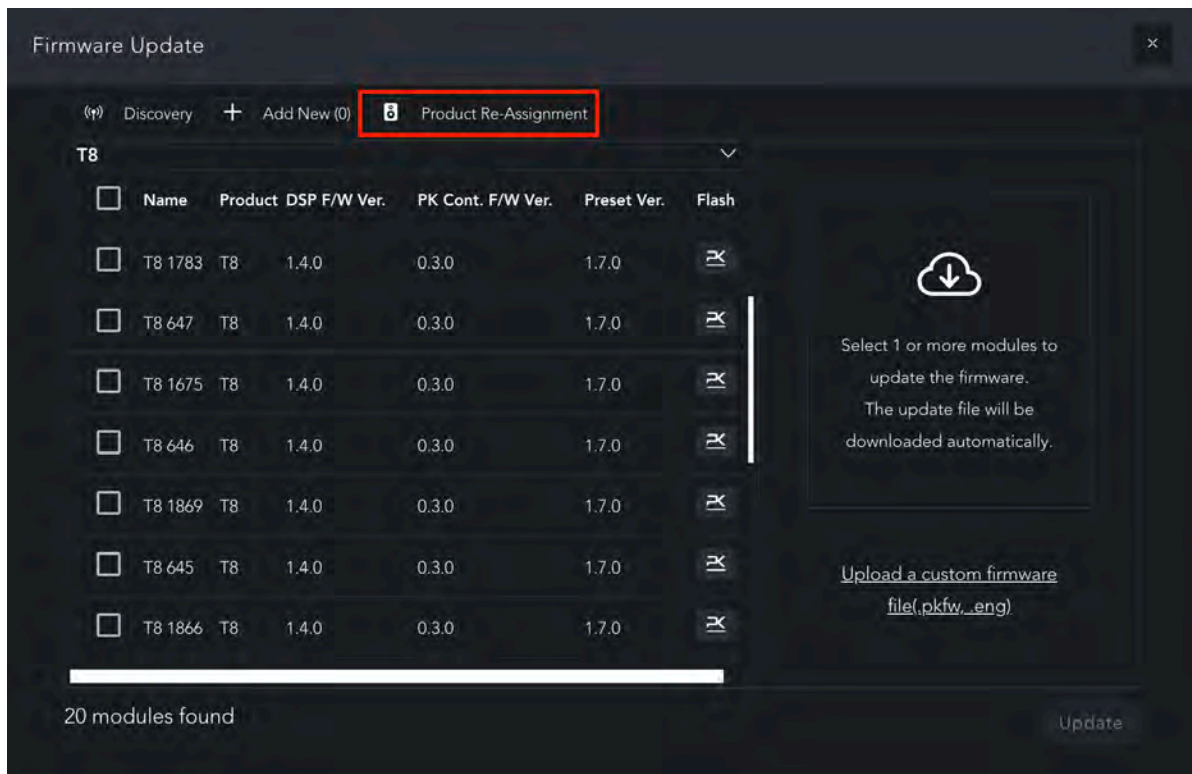


Do NOT close .dynamics or power off modules during the firmware update.

12.2 Product ID Re-Assignment

The product ID re-assignment dialog is accessible through the Firmware Update dialog.

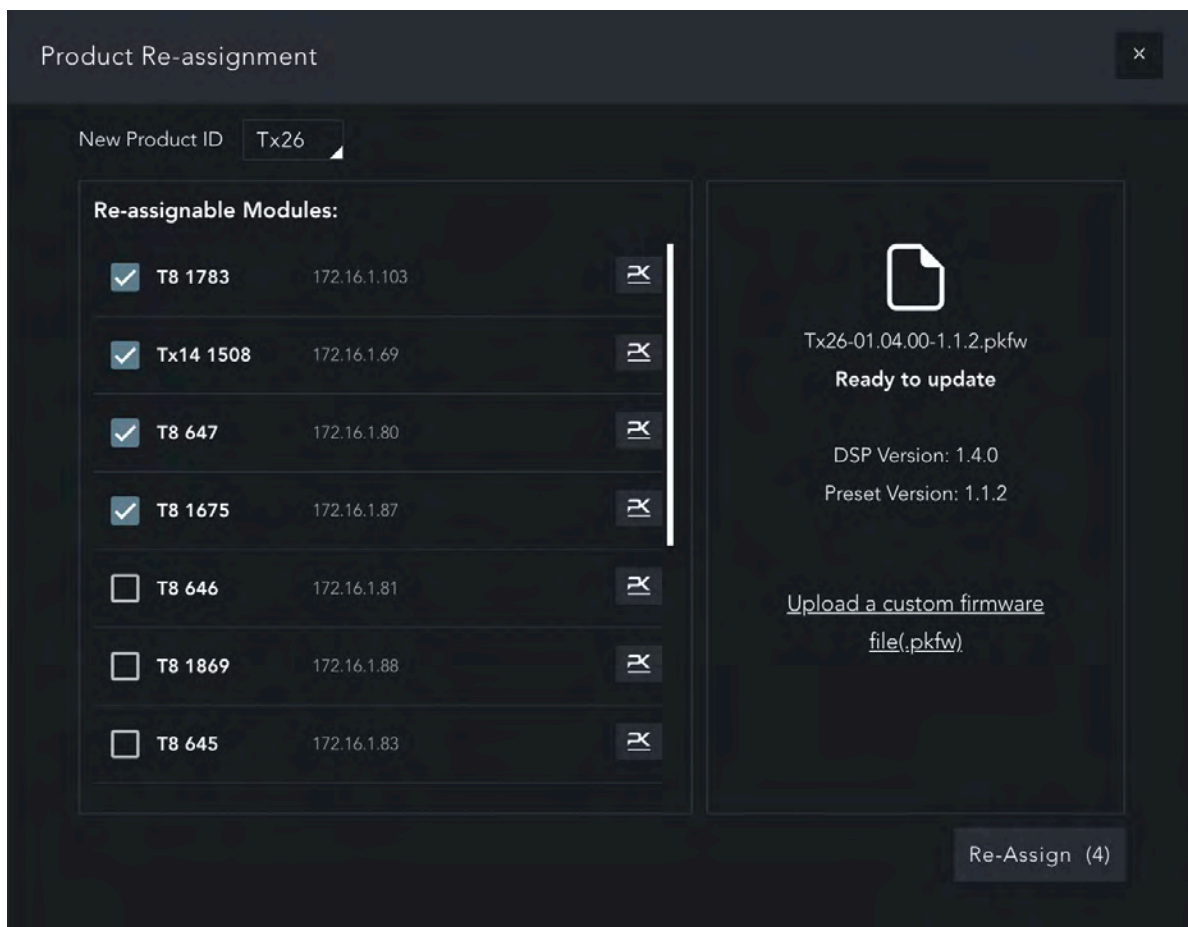
NOTE: Product ID re-assignment is available only for Ve-Amp products (T8, Tx14, Tx26, etc.)



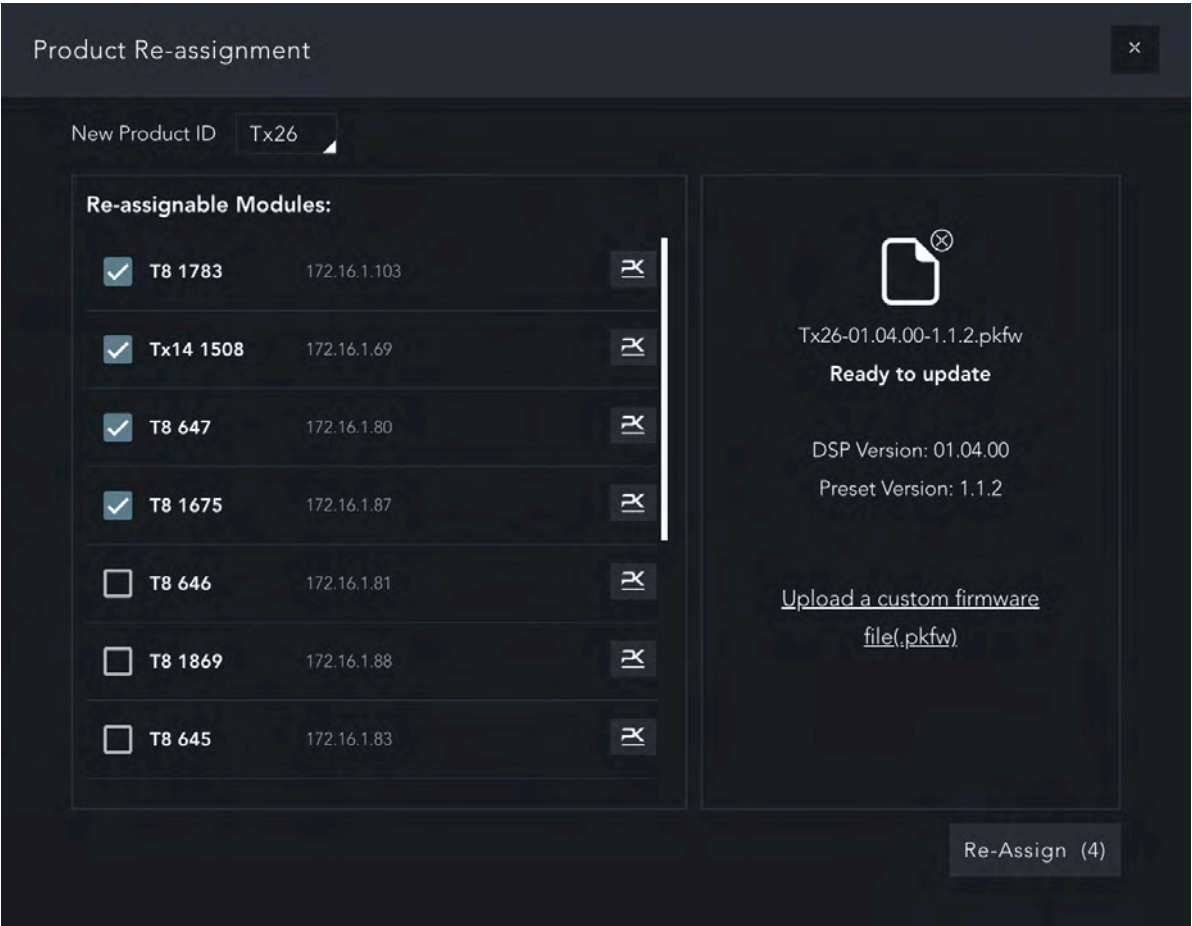
Product ID is re-assigned by:

1. Discovering the modules on the network
2. Selecting the new Product ID
3. Selecting the module(s) to be re-assigned
4. Clicking the Re-Assign button in the bottom right corner.

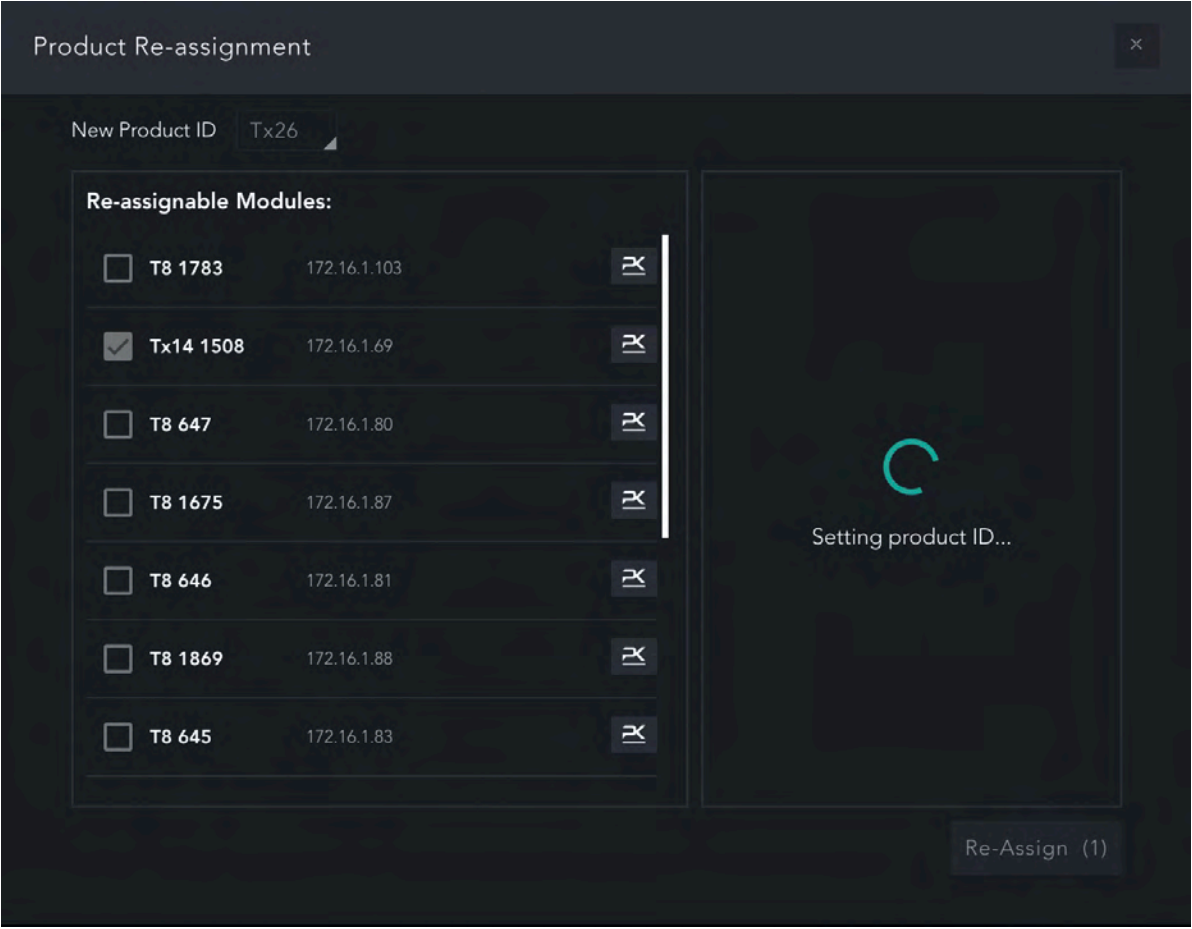
If the device has internet connection, the latest target firmware will be downloaded and the re-assignment will start immediately and will be followed by the firmware update automatically. Firmware files will be cached for future use such that an internet connection will no longer be required.



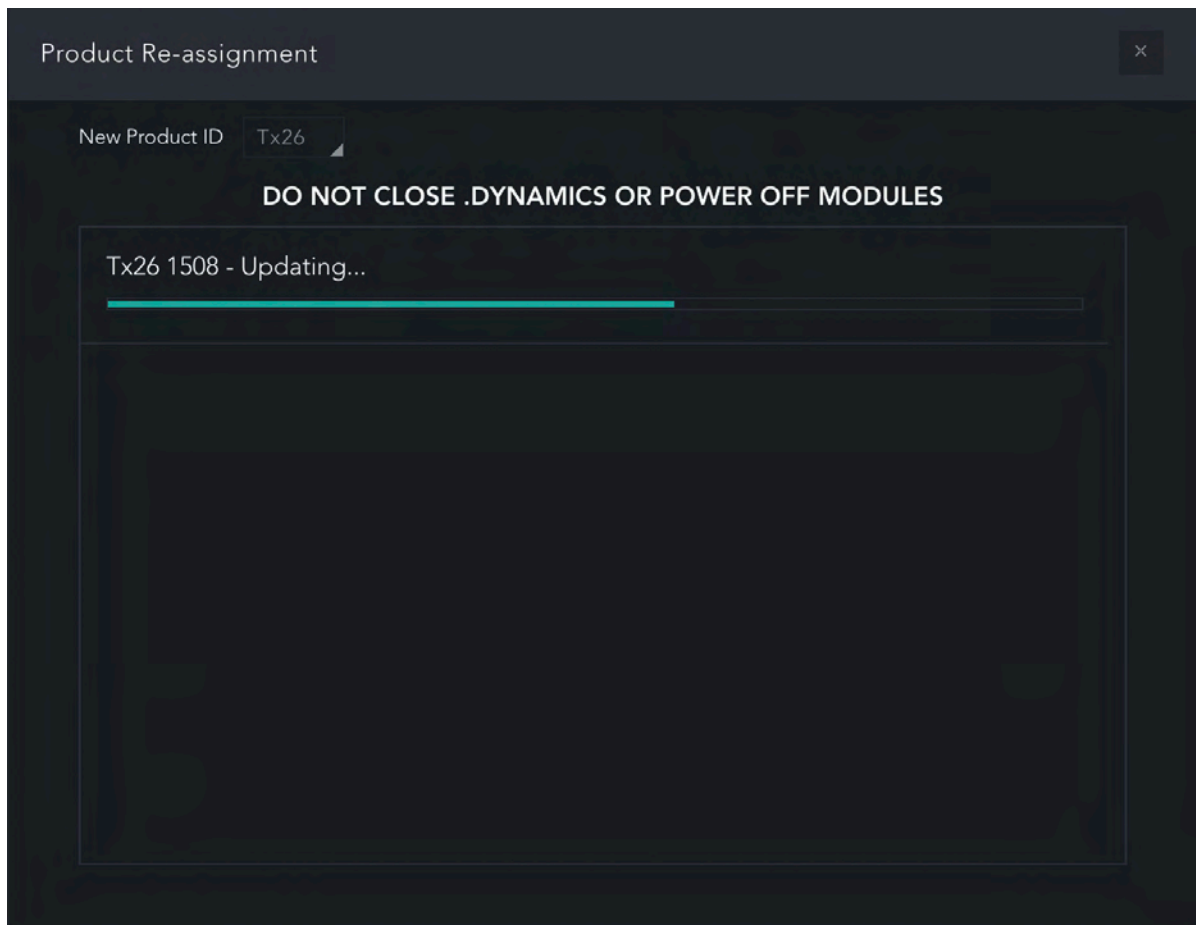
Note: Firmware package files (.pkfw and .eng) can be uploaded manually and selected before re-assignment. Clicking the X on the file icon will revert this behaviour and automatically select and download the latest firmware file again.



Progress of the product ID re-assignment will be displayed.



After successful product ID re-assignment, the standard firmware update process will start automatically.



Do NOT close .dynamics or power off modules during product ID re-assignment and the firmware update.

13. .dynamics MOVE

13.1 Overview

.dynamics MOVE is a companion mobile application designed to extend certain functions of .dynamics to supported mobile devices. .dynamics must be running and connected to a local network for MOVE to operate. MOVE provides convenient access to key system information and controls while working away from the desktop computer, such as during system deployment, venue walk-throughs, or live operation.

13.2 Supported Platforms & Requirements

.dynamics MOVE is available for iOS and Android mobile devices through their respective application stores. Operation of MOVE requires a compatible version of the .dynamics Desktop Application.

Requirements

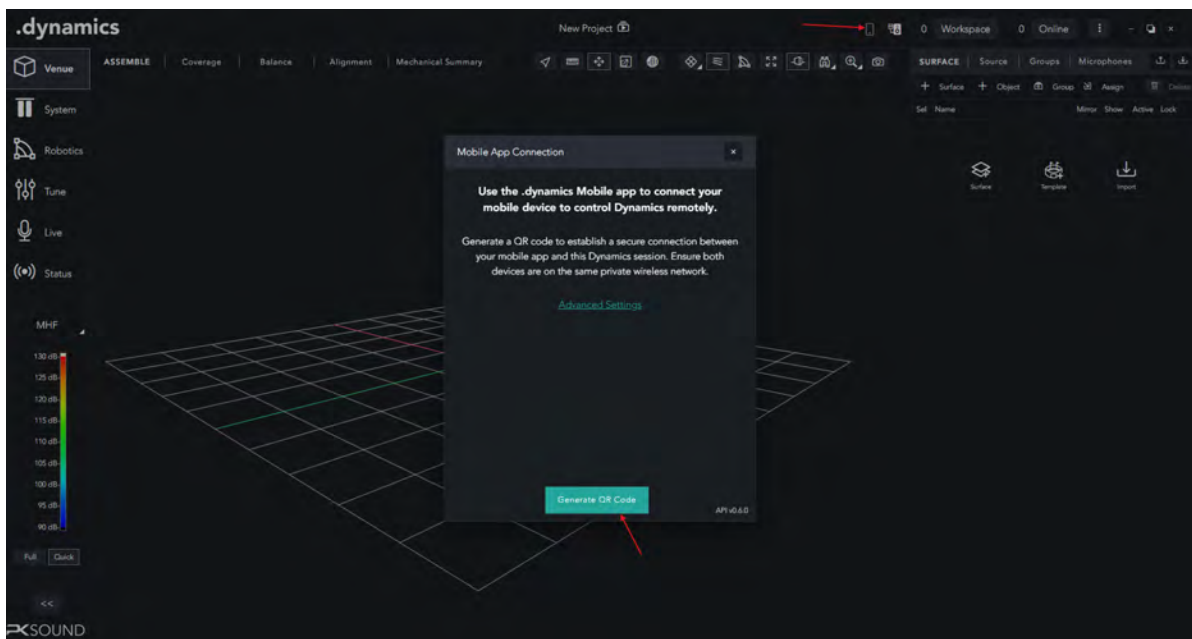
- **Desktop Application:** .dynamics v1.12.0 or later
- **Mobile Platforms:** iOS _____ or later; Android _____ or later
- **Network:** Desktop computer and mobile device must be connected to the same local network

Only eligible devices that accept installations from the Apple App Store or Google Play Store are supported.

13.3 Getting Started

To begin using .dynamics MOVE:

- Install .dynamics MOVE from the Apple App Store or Google Play Store.
- Launch the .dynamics desktop application on your computer.
- Confirm that the computer and mobile device are connected to the same local network.
- Open .dynamics MOVE on the mobile device.
- Start the server in the .dynamics desktop application by clicking the mobile icon and then choosing “Start Server.” This will generate a QR code.



- Scan the QR code displayed within the .dynamics desktop Application to establish a connection.
- Once connected, MOVE synchronizes with the active workspace and network modules.