CANVAS

User Guide

Release 2026.1.0

18118TL03
September 2026

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Table of Contents

Introduction 1
- About Canvas 1
- About the User Guide 2
- New Features 2

Getting Started 4
- Installation Overview 4
- File Management 7
- Project Home 10
- Quick Start Workflow Overview 15

Application Overview 17
- Overview of User Interface 17
- Main Menu 19
- Application Toolbars 22
- Activity Selection 33
- Venue Components 37
- System Components 43
- Multipurpose Panel (MPP) 46
- The Design Studio 60
- Activity Metrics 69

Working with Venues 71
- Navigating the Venue Activity 71
- Venue Coordinates and Orientation 75
- Venue Component Management 79
- Venue Tools 88
- Drawing a Venue 91
- Importing a Venue 111
- Importing Venue Components 120

Working with Sources 123
- Sources in Canvas 123
- Navigating the System Activity 126
- Navigating System Views 126
- Adding Sources 132
- Source Properties 140
- System Tools 143
- Modifying Sources 150
- Printing Source Setup Data 177

References 179
- Key Commands 180
- Reference List: Multipurpose Panel | Venue Data Fields 183
- Reference List: Multipurpose Panel | System Data Fields 187
- Appendix: Known Issues and Gotchas 198

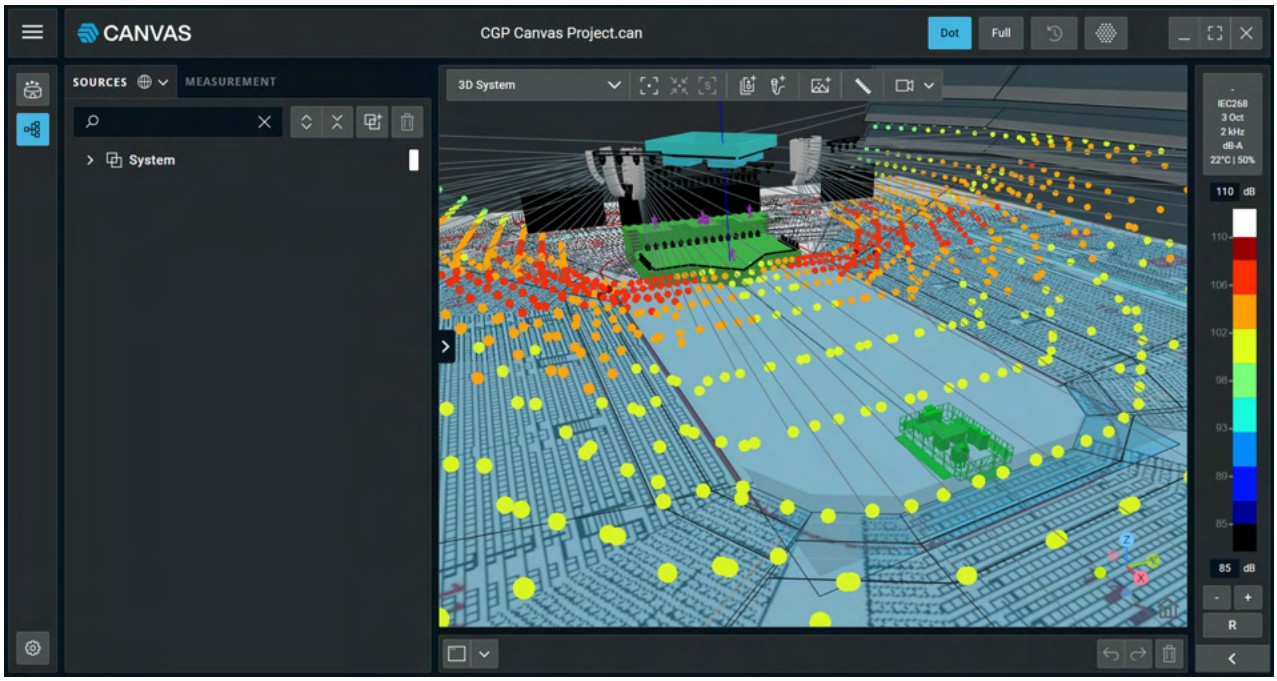
Introduction

About Canvas

Welcome to Canvas, the next generation of acoustic simulation and prediction software from Cohesion. Canvas is professional audio simulation software designed for system designers, integrators, and engineers who need to model and predict sound system performance in complex environments.

Canvas supports the design and optimization of Cohesion audio systems. The software offers:

- Simulation of Cohesion line arrays, subwoofers, and point-source loudspeakers
- Real-time mechanical and acoustic predictions powered by the proprietary Mechanical Acoustic Calculation Engine, MACE
- Task-specific data views and metrics for efficient system planning
- A workflow aligned with on-site performance evaluation and tuning procedures



Whether you're optimizing a concert hall, a stadium, or a multipurpose space, Canvas provides the tools to make informed design decisions early in your workflow. Use Canvas to optimize system performance before deployment—ensuring the best results for your tour, event, or installation.

About the User Guide

This guide provides instructions for installing, navigating, and using the features of Canvas. It explains how to:

- Build and edit venue layouts
- Add and position Cohesion loudspeakers
- Create and modify audience areas and seating sections
- Calculate and interpret acoustic simulations
- Export or present your design data

Audience

This documentation is intended for:

- Sound system designers and consultants
- Installation and integration engineers
- Audio professionals evaluating system options

Basic knowledge of audio terminology such as SPL, phase, delay, and coverage is assumed.

Symbols Used in This Guide

The following icons are used throughout this guide to highlight important information and navigation cues:

Symbol	Meaning	Description
ℹ	Note / Tip	Helpful suggestions or more context to improve workflow.
⚠	Important	Highlights critical calculation or display limitations (for example, what is included or excluded in totals) that affect safe planning and use.

New Features

This section summarizes new features introduced in the Canvas 2026.1.0 release.

- Added a user-defined second frequency range to the **SPL over Distance** data view.
- Added an average response option to the **Magnitude over Distance** data view.
- Added options to the **MPP Divider** to show source list only, to show data fields only, or to lock the divider at an intermediate position.
- Added the ability to export the CAD geometry for an individual source cluster at **Export > Sources CAD (.dxf)**.

Additional Improvements

- Improved reordering of studio workspace panes: any **Model View** or **Data View** can be selected for the active pane, and a view already active elsewhere moves to the new pane.
- Selecting a **Seating Section** in the venue components list now selects and focuses it in the **Sections** tab for its **Audience Area**.
- **Cross Section** views now include accessories, such as the top grid and pullback for arrays.
- **Pinning Sheets** now include mechanical warnings, such as COG outside pick points.
- Keyboard shortcuts for **File menu items** are now shown.
- Improved **Guide Layer visibility** in 2D and 3D views.
- Improved **Mapping visibility** eliminates the moiré pattern.
- Added a **Save Screenshot** / export image function to **System > Top View**.
- Added an **Active Measurement Line** reference to the tooltip for the **Magnitude/Distance** graph.
- Fixed the **Pullback Pick Poin**t location within **Mechanical View**.
- Added a **default response smoothing option** in graph settings (**Settings > Charts**).
- Added **COG coordinates** for a cluster within the **Mechanical View**.
- Added a keyboard shortcut for **Open/Close Mechanical View (SHIFT+M)**.
- Changed **CAD Import**: once venue import is complete, you're taken directly to the **Venue Activity**, **Single Pane** in **Studio > 3D Venue View** active.
- Adjusting area depth using the **Multipurpose Panel** data entry field now resizes **Seating Sections**, allowing area depth to be set smaller than the current value.
- Added **Import Source (.csrc)** as an option when the **Add Source tool** is used in **System Top View** or **3D System View**.
- Added mouseover details for impact points in **Cross Section** model view, showing SPL value, enclosure number, distance from source, height, and position along throw axis.
- Selecting a **new Bandwidth in Simulation Setting**s no longer resets the center frequency to 2 kHz.
- **Measurement Point Marker** now scales appropriately based on venue model size.
- Added tooltips for the **Open/Close Simulation Settings** toolbar and **Open/Close Mechanical View**.
- Improved indication of the **origin** in the **Top View**.
- Decreased the time before tooltips appear by 50%.
- Added a legend to the **Magnitude/Distance** data view.

Getting Started

Begin with the essential steps for using Canvas—from installation and setup to interface navigation and key activity overviews. These topics introduce the core features and functions you'll use throughout the application.

Installation Overview

Set up Canvas on your computer with system requirements, macOS and Windows installation steps, and tips for staying up to date with the latest features.

System Requirements

Make sure your system meets these minimum requirements before installing Canvas:

	Minimum	Recommended	Notes
Operating Systems	Windows 10 (64-bit) macOS 15 (Sequoia)	Windows 11 (64-bit) macOS 26 (Tahoe)	
Processor Speed	1.2 GHz	2.4 GHz	
RAM	8 GB	16 GB	
CPU	4 Cores	8 Cores	Example processor types for recommended processor: Intel Core i9, Mac M3
GPU	1 GB VRAM	≥2GB VRAM	Must support Vulkan See the processor data sheet or Vulkan on gpuinfo.org to confirm compatibility.
Storage	10 GB HDD	10 GB HDD	≥256 GB SSD for laptop & desktop

Canvas Software Installation

Install Canvas on macOS or Windows by following the steps for your operating system.

MAC OS Installation

To install Canvas on macOS:

1. Download the installer
   - Go to the Canvas download page.
   - Select the macOS installer (.pkg).
2. Run the installer
   - Double-click the downloaded .pkg file.
   - In the installer, click **Continue**, then follow on-screen steps.
   - **Agree** to License and ULA to install for all users.
     - [Optional: You may change the default installation location, if you wish.]
   - When the install is complete, click **Close**.
3. Launch Canvas
   - In Finder, open **Applications**.
   - Double-click **CANVAS**.
   - If macOS displays a security message, use the steps below.
   - The application opens to **Project Home**.
4. If macOS blocks Canvas from opening
   - When you try to open Canvas for the first time, macOS may block it and show a security message. If this happens:
     1. Go to **Apple menu > System Settings**.
     2. Click or scroll to **Security & Privacy**.
     3. Select the **General** tab.,
     4. Enter your macOS login password, then confirm **Open**.

Windows Installation

To install CANVAS on Windows:

1. Download the installer
    - Go to the Canvas download page.
    - Select the Windows installer file (.exe).
2. Run the installer
    - Double-click the downloaded .exe file.
    - If prompted with *"Do you want to allow this app to make changes to your device?"*, click **Yes**.
    - In the Setup Wizard:
        - Read the License Agreement, and if you accept the terms, click **I Agree**.
    - When installation completes:
        - The checkbox to automatically launch CANVAS is selected by default. Uncheck the box if you do not want to launch the application immediately.
        - Click **Finish** to close the Setup Wizard.
3. Launch Canvas
    - In the Start menu, select **Programs > CANVAS**.
    - Or double-click the desktop shortcut.
    - The application opens to **Project Home**.

File Management

Learn how files are organized and utilized in Canvas. This section covers project file naming conventions, native import/export formats, additional file handling options, and a reference table for supported file types and their features.

Project Files and Naming

A Canvas project file is a **Canvas File Save** file with a .can extension.

New Project Names

When a project is first created, it is labeled **Unsaved Project** until saved. This name appears in the center of the application toolbar.

The default file name for a new project is **Canvas Project.can**.

- You can edit this name the first time you **Save** your project and any time you use **Save As**.

File Name Display

The current project file name is displayed in the center of the application toolbar.

- If the project has unsaved changes, an asterisk (*****) appears after the name (eg. **filename.can***).
- Once saved, the asterisk is removed, and the file appears as **filename.can**.

File Name Convention

Canvas follows the standard file naming rules of your operating system.

Canvas File Types

Native Canvas File Types for Import and Export

Canvas supports the following file types for both importing and exporting data:

- **Surfaces** (.csrf) – Contains venue audience areas (with seating sections) from previously exported venue models or from a reference library.
- **Sources** (.csrc) – Contains sound system data with a predetermined loudspeaker configuration. The full system is imported and retains group assignments, processing, and rigging settings.
- **Production Element** (.cprd) – Contains production elements (such as stage structures, video walls, lighting towers, scoreboards) which are visual-only components; they represent non-audience structures in the 3D model and are excluded from acoustic simulation.

Import-Only File Type

- **Venue Exchange** (.cvef) – This is an import only file type. It contains venue audience areas (with seating sections).

More Import Options

Additional file types can be imported into Canvas:

- **CAD** (.dae, .dxf, .gtlf, .glb – Imports 3D model files, including Collada (.dae) and .dxf formats. Use the Import CAD Tool workspace to convert these models.
  - **NOTE**
    A CAD file cannot be edited once imported into Canvas. Any modification or editing must take place in the CAD software used to generate the file.
- **Guide Image** (.png, .jpg) – Imports 2D images to serve as guides or references when creating the venue model.

More Export Options

Canvas offers the following additional export options:

- **Pinning sheet** (.pdf) – Exports a pinning sheet with options to display multiple clusters per page or a single cluster per page (with Simple or Detailed output).
- **Sources CAD** (.dxf) – Exports the CAD geometry (.dxf) file containing either all or selected sound sources from the model. This file can be imported to other CAD programs.

Overview of Canvas File Types

File Type	Extension	Description	Import	Export
Venue	.csrf	Contains venue audience areas (with seating sections) from previously exported venue models or from a reference library.	Yes	Yes
Source	.csrc	Contains sound system data with a predetermined loudspeaker configuration. The full system is imported; retains group assignments.	Yes	Yes
Production Element	.cprd	Contains production elements.	Yes	Yes
Project (Canvas File Save)	.can	Contains a saved Canvas project.	N/A	N/A
Venue Exchange	.cvef	Import-only file type. Contains venue audience areas (with seating sections).	Yes	No
CAD (Venue)	.dae, .dxf, .gtlf, .glb	Supports importing CAD files DXF (.dxf), COLLADA (.dae), and other 3D model formats.	Yes	No
Guide Image	.png, .jpg	Imports 2D images used as guides or references when creating a venue model.	Yes	No
Pinning Sheet	.pdf	Generates a pinning sheet, useful for system setup, with options for displaying multiple or single clusters per page.	No	Yes
Sources CAD	.dxf	Exports all, or selected, sound sources from the venue model into a DXF file, usable in other CAD programs.	No	Yes

Project Home

Project Home is your starting point in Canvas. It appears automatically when you launch the application and is also accessible anytime via **Main Menu > +Project Home**.

From Project Home, choose one of two actions: **Open** or **Create**. To open a new, blank Canvas workspace, click **Create** (upper left) > **Create** (lower right), or simply close Project Home (**X** at upper right).

Open

- Open a **Recent** or **Pinned** project file from the available lists.
- Select **Browse** to open a project file not shown in the lists.
- Canvas project files use the .can file extension.
- Use **Import CAD** to bring in an existing CAD file in a supported format.
  - To view supported formats, see Canvas File Types and Supported File Formats for Venue Import.
  - For complete CAD import procedure, see Importing a Venue from 3D Models and CAD.

Create

- The **Create** option allows you to import a .cvef, .cprd, and .csrc simultaneously in a single operation, particularly handy for those on tour.
- Use the **Add** button to import an existing Canvas file into a new project.
  - **Venue** tab – Import a Clair Venue Exchange (.cvef) or Canvas Venue (.csrf) file
  - **Production** tab – Import a Canvas Production Elements (.cprd) file
  - **System** tab – Import a Canvas Sources (.csrc) file

TIP

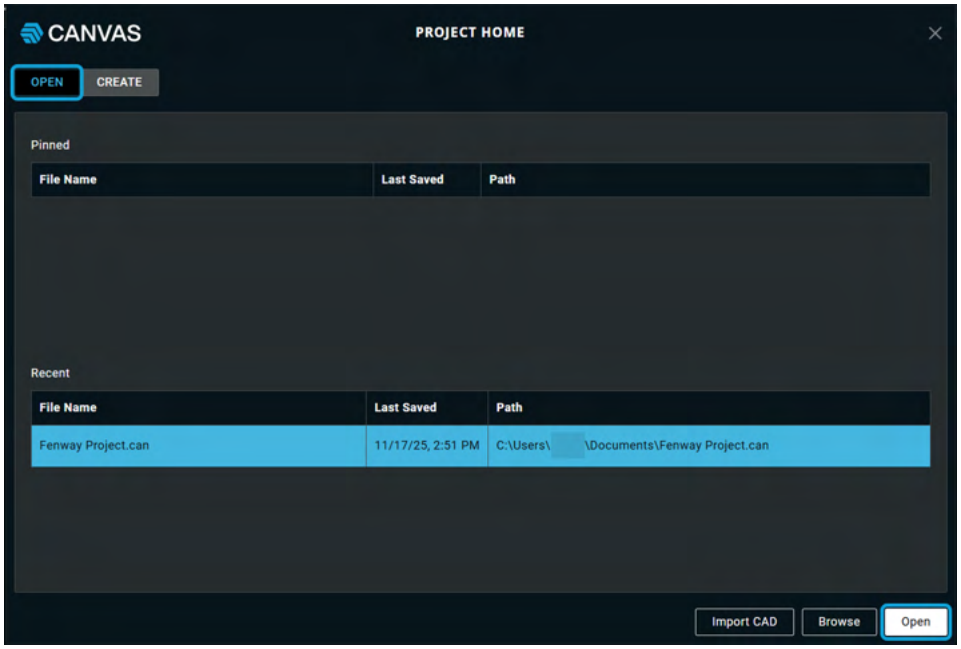
Export your standard system deployment and production elements and then import them into the next venue.

Open an existing project file from Project Home

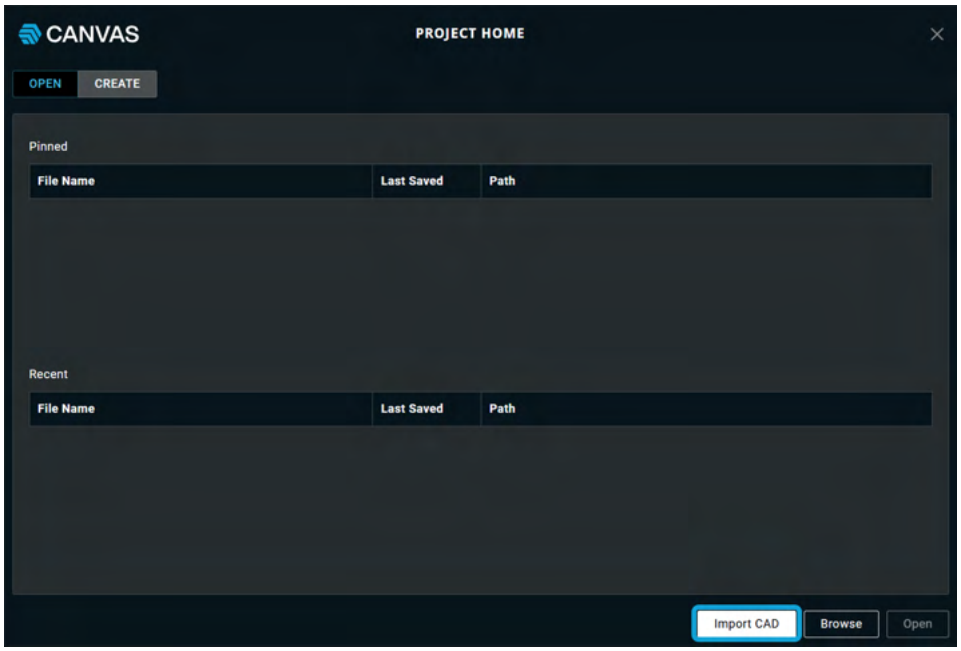
Open a project from Project Home by selecting from **Pinned** or **Recent** projects or browsing for a previously saved project.

The **Pinned** list displays projects you've pinned for quick access. The **Recent** list displays recently used projects.

- To open **Pinned** or **Recent** projects:
  1. Go to **Project Home > Open** (top left).
  2. Select a project from the **Recent** or **Pinned** list, then click **Open** (lower right).



- To **Browse** for a saved project:
  1. Go to **Project Home > Open** (top left) **> Browse**.
  2. Navigate to the desired Canvas Save File (.can), select it, and click **Open** (lower right).



Import a CAD File From Project Home

To import a CAD file (.dxf, .dae):

1. At **Project Home > Open** (top), select **Import CAD** (lower right).
2. Navigate to the desired file, select **Open**.
3. Use the **Import CAD Tool** workspace (including the tabs: **Import Surface**, **Import Settings**) to configure your import.
4. Select **Import** (lower right) or **Cancel**.

For detailed import procedures, see Importing a Venue | Import CAD Tool.

NOTE

For tips on preparing Sketchup files for import, see [*Coming soon: REFERENCE ARTICLE | Importing 3D Models (Sketchup to Collada DAE)*]

Create a project using Add tool to import files

To import files and create a project:

1. Go to **Project Home > Create** (top).
2. Select the **Venue**, **Production**, or **System** tab, then click **Add**.
   - **Venue** – Select a Clair Venue Exchange (.cvef) or Canvas Venue (.csrf) file.
   - **Production** – Select a Canvas Production Elements (.cprd) file.
   - **System** – Select a Canvas Sources (.csrc) file.
3. Browse to the file location and click **Open**.
4. Repeat for additional files as needed.

   NOTE
   Only one **Venue file** can be added at a time.

5. Click **Create** (lower right) to complete the process.

NOTE
Files are added and placed within the venue relative to the venue's origin point (0, 0, 0) and may need to be repositioned once added to the venue file.

The following file types are available for import:

- **Venue Import** – Canvas Surfaces (.csrf), Clair Venue Exchange (.cvef)
- **Production Element** Import – Canvas Production Elements (.cprd)
- **System Import** – Canvas Sources (.csrc)

Create a blank Canvas project

To create a new blank project:

1. Launch Canvas. At **Project Home**, click **Create** (upper left) then click **Create** (lower right).
2. You can begin work in a blank, unsaved Canvas project.

To create a new blank project with an existing Canvas project already open:

1. Save any unsaved changes to the existing project.

   NOTE

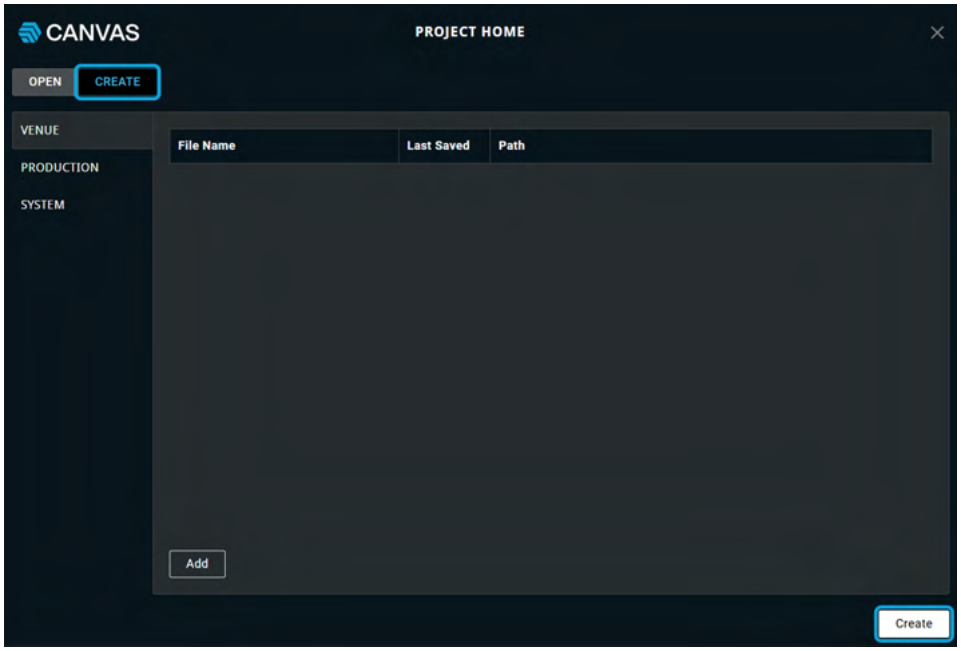
   If the current project has unsaved changes (shown by an asterisk in the file name, **filename.can***), you are prompted to save or discard your work before Project Home opens.

2. Go to **Main Menu > +Project Home**.
3. At **Project Home**, click **Create** (upper left) then click **Create** (lower right).

   TIP

   From **Project Home**, pressing **Esc** also exits Project Home and returns you to a blank project.

4. You can begin work in a blank, unsaved Canvas project.



Quick Start Workflow Overview

The Quick Start Workflow summarizes how Canvas projects progress from venue modeling through system simulation and documentation.

Use the following sequence to become familiar with the overall design process before working through detailed procedures in later sections.

Canvas organizes these tasks into two main **Design Activities**: **Venue** and **System**.

For details on each activity and component type, see Activity Selection and Components.

1. Install and Launch Canvas

Install Canvas on a supported Windows or macOS system. Launch the application and use **Project Home** to create new or open existing projects. See Installing Canvas and Project Home.

2. Create or Import a Venue Model | Venue Activity

Use the **Venue Activity** to define your project's physical space—its geometry, audience areas, and seating sections.

Venue Tasks	Description	Related Topics
Draw a Venue	Build the venue layout using drawing tools and components	Drawing a Venue
Add Audience Areas and Seating Sections	Define audience locations and assign seating sections	Audience Areas and Seating Sections, Adding New Audience Areas
Import a Venue	Bring in a venue layout from an external source	Importing a Venue
Add or Import Production Elements	Place or import elements such as staging, trusses, or other non-acoustic items	Importing Production Elements
Add or Import Guide Layers	Add visual reference layers to assist with placement	Adding Guide Layers, Importing Guide Layers

3. Add and Configure Sound Sources | System Activity

Switch to the **System Activity** to add sound sources, view coverage, and optimize system performance.

System Tasks	Description	Related Topics
Add and Define Sources	Insert and configure line arrays, subwoofers, or point sources in the venue model	Adding Sources, Importing Sources
Add Measurement Points and Lines	Add reference microphones and virtual measurement lines	

4. Simulate System Performance | System Activity

Use Canvas simulation tools to evaluate SPL coverage and frequency response.

Review mapping results, cross-section views, and SPL-versus-distance graphs to confirm system performance. See Simulating System Performance.

System Tasks	Description
View Coverage and SPL Performance	Display SPL overlays in Model Views for analysis
Analyze System Performance	Evaluate system behavior using Data Views and analysis tools, including magnitude, phase, and time arrival graphs

5. Refine and Document the System

Adjust rigging geometry or processing parameters based on simulation results.

Export and print setup data, mechanical views, and system reports for deployment. See Printing Source Setup Data.

6. Save and Export Project Files

Save your work frequently in the Canvas project format (.can).

To share a project with other users, export the desired file or dataset from within Canvas. See File Management.

Application Overview

Overview of User Interface

The Canvas user interface includes the following key areas:



1. Application Toolbars

Application toolbars provide global functions that apply across the application.

1A. Application Toolbar

Located at the top of the window. Includes the **Main Menu**, file name display, file save progress indicator, and window controls. Additional tools appear depending on the selected Activity.

See Application Toolbars

1B. Lower Navigation Bar

Located at the bottom of the Design Studio workspace. Includes **View Pane Controls**, **Default Views**, **Saved Views**, and **Undo/Redo/Delete**. Additional tools appear depending on the selected Activity.

See Lower Navigation Bar

1C. Application Settings

Opens **Application Settings**, where you configure user preferences, enable or disable features, and adjust system behavior. Preferences are saved across sessions and apply globally.

See Application Settings

2. Activity Selection

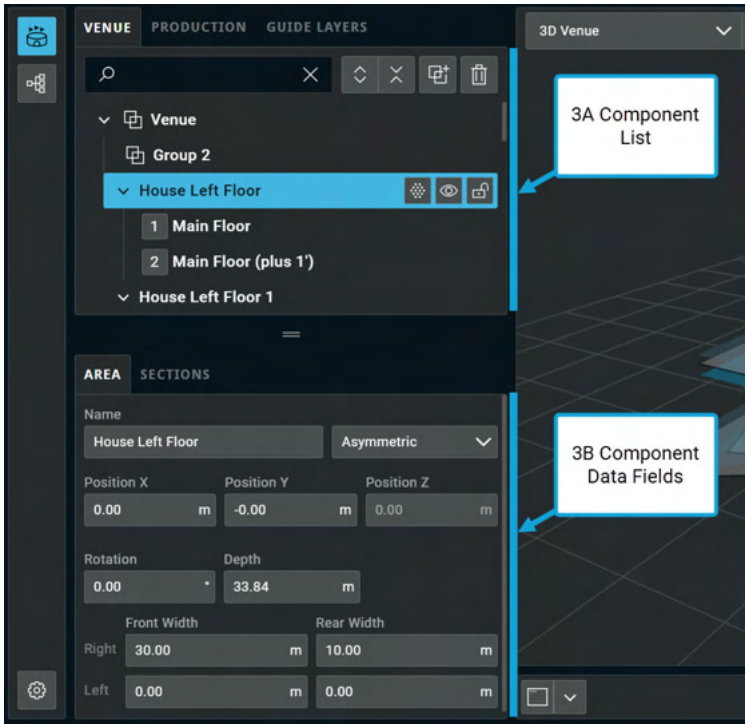
Choose a **Design Activity** to activate the appropriate tools and display modes. Each activity customizes both the Multipurpose Panel and the Design Studio to support its specific workflow and components.

See Activity Selection and Components

3. Multipurpose Panel (MPP)

Located on the left side of the screen, the **Multipurpose Panel** (MPP) allows you to manage design components. Changes made here are reflected in real time in the Design Studio.

- **3A. Component List** – The upper pane displays a list or tree view of components.
- **3B. Component Data Fields** – The lower pane shows data fields for the selected component.



See Multipurpose Panel Overview

4. The Design Studio

The main design workspace. Each pane includes view-specific toolbars and interactive design tools. Displays up to three panes, which may include:

- **Model Views** – Workspaces for 2D or 3D representations of the Venue
- **Data Views** – Workspaces for system simulation, alignment, or measurement data

See The Design Studio

5. Activity Metrics

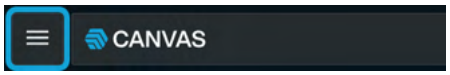
Includes visual analysis tools such as the **SPL Scale Toolbar**, which is available only during the System Activity. Additional metrics and scale tools may appear depending on the selected view and system state.

See Activity Metrics

Main Menu

The Main Menu provides access to all essential options for starting, opening, and managing your project designs. It serves as a central hub for navigating key functions and initiating new workflows in Canvas.

Click the **Main Menu** (upper left) to display the following options:



+ Project Home

Opens **Project Home** where you can start a new project, open an existing design, or import files.

> **NOTE**
> If the current project has unsaved changes (shown by an asterisk in the file name, **filename.can***), you are prompted to save or discard your work before Project Home opens.

Save

Saves the current project as a Canvas project file (.can). If changes are unsaved, an asterisk (*) appears after the file name (e.g., **filename.can***). The asterisk is removed once the file is saved.

Save As

Opens your system's file browser to save the project with a new name or location.

Import

Opens a submenu to choose an import option:

- CAD (.dae, .gtlf, .glb, .dxf)
- Guide Image (.png, .jpg)
- Venue (.csrf, .cvef)
- Sources (.csrc)
- Production Elements (.cprd)

Export

Opens a submenu with available export formats.

Depending on the export type, a dialog may appear to adjust settings or confirm the file destination. Some formats are exported immediately after file name and location are specified.

Pinning Sheet (.pdf)

Exports a PDF containing pinning information for selected clusters.

1. Opens the **Pinning Sheet Option** dialog.
2. Select clusters from the **Cluster List**.
3. Choose a layout:
   - **Single Cluster per page** – Simple or Detail
   - **Multiple Cluster** per page
4. Click **Save** or **Save & Open**.
5. In the **Save As** dialog, enter a file name and select a location, then click **Save**.
6. A PDF file is saved using the selected layout.

> **NOTE**
> If you select **Save & Open**, the PDF opens automatically in your system's default PDF viewer after export is complete.

Sources CAD (.dxf)

Exports a DXF file containing sound sources from the current project.

1. Opens the **Export DXF** dialog.
2. Select the desired options:

   Cluster List: Use checkboxes to select individual or all sources.

   Units of Measure: Select Meter, Inch, or Millimeter
3. Enter a file name and select a location, then click **Export**.
4. A DXF file is saved.

Sources (.csrc)

Exports a CSRC file containing all sound sources from the current project.

1. Opens the **Save As** dialog.
2. Enter a file name and select a location, then click **Save**.
3. A CSRC file is saved.

Venue (.csrf)

Exports a CSRF file containing all venue audience areas from the current project.

1. Opens the **Save As** dialog.
2. Enter a file name and select a location, then click **Save**.
3. A CSRF file is saved.

Production Element (.cprd)

Exports a CPRD file containing all production elements from the current project.

1. Opens the **Save As** dialog.
2. Enter a file name and select a location, then click **Save**.
3. A CPRD file is saved.

ⓘ Project Notes

Opens a dialog where you can enter project details including:

- Project Title
- Company
- Venue Author
- System Designer
- Venue validation status (checkbox)
- Notes

ⓘ Info

Opens a dialog box with the following software details:

- Application Name and Version
- Build Date
- MACE Version
- Copyright Information
- Legal Notice
- Cohesion Audio Website: cohesionaudio.com

ⓘ Help

Opens the User Guide PDF in a new window using your system's default PDF viewer.

✕ Close

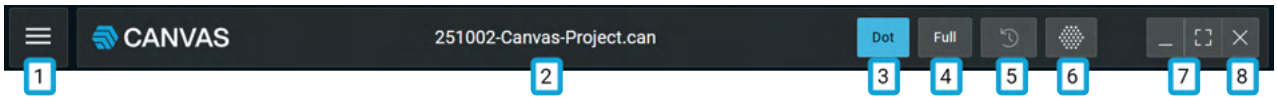
Opens a quit dialog to save changes before exiting.

- **Yes** – Saves changes and closes the application.
- **No** – Closes without saving.
- **Cancel** – Returns to the application without closing.

Application Toolbars

Application toolbars contain tools that apply across the entire application. These toolbars are always visible and include the following items: **Application Toolbar**, **Lower Navigation Bar**, and **Application Settings**.

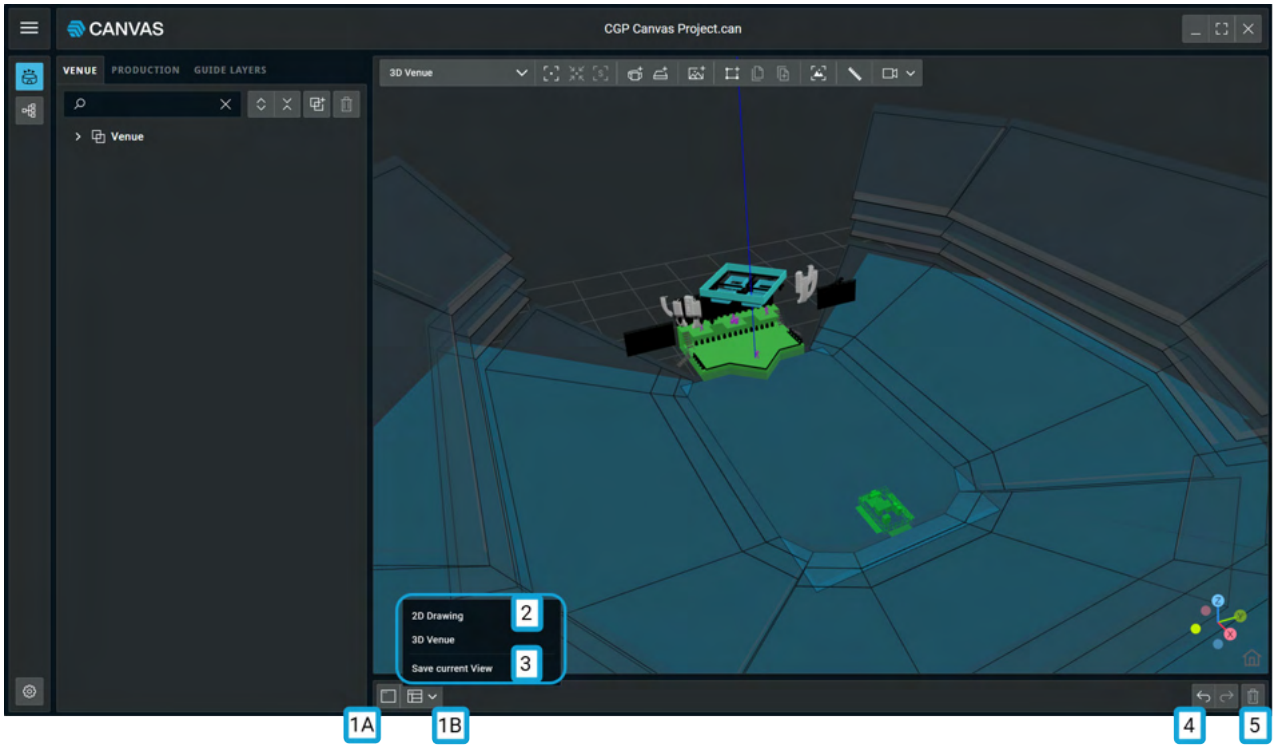
Application Toolbar



ID	Function	Description
1	Main Menu	Start and manage project designs using various options
2	File Name Display / File Save Indicator	Shows the current project file name Indicates when a file save is in progress
3*	Map Type Selector	Dot Mapping (3)
4*		Full Mapping (4)
5*	Calculate	When auto calculation is set to **Off**, use this control to manually calculate a new, full coverage map.
6*	SPL Map Visibility	Toggle to show/hide SPL map
7	Window Controls	Fully minimize or maximize the application window
8	Close (X) > Quit dialog	Dialog prompts to save changes: **Yes** or **No**, then closes Canvas Or use **Cancel** to return to program
* Displays in System Activity only		

Lower Navigation Bar

The Design Studio's **lower navigation bar** displays below the Studio workspace and includes the following:



ID	Function	Description
1A	Pane Layout	Control the number of panes shown in the Design Studio by cycling available pane layouts
1B	Views	Open the view menu for selecting or saving views
2	Default Views	Preconfigured views showing specific view types and number of panes
3	Saved Views	User-saved views persist within the application and can be used for all projects
4	Undo/Redo	Reverse or reapply most recent change
5	Delete	Delete currently selected component

1. View Pane Controls

- **1A. Pane Layout** – Control the number of panes shown in the Design Studio. Click to cycle through 1-pane, 2-pane, and 3-pane layouts.
- **1B. Views** – Click to display **Default Views** and **Saved Views** available in the Studio workspace.

About View Types

- Each Design Studio pane displays a **View Type**. Available views depend on the current activity.
- Select a view type from the **Workspace Toolbar** (at top left of each pane) using the **View Type dropdown menu** to select specific Model or Data Views.

Venue and System Activity Views

Activity	View Type	View Name
Venue Activity	Model View	3D Venue
		Area Side View
		Venue Top View
System Activity	Model View	3D System
		Top View
		Cross Section
	Data View	SPL/Distance
		Magnitude/Distance
		Phase
		Time Arrival
		Magnitude

2. Default Views

- Default views are preconfigured views showing specific view types and number of panes.

Default Venue Activity Views

Activity	Default Views	Pane #	Included View Names
Venue Activity	2D Drawing	2	Venue Top View, Area Side View
	3D Venue	1	3D Venue

Default System Activity Views

Activity	Default Views	Pane #	Included View Names
System Activity	Source Layout	2	Top View, 3D System
	Line Array	3	3D System, Cross Section, SPL/Distance
	Sub Alignment	3	Time Arrival, Phase, Magnitude
	Analysis	2	Top View, Magnitude/Distance
	Mapping	1	3D System

3. Saved Views

- Saved views persist within the application so they can be used for all projects.
- Use **Save current View** to save, name, and recall your own pane configuration.
    - Saving a view adds it to the view dropdown list.

4. Undo/Redo

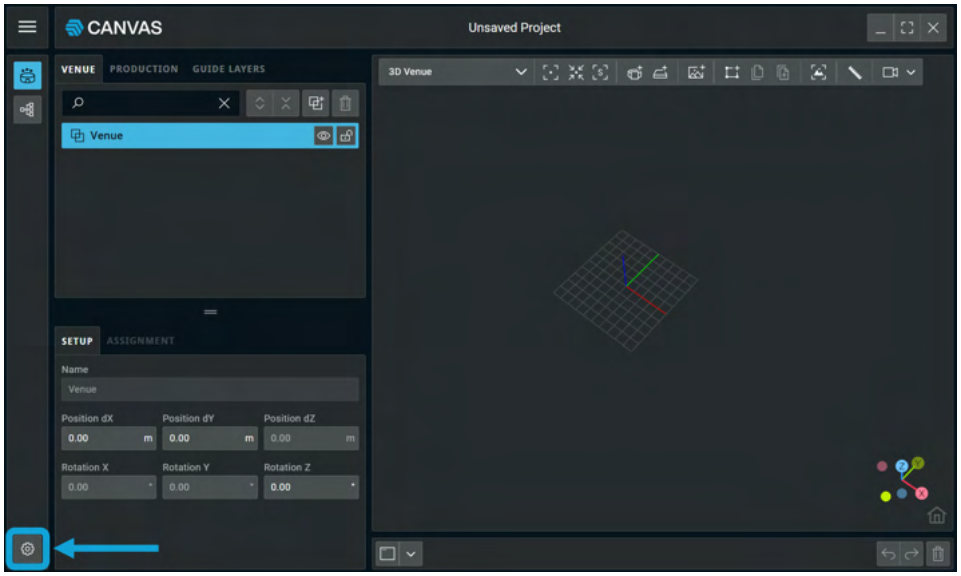
- Reverse or reapply most recent change.

5. Delete

- Delete currently selected component.

Application Settings

To open **Application Settings**, click the **gear** ⚙ at lower left of the application window.



Settings include the following tabs:

- **3D Workspace**
- **2D Workspace**
- **Charts**
- **Simulation**
- **Options**

Use lower buttons to manage changes:

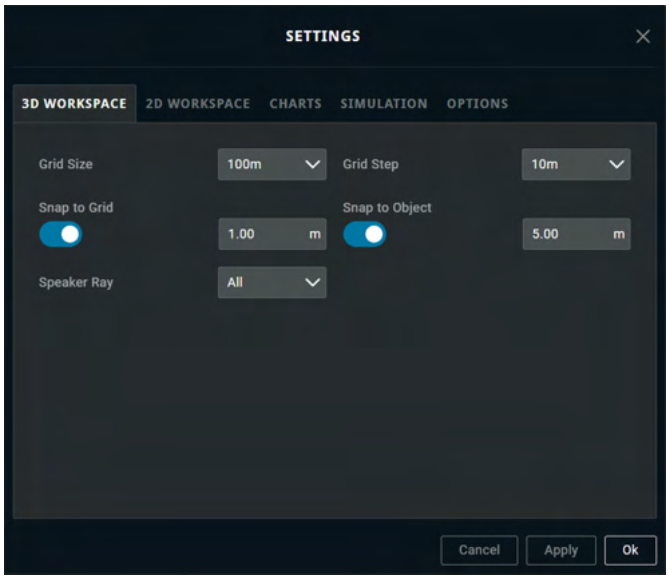
- **Cancel** – Close settings without applying changes.
- **Apply** – Apply changes and keep settings dialog open.
- **Ok** – Apply changes and close settings dialog.
- **Close (X)** – Close settings. Unapplied changes are lost and applied changes are kept.

Settings | 3D Workspace

3D workspace settings control the behavior of components, measurement points, speaker rays, and seating sections in 3D views.

To open **Application Settings**, click the **gear** ⚙ at lower left of the application window.

Then select: **3D Workspace**



3D Workspace

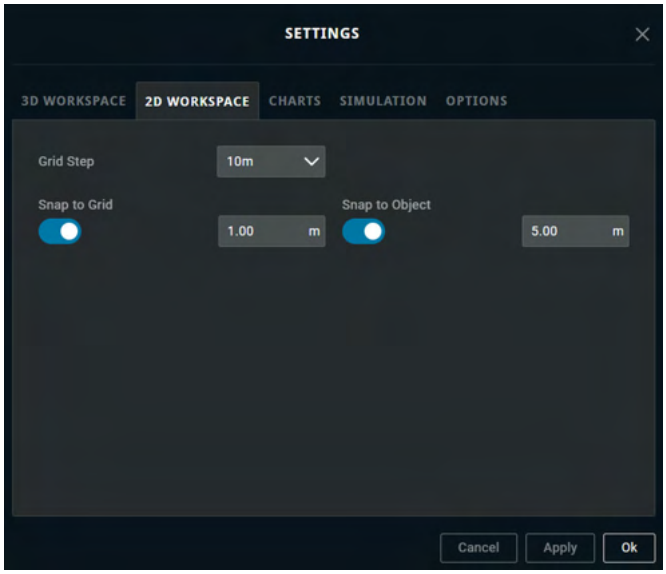
Setting	Description	Options
Grid Size	Sets the overall size of the grid in 3D views.	Metric: 50 m, 100 m, 150 m, 200 m, 1000 m Imperial: 150 ft, 300 ft, 450 ft, 600 ft, 3000 ft
Grid Step	Sets the spacing between grid lines.	Metric: 5 m, 10 m, 25 m Imperial: 15 ft, 30 ft, 75 ft
Snap to Grid	Snaps components to the nearest grid line when component is moved or repositioned. Does not affect existing positions.	On / Off Snap Radius Min: 0.50 ft| 0.15 m Snap Radius Max: 32.81 ft | 10 m
Snap to Object	Snaps components and measurement points to the nearest object in the venue model when component is moved or repositioned. Does not affect existing positions.	On / Off Snap Radius Min: 0.50 ft| 0.15 m Snap Radius Max: 32.81 ft | 10 m
Speaker Ray	Controls how speaker rays are displayed in 3D and 2D views.	All / None / Selected

Settings | 2D Workspace

2D workspace settings affect interactions in 2D views of the venue model.

To open **Application Settings**, click the **gear** ⚙ at lower left of the application window.

Then select: **2D Workspace**



2D Workspace

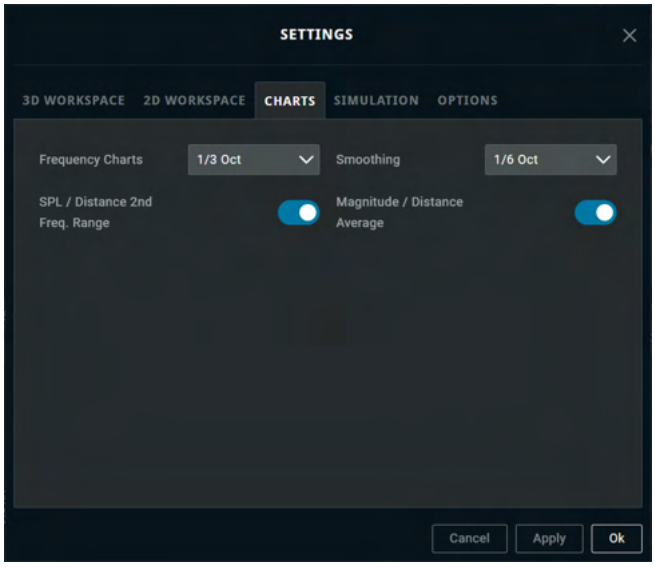
Setting	Description	Options
Grid Step	Sets the spacing between grid lines.	Metric: 50 m, 100 m, 150 m, 200 m Imperial: 15 ft, 30 ft, 75 ft
Snap to Grid	Snaps components to the nearest grid line when component is moved or repositioned. Does not affect existing positions.	On / Off Snap Radius: 1.00–10.00 ft or m
Snap to Object	Snaps components and measurement points to the nearest object in the venue model when component is moved or repositioned. Does not affect existing positions.	On / Off Snap Radius: 1.00–10.00 ft or m

Settings | Charts

Chart settings affect frequency response graphs.

To open **Application Settings**, click the **gear** ⚙ at lower left of the application window.

Then select: **Charts**



Charts

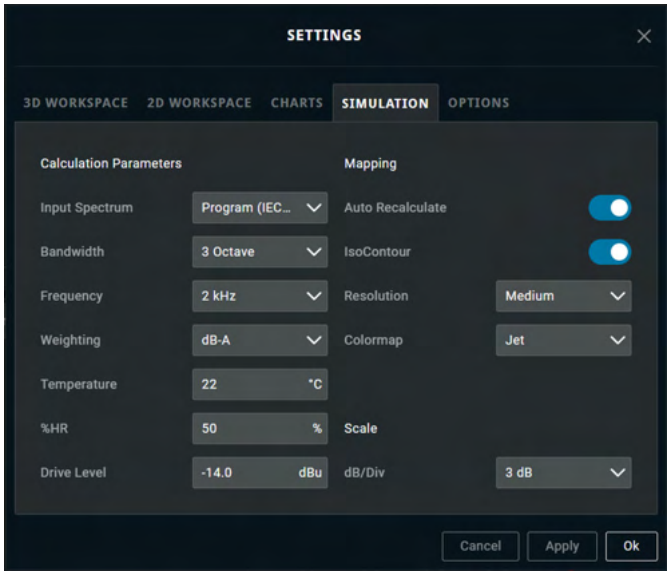
Setting	Description	Options
Frequency Charts	Sets the frequency scale for magnitude and phase graphs.	1/3 Oct, Decade
SPL/Distance 2nd Freq. Range	Activates display of 2nd frequency range.	Default On, Toggle Off
Smoothing	Sets the default response smoothing used in graphs.	1/3 Oct, 1/6 Oct, 1/12 Oct
Magnitude/ Distance Average	Activates display of Magnitude over Distance average (dashed line of average response of all samples along the measurement line).	Default On, Toggle Off

Settings | Simulation

These settings allow you to tailor system predictions to different measurement standards and real-world conditions.

- Simulation settings are saved with the Canvas project file.
- Each new project starts with a defined default set of simulation settings.
- When a project file is opened, its saved simulation settings are restored.
- **Calculation Parameters** define the signal, analysis method, and environmental conditions.
- **Mapping Settings** define how sound pressure levels are displayed visually in the simulation map.
- **Scale Settings** control the SPL color bar and how level changes are shown per division.

> **NOTE**
> Simulation settings are project-specific and are restored automatically when a project is opened. This behavior helps ensure consistent results when sharing files for review or support.



Accessing Full Simulation Settings

To open **Application Settings**, click the **gear** ⚙ at lower left of the application window.

Then select: **Simulation**

> **TIP**
> You can also open **Simulation Settings** by clicking the gray **Simulation Summary** box above the SPL Scale (available only in System Activity).

Frequently adjusted parameters are also available through **Quick Simulation Settings** in System Activity. Changes made in either location are reflected across both interfaces.

See Activity Metrics → Quick Simulation Settings.

Simulation: Calculation Parameters

Setting	Description	Options
Input Spectrum	Provides a selection of three distinct spectral weighting profiles to be used in the simulation for mapping	Pink Noise (AES 2), Music (EIA 426B), Program (IEC268)
Bandwidth	Defines the bandwidth that will be summed for mapping about a specified center frequency Works in relationship with the Frequency selection (see example below)	Broadband (Full-range response) Or averaged into: 1/3 Octave, 1 Octave, 3 Octave bands
Frequency	Center frequency when using octave-band analysis (see example below) Not applicable in Broadband	80 Hz–6.3 kHz (selectable range) N/A in Broadband
Weighting	Frequency filter (A, C, or Z) applied to SPL value results Not applied to data in mapping or response graphs	dB-A, dB-C, dB-Z fullrange
Temperature	Ambient air temperature used in acoustic calculations	–40–60 °C (–40–140 °F)
%HR	Relative humidity used in acoustic calculations	0%–100%
Drive Level	Electrical input level in dBu applied to the system	Default = –24.0 dBu –60.0 to +24.0 dBu (selectable range)

NOTE

Bandwidth–Frequency relationship example:

A center frequency of 2kHz and a bandwidth of 1/3 Octave will include the 1.6 kHz, 2 kHz, and 2.5 kHz 1/3 Octave bands.

Simulation: Mapping Settings

Setting	Description	Options
Auto Recalculate	Automatically updates the SPL map when parameters change	Toggle on/off; Default = off
IsoContour	Shows contour lines of equal SPL on the map	Toggle on/off; Default = on
Resolution	The distance between sample points within a coverage map; the level of detail applied to mapping results	Low (3 m), Medium (2 m), High (1 m)
Colormap	Color scheme applied to SPL maps	Rainbow, Turbo, Plasma*, Inferno*, Afmhot, Jet (*Plasma and Infermo are most color-vision-friendly)

Simulation: Scale Settings

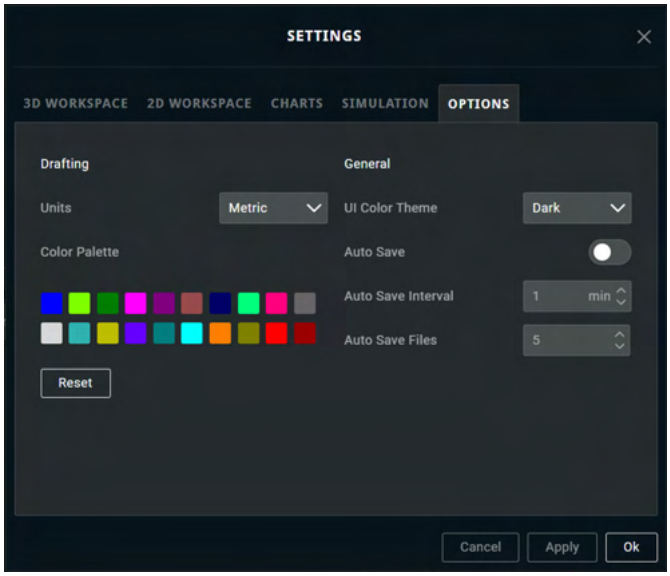
Setting	Description	Options
dB/Div	SPL scale step size per division on the color bar.	1 dB, 3 dB, 6 dB

Settings | Options

Options control global settings such as units, color mode, and auto-save behavior.

To open **Application Settings**, click the **gear** ⚙ at lower left of the application window.

Then select: **Options**



Options

Setting	Description	Options
Units	Sets the default units for distance measurements.	Imperial, Metric
Color Palette	Defines the color palette that is applied to seating sections and measurement points. Colors are used sequentially and once the last palette color is applied, the cycle starts anew.	Varies by palette selection Use **Color Picker** to specify exact color in RGB, HSL, or HEX code, or use eyedropper tool.
UI Color Theme	Sets the interface color theme.	Dark, Light
Auto Save	Enables automatic backup saves after the first manual save.	Toggle On / Off Auto Save Interval: 1–10 minutes Auto Save Files: 1–10 retained backups

Activity Selection

Most Canvas projects begin with the **Venue Activity** to define the physical layout, followed by the **System Activity** to design and analyze the sound system.

Switch between design phases at any time by choosing **Venue** or **System** in the **Activity Selection toolbar**.

Activity selection determines which tools, components, and workspace views are available in the **Multipurpose Panel (MPP)** and **Design Studio**.

Canvas Activity Overview

Icon	Activity	Description
	Venue Activity	– Define your project's physical space by either drawing or importing venue geometry, **audience areas**, **seating sections** – Add **production elements** (staging, video walls, etc.) – Add **guide layers** to support layout and design
	System Activity	– Place **sources** – Analyze coverage using virtual microphones and sampling tools (**measurement points** and **measurement lines**) – Optimize system performance

Select and Position Components

Coordinate Convention

Canvas uses a **right-handed 3D coordinate system** where each axis represents a physical dimension in the venue.

Axis	Line Color	Represents	Positive Direction
X	Red	Front to back of venue	The software is designed to facilitate +X extending from the stage toward the audience
Y	Green	Width (left to right)	The software is designed to facilitate +Y extending toward audience right
Z	Blue	Height (vertical)	+Z represents height above the floor

NOTE

Axis orientation is not definitionally tied to the audience. The directions described above reflect the typical stage-facing workflow used by the software.

Solid lines indicate positive (+) direction. Single arrowheads without lines indicate negative (−) direction.

See Navigating the Venue | Coordinates and Orientation.

Component Anchor Point

The anchor point defines the exact X, Y, Z coordinate Canvas uses to position and move a component.

To change the location of this anchor point, select the component then drag it with the **Move Tool** or edit the X, Y, or Z values in the **Setup** tab (component data fields).

For details on venue component anchor points, see each component type at Venue Component Categories and Types

For details on system component (sources) anchor points, see System Component Anchor Point

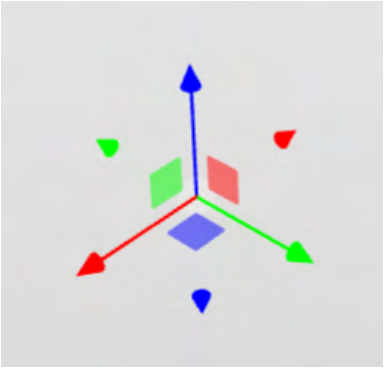
Select Components

Click a component's geometry in the model or its name in the component list to select it.

When selected, both the geometry and name highlight, and the **Move Tool** activates—centered on the component's anchor point.

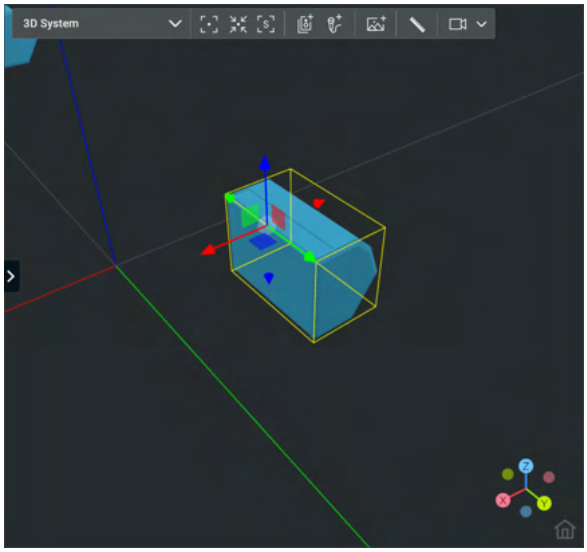
Move Tool Axes and Planes

Indicator	Movement Description	Fixed Axis
Red line	Move along X axis	Y, Z
Green line	Move along Y axis	X, Z
Blue line	Move along Z axis	X, Y
Red square	Move within Y–Z plane	X
Green square	Move within X–Z plane	Y
Blue square	Move within X–Y plane	Z
Yellow diamond	Move freely (all axes)	–

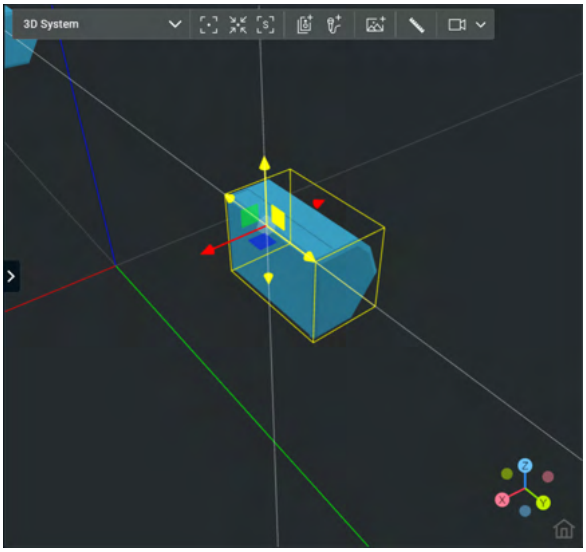


Using the Move Tool

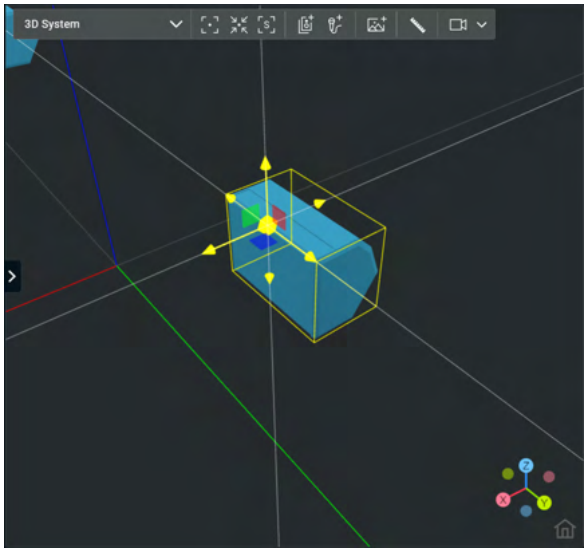
Hover over a line, a square, or the center point of the **Move Tool** to highlight it in **yellow**, indicating the function is active, and the selected component can be dragged along the allowed direction.



System Activity example: Selecting a source activates the **Move Tool**.



Hover over **red square** and color changes to yellow (X axis is now fixed; drag to move in **Y–Z plane**).



Hover over **center of Move Tool** and all line colors change to yellow. Drag to move in **all axes**.

Component Positioning in the Multipurpose Panel

Edit X, Y, Z for the component's anchor point in **Setup** tab (component data fields) to set an exact position.

NOTE

For Paired Sources: Movements are mirrored about the X axis.

- +Y becomes −Y on the paired unit.
- +X and +Z remain unchanged.

Edits to either unit in the pair are applied to both.

Venue Components

The Venue Activity allows you to add and manage **Venue Components**—the building blocks of your 3D venue model.

Venue Component Overview

Venue components are the building blocks of every Canvas venue model.

Use **Drawing a Venue** to create them, **Venue Component Management** to organize and group them, and **System Activity** to perform simulations on the mapped seating sections.

Venue Component Definitions

Component	Behavior	Data Tabs
Audience Area	Editable geometry containing one or more **Seating Sections**; sections are used in simulation and analysis	Area, Sections
Surface	Imported CAD geometry that is used in simulation and analysis; not editable; not grouped under Venue; no SPL Map toggle	Floor, Audience
Production Element	Visual-only structure, automatically grouped under **Production Elements**; excluded from simulation	Setup
Guide Layer	Reference-only 2D image; automatically grouped by view type; excluded from simulation	Setup

Venue Component Organization

Venue components are organized by category across tabs in the Component List section of the MPP.

Each component tab supports filtering to manage large or complex models. **Venue** and **Production** tabs also support manual grouping, while **Guide Layers** are automatically grouped.

Venue Component Categories

MPP Tab	Component Types	Description / Use
Venue	**Audience Areas**, **Seating Sections**, **Surfaces** (imported CAD)	Core venue geometry for acoustic simulation
Production	**Production Elements** – such as stage structures, video walls, lighting towers, scoreboards	Visual-only components that represent non-audience structures in the 3D model (excluded from acoustic simulation)
Guide Layers	**Guide Layers** – 2D reference images and layout guides	Alignment and tracing aids visible in 2D and 3D views

Venue Component Properties

When a component is selected, its editable properties appear in the Component Data Field section of the MPP. Each component type includes data fields that define its position, geometry, or other properties.

These fields support precise editing for both manual design and import alignment workflows.

Properties vary by component type but typically include:

- Name
- Position / Orientation
- Dimensions
- Configuration parameters specific to the selected component

Venue Component Anchor Point

Each component has an anchor point—an X, Y, Z reference used to position, move, and align the component within the model.

When a component is selected, it is highlighted in 3D views and the **Move Tool** displays its anchor point position.

To change the location of this anchor point, select the component then drag it with the **Move Tool** or edit the X, Y, or Z values in the **Setup** tab (component data fields).

NOTE

See each venue component type for its specific anchor point locations.

About Canvas-Drawn Components

Audience Areas and Seating Sections | Editable Venue Geometry

An **Audience Area** (area) is a user-drawn, two-dimensional **X–Y** region in the venue. It defines the base plane or foundation of the audience space, where seating sections are placed.

A **Seating Section** (section) is the audience's listening position and is always placed **inside an audience area**. Seating sections are defined using a **depth–elevation (D–Z)** coordinate convention, where depth is measured relative to the front edge of the audience area. This approach ensures consistent section definition regardless of the audience area's orientation within the venue.

Seating sections represent the actual mapped plane used in simulation and performance analysis. Audience areas themselves are **not** mapped.

Key relationships:

- Each audience area can contain one or more seating section.
- Sections must remain within the X–Y boundary of their parent area.
- Section width always matches the width of its parent area.

> **NOTE**
> The audience height assigned to each section (**Seated**, **Standing**, or **Custom**) affects all simulation / results.

Audience Area Behavior:

- Editable when created in Canvas
- Anchor point is at front-center
- Listed under the parent **Venue** group in the MPP
- Supports grouping into logical sub-groups for organization
- Editable data tabs:
  - **Area** – Name, Position (X, Y, Z), Rotation, Depth, and shape-specific parameters
  - **Sections** – Audience Height, Section Endpoint label (#), X, Z

For drawing or editing methods, see Drawing A Venue.

About Imported Surfaces

Fixed CAD Venue Geometry

A **Surface** is imported CAD geometry that defines a floor or reference plane within the venue model. Surfaces are non-editable and serve as visual alignment aids.

Surface Behavior:

- Geometry cannot be edited
- Anchor point is wherever origin was placed in original file
- Not listed under the parent **Venue** group in the MPP
- Cannot be added to sub-groups
- No **SPL Map toggle** function
- Editable data tabs:
  - **Setup** – Name, Position (X, Y, Z), Rotation
  - **Audience** – Audience Height

For importing procedures, see Importing a Venue from 3D Models and CAD.

About Production Elements

Production Elements are visual-only components that enhance the realism of the 3D venue model but are excluded from simulation and acoustic analysis. They represent non-audience structures such as stages, lighting towers, video walls, or scoreboards used to complete the visual representation of the venue.

Production Element Behavior:

- Automatically grouped under the **Production Elements** parent group; may also be manually sub-grouped
- Anchor point location varies based on what type of production element and how it was added to the model
- Editable data tab:
  - **Setup** – Name, Display color picker, Position (X, Y, Z), Rotation, Lock aspect ratio, Width, Depth, Height

For grouping and editing tools, see Managing Production Elements.

About Guide Layers

Guide Layers are reference-only venue components that display background images for alignment and scaling.

They are **not mapped** in simulation and cannot be manually grouped.

A guide layer is associated with either the 3D venue geometry, audience areas or seating sections, based on the view type in which it was created.

Guide Layer Types

Type / Group	Visible In	Guide Layer Behavior	Primary Use
3D Venue	3D Venue and 3D System Views	Can be moved and rotated in 3D space	Presentation visuals; aligns the overall venue model in 3D perspective
Venue Top View	All Top Views, All 3D Views	Anchored to the top view	Venue layout planning; use for drawing accurate 2D floor plans
Area Side View	Area Side View (Venue only), All 3D Views	Attached to a Seating Section; copies with section	Seating layout and elevation planning; use to trace audience elevation or profile geometry

NOTE

Guide layers are automatically **grouped by the view in which they are created / added to the project**.

Guide Layer Behavior:

- Anchor point is the center of the image
- Automatically grouped under the **Guide Layers** groups (when created in Canvas)
  - Imported guide layers are automatically grouped under **3D Venue**
- Editable data tab:
  - **Setup** – Name, Position (X, Y, Z), Rotation, Lock aspect ratio, Width, Depth, Opacity

See also Adding Guide Layers | Importing Guide Layers | Managing Guide Layers

System Components

The System Activity allows you to add and manage **System Components**, which represent the loudspeaker systems and measurement tools used in your Canvas project.

System Component Overview

System components define the loudspeaker systems and measurement tools used for simulation and optimization.

Use **System Activity** to configure and measure your loudspeaker system, **Venue Activity** to define the physical space, and **Simulation tools** to visualize overall performance.

System Component Definitions

Component	Behavior	Data Tabs
Source	Represents line arrays, subwoofers, or point sources. Discrete clusters are automatically grouped under the System group. Additional user-defined groups are shown in the System tab with their group members listed underneath. Can be imported or created directly in Canvas.	Setup, Processing, Enclosures
Measurement Point	Virtual reference microphone for SPL sampling at defined locations; grouped under the **Measurement** tab.	Setup
Measurement Line	Virtual sampling line for evaluating response consistency; grouped under the **Measurement** tab.	Setup

System Component Organization

System components are organized by category across tabs in the component list section of the MPP.

Each tab includes filtering controls to manage large or complex systems. The **Sources** tab supports manual grouping, while **Measurement Points** and **Measurement Lines** are automatically grouped.

System Component Categories

MPP Tab	Component Types	Description / Use
Sources	Cohesion line arrays, subwoofers, and point sources	Defines system loudspeakers and their configuration parameters
Measurement	**Measurement Points** and **Measurement Lines**	Defines virtual microphones and sampling tools used for analysis

System Component Properties

When a component is selected, its editable data fields appear in the MPP component data fields section, where you define loudspeaker parameters and measurement geometry.

These fields provide precise control of loudspeaker placement and measurement geometry within the venue model.

Properties vary by component type but typically include:

- Name
- Position (X, Y, Z)
- Processing
- Configuration parameters specific to the selected component

System Component Anchor Point

Each component has an anchor point—an X, Y, Z reference used to position, move, and align the component within the model.

To change the location of this anchor point, select the component then drag it with the **Move Tool** or edit the X, Y, or Z values in the **Setup** tab (component data fields).

Sources

Anchor points for sources are always located at the **front-center** of the defined mounting or enclosure surface.

Source Type	Anchor Point Location
Flown Line Array	Frontmost pick point
Flown Subwoofer	Frontmost pick point
Flown Point Source	Center point of front, top edge of the enclosure
Ground-Stacked Subwoofer	Center point of front, bottom edge of the stack
Ground-Stacked Point Source	Center point of front, bottom edge of the enclosure

NOTE

Paired sources always move together.

Measurement Components

Source Type	Anchor Point Location
Measurement Point	Bottom tip of the point
Measurement Line (Top View only)	Has start point and end point

About Sources

Sources represent Cohesion loudspeakers—including line arrays, subwoofers, and point sources—that you place and analyze within the venue model. Each source has data fields that define its position, aiming, processing, and configuration.

Source Behavior:

- Listed under the **System** group in the MPP
- Can be imported from other Canvas projects or created directly in the current project
- Editable data tabs:
  - **Setup** – Defines source position, orientation, and rigging configuration
  - **Processing** – Manages gain and delay settings
  - **Enclosures** – Displays enclosure-specific data for each loudspeaker element in an array

For workflows to create, mirror, and configure sources, see Adding Sources.

About Measurement Points

Measurement Points are virtual reference microphones used to evaluate system performance at defined positions within the venue model.

They capture predicted sound pressure levels and frequency response data for analysis.

Measurement Point Behavior:

- Grouped under the **Measurement** tab in the MPP
- Multiple points can be created to analyze coverage across seating sections
- Editable data tabs:
  - **Setup** – Name, Position (X, Y, Z)

> **TIP**
> Use measurement points to represent key listener positions such as mix position, balcony edge, or VIP zone.

About Measurement Lines

Measurement Lines are virtual sampling lines used to evaluate consistency of sound level and frequency response across audience areas / seating sections.

Each line samples SPL data at evenly spaced intervals along a defined path.

Measurement Line Behavior:

- Grouped under the **Measurement** tab in the MPP
- Draw across seating sections to evaluate uniformity of coverage
- Editable data tab:
  - **Setup** – Name, Start and End coordinates (X–Y), Length, Angle

For analysis views and SPL mapping tools, see System Data Views.

Multipurpose Panel (MPP)

The **Multipurpose Panel (MPP)** is a primary space for viewing, organizing, and editing the components that make up your design. It is a dynamic interface that adapts to the currently selected design activity: **Venue** or **System**.

Selections and data entries made in the MPP directly affect the corresponding elements in the model displayed in the Design Studio. The reverse is also true: changes made in the Design Studio are immediately reflected in the MPP.

Each activity includes various component types (such as **audience areas**, **production elements**, or **sources**). Each component's settings are organized into tabs, such as **Setup**, **Area**, **Sections**, or **Processing**.

Multipurpose Panel Structure

The multipurpose panel is divided into two sections:

Upper Pane – Component List

- Displays a list or tree structure of components relevant to the active design activity.
- Components are grouped by type and organized into tabs.
- You can sort, group, or filter items using the MPP header toolbar. Sorting is alphanumeric by name or number.
- Available tools are activity-specific and update based on the selected view or component.

Lower Pane – Component Data Fields

- Displays detailed fields and controls for the selected item.
- Depending on context, this view may include both editable properties (such as naming, geometry, hardware, or processing settings) and read-only data fields.

Multipurpose Panel Venue Tools

In the venue activity, the upper MPP provides tools for managing **venue components**, including **venue geometry**, **production elements**, and **guide layers**.

Universal Venue Component Tools

The following tools are available for all venue component types within the MPP.

Venue Component Tool ID

1 – Component Name List

2 – Text Search Bar

3 – Select Component

4 – Toggle SPL Map

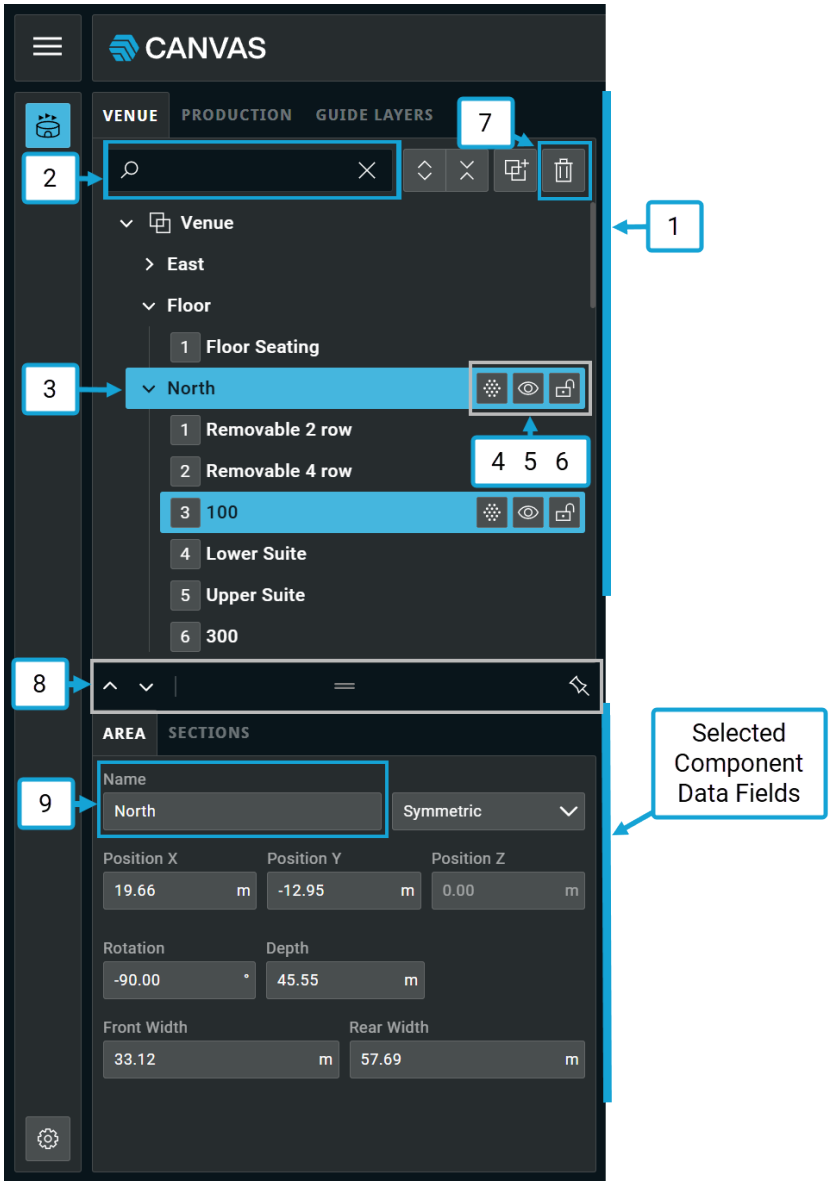
5 – Toggle Visibility

6 – Toggle Lock Component

7 – Delete

8 – Panel Divider

9 – Rename Component or Group



Universal Tools for Venue Components

ID	Location	Tool	Description
1	Upper MPP	Component Name List	Displays all components in a list. Some components are automatically grouped by type. **NOTE** The display order cannot be changed.
2	Upper MPP	Text Search Bar	Filters the component list as you type. Search by text, numbers, or special characters. Click **(X)** to clear the filter.
3	Upper MPP	Select Component	Click a component name to select it. A selected component is highlighted, and its data fields appear in the lower MPP. **NOTE** Only one component can be selected at a time.
4	Upper MPP	Toggle SPL Map	Toggles SPL mapping inclusion/exclusion for the selected component; determines whether it is included in the SPL mapping and simulation results or not. **NOTE** Results display in the System Activity mapping view.
5	Upper MPP	Toggle Visibility	Shows or hides the selected component in the model view.
6	Upper MPP	Toggle Lock Component	Lock – Prevents changes to a component's position and size in model views. Locks lower MPP fields. Unlock – Allows changes to a component's position and size in model views. Allows edits to lower MPP fields.
7	Upper MPP	Delete	Deletes the selected component.
8	MPP Divider	Panel Divider	Divider may be fixed in one of three locations: Show all elements, Hide all elements, or lock in an intermediate position.
9	Lower MPP	Rename Component or Group	Edit **Name** field in the **Setup** or Area tab. (32-character limit)

NOTE

Multi-selection of components is not supported. Work with one component at a time.

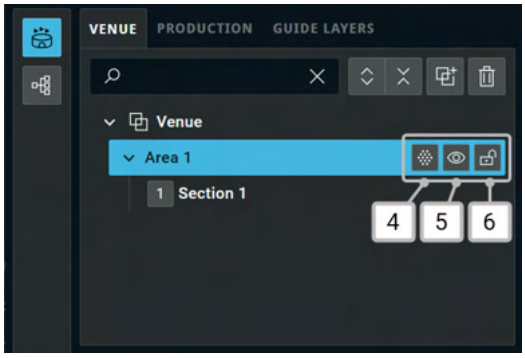
Use **grouping tools** as needed and as available to manage multiple components.

Visibility and Mapping Controls

Visibility and mapping options manage which venue components are displayed, included in mapping, or locked for editing. They help organize complex venues by defining what is visible and editable in model views.

These options appear when you hover over an area, section, or group in the venue components list.

Three tools are available at the **Area** and **Section** level:



ID	Control	Description
4	Toggle SPL Map	Toggles SPL mapping inclusion/exclusion for the selected component; determines whether it is included in the SPL mapping and simulation results or not. **NOTE** Results display in the System Activity mapping view.
5	Toggle Visibility	Shows or hides the selected component in the model view.
6	Toggle Lock Component	Lock – Prevents changes to a component's position and size in model views. Locks lower MPP fields. Unlock – Allows changes to a component's position and size in model views. Allows edits to lower MPP fields.

NOTE

At the parent venue group level, and within any sub-groups, only visibility and locking options are available.

Lock Behavior

Locking restricts editing and selection depending on the level where the lock is applied.

VENUE-LEVEL LOCKING

Applies to the entire Venue parent group and any sub-groups.

- Locks the **Setup** fields for the Venue parent group.
- Locks the **Setup** and **Assignment** fields for all sub-groups.
- Locks the positions of all member components in all model views.
- Components remain selectable, but **Area** and **Sections** tab data fields become view-only (cannot be edited).

SUB-GROUP LEVEL LOCKING

Applies only to the selected sub-group and its members.

- Locks the sub-group's **Setup** and **Assignment** fields.
- Member **areas** and **sections** remain selectable in all views, but their **Area** and **Sections** tab data fields are view-only (cannot be edited).

AREA OR SECTION LOCKING

Applies only to individual components.

- Prevents changes to its geometry and properties in all model views.
- Data fields remain visible but are view-only.

Grouping Tools

Grouping for Production Elements and Audience Areas

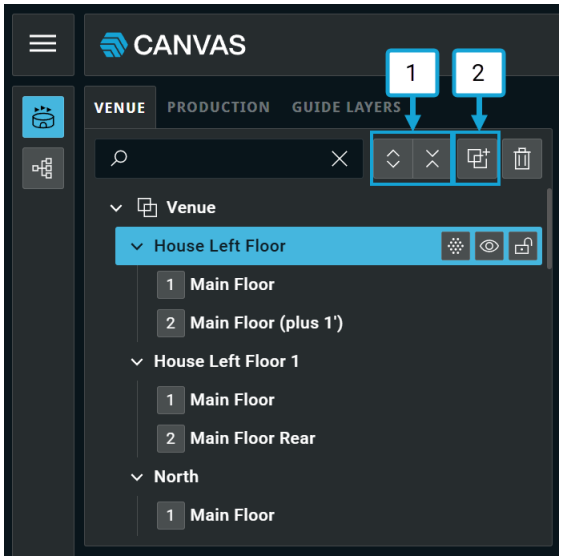
The following tools apply only to components that support manual grouping—specifically, production elements and audience areas.

NOTE

Imported Surfaces do not support manual grouping.

Guide layers are automatically grouped based on the view type in which they are added.

Seating sections may be grouped using **Level Group Control**.



Grouping for Production Elements and Audience Areas

ID	Tool	Description
1	Expand / Collapse All Groups	Expand or collapse all groups in the component list.
2	Add Group	Click the **Add Group** icon to create and name a new group. Assign group membership at **Assignment** in lower MPP. Grouped components appear indented below the group name.

NOTE

Each component can belong to **one group** at a time.

Grouping for Seating Sections

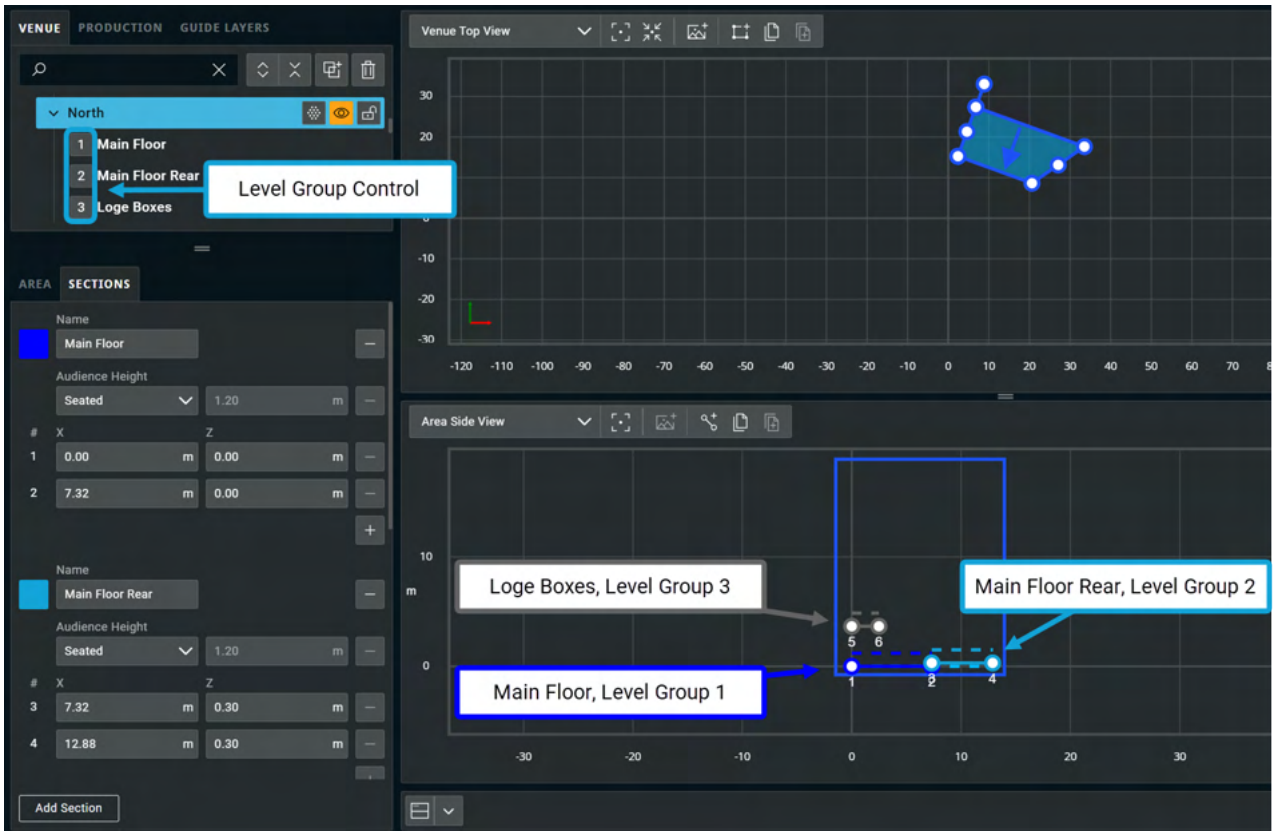
Level Groups organize seating sections into logical groups for managing visibility within the venue model.

Level Groups for Seating Sections

Tool	Description
Assign Section to Level Group	Right-click the **Level Group Number** for any section. In the **Assign to Level Group** dialog, check the desired box. Once assigned, the level number appears next to the section name.

NOTE

Each seating section can belong to **one Level Group** only.



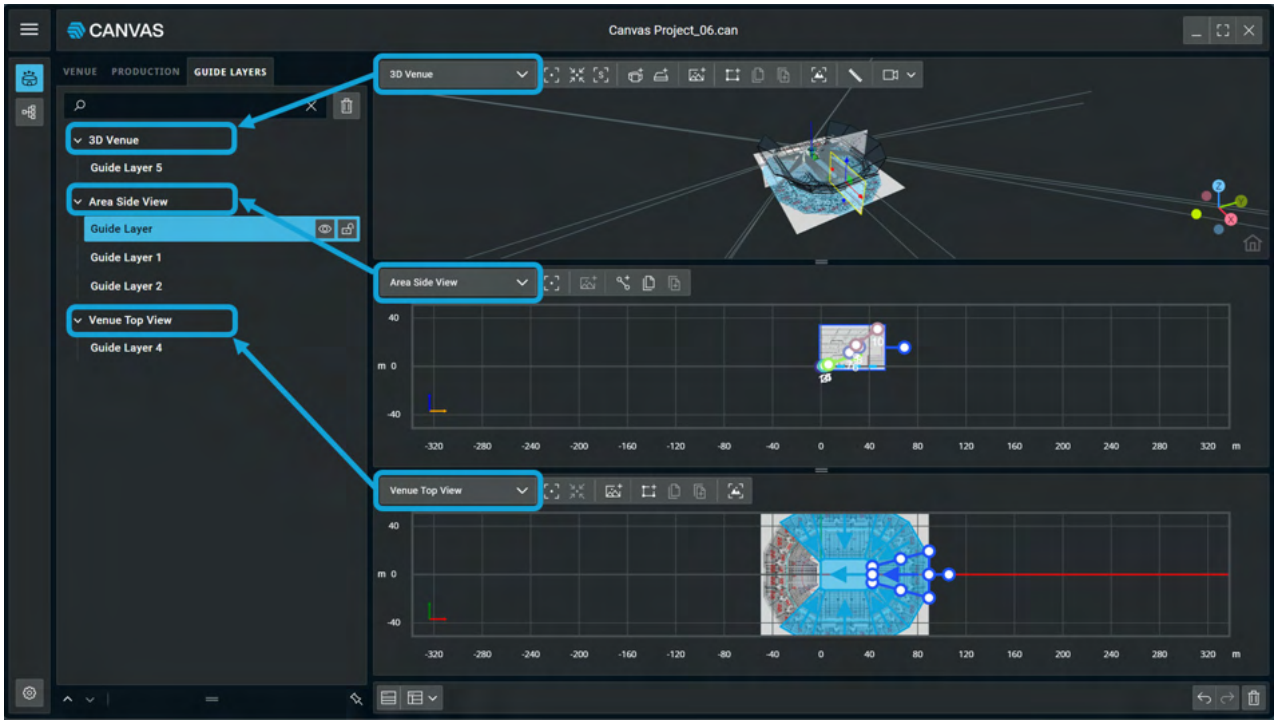
See Drawing a Venue | Working with Level Groups.

Grouping for Guide Layers (Auto-Grouped)

Guide layers are grouped automatically according to the model view in which they are added:

Grouping for Guide Layers

Assigned Group Name	Model View (where added)
3D Venue	3D Venue / 3D System View
Area Side View	Area Side View
Venue Top View	Venue Top View



NOTE

To change a guide layer's group, remove and re-add it in a different model view.

Multipurpose Panel | Venue Data Fields

You can find Venue Activity data fields for venue components in the lower MPP. There are unique data fields that apply to **Surfaces**, **Audience Areas**, **Production Elements**, **Guide Layers**, and **Grouped venue components**.

For complete lists of all venue data fields, see Reference List: Multipurpose Panel | Venue Data Fields.

Multipurpose Panel System Tools

In the system activity, the upper MPP provides tools for working with **system components**, including **sources** and measurement elements (**measurement points** and **measurement lines**).

Universal System Component Tools

The following tools are available for all system component types within the MPP.

System Component Tool ID

1 – Component Name List

2 – Text Search Bar

3 – Select Component

4 – Toggle Visbility

5 – Lock Component

6 – Delete

7 – Rename Component or Group



Universal Tools for System Components

ID	Location	Tool	Description
1	Upper MPP	Component Name List	Displays all components in a list. Some components are automatically grouped by type. **NOTE** The display order cannot be changed.
2	Upper MPP	Text Search Bar	Filters the component list as you type. Search by text, numbers, or special characters. Click (X) to clear the filter.
3	Upper MPP	Select Component	Click a component name to select it. The selected component is highlighted, and its data fields appear in the lower MPP. **NOTE** Only one component can be selected at a time.
4	Upper MPP	Toggle Visibility	Show or hide the selected component in the model view.
5	Upper MPP	Lock Component	Lock – Prevents changes to a component's position and size. Locks lower MPP fields. Unlock – Allows changes to a component's position and size. Allows edits to lower MPP fields
6	Upper MPP	Delete	Deletes the selected component.
7	Lower MPP	Rename Component or Group	Edit Name field in the Setup or Area tab. (32-character limit)

NOTE

Multi-selection of system components is not supported. Work with one component at a time.

Use **grouping tools** as needed and as available to manage multiple components.

Source-Specific Tools and Manual Groups

The following tools apply only to components that support manual grouping—specifically, sources. These tools are located in the upper MPP.

Source and Group Tool ID

1 – Expand / Collapse All Groups

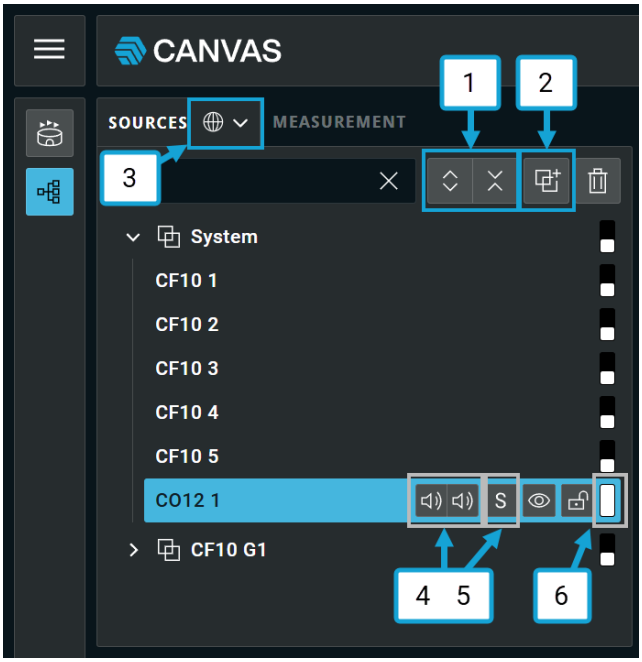
2 – Add Group

3 – Global Functions

4 – Mute (Left/Right for a paired source)

5 – Solo

6 – Headroom indicator



Source Manual Group Tools

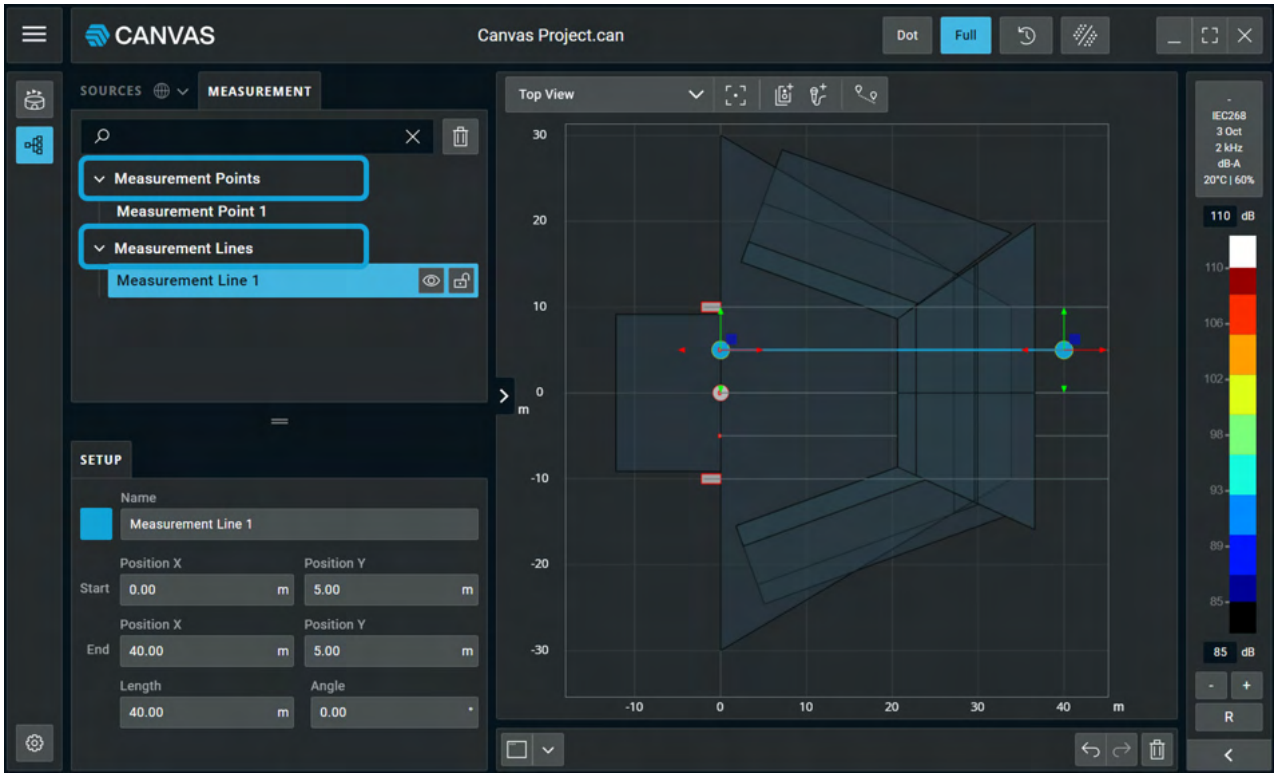
ID	Tool	Description
1	Expand / Collapse All Groups	Expand or collapse all groups in the component list.
2	Add Group	Click the Add Group icon to create and name a new group. Assign group membership at Assignment in lower MPP. Grouped components appear indented below the group name. **NOTE** Each source may belong to more than one group.

Source-Specific Tools

ID	Tool	Description
3	Global Functions	Global source control functions that are applied to **all sources**: Mute All, Unmute All, Delete All.
4	Mute Left / Mute Right	Toggle to mute/unmute either the left- or right-side of a paired source. Applies to **paired source** only.
4	Mute	Toggle to mute/unmute an unpaired source (a single instance of a source). Applied to **unpaired source** only.
5	Solo	Mute all other sources except the selected source.
6	Headroom Indicator	Hover over to display value (dB) of available RMS headroom. Also displays Cluser ID/Name and/or Enclosure count.

Measurement Tools (Auto-Grouped)

Measurement points and measurement lines are automatically grouped by their type. These groupings are system-managed and cannot be modified.



Multipurpose Panel | System Data Fields

You can find System Activity data fields for system components in the lower MPP. There are unique data fields that apply to **Sources**, **Measurement Points**, and **Measurement Lines**.

Data is organized in three tabs for sources (**Setup**, **Processing**, and **Enclosures**) and in a single tab for measurement points and lines (**Setup**).

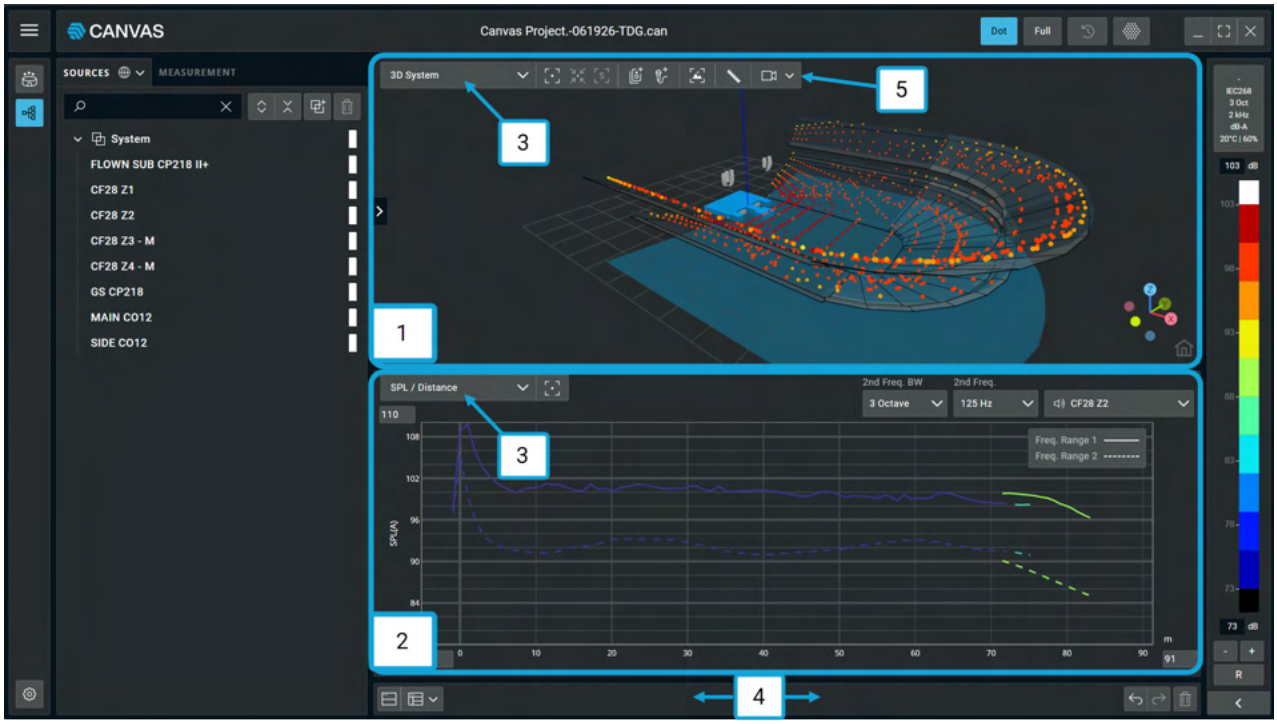
For complete lists of all system data fields, see Reference List: Multipurpose Panel | System Data Fields.

The Design Studio

The Design Studio is the main workspace for viewing, designing, and analyzing venue models and sound system simulations. It supports both 2D and 3D views and provides access to view controls, component creation tools, and acoustic data.

You can use the Design Studio to:

- Display and manipulate venue and system views.
- Save and restore camera view presets.
- Add and edit design components.
- Run acoustic simulations and view results.



Example of Design Studio layout:

1. Venue model view workspace (3D System shown) 2. Data view workspace (SPL/Distance shown)

3. View selection controls 4. Lower navigation bar 5. Camera menu

Workspaces and Views

Each workspace within the Design Studio can display a different view (up to 3 panes at once). When multiple view panes are open, you can monitor different aspects of the design simultaneously.

View Selection is located at the top-left corner of each workspace and is indicated by **(V)**.

Available view types depend on the selected activity.

- Venue Activity: The **Model View** includes **3D Venue**, **Venue Top View**, and **Area Side View**.
- System Activity: The **Model View** (aka Mapping View) includes **3D System**, **Top View**, **Cross Section** and the **Data View** includes **SPL/Distance**, **Magnitude/Distance**, **Phase**, **Time Arrival**, and **Magnitude**.

Venue Workspaces

Venue workspaces appear in the Design Studio and include a variety of Model Views. These views offer tools for positioning and editing venue components.

Venue Model Views

View Name	Description	Toolbar / Controls
3D Venue	Perspective view for full venue modeling with full navigation; use for spatial context	Pane toolbar 
Area Side View	Side elevation view; edit audience areas and seating sections along the X-Z plane	Pane toolbar 
Venue Top View	Overhead layout view; arrange venue geometry on the X-Y plane	Pane toolbar 

System Workspaces

System workspaces appear in the Design Studio and include three view types: **Model View**, **Source Mechanical View**, and **Data View**.

System Model Views

These views show a perspective of the venue model with simulation overlays. You can position system components and use measurement tools.

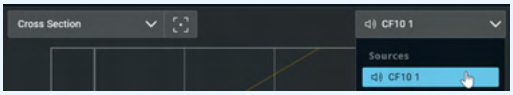
Use the following views while working in the System Activity:

System Model Views

View Name	Description	Toolbar / Controls
3D System	Perspective view of the venue Overlaid with system components and simulation data	Pane toolbar 
Top View	Overhead 'plan' view Place and align sources, audience areas, and measurement tools	Pane toolbar 
Cross Section	Vertical slice, 'cut plane' through the venue Analyze system behavior along a defined plane	Pane toolbar, Source selector (top-right)

NOTE

Cross Section view includes a **Source selector**; behavior matches source selection in the MPP list.



Source Mechanical Views

These views show dimensioned line art of the selected source or cluster.

Use the **expand control (>)** between the MPP and Studio panes to view source mechanical views.

Source Mechanical Views

View Name	Description
Section View	Profile view of the source with rigging data and dimensions.
Top View	Overhead view of the source with rigging data and dimensions.

See also Navigating System Views | Source Mechanical View.

System Data Views

System Data Views display simulation results as graphs that represent frequency, level, time, and spatial behavior. These views support system tuning and performance evaluation by providing visual feedback on acoustic coverage, alignment, and tonal balance.

Each view includes configurable options for selecting sources, measurement points, measurement lines, or other display modes. Dropdown controls display in the top-right corner.

System Data Views

Data View Name	Description	Tool / Controls
SPL/Distance	SPL versus distance from a selected source Use: Evaluate level decay and coverage uniformity; Compare 2 frequency ranges	Tool: Focus Scene on source Dropdown menus: 2nd Freq. BW, 2nd Freq., Sources
Magnitude/ Distance	Magnitude (dB) versus distance for a selected frequency or range Use: Assess tonal consistency across listener positions	Dropdown menus: Normalize To, Measurement Points, Sources and Measurement Lines, Sample Density
Phase	Phase shift across frequency Use: Align speakers and optimize output in crossover region	Dropdown menus: Reference Trace, Measurement Points
Time Arrival	Arrival time differences at measurement locations Use: Aid in delay alignment and ensure phase coherence	Dropdown menus: Absolute/ Relative to Source, Measurement Points
Magnitude	Magnitude response (dB) across frequency Use: Assess loudspeaker output and tonal balance	Dropdown menu: Measurement Points

NOTE

Only **SPL/Distance** includes a dedicated tool button (pane top-left); all other views rely on dropdown menu configurations (pane top-right).

Key Analysis Views

Simulation Settings

The **Simulation Settings** represent the stimulus that will be sent to the simulated system for mapping views and SPL/Distance views.

> **NOTE**
> All response views use a **full bandwidth** stimulus.

Mute State of Sources

The current mute state of sources determines what sources are **included in the simulation**—this applies to all analysis views.

SPL/Distance

The **SPL/Distance** view is a primary analysis display used to develop the curvature of a line array.

It shows a plot of on-axis SPL versus distance for the selected source, evaluated at each seating section that intersects the source's on-axis aiming.

The **2nd Frequency Range** is enabled by default and displays a second SPL trace. The **2nd Freq. BW (Bandwidth)** and **2nd Freq. (Frequency)** controls define the additional frequency range used for comparison. See Settings > Charts.

> **NOTE**
> The **SPL/Distance** view presents the same on-axis performance information shown in the **Cross Section** view, expressed as a graph.

Cross Section

The **Cross Section** view provides a graphical, spatial representation of the on-axis coverage of the selected active (unmuted) source.

This view is tied to the current selection for the map type—**Dot** or **Full**.

- When **dot mapping** is active you will see **a 'dot' at each impact point** for the enclosures within the array.
- When **full mapping** is active you will see **the cross-section coverage** for the selected array.

In addition to visualizing on-axis coverage, the **Cross Section** view is used to:

- Adjust array pitch.
- Define minimum, reference, and maximum values for mechanical optimization.

> **NOTE**
> The **Cross Section** view displays the same on-axis performance data represented in the **SPL/Distance** view, expressed spatially.

Lower Navigation Bar

Tools in the Design Studio **Lower Navigation Bar** include:

- View Pane Controls – Toggle 1-3 active panes
- Default and Saved Views
- Undo / Redo / Delete

Use the lower navigation bar to:

- Select a predefined layout. Defaults include: **Source Layout**, **Line Array**, **Alignment**, **Analysis**, **Mapping**.
- **Save current View** – Save a custom view configuration for reuse across projects.

See also Lower Navigation Bar.

3D Camera Tool

In 3D views, the **Save current Camera** tool lets you save and recall specific viewpoints.

- This feature is available in **3D Venue** and **3D System**.
- Saved camera positions are stored with the project file.

Component Creation Tools

You can add new components using tools located at the top of each Design Studio workspace.

Available tools depend on the selected activity and model view.

Venue Activity: Model View Creation Tools

Model View	Component Creation Tools
3D Venue	Add Scoreboard (New Production Element) Add Stage (New Production Element) Add Guide Layer Add Area Copy / Paste Area
Area Side View	Add Guide Layer Add Section Copy / Paste Section(s)
Venue Top View	Add Guide Layer Add Area Copy / Paste Area

See also Venue Tools.

System Activity: Model View Creation Tools

Model View	Component Creation Tools
3D System	Add Sound Source Add Measurement Point
Top View	Add Sound Source Add Measurement Point Add Measurement Line
Cross Section	N/A

See also System Tools.

Overview of Mapping Controls

The coverage map is used to evaluate the coverage of a single source, the interaction between sources, and the overall system performance across one or more frequency bands. The mapping simulation **includes all active (unmuted) sources**.

The coverage map is calculated at the user-defined listener height (**Audience Height**) and is shown in both the 3D and 2D views.

The stimulus applied to the system simulation is determined by the current mapping parameters and two types of coverage maps are offered, a **Dot Map** and **Full Map**.

- **Dot Mapping** – When active, the SPL value at the impact point is shown within the **Top** and **3D views**.

  NOTE

  The dots are placed at **the impact point** and at **5-degree increments** within the defined horizontal angle for the loudspeaker enclosure.

- **Full Mapping** – When active, **the heat map** is shown.
- **Manual Calculate** – Manual calculation is **the default mode** and can be changed in the simulation settings.
- **Map Visibility**

See also Coverage Mapping.

Activity Metrics

Use the **Activity Metrics** tools (available only in System Activity) to review SPL mapping and adjust how results are calculated and displayed.

The **SPL Scale Toolbar** provides quick visibility into active settings and fast access to commonly changed options.

Full controls are available in Settings | Simulation.

SPL Scale Toolbar

The **SPL Scale toolbar** has three areas:

1. Simulation Summary and Full Simulation Settings

- A **summary box** at the top of the toolbar summarizes the current simulation and mapping settings.
- Click the summary box to open full Simulation Settings containing all options for **Calculation Parameters**, **Mapping**, and **Scale**.

2. SPL Scale

- A color gradient indicating the current SPL display range (maximum to minimum).
  - **Divisions** – The spacing of divisions on the scale is controlled by dB/Div (in **Simulation Settings** or **Quick SPL Scale Controls**)
  - **Defaults** – Baseline max/min values are set by the application and may reflect current processing levels.

    The color transition at the top of the scale (Maroon to White) is always the maximum sample value for the current coverage map with a range of 30dB.

    Use **Reset (R)** below the scale to return to defaults.
  - **Edit min/max** – Click the black numeric boxes at the top (max) and bottom (min) of the scale to enter values.

    Allowed range: min ≥ 40dB, max ≤ 132dB



SPL Scale Toolbar ID

1 – Simulation Summary

2 – SPL Scale

3 – Quick Scale Controls

< – Show Simulation Settings

3. Quick SPL Scale Controls [– | + | R]

- **Quick SPL scale controls** are at the bottom of the SPL Scale Toolbar.
  - **(–)** Decreases both upper and lower scale limits by 1dB.
  - **(+)** Increases both upper and lower scale limits by 1dB.
  - **(R)** Resets the scale to application defaults.

Show Simulation Settings | Expanded SPL Scale Toolbar

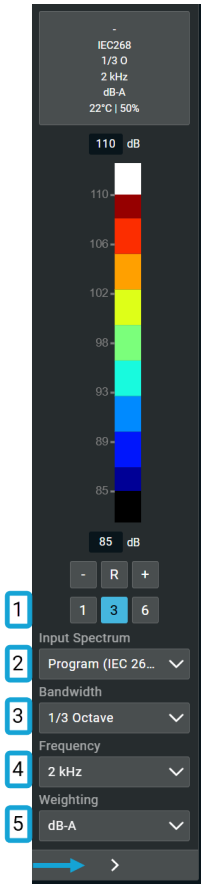
Reveal a quick-access panel for frequently used controls (available only in System Activity).

Changes made here are reflected in full **Simulation Settings**.

To open Quick Simulation Settings, click the expand control (<) below the SPL Scale.

Controls available:

1. **[1] [3] [6] dB/Div** – Sets SPL color-scale divisions per 1dB, 3dB, or 6dB. Click the active option again to deselect it and restore the gradient map.
2. **Input Spectrum** – Selects the spectrum profile.
3. **Bandwidth** – Broadband, 1/3 Octave, 1 Octave, or 3 Octave.
4. **Frequency** – Center frequency (enabled for octave / third-octave bandwidths).
5. **Weighting** – dB-A, dB-C, or dB-Z fullrange.



Expanded SPL Scale Toolbar ID

1 – Set SPL color-scale divisions

2 – Input Spectrum

3 – Bandwidth

4 – Frequency

5 – Weighting

– > Hide Simulation Settings

Working with Venues

Venues define the physical environment used for system design and simulation. The **Venue Activity** provides tools for creating and managing audience areas, seating sections, stages, and other elements that define the physical layout of the venue.

You can draw venue geometry directly in Canvas or import existing data to establish the overall space. Use venue tools to adjust dimensions, refine layouts, and manage imported components for accurate modeling and analysis.

Navigating the Venue Activity

The venue activity includes both 2D and 3D views that let you explore, configure, and refine your venue model from multiple angles. Venue workspaces appear in the Design Studio and include a variety of **Model Views**.

Navigation tools allow you to rotate, pan, zoom, and reset the view, making it easier to position and inspect elements within the space. The **Snap to Axis** tool and view controls support precise movement and orientation during venue design and adjustment.

Venue Model Views

Each view supports different layout and editing workflows. Toolbars are located at the top-left of each pane.

Use the following views while working in the Venue Activity.

Venue Model Views

View Name	Description	Toolbar / Controls
3D Venue	Perspective view for full venue modeling with full navigation; use for spatial context	Pane toolbar 
Area Side View	Side elevation view; edit audience areas and seating sections along the X-Z plane	Pane toolbar 
Venue Top View	Overhead layout view; arrange venue geometry on the X-Y plane	Pane toolbar 

Default Venue Views

The venue activity provides two default view configurations for working with venue geometry and layout.

Access default views from the **lower navigation bar** by clicking the **expand control (V)**.

Configuration	Views Included	Description
2D Drawing	Venue Top View, Area Side View	Displays plan and elevation panes side by side for drawing, placement, and height assignment.
3D Venue	3D Venue	Shows a single 3D perspective pane for full spatial context and orientation.

NOTE

Imported venue geometry is only visible within the **3D Venue** view.

2D Venue Navigation

Pan	Left-click mouse and drag to move the view horizontally or vertically
Zoom +/–	Scroll wheel forward / backward (or zoom shortcuts) to scale in/out
Focus Scene	Centers the view on the selected object or origin
Zoom to Selected	Zooms the view to the selected object

3D Venue Navigation / View Controls

The following controls allow you to navigate and adjust the 3D venue model view within the Design Studio workspace.

Control	Action / Description	Access / Location
Rotate	Left-click mouse and drag to rotate venue viewpoint.	Mouse
Pan	Right-click mouse and drag to move the view horizontally or vertically.	Mouse
Zoom +/–	Scroll mouse wheel forward/backward (or use zoom shortcuts) to scale the view in or out.	Mouse
Focus Scene	Centers the venue model view on the selected object or on the origin.	3D Venue View toolbar
Zoom to Selected	Zooms the venue model view to the selected object.	3D Venue View toolbar
Isolate Selected	Hides all venue model components except the selected one.	3D Venue View toolbar
Home (Reset View)	Resets the view to the default isometric camera position and zoom level.	Lower-right corner of the Studio
Snap to Axis	Displays the active camera orientation. Click any axis to snap to a predefined orthogonal view.	Lower-right corner of the Studio

Snap to Axis Tool



To use the Snap to Axis tool:

- Select one of the main axes (+/- X, +/- Y, +/- Z) and the camera view snaps to that position.

  For example, selecting the blue Z handle snaps the camera to an X,Y view of the venue model.

- Select **Home** to reset the view to a default isometric camera view.

3D Workspace Dimensions (Zoom Limits)

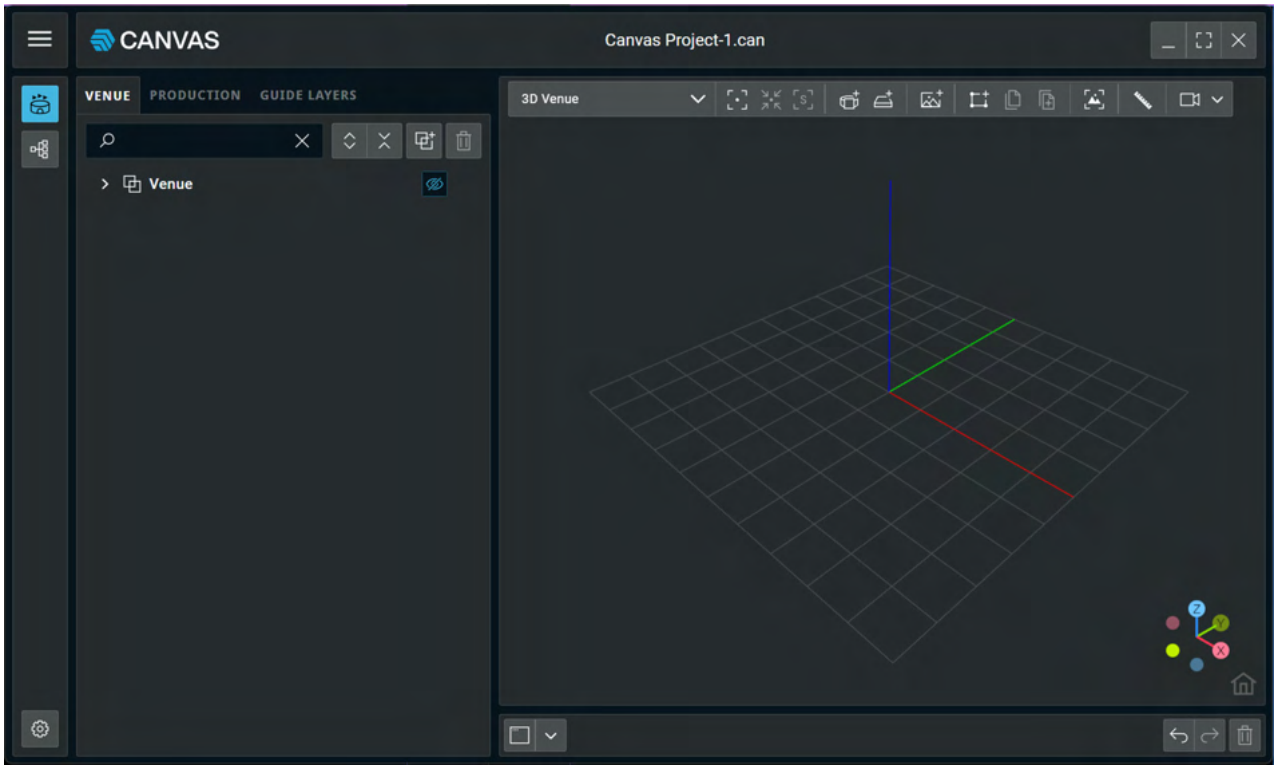
Feature	Dimension
Default grid on X-Y plane	100 m × 100 m (328 ft × 328 ft)
Functional 3D workspace range	~800 m in any direction
Maximum data input range	Up to 1000 m in X, Y, or Z

NOTE
Near the 1000m outer limit, component visibility and interaction may degrade.

Venue Coordinates and Orientation

Canvas uses a standardized three-dimensional coordinate system to define the position, direction, and alignment of every component in a venue model.

Understanding the coordinate axes and origin simplifies layout, visualization, and troubleshooting.



Coordinate System

Canvas uses a **right-handed 3D coordinate system** where each axis represents a physical dimension in the venue.

Axis	Line Color	Represents	Positive Direction
X	Red	Front to back of venue	The software is designed to facilitate +X extending from the stage toward the audience
Y	Green	Width (left to right)	The software is designed to facilitate +Y extending toward audience right
Z	Blue	Height (vertical)	+Z represents height above the floor

NOTE

Axis orientation is not definitionally tied to the audience. The directions described above reflect the typical stage-facing workflow used by the software.

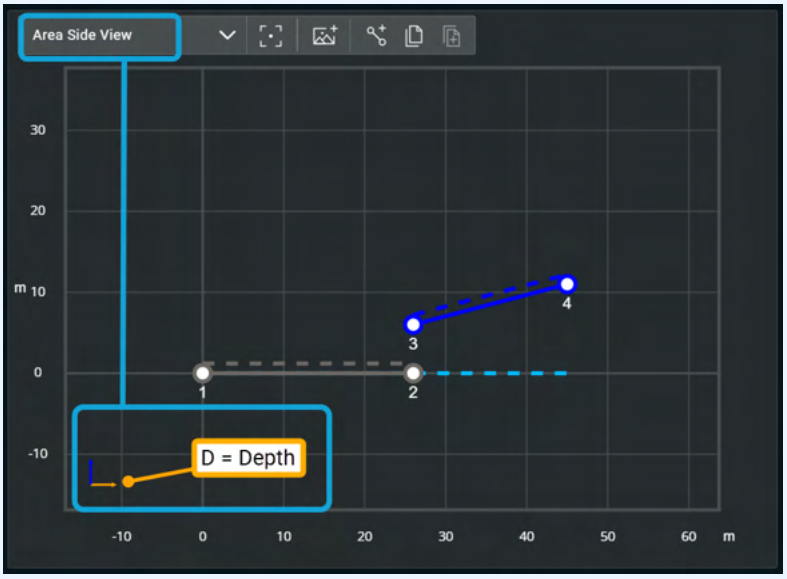
Solid lines indicate positive (+) direction. Single arrowheads without lines indicate negative (−) direction.

Axes appear in all 3D and 2D model views to help maintain orientation during layout.

TIP

In the **Area Side View**, the "X"-axis changes to the "D"-axis (for Depth of the seating section or area). D-axis is displayed in **orange** and indicates the “away from origin” direction.

Always draw sections left-to-right along the D-axis in this view.

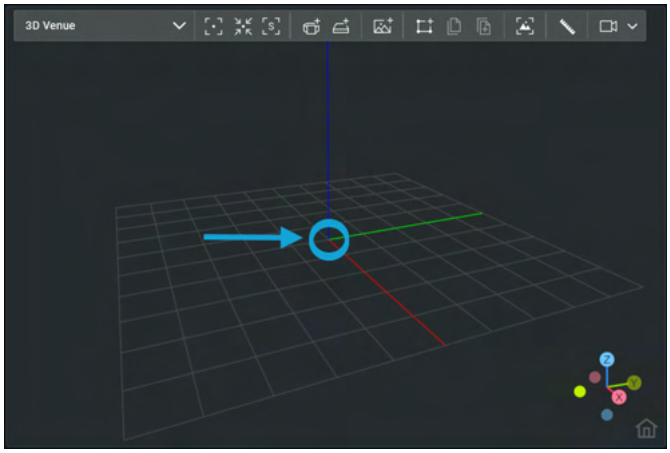


Venue Origin

The **venue origin** is the fixed reference point at coordinates (X = 0, Y = 0, Z = 0).

It appears as the intersection of the red (X), green (Y), and blue (Z) axes in the **3D Venue** view.

The origin defines the model's absolute reference for positioning and measurement. Typical best practice is to place the origin at a meaningful real-world location, such as **downstage center**.



Locating and Centering the Origin

At times, the origin may be obscured by geometry or components in complex layouts.

Use these tools to locate or recenter the view:

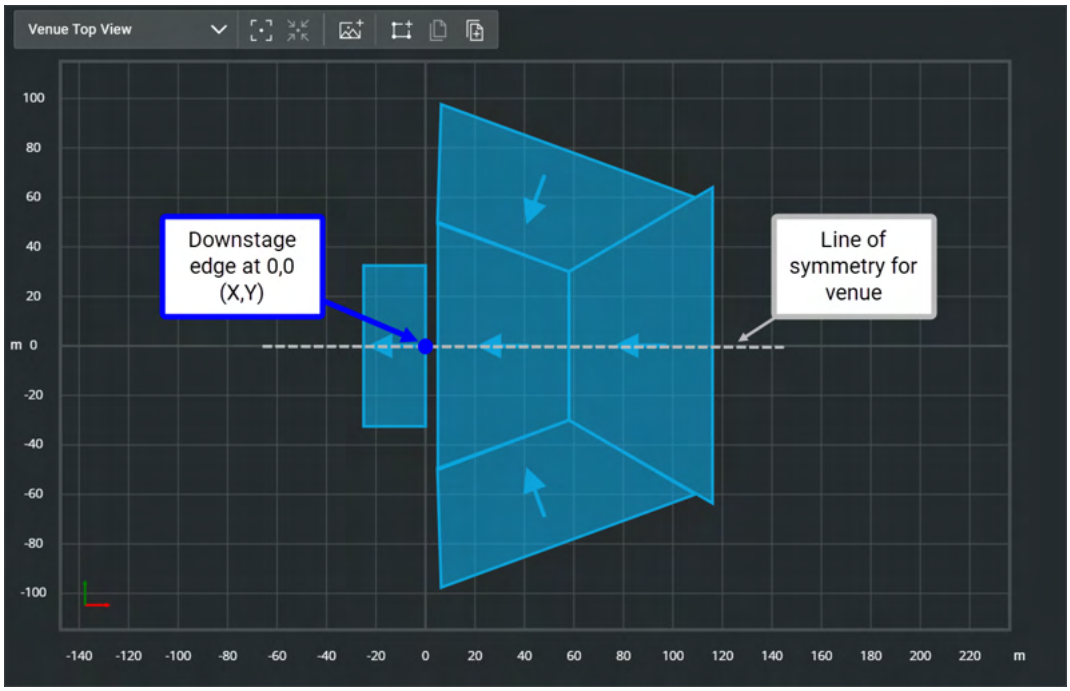
Tool	Function	Access / Location
Focus Scene	Re-centers the venue model view on the origin or the average of all components.	3D Venue View toolbar
Isolate Selected	Temporarily hides all venue model components to expose the selected object or the origin.	3D Venue View toolbar
Home (Reset View)	Resets the view to the default isometric camera position and zoom level.	Lower-right corner of the Studio

Venue Orientation Best Practices

When drawing or importing a venue:

- **Align the venue with the +X axis** (stage faces forward).
- **Center the layout on the Y = 0 axis** (to preserve symmetry).
- **Use consistent height references** (Z-values) for floor and stage elevations.

This standardized alignment ensures predictable behavior across all simulation and analysis views.



See Also

Venue Component Anchor Point

System Component Anchor Point

Venue Component Management

The venue activity allows you to add and manage **Venue Components**—the building blocks of your 3D venue model. This topic explains how components are organized in the **Multipurpose Panel (MPP)** and how to work with each type.

Venue Components Overview

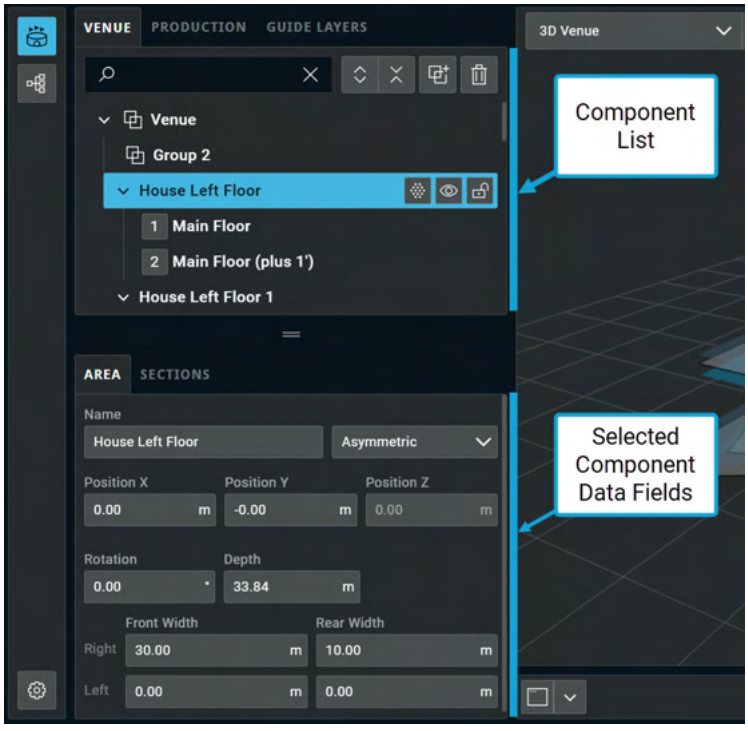
A venue model in Canvas is built from several component types that describe its geometry, production elements, and visual references. Each component includes editable properties that control its position, orientation, and behavior.

Venue Component Categories

MPP Tab	Component Types	Description / Use
Venue	**Audience Areas**, **Seating Sections**, **Surfaces** (imported CAD)	Core venue geometry for acoustic simulation
Production	**Production Elements** – such as stage structures, video walls, lighting towers, scoreboards	Visual-only components that represent non-audience structures in the 3D model (excluded from acoustic simulation)
Guide Layers	**Guide Layers** – 2D reference images and layout guides	Alignment and tracing aids visible in 2D and 3D views

The upper MPP displays a tab for each component category, listing the component names it contains.

When selected, a component's editable **Data Fields** appear in the lower MPP.



Venue Component List

The **Venue Component List** displays all audience areas in alphanumeric order and uses a nested hierarchy.

- Audience areas appear under the Venue section.
  - Seating sections are nested under their parent audience area.
  - Seating sections are selectable in the **Venue Component List**.
    - Click a seating section to select it. The **Data Fields** panel automatically scrolls to the corresponding section in the **Sections** tab.
- Selecting an audience area in the list highlights the corresponding component in the 3D Venue, and selecting it in the 3D Venue highlights it in the list.

NOTE

- Canvas-drawn components (audience areas and seating sections) appear **under the Venue section**.
- Imported geometry (Surfaces) appears **outside the Venue section**.

Component Data Fields

A selected area displays the following editable tabs:

Tab	Content / Purpose
Area	Geometric type, position, rotation, and size of the area within the venue model
Sections	Audience height (for an entire area or subsections of an area) Simulations use these heights for mapping, for magnitude/distance, and for the initial height of measurement points.
Assignment	Grouping or region assignment for visibility control (Applies only to groups)

For complete definitions of component types, see Audience Areas and Seating Sections, Surfaces, Production Elements, and Guide Layers.

Working with Venue Components

Managing Areas and Sections

Use the MPP to manage **audience areas** and **seating sections** after they have been created in the venue model. Tools and data fields appear in the **Venue** tab.

Management Tasks for Areas and Sections

Task	Action / Location
Rename Area or Section	Select component → edit **Name** in lower MPP **Area** or **Sections** tabs. List automatically re-orders.
Toggle SPL Map	Use **mapping icon** (dotted hex) next to each component in upper MPP.
Toggle Visibility	Use **visibility icon** (eye) next to each component in upper MPP.
Lock Position	Use **lock icon** to prevent accidental movement or editing.
Adjust Parameters	Edit numeric fields (position, rotation, dimensions) directly in lower MPP.
Group Areas	Use **Add Group** tool in upper MPP, then assign via **Assignment** tab. Or right-click on a selected area to display **Assign to Group** dialog.
Group Sections	Use level groups. See Level Groups

NOTE

Audience areas are listed but not mapped. Only seating sections appear in acoustic simulations.

For geometric creation and editing, see Drawing a Venue.

Grouping Audience Areas with Region Groups

Grouping simplifies visibility control and MPP filtering across complex venues.

Use **Region Groups** to organize multiple audience areas into logical sets (for example, Main Floor, Upper Bowl, or VIP).

ABOUT REGION GROUPS

Region groups are used to organize audience areas within the Venue Activity. Unlike source groups, region groups form a hierarchical tree structure with a parent-child relationships.

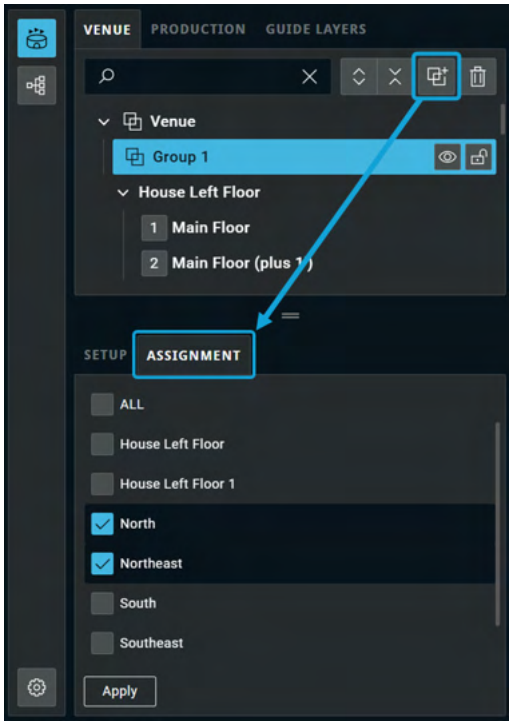
Creating a region group introduces a new parent node to the venue hierarchy.

Example: A region group named North may contain multiple audience areas located on the north side of the venue. These areas become children of the region group in the Venue Activity tree.

CREATING A REGION GROUP

To create a region group:

1. Open the **Venue tab**, click the **Add Group** icon.
2. Name the new group.
3. In the **Assignment** tab, assign individual areas to the group.
4. Rename or delete groups as needed.



MANAGING REGION GROUP MEMBERSHIP

There are two ways to manage region group membership:

1. Select the group, then go to **Assignment** and use the checkboxes to add or remove areas. Click **Apply**.
2. Alternatively, select an audience area, then right-click to open the **Assign to Group** dialog. Check or uncheck the desired group membership, then click **Apply**.

DELETING A REGION GROUP

Deleting a region group removes the group and all of its child audience areas from the project.

IMPORTANT

Because Region Groups define venue hierarchy, deleting a group permanently deletes all contained audience areas.

NOTE

A confirmation dialog is displayed before deletion to prevent accidental data loss.

See Also

For details on MPP Venue Tools for working with audience areas, see Multipurpose Panel Venue Tools.

For details on adding new audience areas and sections, see Drawing a Venue | Adding New Audience Areas.

For details on working with sections, see Drawing a Venue | Working with Sections.

Working with Seating Sections

Each audience area can contain one or more seating section, listed beneath their parent area in the **Venue** tab.

Section Overview

- A section defines the listening surface within an audience area and represents the mapped surface in the simulation.
- Sections are visible in **Area Side**, **3D Venue**, and **3D System** views.
- Each new area includes one default section (Section 1). Additional sections are auto-named in sequence but may be renamed at any time.

> **NOTE**
> A section must remain within the X–Y boundaries of its parent audience area.

Grouping Sections (Level Groups)

Level groups organize multiple seating sections into visibility sets. They allow you to show or hide entire levels of seating sections at once (for example, Lower Bowl vs Upper Bowl in an arena).

Every new section is automatically assigned to a default Level Group (Level 1). You can reassign, create, or delete level groups as any time.

To assign a section to a level group:

1. Right-click the **Level Group icon** next to the section name.
2. In the **Assign to Level Group** dialog, select an existing level or click **Create New Level**.
3. Close the dialog. The assigned level number appears next to the section name.

To delete a level group:

1. Right-click the **Level Group icon** next to the section name.
2. Select the **trash can** icon beside the level name. Only empty groups (with no assigned sections) can be deleted.

> **TIP**
> Grouping sections by level simplifies visibility control for complex venues that have multiple audience tiers or balconies.

Managing Production Elements

The **Production** tab in the MPP lists all non-audience venue elements such as stage platforms, lighting towers, or video walls.

Components List (Upper MPP)

- Displays production elements.
- Selecting a name highlights the corresponding component in the 3D venue and vice versa.

Data Fields (Lower MPP)

- **Setup** – Name, Position / Rotation, Lock Aspect Ratio, Width / Depth / Height, Color Picker

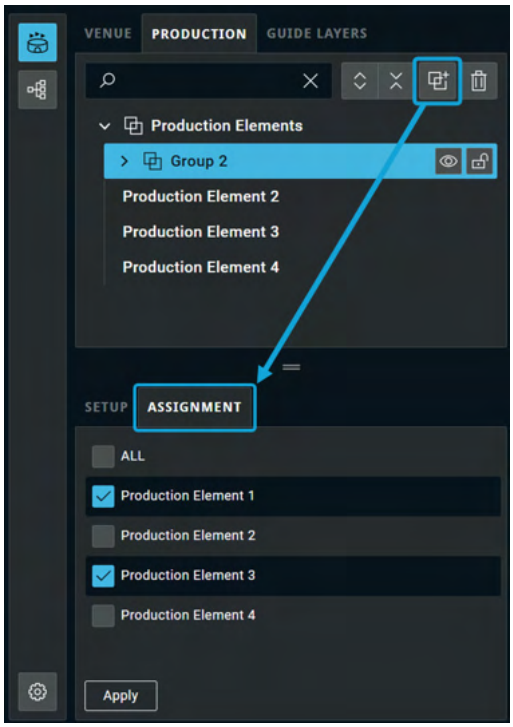
Editing Production Elements

1. Select an element in the **Production** tab or directly in the 3D view.
2. Adjust parameters in the **Setup** tab (lower MPP), including position, rotation, size (Width × Depth × Height), and display color.
3. Use the **Lock** and **Visibility** icons as needed.

Grouping Production Elements

Create logical groups of production elements to simplify management:

1. Open the **Production** tab (upper MPP), click the **Add Group** icon.
2. Name the new group.
3. In the **Assignment tab** (lower MPP), assign individual production elements to the group.
4. Rename or delete groups as needed.



For details on MPP Venue Tools for working with production elements, see Venue Tools.

Managing Guide Layers

Guide layers are 2D reference images that help you align venue geometry to scale.

Once added, guide layers can be selected, repositioned, and edited from within the view or using the MPP.

Tools and data fields appear in the MPP **Guide Layers** tab.

Component List (Upper MPP)

- Displays guide layers automatically grouped by their originating view type: **3D Venue**, **Venue Top View**, or **Area Side View**.
- Selecting a name highlights the corresponding component in the 3D venue and vice versa.

Data Fields (Lower MPP)

- **Setup** – Name, Position (X, Y, Z), Rotation, Lock aspect ratio, Width, Depth, Opacity

MPP Tools for Guide Layers

Use the upper MPP tools to:

- Filter the list of guide layers
- Delete a selected layer
- Toggle layer visibility
- Lock/unlock layer position

Selecting and Editing Guide Layers

- Open the **Guide Layers** tab (upper MPP).
- Select a guide layer to highlight it in the view and display its editable data fields (**Setup**, lower MPP).
- Use in-view controls to adjust:
  - **Four-arrow crosshair** – drag to reposition
  - **White dot** – grab to rotate the image
  - **Red-positive X arrow** – drag to reposition along X-axis only (in **3D Venue** view only)

For details on adding and scaling guide images, see Adding Guide Layers. See also Importing Guide Layers.

Venue Tools

The venue activity includes workspace toolbars for drawing, importing, editing, and managing venue components. Toolbar content varies by active workspace view and selected component.

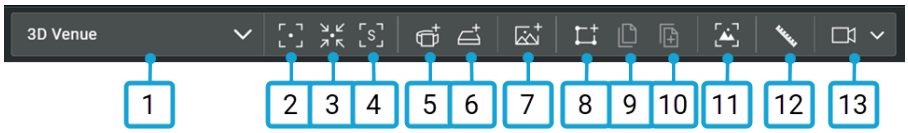
Venue tools appear on: (a) model view toolbars (**3D Venue**, **Venue Top View**, **Area Side View**) and (b) the MPP (upper/lower panes)

Venue Workspace Tools Reference

Model Views

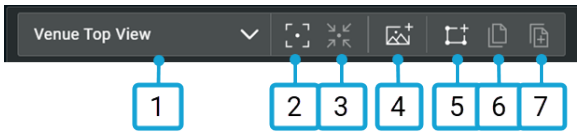
Each model view toolbar offers venue tools including the following:

3D Venue Toolbar



ID	Tool	Function
1	View Selection (dropdown)	Selects the Model View
2	Focus Scene	Frames the scene to current extents
3	Zoom to Selected	Zooms to the selected component
4	Isolate Selected	Hides all other components; shows selected only
5	Add Scoreboard	Adds a generic scoreboard production element Dimensions: width = 14.07 ft (4.29 m), depth = 14.07 ft (4.29 m), height = 10.50 ft (3.20 m)
6	Add Stage	Adds a generic stage production element Dimensions: width = 49.21 ft (15.00 m), depth = 32.81 ft (10.00 m), height = 3.28 ft (1.00 m)
7	Add Guide Layer	Imports an image as a guide layer. Opens dialog to navigate to an image file for selection, then opens **Import Guide Image** tool.
8	Add Area	Creates a new Audience Area (**Symmetric** / **Asymmetric** / **Circular**) containing one Seating Section
9	Copy Area	Copies selected Audience Area including any Sections it contains
10	Paste Area	Provides paste options: **Paste Mirror X** / **Paste Mirror Y** / **Paste Mirror X-Y** / **Paste at Mouse Location** Multi-paste is supported; Right-click or **Esc** to end
11	Save Screenshot	Saves image (.png) of current view
12	Open Measurement Tool	Opens **Measurement Tool**; Click a start point and an end point to display the result Measures distance and time between two points within audience areas, production elements, or sound sources. (Guide layers are excluded from measurement).
13	Save current Camera (dropdown)	Saves the current camera view. You can assign a name and recall it later.

Venue Top View Toolbar



ID	Tool	Function
1	View Selection (dropdown)	Selects the Model View
2	Focus Scene	Frames the scene to current extents
3	Zoom to Selected	Zooms to the selected component
4	Add Guide Layer	Imports an image as a guide layer. Opens dialog to navigate to an image file for selection, then opens **Import Guide Image** tool.
5	Add Area	Creates a new Audience Area (**Symmetric** / **Asymmetric** / **Circular**) containing one Seating Section
6	Copy Area	Copies selected Audience Area including any Sections it contains
7	Paste Area	Provides paste options: **Paste Mirror X** / **Paste Mirror Y** / **Paste Mirror X-Y** / **Paste at Mouse Location** Multi-paste is supported; Right-click or **Esc** to end

Area Side View Toolbar



ID	Tool	Function
1	View Selection (dropdown)	Selects the Model View
2	Focus Scene	Frames the scene to current extents
3	Add Guide Layer	Imports an image as a guide layer. Opens dialog to navigate to an image file for selection, then opens **Import Guide Image** tool.
4	Add Section	Adds a seating section to the audience area
5	Copy Section(s)	Copies all sections in the selected area
6	Paste Sections	Pastes all sections into an area, replacing any existing sections

NOTE

Paste Sections into an area **replaces** any existing sections in that area.

See Also

For details on Venue Tools that appear in the MPP, see MPP Venue Tools.

Drawing a Venue

You can create and edit venue geometry in the Canvas venue activity using drawing tools. Venues are drawn as **2D floor plans** and **cross-sections**, which are automatically rendered into a **3D venue model**. Both 2D and 3D views support acoustic performance mapping in the system activity.

See Also

Venue Component Management – Managing and organizing venue components in the MPP

Venue Tools – Toolbars used during venue editing

Building Your Model

You build a venue model by defining its **audience areas** and **seating sections**.

Each area defines the venue's floor region (**X–Y plane**) and acts as the base for one or more seating sections (**X–Z profile**).

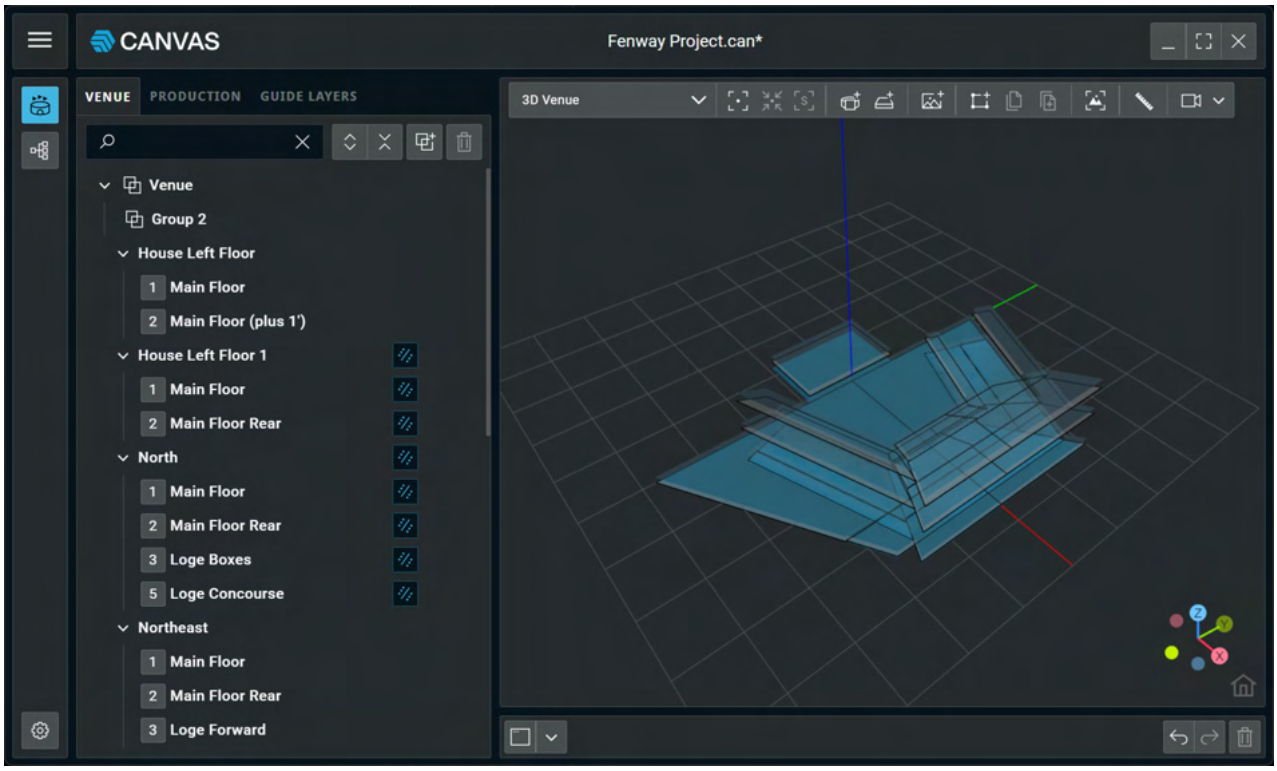
Sections represent the actual audience location and height used for simulation and coverage mapping. See also Audience Areas and Seating Sections.

You may import **guide layer** images (for example, architectural drawings or top-view layouts) to trace accurate floor outlines while working in 2D.

Once your venue is created in 2D, a corresponding 3D model is immediately visible in both the venue and system activities.



Sample venue made of many audience areas (Venue Top View in upper pane). The selected area contains several seating sections (Area Side View in lower pane).



Example 3D venue model (3D Venue view shown).

Working with Venue Drawing Tools

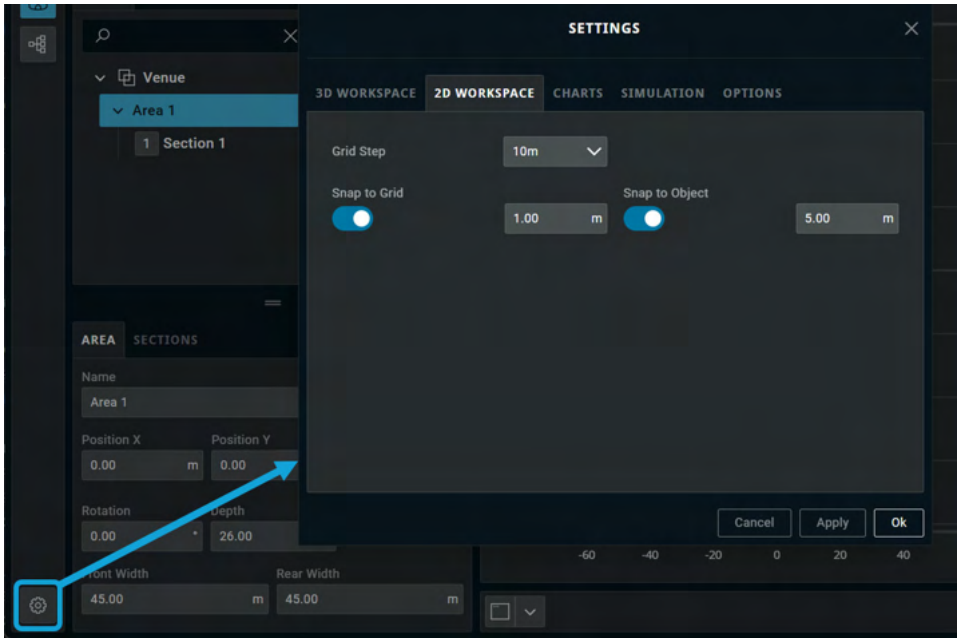
Drawing tools allow you to create venues entirely within Canvas, using snap and geometry controls to ensure accuracy.

Snap Settings

Go to **Settings> 2D Workspace** to enable or disable snapping behavior:

- **Snap to Grid** – Aligns vertices to the workspace grid.
- **Snap to Object** – Aligns new vertices to existing geometry.
- Set custom grid spacing and snap distance as needed.

> **TIP**
> Enable both snapping modes when tracing imported guide images for maximum precision.



Gear icon (lower left) to access 2D Workspace application settings

Accessing Venue Views

When you open a new project and select the venue activity, Canvas displays the **2D Drawing** default view—a two-pane layout showing **Venue Top View** and **Area Side View**.

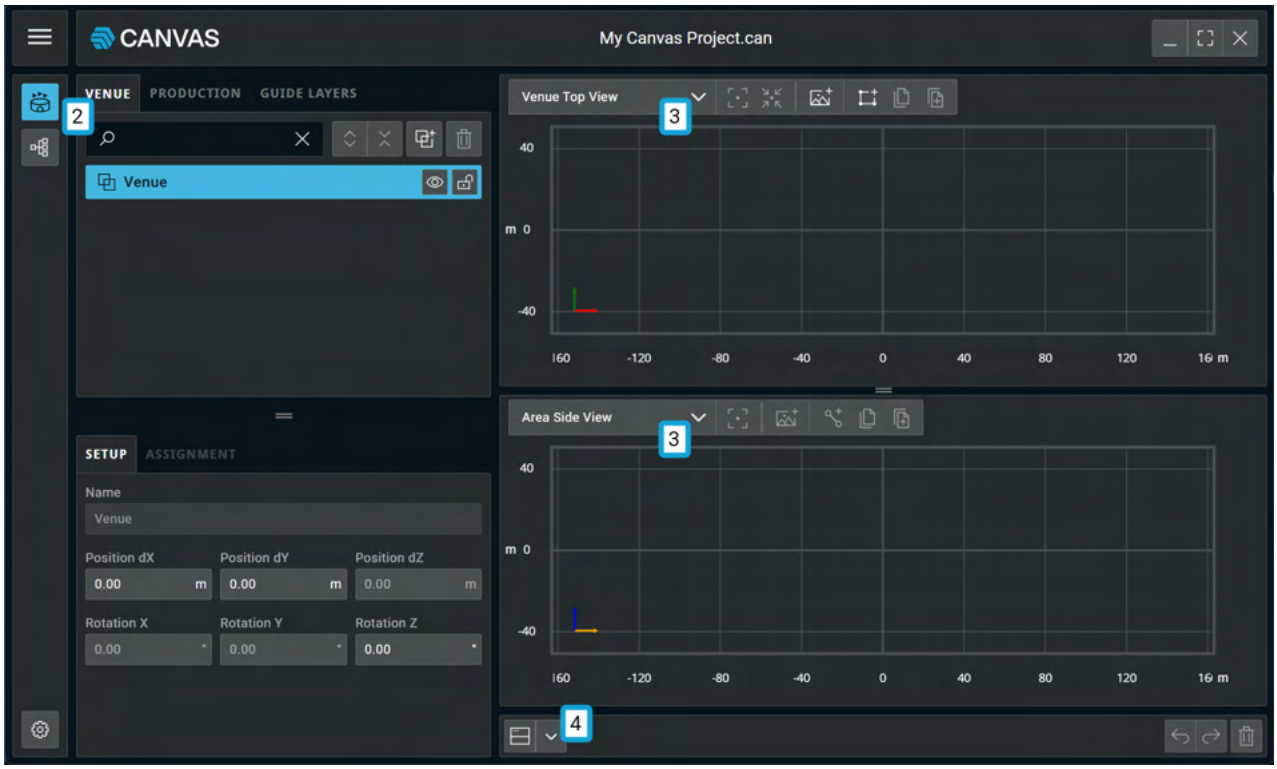
Use the **lower navigation bar** to reorganize panes or switch to a 3D view.

Each view's toolbar provides access to drawing tools and view-specific settings.

To access Venue Views:

1. Start a new, blank project.
2. Select the **Venue Activity** from the available activities on the left.
3. The **2D Drawing** default view is displayed. It is a two-pane view: **Venue Top View** and **Area Side View**.
4. Change the views to organize them as desired using the lower navigation bar.

> **NOTE**
> Toolbars at top-left of each view pane (3) contain drawing tools and more.



Venue Activity: 2D Drawing default view

Adding Guide Layers

Guide Layers are 2D reference images that help you align venue geometry to scale. They can be placed in Venue Top, Area Side, or 3D Venue views and adjusted for position and opacity.

Each guide layer is associated with **a specific view type** and **grouped automatically by type** based on which view's toolbar was used to add them.

> **NOTE**
> Guide layers imported using **Main Menu > Import** are listed in 3D Venue guide layer group and display in both 3D Venue and 3D System views.

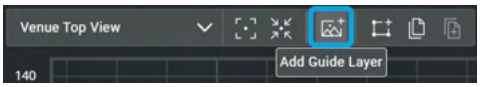
Supported Guide Layer Types

Canvas supports three types of guide layers and groups them:

- **3D Venue** – Visible only in 3D Venue and System views.
- **Area Side View** – Visible in a specific Area Side View (Venue only) and in all 3D views.
- **Venue Top View** – Visible in all Top Views and in all 3D views.

How to Use **Add Guide Layer** Tool

1. Select the **Add Guide Layer** tool in the desired model view workspace toolbar (Top View, Area Side View, or 3D Venue) depending on where you want the image to appear.



***Add Guide Layer** tool shown in Venue Top View toolbar*

2. In the file browser, select the image and click **Open**.
3. In the **Import Guide Image** dialog:
    a. Drag an edge or corner to crop the image if needed, then click **Next**.
    b. Define a reference distance using the **red-green crosshair line tool** to adjust the reference line end points:
        i. Enter a **Line Dimensions** value to scale the image.
        ii. Choose a line orientation: **Vertical**, **Horizontal**, or **Free**.
4. Click **Insert** to place the guide layer in the view. It is scaled accordingly.

Once added, guide layers can be selected, repositioned, and edited from within the view or using the MPP.

See Also

About Guide Layers | Managing Guide Layers | Importing Guide Layers

Venue Modeling Components

You can build a Canvas venue model using a series of **Audience Areas** (unmapped) that contain one or more **Seating Sections** (mapped).

Audience Areas and Seating Sections

An **Audience Area** (area) is a user-drawn, two-dimensional **X–Y** region in the venue. It defines the base plane or foundation of the audience space, where seating sections are placed.

A **Seating Section** (section) is the audience's listening position and is always placed **inside an audience area**. Seating sections are defined using a **depth–elevation (D–Z)** coordinate convention, where depth is measured relative to the front edge of the audience area. This approach ensures consistent section definition regardless of the audience area's orientation within the venue.

Seating sections represent the actual mapped plane used in simulation and performance analysis. Audience areas themselves are **not** mapped.

Key relationships:

- Each audience area can contain one or more seating section.
- Sections must remain within the X–Y boundary of their parent area.
- Section width always matches the width of its parent area.

> **NOTE**
> The audience height assigned to each section (**Seated**, **Standing**, or **Custom**) affects all simulation / results.

Audience Area Behavior:

- Editable when created in Canvas
- Anchor point is at front-center
- Listed under the parent **Venue** group in the MPP
- Supports grouping into logical sub-groups for organization
- Editable data tabs:
  - **Area** – Name, Position (X, Y, Z), Rotation, Depth, and shape-specific parameters
  - **Sections** – Audience Height, Section Endpoint label (#), X, Z

Adding New Audience Areas

GEOMETRIES FOR CREATING AREAS

Create a new area using one of three geometries: **Symmetric**, **Asymmetric**, or **Circular**.

ADD AREA TOOL

To add an audience area to the model:

1. Click the **Add Area** tool in the **3D Venue** or **Venue Top View** toolbar.
2. Select area geometry: **Symmetric**, **Asymmetric**, or **Circular**.
3. The new area is added to the venue.

NAMING ADDED AUDIENCE AREAS

Areas added with the **Add Area** tool are automatically named in sequence (e.g., Area 1, Area 2, Area 3, etc.)

> **TIP**
> Rename areas to be meaningful to you. Add letter or number prefixes to names if you want to maintain a specific list order.

COPY/PASTE AREA TOOLS

To copy an existing area, use the 3D Venue or Venue Top View tools to perform the following:

1. Click the **Copy Area** tool.
2. Then click the **Paste Area** tool.
3. From the **Paste Area** menu, select a **Paste Type**: **Mirror X**, **Mirror Y**, **Mirror X-Y**, or **Mouse Location**.
    a. Use **Paste Mirror X** or **Paste Mirror Y** to paste a single copy of the area.
    b. Use **Paste Mirror X-Y** to create three (3) mirrored copies of the area.
    c. Use **Mouse Location** to place multiple copies of the area as follows:
        i. Move the mouse to the desired location and click once.
        ii. Reposition mouse to the next location and click once.
        iii. Continue pasting until all desired areas are placed.
        iv. **Right-click** or press **ESC** to end and turn off paste function.
4. One or more areas are added to the venue.

NAMING PASTED AUDIENCE AREAS

Pasted audience areas are named automatically according to the paste method used.

Each new copy appends an incrementing numeric suffix to the original name.

Naming Pasted Audience Areas

Paste Type	# of Copies	Behavior	Name Format for New Area(s)
Mirror X	1	Pastes a mirrored copy across the X-axis.	[Original name] + **Copy X.1**
Mirror Y	1	Pastes a mirrored copy across the Y-axis.	[Original name] + **Copy Y.1**
Mirror X-Y	3	Creates 3 mirrored copies: 1. one mirrored across X-axis 2. one mirrored across Y-axis 3. one mirrored across both axes (X-Y)	[Original name] + **Copy X Y.1**, [Original name] + **Copy X Y.2**, [Original name] + **Copy X Y.3**
Mouse Location	Multiple (user selects)	Left-click multiple times to place multiple copies at the mouse location. Right-click or press Esc to exit paste mode.	[Original name] + **Copy 1**, […] + **Copy 2**, etc.

Working with Audience Areas

Tools for working with audience areas appear throughout the MPP and Design Studio.

AUDIENCE AREA NAME

- Areas always appear in alphanumeric order in the venue component list.
- To rename an area, select it; go to **Area** tab (lower MPP), and edit **Name** field.

> **NOTE**
> Renaming an area automatically reorders the venue components list.

> **TIP**
> Rename areas to be meaningful to you. Add letter or number prefixes if you want to maintain a specific list order.

AUDIENCE AREA VISIBILITY

- To hide or reveal an area, toggle the **visibility button** on/off (upper MPP).

AUDIENCE AREA LOCK POSITION

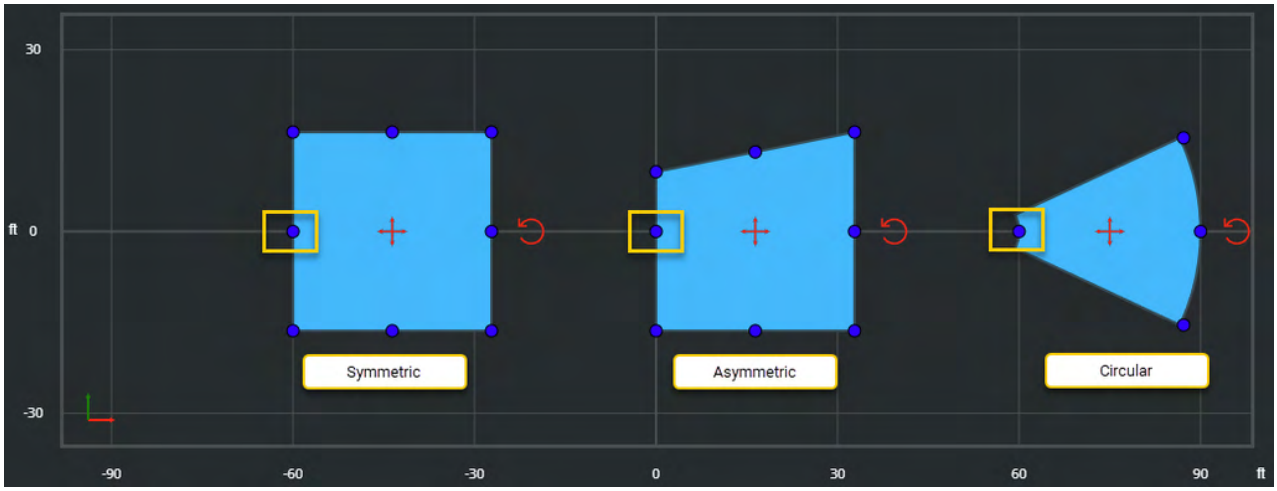
- To lock the position of an area, toggle the **lock button** on/off (upper MPP).

AUDIENCE AREA PARAMETERS

Modify each area using adjustable parameters to achieve the desired shape in the venue. The parameters used for defining the size, shape, and orientation of an area include the following: origin position, symmetry, width, depth, rotation, area movement, area data fields.

Origin Position

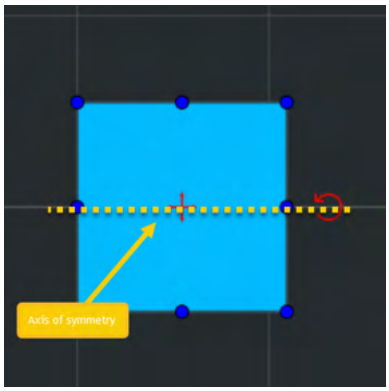
Each area uses a single point on the initial shape for the origin X-Y position. This point is the center of the front edge of the area. The origin is used as a reference point for symmetry, width, depth, and rotation.



Audience area origin position

Symmetry

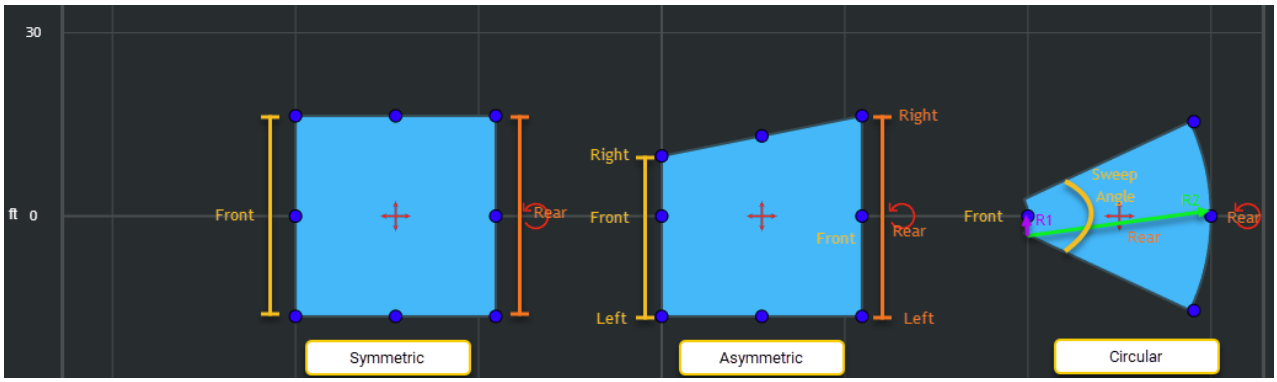
Symmetry is along the line from the origin position to the rear edge of the area.



Width

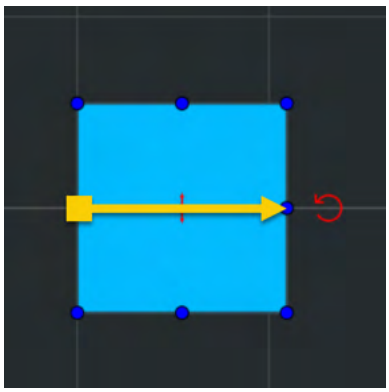
Width is based on the area shape type.

- A **symmetrical area** has equal front and rear widths.
- An **asymmetrical area** allows for two front and two rear widths, described as left/right.
- A **circular area** uses two arcs, each with a defined radius, and a single sweep angle to define the arc.



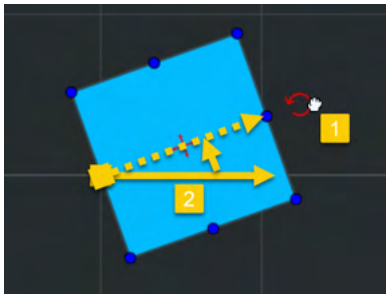
Depth

Depth is the distance from the origin to the rear edge of the area.



Rotation

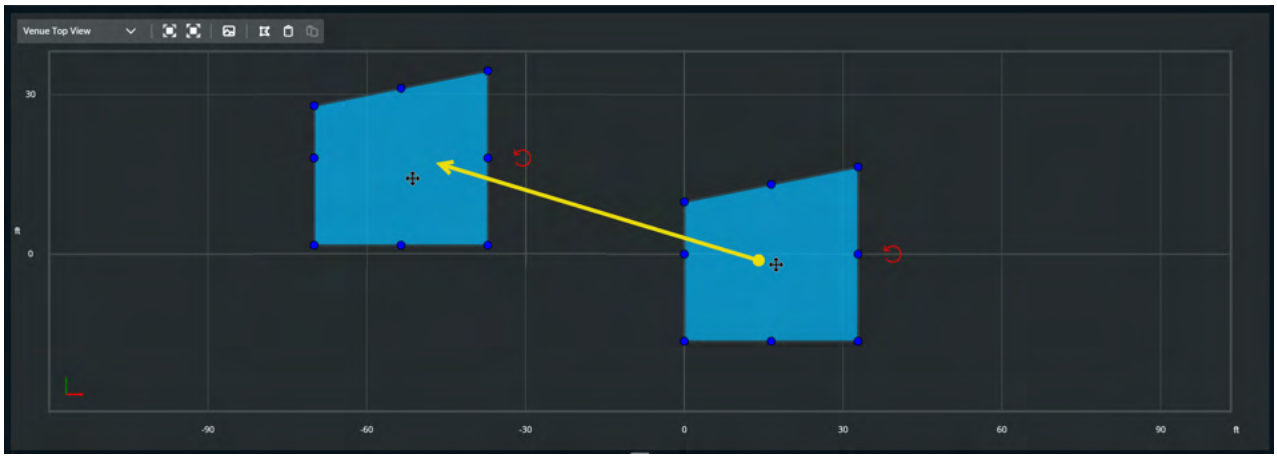
Rotation happens around the area's origin point and can be adjusted using the rotation control. You can also enter a specific rotation angle in the Rotation field under Area Data tab.



Area Movement

Area movement is accomplished using the **Move Area tool** (red X-Y axis icon). The area can be located anywhere within the Canvas.

You can also move an area using the Area Data fields to change the X and Y positions manually.



About Seating Sections

A **Seating Section** is an individual, user-defined surface placed within an audience area. It represents the actual location and elevation (X-Z) of audience members in the model.

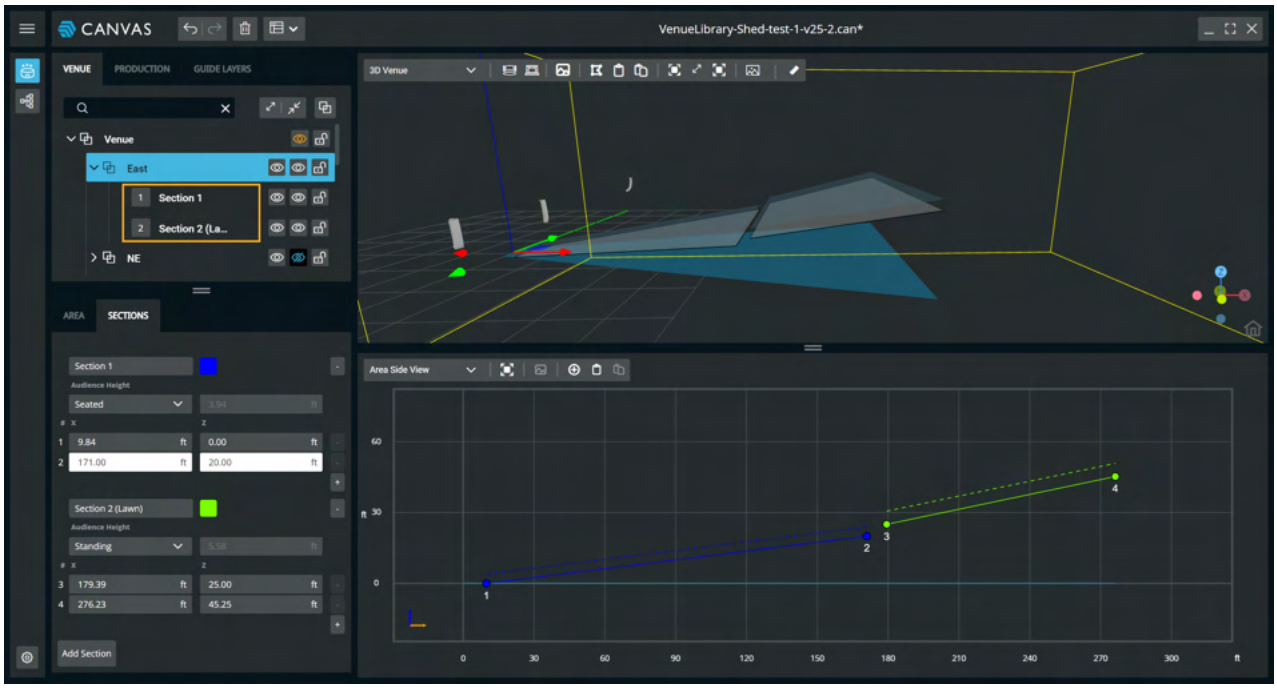
- Seating sections (placed within audience areas) are the mapped surfaces in the Canvas simulation.
- A single audience area can contain multiple seating sections.
- By default, each new audience area includes one seating section named “Section 1.” Additional sections added to the same area are automatically named “Section n.”

NOTE

A section must stay within the boundary (X-Y) of its parent audience area and cannot be placed outside it.

- A seating section is nested under its parent audience area in the venue component list.
- Seating sections are visible in the Area Side, 3D Venue, and 3D System views only.

Edit sections in **Area Side View** (select + drag points and lines) or modify the selected section’s data fields (lower MPP tab **Sections**).



Working with Sections

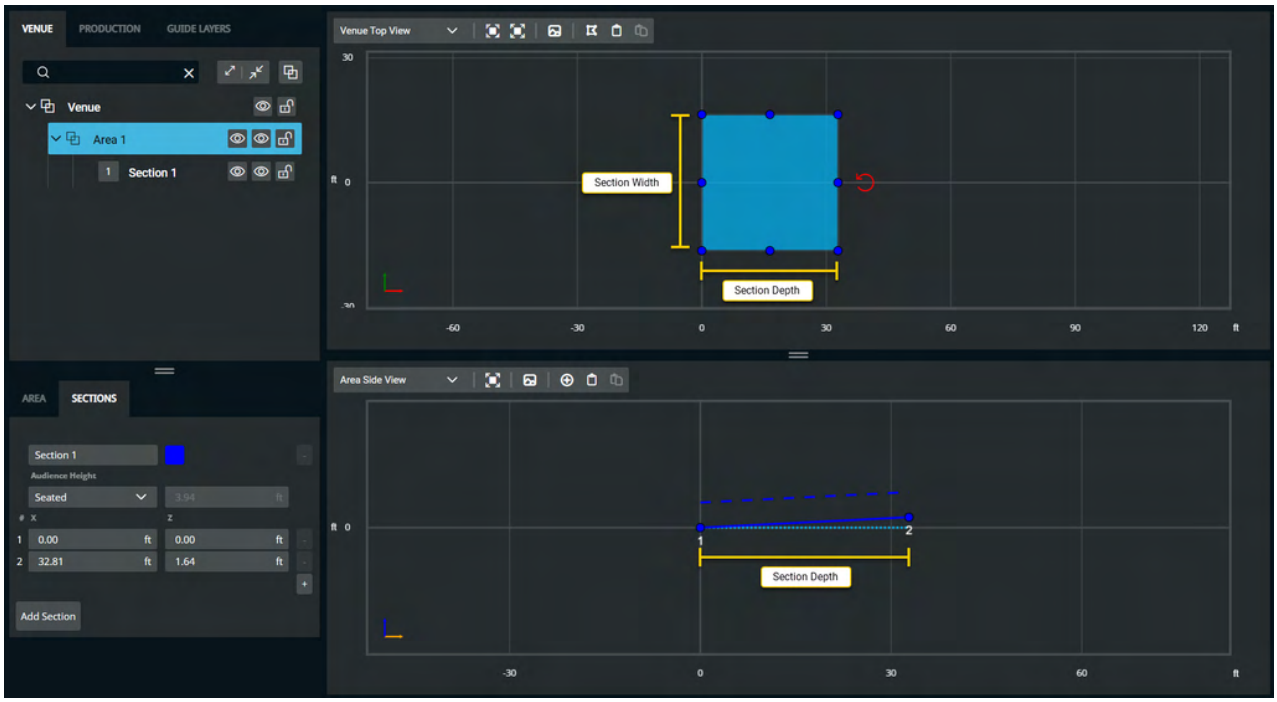
Tools for working with seating sections appear in the MPP and Design Studio.

Section Relationship to Area

- Seating sections use Height (Z) and Depth (D) axes, with vertical and horizontal orientations relative to the parent audience area.
- Sections are always defined relative to the front edge of the audience area.

Section Boundaries

- Section boundaries ensure the section does not exceed the depth or width of the audience area.
- The section's width automatically matches the area's width, while the depth is defined during venue creation.
- Section vertices cannot be placed outside the parent area's boundaries (X < 0, X > Depth, or Z < 0).



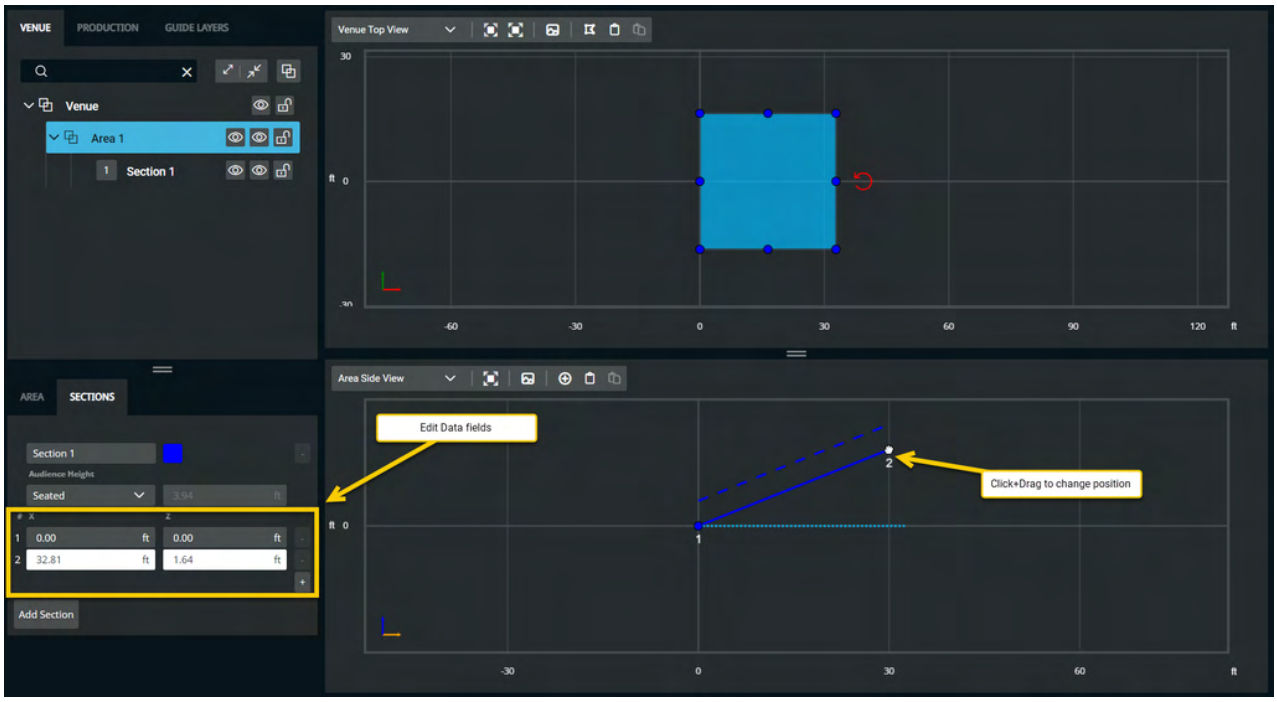
EDITING A SEATING SECTION

Ways to edit a seating section include, using **Area Side View** to:

- Click + drag on a section endpoint.
- Click + drag on a section line.

or using **Sections** tab (lower MPP) to:

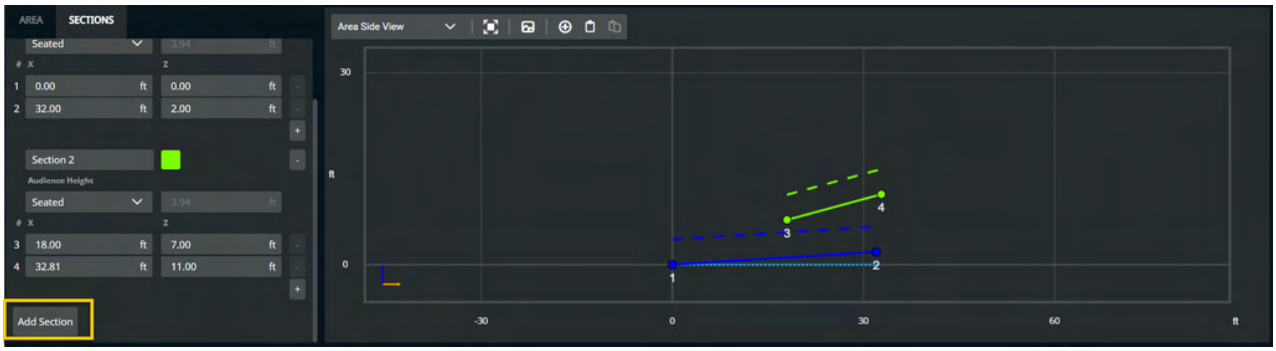
- Modify the selected section's X and Z data fields.



ADD SEATING SECTION TOOLS

To add a seating section to an audience area, use one of the following two methods:

1. From within the **Area Side View**, select the **Add Section** tool. A new seating section is added.
2. The second method is to click on the **Add Section button** in the **Sections** tab.



Add Section button (Sections tab, lower MPP)

Once added, the new section can be modified as needed.

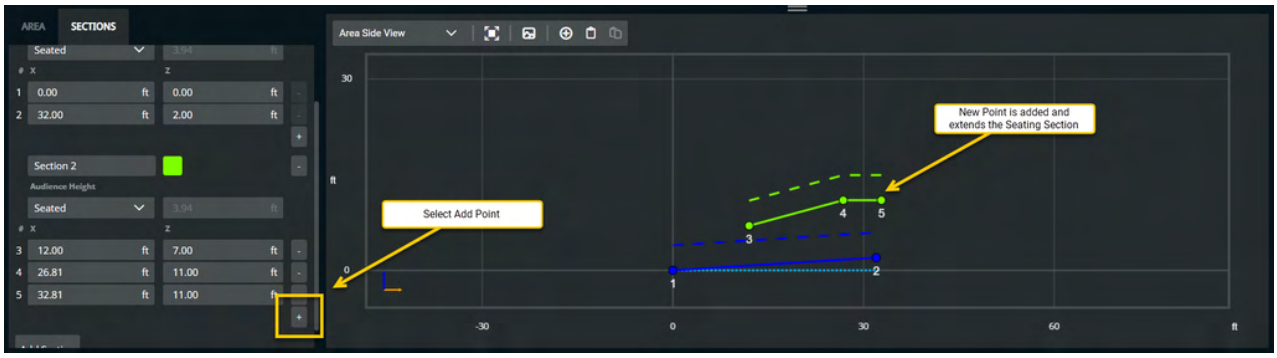
Working with Point Sections

Point Sections can be used to create a profile for a given seating area that is then treated as a single section for mapping and visibility.

EXTENDING A SEATING SECTION WITH ADD POINT SECTION TOOL

Extend a section by adding a segment and point/vertex by clicking on the **[+] Add Point Section** control within the Sections tab.

The seating section extends by one additional segment and vertex. The new point section can now be modified to achieve the desired section profile.



SETTING AUDIENCE HEIGHT OPTIONS

In the Venue activity, use the **Audience Height** dropdown menu to set the appropriate height of audience members in the simulation.

To set the audience height:

1. Open the **Venue** activity.
2. Select an audience area that contains one or more defined seating sections.
3. Go to the **Sections** tab.
4. Use the **Audience Height** dropdown menu to select a preset or custom value:
    - **Seated** – Uses a preset seated audience height
    - **Standing** – Uses a preset standing audience height
    - **Floor** – Sets the height to floor level (0)
    - **Custom** – Allows manual entry of a specific audience height

Working with Level Groups

Level Groups organize seating sections into logical groups for managing visibility within the venue model.

Since sections are contained by areas, grouping sections into levels creates a way to control the visibility of multiple sections of the venue model simultaneously.

- For example, you can create a level group that contains all sections in the upper bowl of an arena and control the visibility of an entire level of the venue.

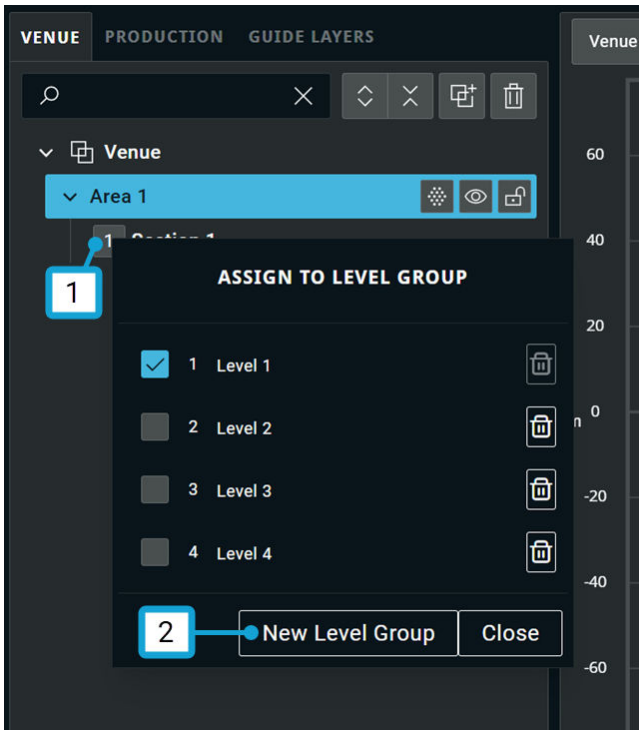
Sections are automatically assigned a level upon their creation. The default section is always assigned **Level Group 1**, the second section **Level 2**, and so on.

Assign Section to Level Group

1. Right-click the **Level Group icon** of any section.
2. At the **Assign to Level Group** dialog, check a box to assign the section. Sections can only be assigned to one level.
3. Close.
4. The assigned level number appears next to the section name.

Create a New Level Group

1. Right-click the **Level Group icon** of any section.
2. At the **Assign to Level Group** dialog, select **Create New Level** button to create a new level group.
3. A new level group appears in the list and can be assigned to sections.



Delete a Level Group

1. Right-click the **Level Group icon** of any section.
2. At the **Assign to Level Group** dialog, delete a level group by selecting the trash can icon next to the level group.

> **NOTE**
> Only level groups with no assigned sections may be deleted.

Importing a Venue

Venues can be imported into Canvas from supported 3D model, CAD, or Canvas-native files.

Imported geometry forms the foundation of your project's audience and production components.

NOTE

Geometry imported from 3D or CAD formats becomes **audience surfaces**, while geometry imported from Canvas-native files becomes **audience areas**.

These component types behave differently, however both are mapped components used in SPL simulations.

Production elements are visual-only and are not included in mapping.

Supported File Formats for Venue Import

Supported file formats include standard CAD geometry formats, Clair Venue Exchange files (.cvef), and Canvas Venue files (.csrf). This allows you to quickly build on existing work without starting from scratch.

The 3D model file formats that are supported for import into the Venue Activity include the following:

Canvas 3D File Types for Import

File Type	Extension	Description	File Category
Canvas Venue File	.csrf	Native Canvas format containing venue component data.	Canvas
Clair Venue Exchange	.cvef	Verified format used for Clair internal database sharing.	Canvas
COLLADA	.dae	3D file exchange format supported by SketchUp, Vectorworks, and AutoCAD (may require plugin).	3D Asset Exchange
DXF (Drawing Exchange Format)	.dxf	Standard CAD geometry format. Currently only DXF files generated from within EASE software are supported	CAD
GL Transmission Binary	.gltf, .glb	Binary file format for sharing 3D model data in GL Transmission Format.	3D Asset Exchange

Non-native imported files (.dae, .dxf, .gltf, .glb) are processed into usable components—such as venue surfaces or production elements—based on the settings chosen during import.

Importing a Venue from 3D Models and CAD

3D and CAD imports use the **Import CAD Tool**, which preprocesses geometry before it becomes part of your Canvas project.

Use this tool to organize imported items into audience surfaces and production elements, verify orientation, and confirm import settings.

Preparing SketchUp Models

If importing from SketchUp, first export your model to Collada (.dae).

> **NOTE**
> See [*Coming soon: REFERENCE ARTICLE | Importing 3D Models (Sketchup to Collada DAE)*] for the detailed export procedure and cleanup recommendations.

Before export:

- Remove any unnecessary image textures.
- Simplify geometry to reduce the total number of faces.
- Ensure model orientation aligns +X as front-to-back in the venue.

Importing a Collada (.dae) File

From an existing Canvas session

1. Select **Import > CAD** from the main menu.
2. Browse to the desired .dae file and open it.
3. The **Import CAD Tool** workspace opens.

From a new Canvas session

1. Launch Canvas and, at **Project Home > Open**, select **Import CAD**.
2. Browse to the desired .dae file and open it.
3. Continue using the **Import CAD Tool** as described below.

Import CAD Tool Overview

The **Import CAD Tool** is a preprocessing workspace with two tabs and a 3D preview pane.

Use it to organize groups, assign import types, and verify model scale and orientation before completing the import.

Imported Surfaces Tab

Displays all groups, meshes, and entities found in the file.

- **Filter / Search** – Narrow the list by typing any portion of a name.
- **Expand / Collapse** All Groups
- **Add Group** – Creates a new empty group.
- **Rename Item** – Double-click a name to rename it.
- **Drag and Drop** – Move entities / surfaces into desired groups. Select, drag, and drop onto an existing group name to add to that item group, or drop on a full-width blue bar to create a new group containing that item.
- **Toggle Surface / Production Element** – Defines whether the group imports as a **Surface** [hex icon] or **Production Element** [crossed-hex icon].
- **Toggle Visibility** – Show/hide individual items.
- **Include / Exclude from Import** – Select which items to import into Canvas.

TIP

If an entity / surface won't move, deselect it by clicking elsewhere, then reselect it to activate **Drag and Drop** function.

NOTE

Check model orientation before importing.

If the geometry does not align with Canvas coordinates, you can adjust orientation by rotating items after import so +X runs front to back.

Import Settings Tab

Use this tab to set default import options before confirming the import.

- **Import Type** – Sets the default for all groups (**Surface** or **Production Element**).
- **Import Units** – Choose meter, inch, or millimeter.

TIP

When most surface groups need to be one type, set this first in **Import Settings**, then return to **Imported Surfaces** to manually toggle any groups that need to be the other type.

Import Behavior and Grouping

Canvas imports only **grouped items**.

- Individual entities, meshes, or surfaces must be placed **inside a group** in order to import.
- All items within an import group become **one single Canvas component** on import.
  - If multiple entities share a group, they will be **merged** into a single audience surface or production element.
- Use the **Add Group** and **Drag and Drop** tools to organize entities before import. This saves time later when adjusting visibility or assigning audience and production types.

> **IMPORTANT**
> To keep components separate in Canvas, **assign each to its own group** before confirming the import.

3D Preview Pane

Visualizes the imported geometry and lets you check orientation.

- **Isolate Selected**
- **Zoom to Selected**
- **Invert Normals** – Corrects reversed surface orientations.
- Coordinate axes convention reminder:
  - Red = +X (front)
  - Green = +Y (right)
  - Blue = +Z (height)

Using the Import CAD Tool

There are four main steps to follow when using the **Import CAD Tool**:

1. Create and organize groups
    - Group geometry into logical surface or production element groups (**Import Surface tab**).
    - Multi-select items using **Ctrl + Click** as needed.
    - **NOTE**
      Canvas imports only **grouped items**.
      If multiple entities share a group, they will be merged into a single component.
    - **IMPORTANT**
      To keep components separate in Canvas, **assign each to its own group** before confirming the import.
2. Assign import type
    - Verify that each group is correctly tagged as **surface** [hex icon] or **production element** [crossed-hex icon].
    - Exclude any entity, mesh, or surface that should not be included in the import.
3. Verify orientation
    - If any faces appear reversed, use **Invert Normals** (at **3D Preview Pane** toolbar).
    - Rotate imported items after import if required to align +X front-to-back (typically –90°).
4. Confirm import
    - Select the **green checkmark-Import** or **red X-Cancel**. (lower-right corner of **3D Preview Pane**)

Imported Geometry in Canvas

After import, each group appears in the **Venue Activity | Venue Components list** according to its type. Each imported group becomes a single Canvas component named according to the import group name.

Surface (or Entity) Group → Audience Surface

- Appears at the top of the Venue list; above the Venue parent group (not nested beneath)
- Define the audience height in the **Audience** tab (lower MPP)

Production Element Group → Production Element

- Appears under Production Elements tab
- Color can be changed in **Setup** (lower MPP)
- Production elements are not included in calculations

Post-Import Orientation Check

Depending on how the venue was originally drawn, imported geometry may not align with Canvas coordinates.

Verify that positive X (+X) runs from audience front to back.

Rotation Adjustment

If needed, rotate imported items to match this orientation. Typical correction: –90° rotation adjustment

- Audience Surfaces – Cannot be grouped; rotate each individually under **Floor > X, Y, Z**.
- Production Elements – Can first be grouped and then be rotated together under **Setup > X, Y, Z**.

NOTE

If imported geometry appears reversed or misaligned, check surface normals and orientation in the **Import CAD Tool** before confirming the import.

Import Tool Group Type	Result in Canvas Post-import	Appears Under	Notes
Surface Group (all members)	(1) single audience surface	Top of venue component list (does not nest under **Venue** parent group)	Define Audience Height in **Audience** tab (lower MPP) To Rotate: individually (no grouping) under **Floor > X, Y, Z**
Production Element Group (all memebrs)	(1) single production element	**Production** tab > nested under **Production Elements** parent group	Color is adjustable via **Setup** (lower MPP) Not included in calculations To Rotate: as a group under **Setup > X, Y, Z**

Importing CAD Files (.dxf)

DXF imports follow the same procedure as .dae files using the **Import CAD Tool**.

> **NOTE**
> Currently, Canvas supports DXF files exported from EASE software.
> Other DXF sources may not import as expected.

Importing a Venue from Canvas Files

Canvas-native files allow importing complete venue models or subsets.

Supported File Types

.csrf – Canvas Surface File (venue layout)

.cvef – Canvas Venue Element File (complete venue)

See also Canvas File Types.

Import Procedure

From an existing Canvas session

1. Select **Import > Venue** from the main menu.
2. Navigate to the .csrf or .cvef file and select **Open**.

From a new Canvas session

1. At **Project Home > Create > Venue**, select **+Add**.
2. *[Optional]* Also import Production (.cprd) or System (.csrc) files.
3. Select the venue file and click **Open**.

When complete:

- Imported audience areas appear below the parent Venue group.
- Guide Layers are included if present.

Best Practices for Complex Venue Models

Complex 3D venues with large numbers of faces can reduce performance.

To maintain responsiveness:

1. **Separate geometry during import**

   Split the model into Audience Surfaces and Production Elements.

2. **Export production elements as separate files**

   After import, export and save as .cprd to preserve data but reduce main project file size.

3. **Remove production elements during design**

   Delete them temporarily during system design and simulation to improve performance.

4. **Disable Auto Save temporarily**

   For large venues, disable **Auto Save** while editing. Save manually at key milestones.

5. **Re-add elements for final output**

   Restore Production Elements for presentation or documentation once system design is complete.

Venue Database

The **Venue Database** provides access to pre-built venue models used frequently across live events and production projects. These models can be imported directly into Canvas to accelerate the setup process.

NOTE

This feature is available only to authorized users.

About the Clair Venue Database

The Clair Venue Database contains validated venue models from commonly visited locations across the world. These models include geometry, dimensions, and placement references that align with standard event setups.

Each venue in the database may have one of two statuses: Validated or Unvalidated.

Clair Venue Database

File Status	Description
Validated	Model has been reviewed and approved for alignment and accuracy.
Unvalidated	Model is available but may require updates or manual verification.

NOTE

Accessing the Venue Database

To import a model from the database:

1. Connect to the server.
2. Locate and download the desired venue file.
3. Follow the steps described in Importing a Venue to bring the model into your Canvas project.

Importing Venue Components

Import audience areas, production elements, and guide layers into Canvas. Imported components retain their position and coordinate alignment from the source file unless repositioned.

Importing Guide Layers

Guide layers are 2D reference images used to assist in drawing or aligning venue geometry within the 3D model view.

NOTE

Guide layers imported using **Main Menu > Import** are listed in 3D Venue guide layer group and display in both 3D Venue and 3D System views.

NOTE

Imported guide images do not appear in **Venue Top View** or **Area Side View**.

Use the **Add Guide Layer** tool (workspace toolbar) to add guide layers to those views.

To import a guide layer image (.png, .jpg)

1. Go to **Main Menu > Import > Guide Image (.png, .jpg)**.
2. In the file browser, select the image and click **Open**.
3. In the **Import Guide Image** dialog:
   - Drag an edge or corner to crop the image if needed, then click **Next**.
4. In the next screen:
   - Enter a **Line Dimensions** value to scale the image.
   - Choose a line orientation: **Vertical**, **Horizontal**, or **Free**.
   - Adjust the **red and green crosshairs** to define the reference line end points.
   - Click **Insert** to add the scaled guide layer to the **3D Venue** group.

Result: The imported image displays in 3D model views and is listed on the **Guide Layers** tab in the MPP.

- The image is **placed at the origin (0, 0, 0)** and **centered on the cropped area** by default.
- Adjust its position or properties from **3D Venue > Setup**.

See Also

About Guide Layers | Adding Guide Layers | Managing Guide Layers

Importing Audience Areas

Audience areas can be shared between projects using the Canvas Surfaces Export File (.csrf) or Canvas Venue Export File (.cvef) formats. Imported audience areas retain their coordinates, seating sections, and layout from the original venue.

To import audience areas (.csrf, .cvef)

1. Go to **Main Menu > Import > Venue**.
2. Select the .csrf or .cvef file and click **Open**.

Result: The imported audience areas appear under **Venue parent group** in component list and can be managed using the **Area** and **Sections** tabs in the lower MPP.

NOTE

Only .csrf and .cvef file types are supported.

Importing Production Elements

Production elements, such as stages, trusses, or other venue objects, can be imported from previously exported Canvas Production (.cprd) files or standard CAD files.

To import a Canvas production element (.cprd)

1. Go to **Main Menu > Import > Production Elements**.
2. Select the desired file and click **Open**.

Result: The imported production elements retain their original coordinates and appear under **Venue > Production** tab **> Production Elements** parent group.

To import CAD production elements (.dae, .dxf)

1. Go to **Main Menu > Import > CAD**.
2. In the **Import CAD Tool**, select and properly group the surfaces to import.
3. Define the imported objects as **Production Elements**.

Result: The imported production elements appear under **Venue > Production** tab **> Production Elements** parent group.

Post-import

- Adjust position or rotation as needed under **Setup** in the lower MPP.

NOTE

To align imported production elements with the venue, first group them together and then rotate as needed at **Setup > X, Y, Z**.

Post-import rotation is often −90° to match the venue's coordinate orientation.

Working with Sources

Sources represent the loudspeaker elements in your system design. Each source defines how sound is produced and positioned within the model, forming the basis for system coverage, mapping, and acoustic analysis.

Source tools let you create and configure sources, adjust acoustic and mechanical properties, and manage complex system layouts.

Topics in this section explain how to add new sources, group them, modify existing sources, and work with specific source types: line arrays, subwoofers, and point sources. You'll also learn how to view mechanical data and print complete source setup information for documentation or review.

Sources in Canvas

Sources in Canvas define the physical placement and orientation of loudspeaker systems within the venue model. Each source is positioned relative to the project's coordinate system and displayed in the **3D System**, **Top View**, and **Cross Section** workspaces.

Canvas automatically maintains symmetry for most preconfigured sources by creating mirrored left and right pairs across the X-axis. Default spacing and placement are applied when new sources are added to ensure consistent alignment with the venue geometry.

This section describes how source placement, mirroring, and coordinate conventions interact with the venue layout.

Coordinate Consistency

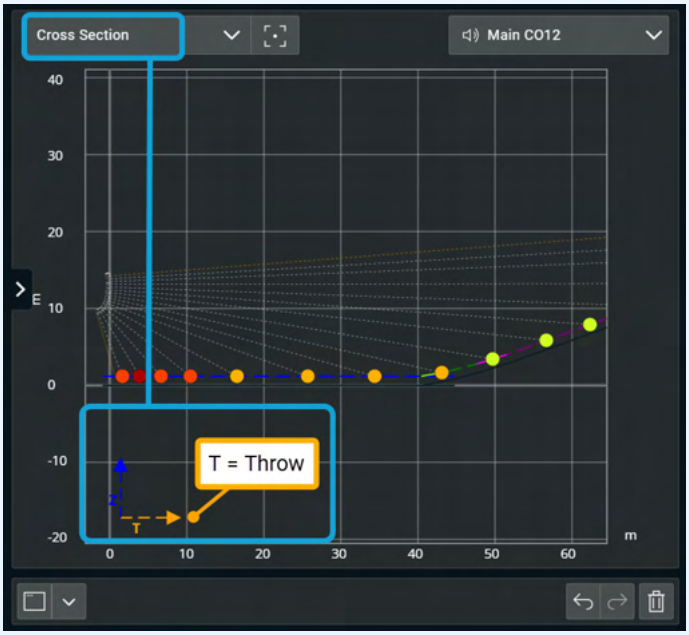
Canvas system activity uses a global X–Y–Z coordinate framework shared with the venue activity:

- +X extends from the stage toward the audience
- +Y extends toward audience right
- +Z represents height above the floor

All sources, arrays, and measurement points reference the same global origin (0, 0, 0), ensuring accurate spatial alignment and simulation results across both activities.

TIP

In the **Cross Section View**, the "X"-axis changes to the "T"-axis (for Throw direction of the source). T-axis is displayed in **orange** and indicates the throw distance for a given enclosure.



For full axis conventions and best-practice orientation, see Venue Coordinates and Orientation.

For detail on source-specific anchor points, see System Component Anchor Point.

Symmetry and Mirroring

When you add a new source, Canvas automatically creates a mirrored pair across the X-axis:

- The primary source appears at +Y (house right).
- The mirrored source appears at –Y (house left).
- The mirrored source name includes the suffix "-M."

By default, pairs are spaced 65.62 ft (20.0 m) apart (+32.81 ft (10.0 m) / –32.81 ft (10.0 m) on the Y-axis). You can adjust this spacing manually by repositioning the sources in **Top View** or by editing their Y coordinates in the **Setup** tab.

NOTE

If symmetry is not required for your design, unpair sources by toggling **Pair** off in the MPP. Once unpaired, each source can be positioned and aimed independently.

Default Placement Behavior

New sources can be added from **System Activity > Model View > Top View** or **3D System**. The following defaults provide a consistent starting point for symmetrical system designs.

When a new source is added:

- **X position** defaults to 0 ft (0 m).
- **Y position** defaults to +32.81 ft (10.0 m) / –32.81 ft (10.0 m) (65.62 ft (20.0 m) total spacing).
- **Z position** defaults to +32.81 ft (10.0 m) for flown sources or 0 ft (0 m) for ground-stacked sources.
- **Orientation** (horizontal or vertical) is determined by the source model and preset configuration.

TIP

All positioning defaults are applied at the time of source creation. If you move, unpair, or rotate a source afterward, those changes persist independently of the original mirrored behavior.

NOTE

The venue geometry must follow Canvas coordinate conventions for accurate source alignment.

For details on venue coordinate alignment and stage orientation, see Venue Coordinates and Orientation.

See Also

To create new sources, see Adding Sources.

To modify configuration, aiming, or processing, see Modifying Sources.

For mechanical and load data, see Source Mechanical View.

Navigating the System Activity

System navigation uses the same basic camera and view controls as in the venue activity. See Navigating the Venue Activity | 2D and 3D Venue Navigation.

TIP

For large system models, use **Zoom to Selected** or **Isolate Selected** to focus on a single source array or element.

Navigating System Views

The system activity provides both 2D and 3D views for positioning and analyzing sources within the venue model. Use these views to visualize source placement, verify alignment, and inspect coverage results from multiple angles.

System / source workspaces appear in the Design Studio and include a variety of **Model Views** and **Data Views**. The **Mechanical View** displays mechanical and load data for sound sources.

System Model Views

These views show a perspective of the venue model with simulation overlays. You can position system components and use measurement tools.

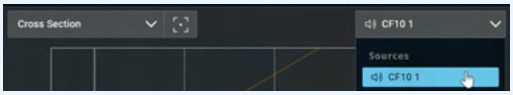
Use the following views while working in the System Activity:

System Model Views

View Name	Description	Toolbar / Controls
3D System	Perspective view of the venue Overlaid with system components and simulation data	Pane toolbar 
Top View	Overhead 'plan' view Place and align sources, audience areas, and measurement tools	Pane toolbar 
Cross Section	Vertical slice, 'cut plane' through the venue Analyze system behavior along a defined plane	Pane toolbar, Source selector (top-right)

NOTE

Cross Section view includes a **Source selector**; behavior matches source selection in the MPP list.



System Data Views

System Data Views display simulation results as graphs that represent frequency, level, time, and spatial behavior. These views support system tuning and performance evaluation by providing visual feedback on acoustic coverage, alignment, and tonal balance.

Each view includes configurable options for selecting sources, measurement points, measurement lines, or other display modes. Dropdown controls display in the top-right corner.

System Data Views

Data View Name	Description	Tool / Controls
SPL/Distance	SPL versus distance from a selected source Use: Evaluate level decay and coverage uniformity; Compare 2 frequency ranges	Tool: Focus Scene on source Dropdown menus: 2nd Freq. BW, 2nd Freq., Sources
Magnitude/ Distance	Magnitude (dB) versus distance for a selected frequency or range Use: Assess tonal consistency across listener positions	Dropdown menus: Normalize To, Measurement Points, Sources and Measurement Lines, Sample Density
Phase	Phase shift across frequency Use: Align speakers and optimize output in crossover region	Dropdown menus: Reference Trace, Measurement Points
Time Arrival	Arrival time differences at measurement locations Use: Aid in delay alignment and ensure phase coherence	Dropdown menus: Absolute/ Relative to Source, Measurement Points
Magnitude	Magnitude response (dB) across frequency Use: Assess loudspeaker output and tonal balance	Dropdown menu: Measurement Points

NOTE

Only **SPL/Distance** includes a dedicated tool button (pane top-left); all other views rely on dropdown menu configurations (pane top-right).

Default Views

The system activity provides five default view configurations for working with sources and system data. These defaults provide quick access to commonly used visualization and analysis layouts.

Access default views from the **lower navigation bar** by clicking the **expand control (V)**.

Configuration	Views Included	Description
Source Layout	Top View	Displays the spatial arrangement of all sources within the venue.
	3D System	Top View shows **plan-view positioning and orientation**.
		3D System provides **a perspective view** for visualizing height, aim, and array geometry.
Line Array	3D System	Focuses on line array configuration and coverage.
	Cross Section	3D System shows the **physical array**.
	SPL/Distance	Cross Section shows **vertical coverage** relative to audience areas.
		SPL/Distance graphs **level versus distance** from the array.
Alignment	Time Arrival	Used for time and phase alignment between sources.
	Phase	Time Arrival displays **arrival-time differences** at selected points.
	Magnitude	Phase displays **phase relationship versus frequency** to support time and polarity alignment.
		Magnitude shows **level response across frequency**.
Analysis	Top View	Provides overall system performance analysis.
	Magnitude/Distance	Top View visualizes **coverage or level mapping**, while Magnitude/Distance plots **frequency response or level variation over distance**.
Mapping	3D System	Displays **simulation maps in the 3D venue environment**, combining geometry and acoustic results for spatial inspection.

For details on camera and view controls shared with the venue activity, see Navigating the Venue Activity.

Source Mechanical View

The **Source Mechanical View** displays mechanical configuration and load data for flown and ground-stacked sound systems. Use this view to assess rigging geometry, load distribution, and enclosure tilt across different source types.

This view supports the following tasks:

- Verifying pick point load distribution and center of gravity (COG)
- Reviewing enclosure tilt
- Identifying mechanical configuration errors through on-screen warnings

The view updates dynamically based on the selected sound source and its current configuration.

Accessing the Source Mechanical View

To open or close the mechanical display panel:

1. Select a sound source.
2. Click the **expand control (>)** on the upper right edge of the MPP.

   The mechanical view pane appears showing structural and positioning data for the selected source.
3. To close, click the **collapse control (<)** on the right side of the MPP.

Display Tabs

Two visual perspectives are available.

Section View (side profile) which displays:

- X, Y, Z position of the source
- Source height and depth
- Center of gravity (COG)
- Bottom enclosure height above ground
- Bottom enclosure tilt angle (for flown line arrays and flown subwoofers)

Top View (plan view) which displays:

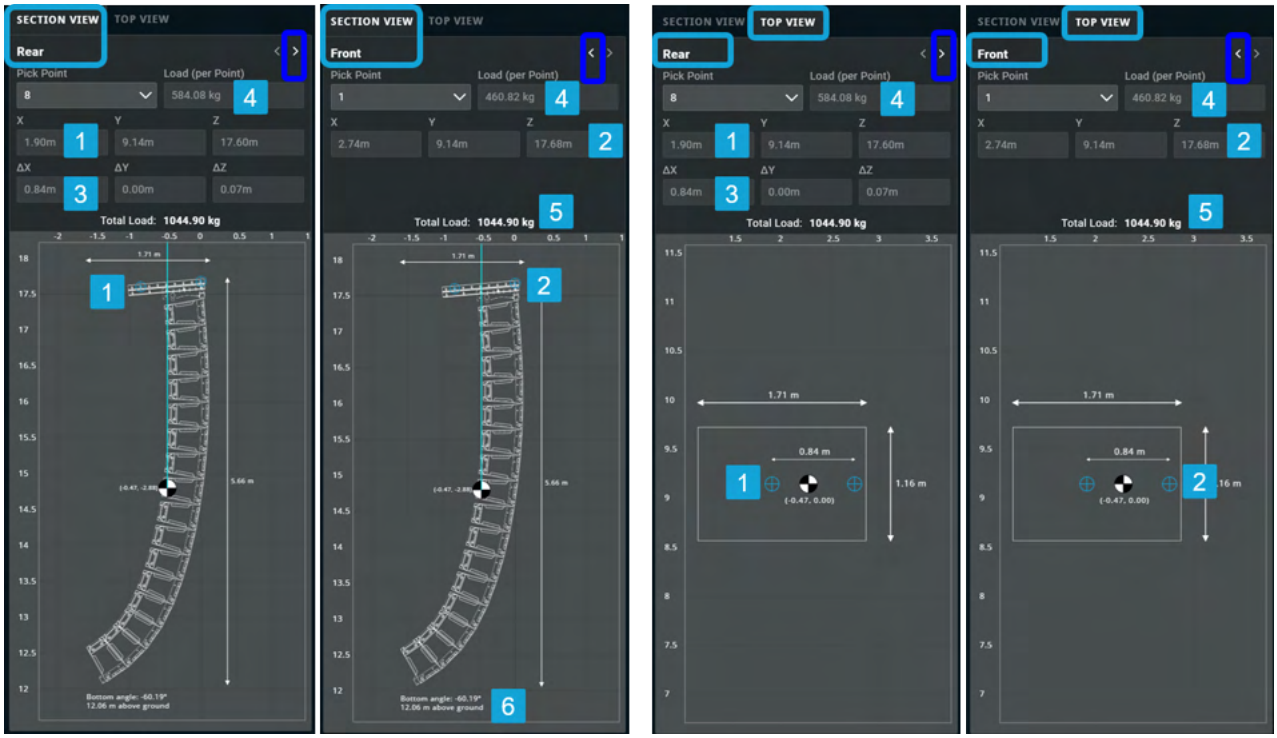
- Total width and depth
- Center of gravity (COG)

Both views display the **Total Load** value above the diagrams.

> **IMPORTANT**
> The **Total Load** includes the array and rigging hardware, but it **excludes cabling and hoist weight**.

Line Array and Flown Subwoofer Mechanical Details

For line arrays and flown subwoofers, additional rigging data appears in the **Section View** and **Top View**.



Mechanical Views displaying pick point location, load distribution, and enclosure angle.

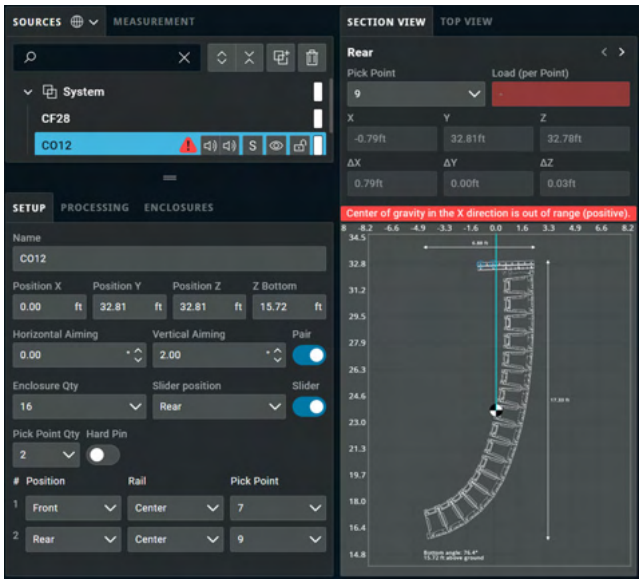
ID	Parameter	Description
1	Rear Pick Point Location	X, Y, Z coordinates for the rear pick point.
2	Front Pick Point Location	X, Y, Z coordinates for the front pick point.
3	Front–Rear Distance	ΔX, ΔY, ΔZ relative difference (offsets) between the pick points.
4	Load (per Pick Point)	Mechanical load on each rigging point (front and rear). If **Compression Mode** is used (not **Hard Pin**), the load includes additional hardware such as the Pullback Bar, SpanSet, come-along, and chain between the Pullback Bar and Top Grid. **IMPORTANT: Cable and hoist weight are not included.**
5	Array Weight	Total suspended array weight (**excludes cable and hoist**).
6	Bottom Enclosure Angle & Height	Tilt angle and elevation above Z = 0 (ground level).

Mechanical View Error Conditions

When a configuration exceeds safe or expected limits, validation errors appear as on-screen warnings. Use these messages to correct the design and ensure safe system setup. These messages include:

Line Arrays

Condition	Error Message
Center of gravity exceeds rear pick point or Center of gravity is outside of the pick points	"Center of gravity in the X direction is out of range (negative)."
Center of gravity exceeds front pick point	"Center of gravity in the X direction is out of range (positive)."
Vertical aiming angle exceeds safe limits	"The system's pitch exceeds the allowed limits."



Example of line array error condition in Mechanical View

Adding Sources

Add new sound sources to your project using preconfigured sources, source pattern groups, or by importing sources from an existing Canvas Sources (.csrc) file.

Sources define the loudspeaker systems used in simulation and can represent line arrays, subwoofers, or point sources.

Each source is added in relation to the venue geometry and appears in the **System Sources** list and model view.

For details on how Canvas handles source placement, symmetry, and coordinate alignment, see Sources in Canvas.

Source Types

Sources can be added using one of the following options:

Preconfigured Sources – Individual line arrays, point sources, or subwoofers created from predefined source types and models.

- Selecting a preconfigured source opens a model selection list and applies default configuration and symmetry behavior.

Source Pattern Group – A custom grouping of multiple arrays, subwoofers, or point sources created using the **Source Pattern Tool**.

- Selecting this option opens a dedicated dialog for defining source quantity, spacing, arrangement, and group-level settings.

Imported Sources – Any native Canvas source(s) imported as .csrf file. See Importing Sources.

Preconfigured Sources

Preconfigured sources create symmetrical left/right pairs with default configurations, as shown below.

Source Type	Model Options	Enclosure Quantity	Default Configuration	Notes
Line Array	CO8, CO10, CO12	12× CO8 H80 12× CO10 H80 16× CO12 H80	Flown only	Ground stacking not supported
Subwoofer	CP218 II+, CSB218i	3	Ground stacked	
Point Source	CF10, CF14, CF24, CF28, CP6+	1	Flown	Cabinet Orientation: Landscape Horn Orientation: Horizontal (if applicable)

When added, Canvas automatically places a **symmetrical pair of sources mirrored across the X-axis**, spaced 65.62 ft (20.0 m) apart by default.

NOTE

If symmetry is not required for your design, mirrored sources can be unpaired and positioned independently using **Pair** in the lower MPP.

Source Pattern Group

A **source pattern group** defines multiple sources at once using the **Source Pattern Tool**.

You can specify cluster arrangement, quantity, and positioning according to the source type parameters.

Common Parameters | All Source Pattern Groups

Parameter	Description
Source Type	(varies)
Name	Custom group name
Position (X, Y, Z)	Starting position of group
Rotation (Z-axis)	0.00°–360.00°
Create Group	Default: On to automatically create a source group. Toggle off to place individual, ungrouped sources.
Create Pair	Default: Off Toggle on to create symmetrical left/right pairs.
Model	(varies)
Arrangement	Linear or Circular
Linear Arrangement	Sources are placed in a line defined by Spacing (distance between adjacent arrays, 0–500 ft or m) or Length (total distance between first and last array, 0–1000 ft or m). Changing one updates the other automatically.
Circular Arrangement	Sources are placed in an arc defined by Angle Across (10°–180°) and Angle Radius (5–100 ft or m).
Array/Stacks (Quantity)	Quantity of clusters containing # of enclosures
Assembly / Preset	(Available for subwoofers only)
Enclosures	(varies)

NOTE

Although enclosure quantities are not adjustable during Source Pattern Group creation, enclosure-level settings can be modified after the pattern is created.

Flown Line Array Parameters

Parameter	Description
Source Type	Flown Line Array
Model	CO8, CO10, or CO12
Array/Stacks (Quantity)	3–8 clusters containing: CO12 = 16 × CO12 H80 per array CO10 = 12 × CO10 H80 per array CO8 = 12 × CO8 H80 per array
Enclosures	Not adjustable during creation. Each array uses default enclosure quantity (see **Array/Stacks**)

NOTE

Enclosure-level groups are automatically generated when adding line array sources.

Flown Subwoofer Parameters

Parameter	Description
Source Type	Flown Sub
Model	CP218 II+, CSB218i
Array/Stacks (Quantity)	Selectable values: 3–8 clusters (each contains # of subwoofers specified at Enclosures)
Assembly	Vertical (Not adjustable)
Preset	Standard or Cardioid
Enclosures	Selectable values: 1, 2, or 3 subwoofers per array/stack

Ground-stacked Subwoofer Parameters

Parameter	Description
Source Type	Ground Sub
Model	CP218 II+, CSB218i
Array/Stacks (Quantity)	Selectable values: 3–8 clusters (each contains # of subwoofers specified at Enclosures)
Assembly	Vertical or Horizonal
Preset	Standard or Cardioid
Enclosures	Selectable values: 1, 2, or 3 subwoofers per array/stack

Point Source Parameters

Parameter	Description
Source Type	Point Source
Model	CF10, CF14, CF24, CF28, CP6+
Array/Stacks (Quantity)	3–8 clusters containing 1 point source per cluster

Add Sound Source Tool

Use the **Add Sound Source** tool to insert preconfigured sources or source pattern groups.

To Add a Preconfigured Source

1. Select workspace: **System Activity > Model View > Top View** or **3D System**.
2. Select the **Add Sound Source** tool from either the Top View or 3D System workspace toolbar.
3. Select the **Source Type** and **Model** from the list.
4. (Optional: In the **Create New** dialog, enter a custom name.)
    - Default naming convention: **<Source Type> <Model> <Instance #>**
5. Click **Add**.

Result: A mirrored source pair is placed in the venue:

- The **original** instance appears in the **+Y** direction.
- The **mirrored** instance appears in the **−Y** direction.
- The right-side source appears at +Y and the mirrored source at −Y.
- The name of the mirrored instance includes the suffix: "**-M**"

These sources are represented as **Right (+Y)** and **Left (−Y)** in the **Mute** controls of the Source List.

NOTE
If symmetry is not required for your system design, mirrored sources can be **unpaired** and positioned independently (go to **Pair** in lower MPP and toggle **Off**).

To Add a Source Pattern Group

1. Click **Add Sound Source**.
2. Select **Source Pattern Group** from the list.
3. In the **Source Pattern Tool**, specify:
    - Array Type, Model, and Arrangement (Linear or Circular)
    - Assembly, Preset, and Enclosures (Subwoofers only)
    - Quantity of Arrays/Stacks
    - Spacing (or Angle Across) and Length (or Angle Radius)
    - Name, Position (X, Y, Z), and Rotation
    - Create Group and Create Pair options
4. Click **OK**.

The defined pattern appears in your project with all clusters automatically positioned.

Importing Sources

Sources can also be imported from another project as .csrc files.

To import:

1. With your current project open, select **Main Menu > Import > Sources (.csrc)** or click **Add Sound Source**, select **Sources (.csrc)**.
2. Navigate to the source file and click **Open**.
3. The imported sources appear at their original coordinates.
4. Adjust the position if needed within the Venue model.

Copying Sources Using Pairing and Unpairing

When you unpair a paired source (via **Pair toggle**), you create two individual, unique instances of that source.

- When you select one (formerly paired) source and toggle (to seemingly 'reenable') pairing, Canvas creates a brand new source / array instance that matches the original, selected source.
- In your model, you would then see three sources: two that are paired and an abandoned one that was previously paired.
- You can now move the third instance into desired position and, assuming its symmetrical, select **Pair** and now you have four identical arrays.

TIP

A method to "copy" sources is to use the unpair/pair function.

In the above example, you will have three arrays that all have the same settings: two that are paired and third standalone.

You can now move the third instance into desired position and, assuming its symmetrical, select **Pair** and now you have four identical arrays.

Grouping Sources

Source Groups define control groups that allow you to manage and adjust multiple sound sources together.

About Source Groups

Source Groups function as control groups, similar to DSP group assignments:

- Sources are always members of the **System group** by default.
- Sources can be added to additional groups for control and adjustment.
- A source may belong to multiple groups simultaneously.
- Group membership is not hierarchical.

TIP

Think of source groups as a matrix, where each source can intersect with multiple control groups.

Example: Subwoofers may belong to **both a Main group and a Subs group**, allowing independent or combined control.

Creating a Source Group

Create logical **source control groups** to simplify system control and adjustment.

1. In the **Source** tab, select the **Add Group** icon.
2. Name the new group.
3. In the **Assignment** tab, assign individual sound sources to the group.
4. Rename or delete groups as needed.

NOTE

Source Groups apply to sound sources only. They do not affect venue geometry, audience areas, or production surfaces.

Managing Source Group Membership

- Adding a source to a group does not remove it from other groups.
- Removing a source from a group does not remove it from the system.
- Group membership can be changed at any time (**Assignment** tab, lower MPP) without affecting source placement or configuration.

Deleting a Source Group

When a **Source Group** is deleted:

- The group is removed.
- All sources remain in the project.
- No source configuration or placement is deleted.

This prevents accidental loss of system design when managing control groups. This behavior ensures that removing a control group does not require rebuilding the system design.

NOTE

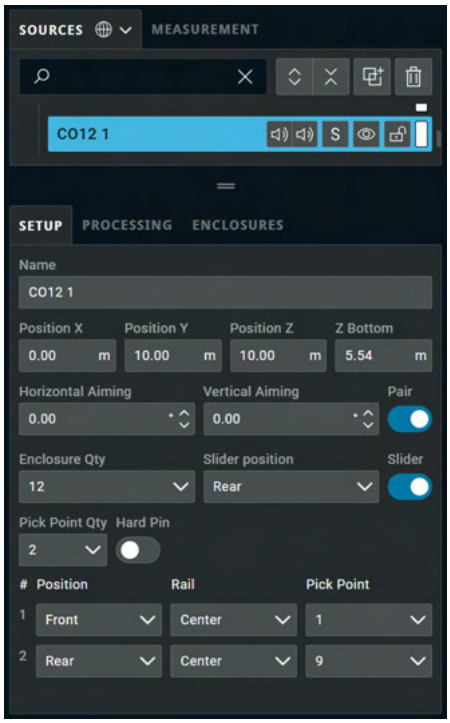
Source Groups affect control and adjustment only. They do not represent physical or hierarchical relationships.

Source Properties

Configure and manage your source properties in the component data fields on tabs: **Setup**, **Processing**, and **Enclosures**.

Source Setup

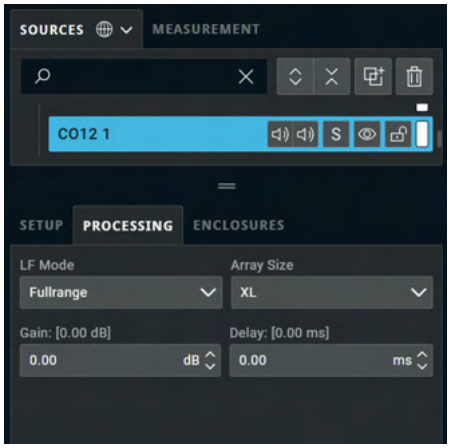
View and select physical setup parameters for line arrays, subwoofers, and point sources at **Setup** tab (MPP component data fields).



For a complete list of component data fields for each source type, see: Source Data Fields | Subwoofer Data Fields | Point Source Data Fields | Source Groups Data Fields

Source Processing

View and select processing options for line arrays, subwoofers, and point sources at **Processing** tab (MPP component data fields).



Source Enclosures

The **Enclosures** tab combines mechanical, acoustic, and processing parameters for each line array or subwoofer enclosure.

Point sources do not have enclosure options.



***Enclosures** tab showing splay angles, horn insert angles, and NFC options for each enclosure in the array.*

System Tools

The system activity includes workspace toolbars for adding, editing, and managing system components. Toolbar content varies by active workspace view and selected component.

System Tools appear on:

(a) model view toolbars (**3D System**, **Top View**, **Cross Section**)

(b) data view toolbars (**SPL/Distance**, **Magnitude/Distance**, **Phase**, **Time Arrival**, and **Magnitude**)

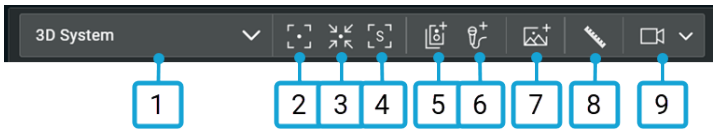
and (c) the multipurpose panel (upper/lower panes)

System Workspace Tools Reference

System Model Views

Each model view toolbar offers source and measurement tools including the following:

3D System Toolbar



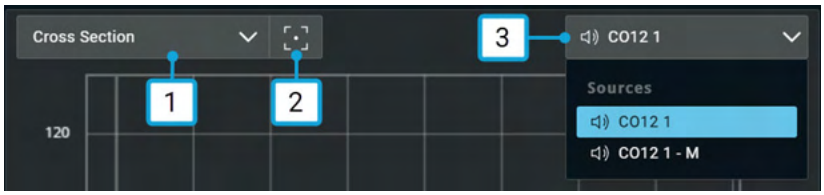
ID	Tool	Function
1	View Selection (dropdown)	Selects the Model View
2	Focus Scene	Frames the scene to current extents
3	Zoom to Selected	Zooms to the selected component
4	Isolate Selected	Hides all other components; shows selected only
5	Add Source	Adds new source to model; Opens dropdown menu to select source type (preconfigured **Line Array**, **Point Source**, or **Subwoofer**; **Source Pattern Group**; or **Sources (.csrc)** file import)
6	Add Measurement Point	Adds a new measurement point to model
7	Save Screenshot	Saves image (.png) of current view
8	Open Measurement Tool	Opens **Measurement Tool**; Click a start point and an end point to display the result Measures distance and time between two points within audience areas, production elements, or sound sources. (Guide layers are excluded from measurement).
9	Save current Camera (dropdown)	Saves the current camera view. You can assign a name and recall it later.

Top View Toolbar



ID	Tool	Function
1	View Selection (dropdown)	Selects the Model View
2	Focus Scene	Frames the scene to current extents
3	Add Source	Adds new source to model; Opens dropdown menu to select source type (preconfigured **Line Array**, **Point Source**, or **Subwoofer**; **Source Pattern Group**; or **Sources (.csrc)** file import)
4	Add Measurement Point	Adds a new measurement point to model
5	Save Screenshot	Saves image (.png) of current view
6	Add Measurement Line	Adds a new measurement line to model

Cross Section Toolbar

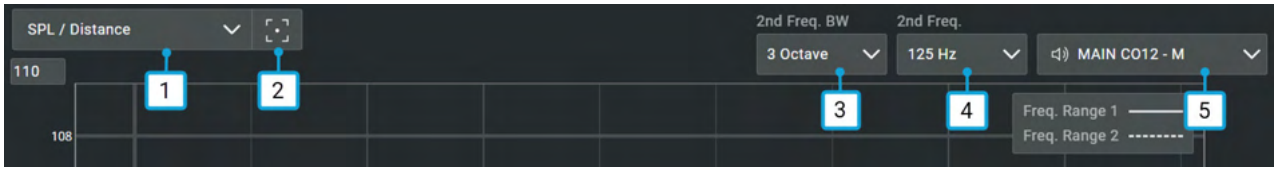


ID	Tool	Function
1	View Selection (dropdown)	Selects the Model View
2	Focus Scene	Frames the scene to current extents
3	Source Selection (dropdown)	Selects a source to display in the **Cross Section** view

System Data Views

Each data view toolbar offers analysis tools including the following:

SPL/Distance Toolbar



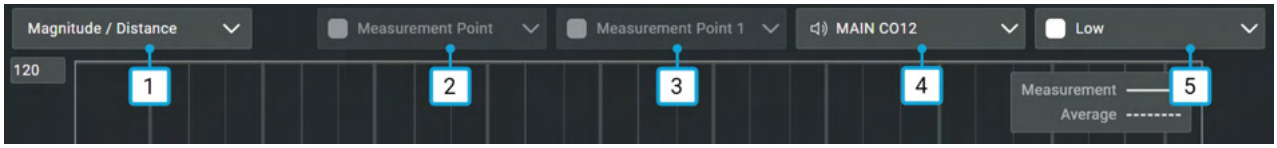
ID	Tool	Function
1	View Selection (dropdown)	Selects the Data View
2	Focus Scene	Frames the scene to current extents
3	2nd Freq. BW (dropdown)	Selects the bandwidth for the second frequency range
4	2nd Freq. (dropdown)	Selects the frequency for the second frequency range
5	Source Selection (dropdown)	Selects source for SPL/Distance graph (dropdown list of available sources)

NOTE

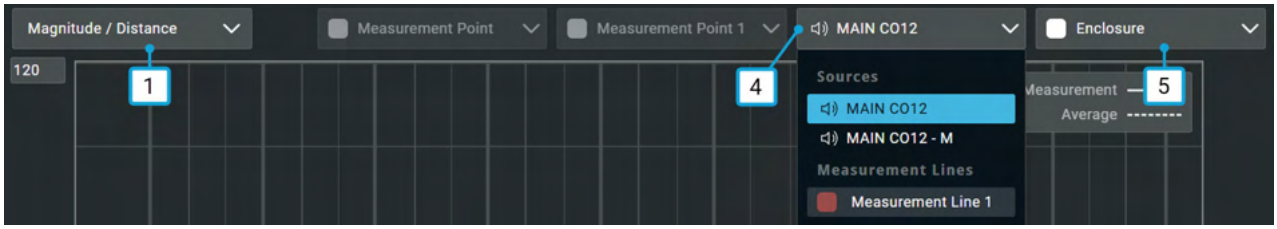
The **Weighting** selection in the simulation settings affects both frequency ranges that are plotted in the SPL/Distance.

It is recommended to use the **dB-Z Full Range weighting** when comparing the two.

Magnitude/Distance Toolbar

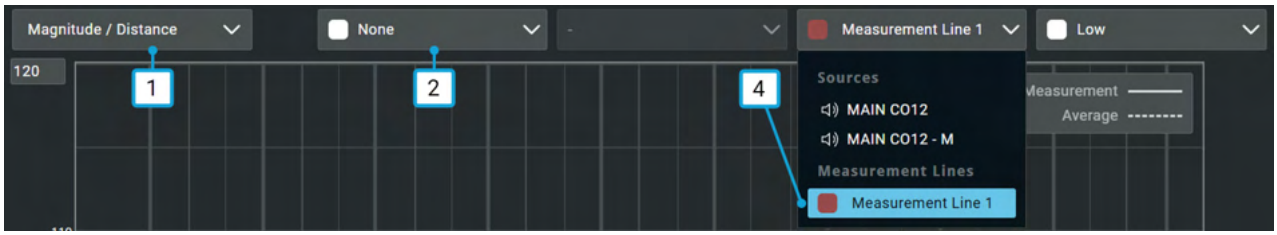


The **Magnitude/Distance toolbar** updates dynamically based on the selection made in the dropdown list: **Sources / Measurement Lines (4)**.

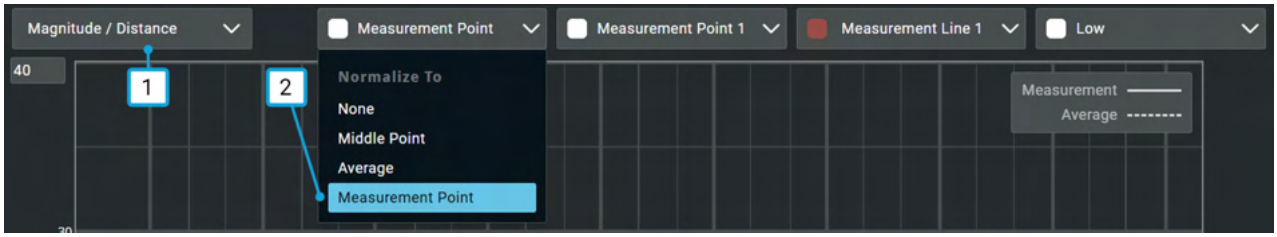


*Toolbar State A: When **Source** is selected at dropdown list **(4)** – The only visible controls are for **View Selector (1)**, **Sources/ Measurement Lines (4)**, and **Low/Medium/High/Enclosure (5)**.*

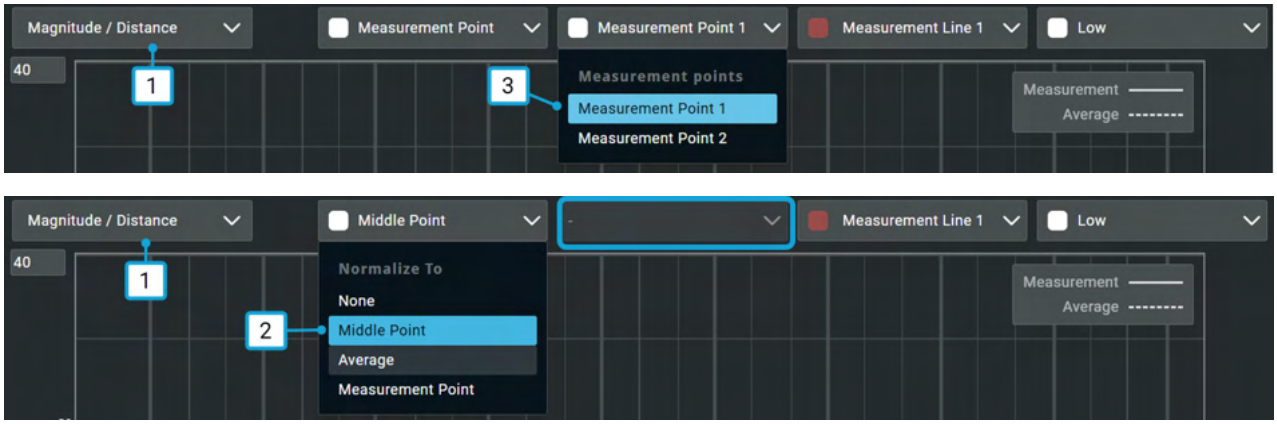
When a **Measurement Line** is selected at **(4)**, additional normalization and measurement-point options appear and become available, **Normalize To (2)**.



*Toolbar State B: When **Measurement line** is selected at dropdown list **(4)**, then control appears for **Normalize To (2)**.*



*Toolbar State C and D: **Normalize To (2) = Measurement Point**, then **(3) Measurement Points** becomes active and lists available points.*



*Toolbar State E: **Normalize To (2) = Middle Point** or **Average**, then **(3) Measurement Points** remains inactive.*

ID	Tool	Function	Visible / Active When
1	View Selection (dropdown)	Selects the Data View	Always visible
2	Normalize to (dropdown)	Sets the reference used to normalize the displayed data Options: None / Middle Point / Average / Measurement Point	Appears when **(4)** = **Measurement Line**
3	Measurement Points (dropdown)	Lists measurement points Used for selection when normalizing to a specific point	Appears when **(4)** = **Measurement Line**; active only when **(2)** = **Measurement Point**
4	Sources / Measurement Lines Selection (dropdown)	Selects the source or measurement line to display in the data view	Always visible
5	Resolution / Type (dropdown)	Sets data-display resolution Options depend on selection in **(4)**: • If **Source** → Low / Medium / High / Enclosure. • If **Measurement Line** → Low / Medium / High	Always visible; options vary

Phase Toolbar



ID	Tool	Function
1	View Selection (dropdown)	Selects the Data View
2	Reference Trace (Sources dropdown)	Selects source for Phase graph reference trace (dropdown list of available sources)
3	Measurement Point Selection (dropdown)	Selects measurement point for Phase graph (dropdown list of available points)

Time Arrival Toolbar



ID	Tool	Function
1	View Selection (dropdown)	Selects the Data View
2	Absolute or Relative to Source (dropdown)	Selects source for Time Arrival graph (dropdown list of available sources)
3	Measurement Point Selection (dropdown)	Selects measurement point for Time Arrival graph (dropdown list of available points)

Magnitude Toolbar



ID	Tool	Function
1	View Selection (dropdown)	Selects the Data View
2	Measurement Point Selection (dropdown)	Selects measurement point for Magnitude graph (dropdown list of available points)

See Also

For details on System Tools that appear in the MPP, see MPP System Tools.

Modifying Sources

After sources are added to a project, they can be repositioned, reconfigured, and optimized for system performance. The following topics explain how to modify line arrays, subwoofers, and point sources within the venue model.

Each section describes the available tools, workspace views, and data panels used to adjust mechanical, acoustic, and processing parameters for the selected source type.

- Working with Line Arrays
- Working with Subwoofers
- Working with Point Sources

For details on placement and symmetry behavior, see Sources in Canvas.

Working with Line Arrays

This section introduces the tools and methods used to add sources to a project, with a focus on configuring and modifying line array sources.

You will learn how to place line arrays in the venue model, configure their parameters, and analyze their performance using available data views.

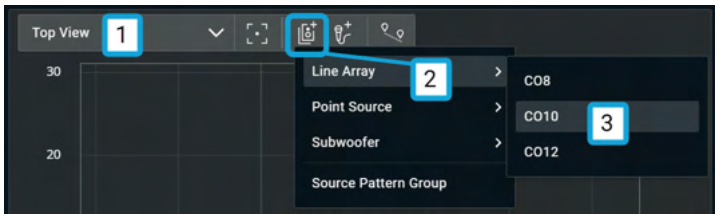
For general information about how sources are displayed and positioned within the venue model, see Sources in Canvas.

To learn how to add sources to a project before configuring them, see Adding Sources.

Adding a Line Array Source

To add a line array pair to the venue model:

1. Select workspace: **System Activity > Model View > Top View** or **3D System**.
2. Select the **Add Source** tool from the workspace toolbar and choose **Line Array**.
3. Then select the desired model (CO8, CO10, CO12) from the dropdown list.



Result:

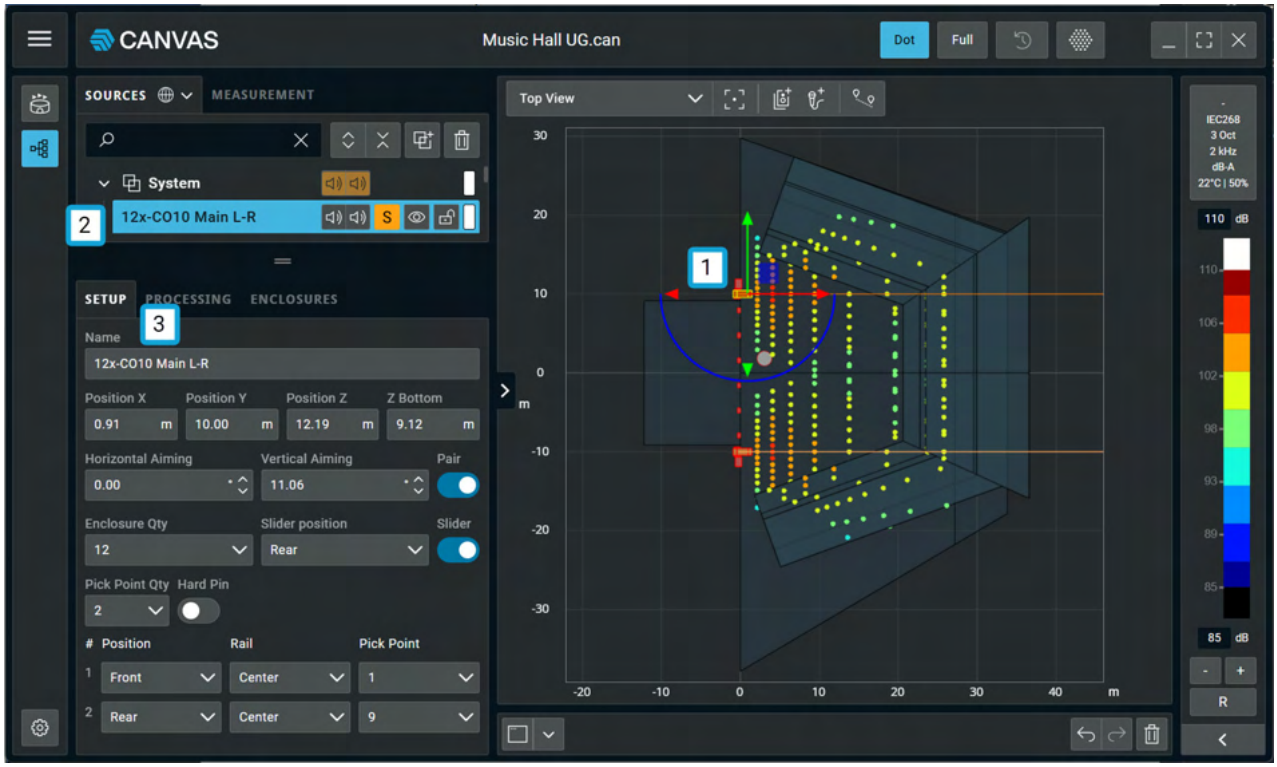
- A **symmetrical pair of sources** is placed in the venue model.
- The **right-side source** appears at +Y; the **mirrored source** appears at −Y.
- The **mirrored instance** includes the suffix "-M" in its name.
- The **original source** is positioned at Y = +32.81 ft (10 m), representing **House Right (+Y)**.
- The **mirrored source** is positioned at Y = −32.81 ft (10 m), representing **House Left (−Y)**.
- Both sources share an X = 0 and a Z = 32.81 ft (10 m) representing **array height as measured from the top of the top grid**.

NOTE

If symmetry is not required, **unpair** the mirrored sources in the **Setup** tab by toggling **Pair** off.

Default Line Array Behavior

- CO8 / CO10: 12 enclosures per array
- CO12: 16 enclosures per array
- A **predefined array curvature** is automatically applied.
- Once added, the line array pair appears in the Sources component list and is visible in the active view (**Top View** or **3D System**).
- The newly added source is **automatically selected**, and its configuration parameters appear in the **MPP component data fields**.



1. A line array pair displayed within the venue model **Top View**.

2. Pair represented by **a single entry within the Sources component list**.

3. The source is **automatically selected** upon placement, showing its configuration parameters in the lower MPP.

Line Array Repositioning and Configuration

Line arrays can be repositioned or re-aimed in the venue model using either the **Move Tool** or the **Setup** tab (MPP). See Select and Position Components.

> **NOTE**
>
> Movements applied to the primary source are mirrored automatically about the x-axis.
>
> For example, a change in the +Y direction on the right-hand cluster produces an equal −Y movement on the left.

Setup Tab Parameters

The **Setup** tab for the selected line array source displays both location and aiming parameters as well as global array settings, including enclosure quantity and rigging options.

These parameters apply to the full source pair unless the array is unpaired.

For full detail of **Setup** parameters, see MPP System Data Fields | SETUP | Line Array.

Array Curvature and Horn Insert Type

Array curvature and horn insert angles (horizontal coverage) are adjusted in the **Enclosures** tab. A mechanical side-profile view showing rigging and load details is also available.

ENCLOSURES TAB

The **Enclosures** tab combines mechanical, acoustic, and processing parameters for each enclosure in the array.

For full detail of **Enclosures** parameters, see MPP System Data Fields | ENCLOSURES | Line Array.

Mechanical View Overview

The **Mechanical View** displays mechanical and load data for sound sources, including pick-point geometry, center of gravity (COG) coordinates, total load, and enclosure tilt. It also shows warnings for unsafe or invalid configurations.

Access: Select the **expand control (>)** between the MPP and Studio workspace to expand the mechanical view.

For parameter details, load display behavior, and error messages, see Source Mechanical View.

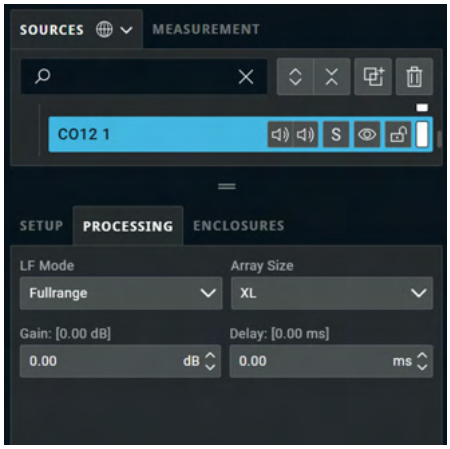
Cohesion-Specific Processing

Processing functions specific to Cohesion line array sources are located in the **Processing** and **Enclosures** tabs.

Use the **Processing** tab to apply global settings to the array, and the **Enclosures** tab for per-enclosure adjustments such as Near Field Correction (NFC).

Processing Tab | Array-Wide

The **Processing** tab applies signal processing to all enclosures within the selected array.



Field	Description
Array Size Overlay	Applies a predefined processing profile (XS, S, M, L, XL, XXL) to all enclosures.
Gain	Adjusts overall array gain. **Total Gain** displays the cumulative gain applied from Groups and System gain levels.
Delay	Sets the total array delay (ms). **Total Delay** reflects the combined delay from Group and System delay levels.

Enclosures Tab | Per-Enclosure Processing (NFC)

Processing options that apply to individual enclosures are found in the **Enclosures** tab.



Field	Description
NFC (Near Field Correction)	Applies high-frequency attenuation to the selected enclosure to improve tonal balance in near-field listening zones.

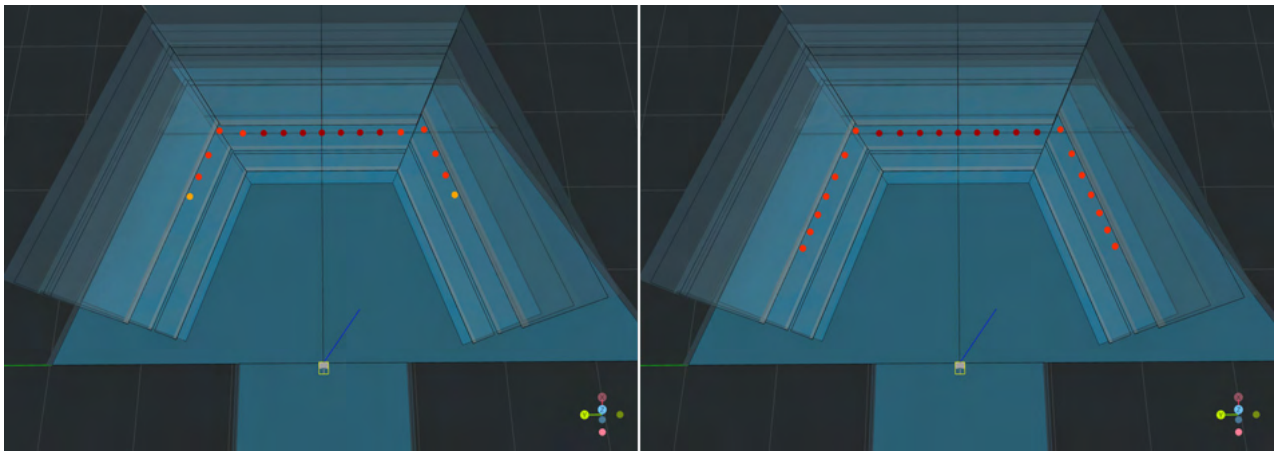
Data Views for Line Array Configuration

Three data views support line array configuration and optimization: **Dot Map**, **Cross Section**, and **SPL/ Distance**. These can be used together to evaluate array coverage, aiming, and performance.

Dot Map

This view helps identify where the array's horizontal coverage narrows due to shorter throw distances.

- Displays the −6dB coverage angle for the enclosure and provides dot indicators every 5°.
- Comparing dot maps between horn insert angles shows changes in horizontal coverage width.

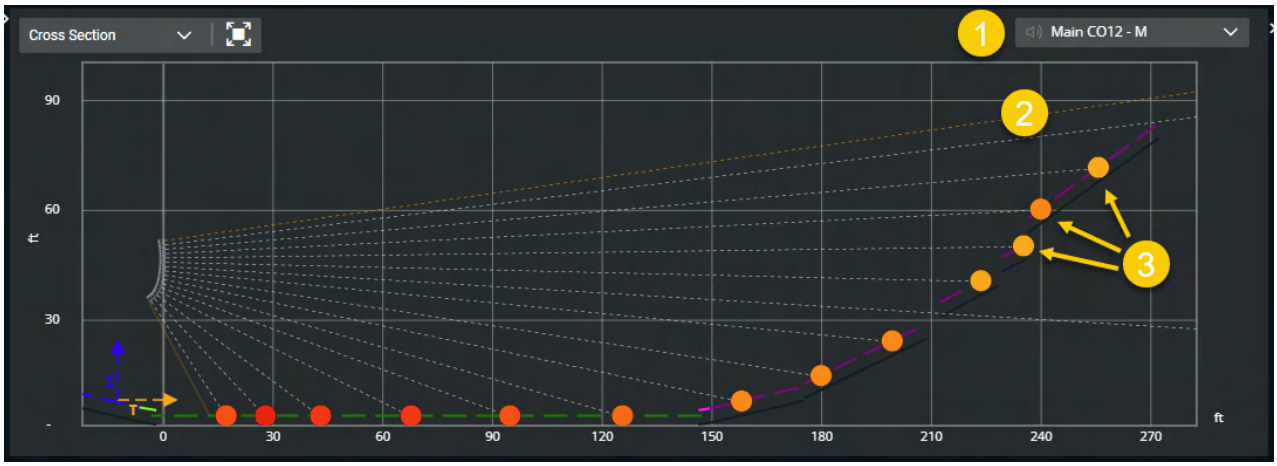


Dot map comparison of two CO10s with different horizontal angle horns. 80° on left, 120° on right.

Cross Section

This view shows the vertical aiming and curvature of the selected array **(1)**.

- Aiming lines **(2)** indicate vertical coverage relative to audience areas.
- When an aiming line intersects a seating section **(3)**, a dot appears at the intersection showing the calculated SPL value.
- Drag the top enclosure's aiming line **(2)** to adjust tilt.

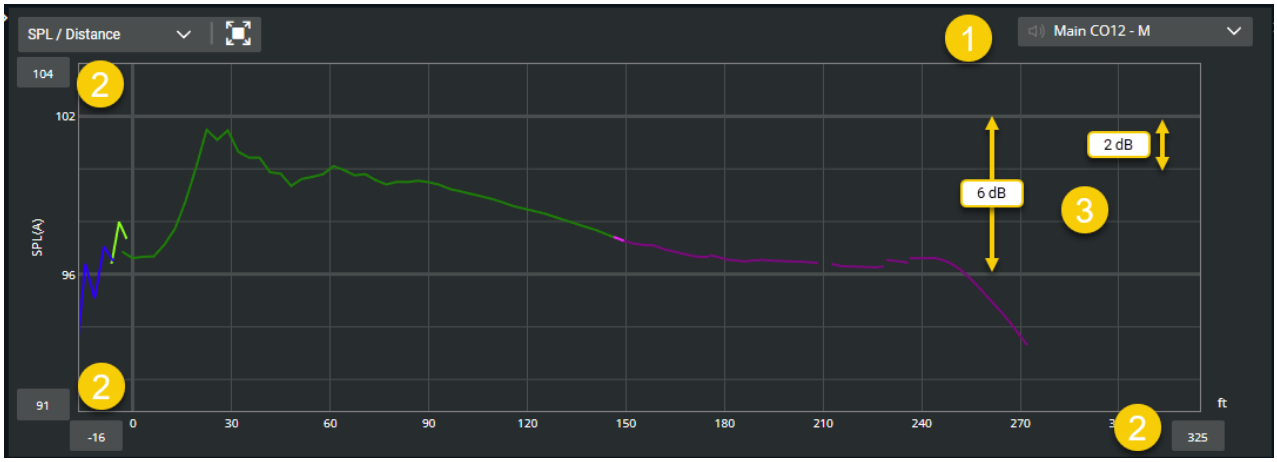


SPL/Distance

This view displays the on-axis SPL versus distance for all seating sections intersected by aiming lines.

- Y-axis: SPL (dB)
- X-axis: Distance from the source (ft or m)
- When the **Cross Section** view is active, both views share a locked X-axis.

> **IMPORTANT**
>
> SPL/Distance includes the combined on-axis energy of all active (unmuted) sources.
>
> To evaluate a single array, solo it in the **Source List** or mute all other arrays.



To select which array is displayed in the **SPL/Distance** view, use either:

- the **Source List** in the MPP, or
- the **Source Selection** dropdown **(1)** within the SPL/Distance view.

When the Cross Section view is active, the same selection applies to both panes.

You can modify the X- and Y-axis directly by clicking the numeric fields **(2)**.

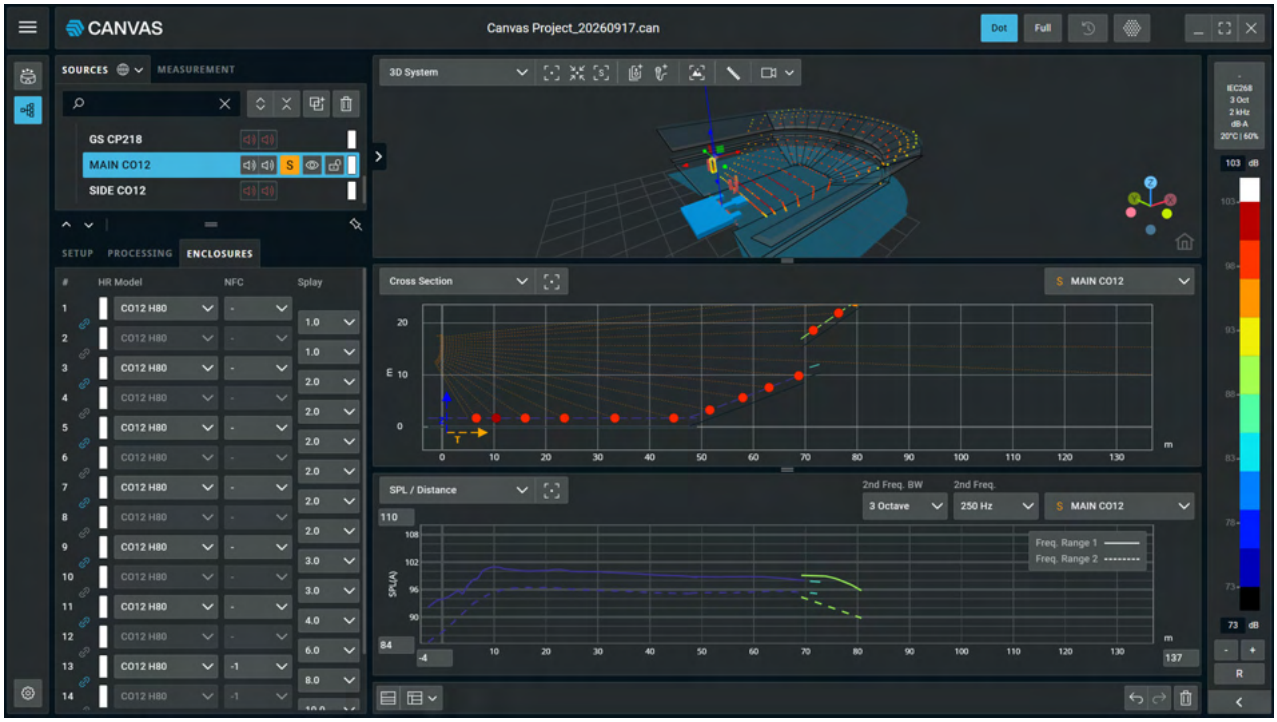
Y-axis gridlines are marked at 2dB and 6dB increments **(3)** to aid in evaluating SPL roll-off across the array's vertical coverage range.

Analyzing Line Array Performance

The **Line Array** Studio Workspace is available under **Workspace Views**.

This provides a synchronized three-pane layout:

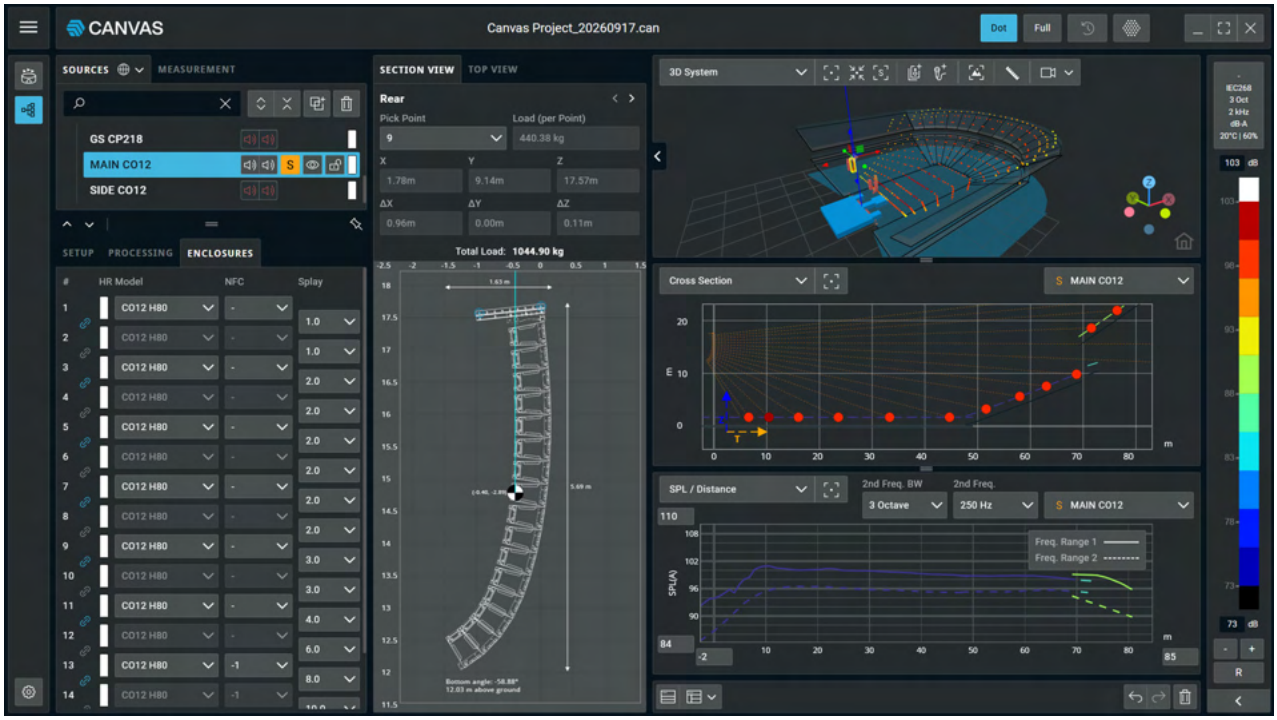
- **3D System View** – Displays array geometry and aiming in the full venue model.
- **Cross Section View** – Visualizes array curvature and aiming relative to audience areas.
- **SPL/Distance View** – Plots SPL along the audience plane for the active array.



Line Array studio workspace (3 panes)

To open the **Mechanical View**, select the **expand control (>)** in the divider between the Studio and MPP panes.

- This view provides pick-point geometry, center of gravity (COG) coordinates, load distribution, and enclosure tilt for mechanical verification.



Expand control (>) reveals Mechanical View

Working with Subwoofers

This section describes how to configure, position, and evaluate subwoofer sources in a system design.

You can add subwoofers as **symmetric pairs** or as **pattern groups** (such as a line of subs across a stage). Both **flown** and **ground-stacked configurations** are supported.

A **Cardioid Preset** is available to automatically configure a subwoofer array for cardioid operation.

Subwoofer Workflow Summary

This table summarizes the tools and panes used to configure and evaluate subwoofers throughout the system design process.

Subwoofer Task	Tool / Tab
Add symmetric pairs	Add Source tool → Subwoofer
Place multiple spaced subs	Source Pattern Tool
View physical load	Mechanical View
Edit enclosure configuration	Enclosures tab
Map LF coverage	Mapping panel with adjusted simulation settings

Subwoofer Controls

Subwoofer configuration is managed in the lower MPP for the selected subwoofer pair. All setup, processing, and enclosure parameters are defined here.

For detailed field descriptions, see Subwoofer Data Fields.

Subwoofer Setup Tab

The **Setup** tab defines the position and configuration of the subwoofer pair.

Subwoofer Processing Tab

The **Processing** tab includes signal processing, EQ, gain, and delay parameters that apply to all subwoofers within the array.

Subwoofer Enclosure Tab

The **Enclosures** tab can be used to create custom subwoofer configurations when the preset is set to **Standard**.

Adding a Pair of Subwoofers

To add a pair of subwoofer stacks:

1. Select the **Add Source** tool.
2. Choose **Subwoofer > CP218-II+** from the dropdown list.
3. In the **Create New** dialog, enter a custom name or accept the default.
4. Click **Add**.

Result: A symmetrical pair of 3x CP218-II+ subwoofer stacks is added to your design.

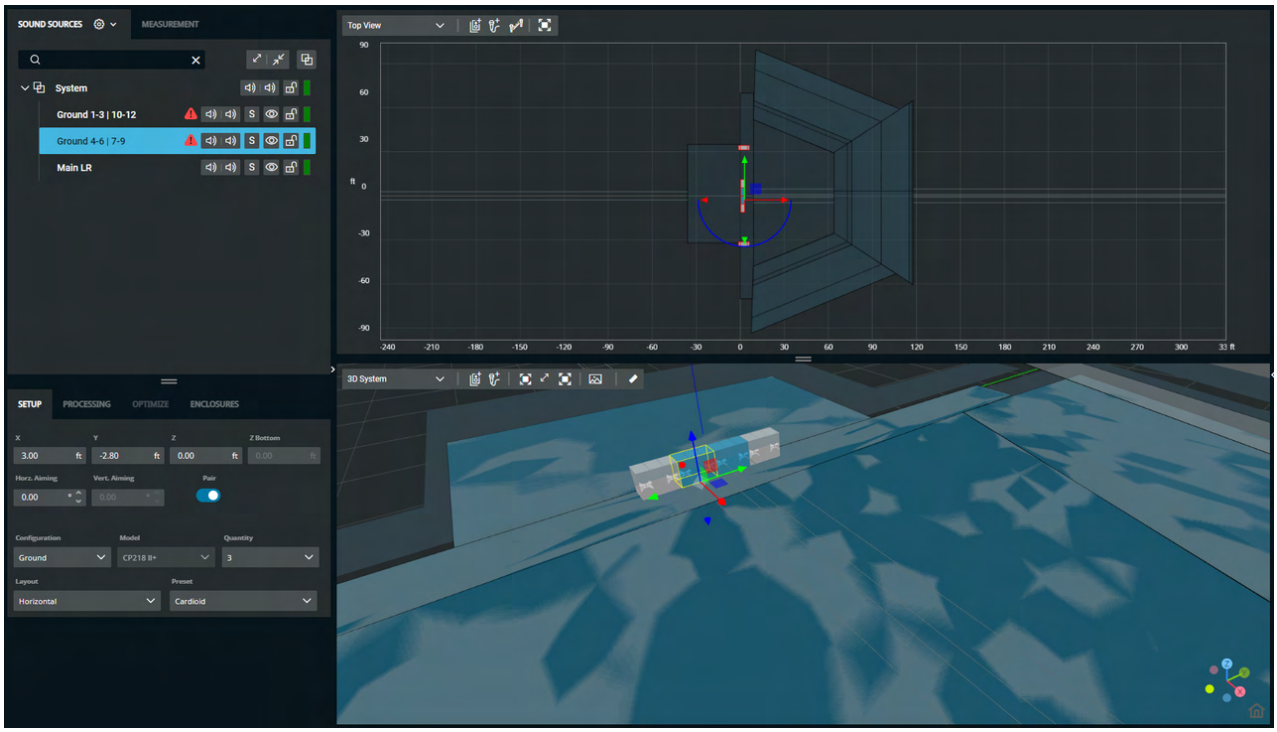
- The new sources appear in the **System Sources** list.
- Default configuration is **Ground Stacked** (3x CB218-II+).

Proceed to configure and position the new sources.

Configuring and Positioning Subwoofers

To change configuration or position:

1. Select the subwoofer pair.
2. In the **Setup** tab (lower MPP), choose a **Configuration** (Flown or Ground).
3. Select a **Preset**: Standard or Cardioid.
4. Position the subwoofers within the venue model as required using **Move Tool** or data fields (lower MPP).



NOTE

The number of available CP218-II+ enclosures for a flown configuration depends on the selected **Preset**, **Rail**, and **Position** parameters.

Mechanical View Overview

The **Mechanical View** displays mechanical and load data for sound sources, including pick-point geometry, center of gravity (COG) coordinates, total load, and enclosure tilt. It also shows warnings for unsafe or invalid configurations.

Access: Select the **expand control (>)** between the MPP and Studio workspace to expand the mechanical view.

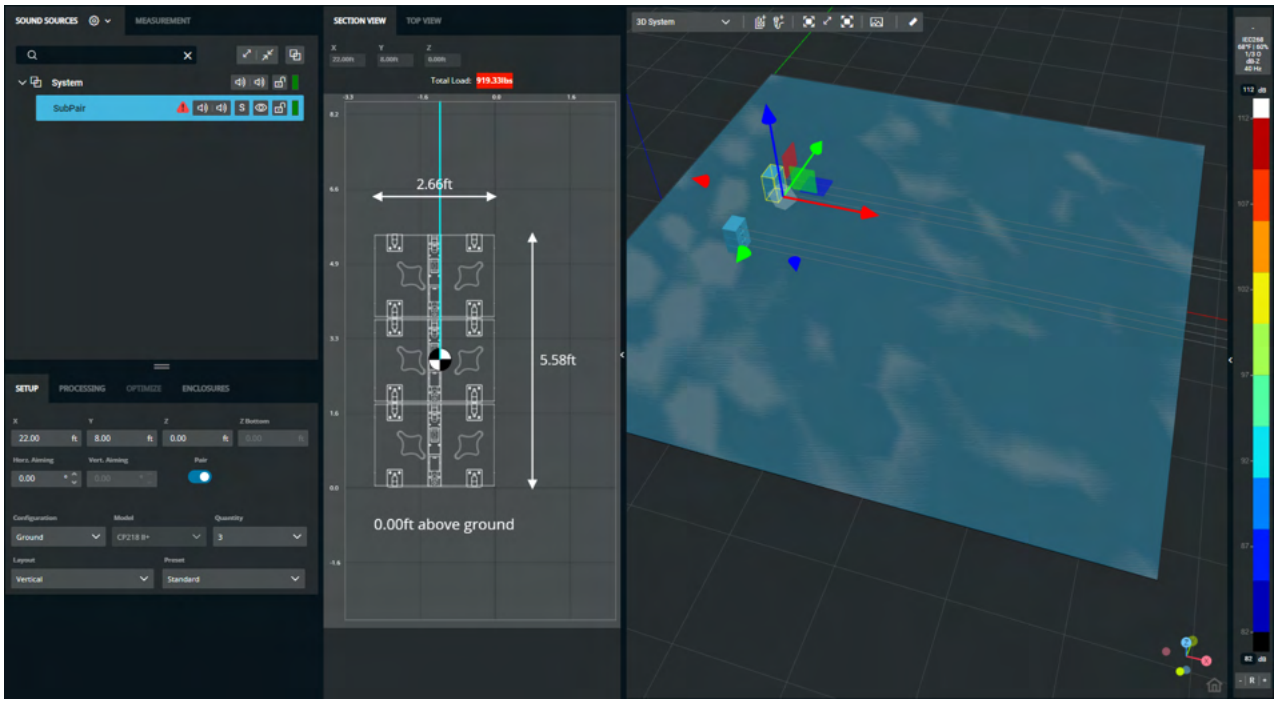
For parameter details, load display behavior, and error messages, see Source Mechanical View.

Subwoofer Mechanical View

In the subwoofer mechanical view, the displayed weight represents:

- **Ground configurations:** Displays total stack weight
- **Flown configurations:** Displays load per pick point

> **IMPORTANT**
>
> Total load values (displayed weight) **do not include additional items** such as cables or ancillary rigging hardware.



Using the Source Pattern Tool

The **Source Pattern Tool** creates multiple flown or ground-stacked subwoofer arrays quickly and symmetrically.

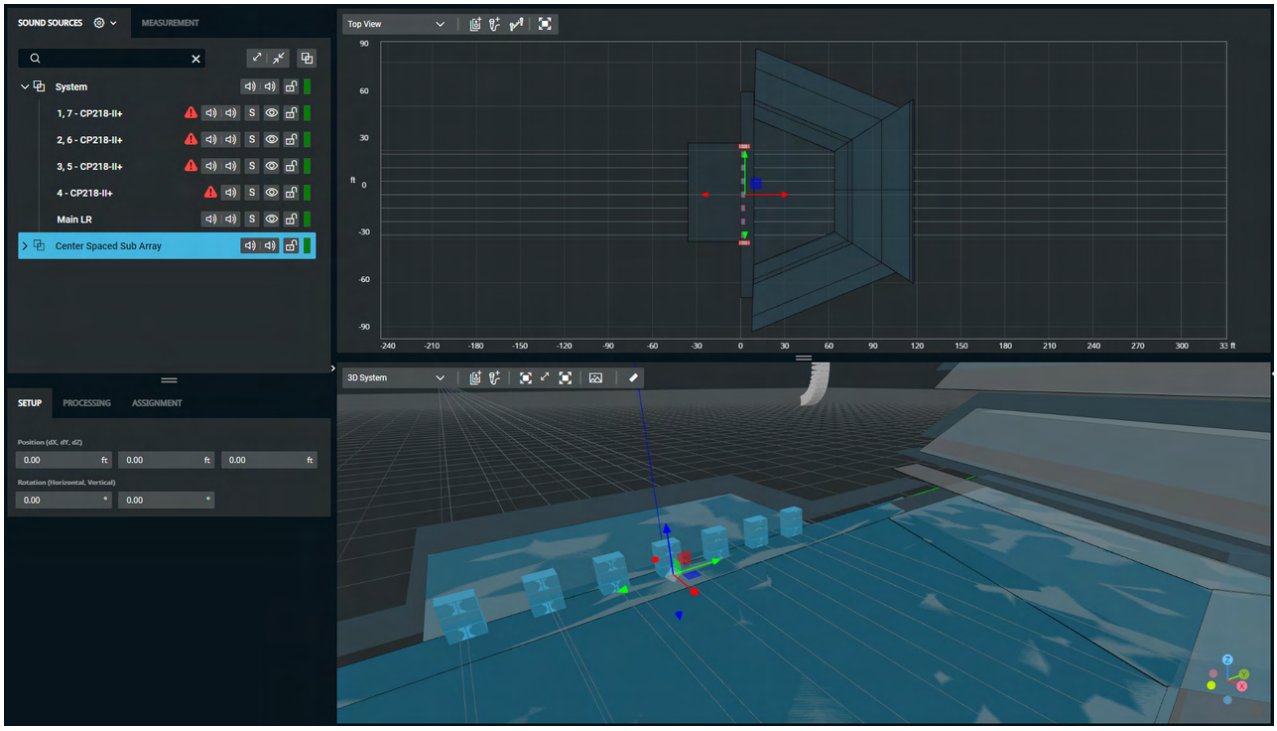
Subwoofer Example

In this example, you will create a set of spaced subwoofer stacks across the front of a 60 ft stage.

1. Select **Source Pattern Group** from the **Add Source** dropdown list.
2. Define the following parameters:

Parameter	Value
Array Type	Ground Sub
Arrangement	Linear
Assembly	Vertical
Preset	Cardioid
Array / Stacks	7
Enclosures	3
Length	48 ft
Create Pair	On

Result: Three symmetric L-R pairs and one centered stack added to your project.



Defining Delay Timings (for Spaced Subwoofer Arc Arrays)

Canvas does not automatically calculate the delay timing for a spaced subwoofer arc delay. These timings are calculated using the **[Clair-Internal] Linear Sub Array and Delay Steered Arc Excel spreadsheet**, which has been updated for use with Canvas.

The most recent version can be obtained by contacting Clair Engineering or Tour Support.

Using the spaced sub array created earlier, we will now apply the delay timings using the following steps:

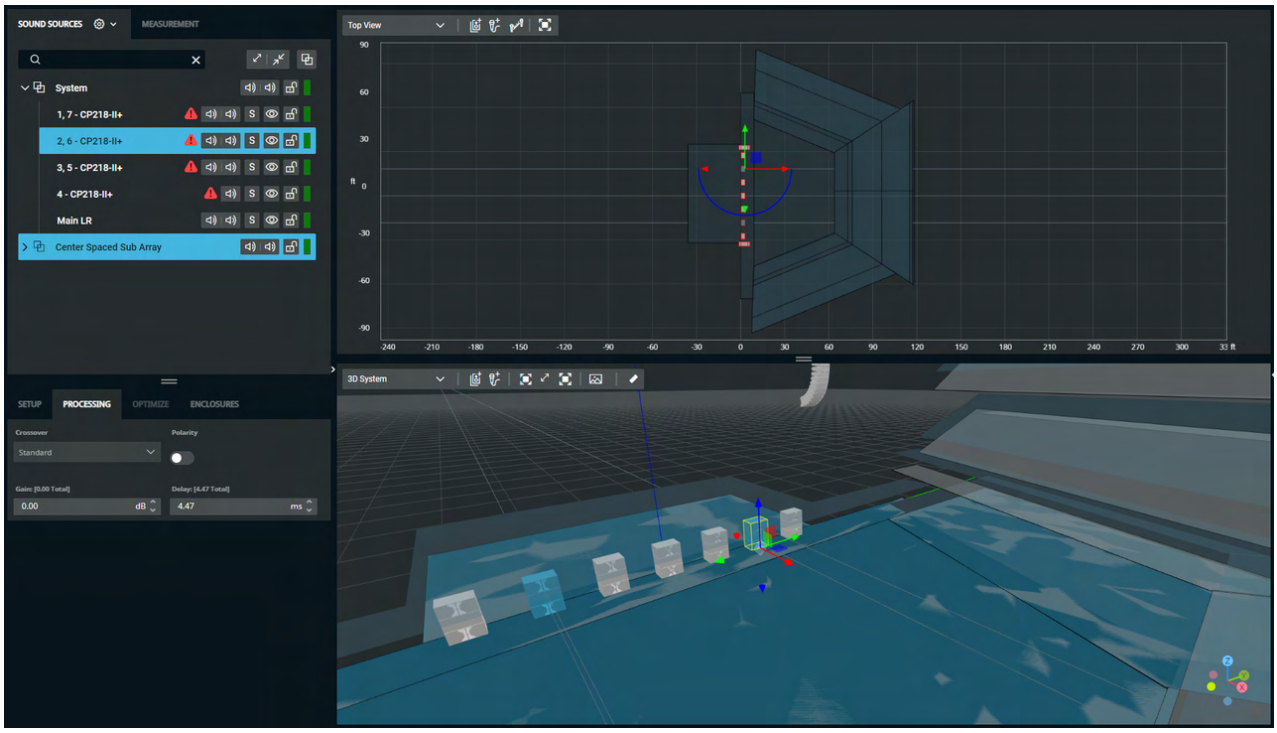
- Canvas does not yet calculate delay timings for spaced subwoofer arc arrays automatically.
- Use the **Linear Sub Array and Delay Steered Arc Excel tool** to determine delay values.
- **Spreadsheet Reference:** LinearSubArray_DelaySteeredArc_v1.6.xlsx *[Verify current version before use.]*

Procedure

1. Open the Linear Sub Array and Delay Steered Arc Excel spreadsheet.
2. In Cell N1, select **Canvas** as the simulation tool.
3. In Cell N2, select **Imperial** for units.
4. In the design parameters section, enter these values:

Sub cluster quantity	7
Distance between clusters	8 ft
Extra distance for stage thrust	0
Virtual arc angle	100°
Extra delay time for cardioid	0

5. Read delay times from the bottom section of the worksheet.
6. Apply these values in Canvas:
    a. Select the outermost pair of sub stacks.
    b. In the **Processing** tab, enter the corresponding delay (eg. 9.93 ms).
    c. Repeat this process for each remaining pair and the center stack.


SOUND SOURCES
MEASUREMENT
System
1, 7 - CP218-II+
2, 6 - CP218-II+
3, 5 - CP218-II+
4 - CP218-II+
Main LR
Center Spaced Sub Array
SETUP
PROCESSING
OPTIMIZE
ENCLOSURES
Crossover
Standard
Polarity
Gain: [0.00 Total]
0.00
dB
Delay: [4.47 Total]
4.47
ms
Top View
3D System

Mapping Subwoofer Coverage

The default mapping settings are optimized for line arrays and point sources.

When mapping subwoofer coverage, adjust the simulation parameters to view low-frequency coverage data.

Mapping Example

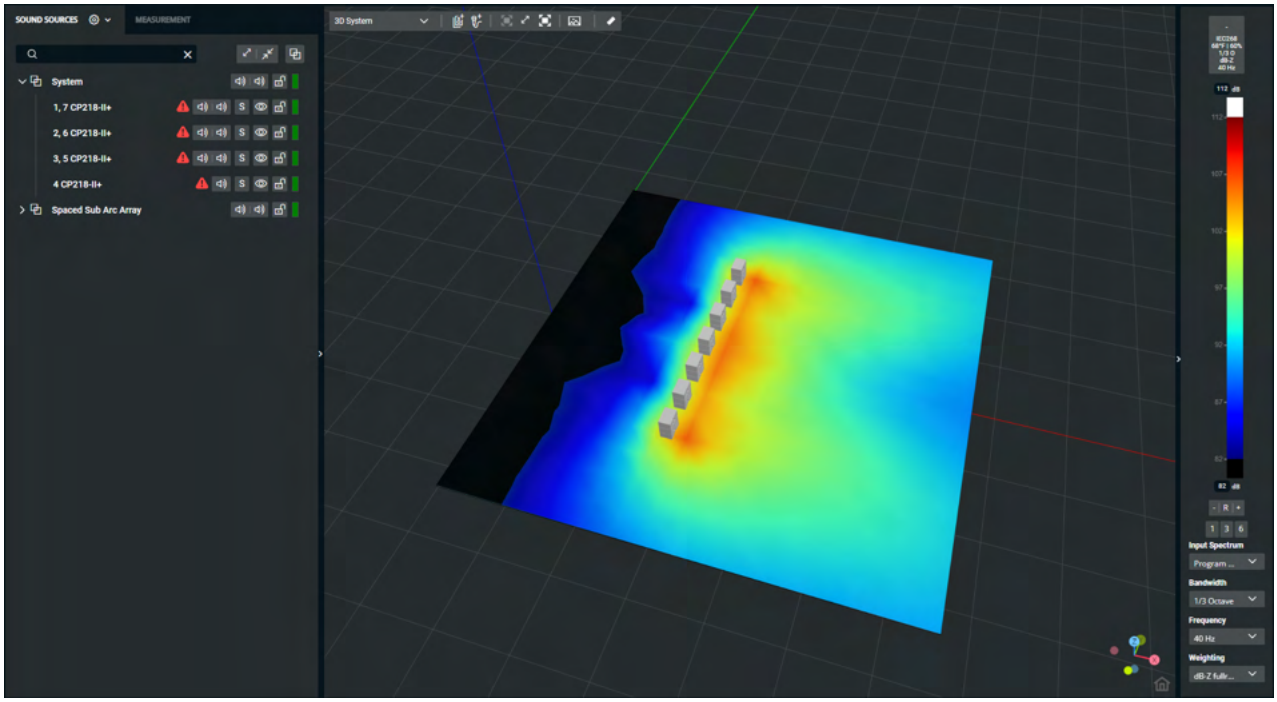
Set the simulation parameters as follows:

Setting	Value
Input Spectrum	Program (IEC 268)
Bandwidth	1/3 Octave
Frequency	40 Hz
Weighting	dB-Z (full range)

To access simulation settings:

- **Option 1:** Select the **(‹)** icon below the SPL scale to expand and edit key simulation settings.
- **Option 2:** Click the simulation summary above the SPL scale to open the **Simulation Settings** dialog.

The resulting coverage map should display the characteristic low-frequency pattern of the configured subwoofer system. It should resemble the image below:



Working with Point Sources

This section describes how to configure and position point source loudspeakers within the venue model.

Point sources can be added as left/right pairs or as custom groupings created with the **Source Pattern Tool**.

For general information about how sources are displayed and positioned within the venue model, see Sources in Canvas.

To learn how to add sources before configuration, see Adding Sources.

Point Source Workflow Summary

The table below summarizes the tools and views used to configure and evaluate point sources throughout the system design process.

Point Source Task	Tool /Tab
Add mirrored pairs	Add Source tool → Point Source
Place multiple spaced point sources	Source Pattern Tool
Adjust position and orientation	Setup tab
Edit gain and delay	Processing tab
Evaluate coverage	Mapping views

Adding Point Sources

Point sources are added to the venue model using the same methods as other loudspeaker types.

They can be placed individually, as mirrored pairs, or as groupings defined in the **Source Pattern Tool**.

To add a pair of point sources

1. Select workspace: **System Activity > Model View > Top View** or **3D System**.
2. Select the **Add Source** tool.
3. Choose **Point Source** from the source type list.
4. Select the desired model (e.g., CF10, CF14, CF12, CF24, or CP6+).
5. Click **Add**.

Result: A mirrored pair of point sources appears in the venue model.

- The right-side source is placed at **+Y**, the mirrored source at –**Y**.

  The mirrored instance name includes the suffix "**-M**."

NOTE
To unpair mirrored point sources, open the **Setup** tab in the MPP and toggle **Pair off**.

Using the Source Pattern Tool | Point Source Example

When adding multiple point sources at once, select **Point Source** as the **Array Type** within the **Source Pattern Tool**.

You can define Arrangement (Linear or Circular), spacing, and quantity to match your system layout.

Example of creating a distributed fill system

Parameter	Value
Array Type	Point Source
Arrangement	Linear
Array/Stacks	6
Spacing	12 ft
Create Pair	On

Result: Three mirrored L-R pairs are placed evenly across the specified width.

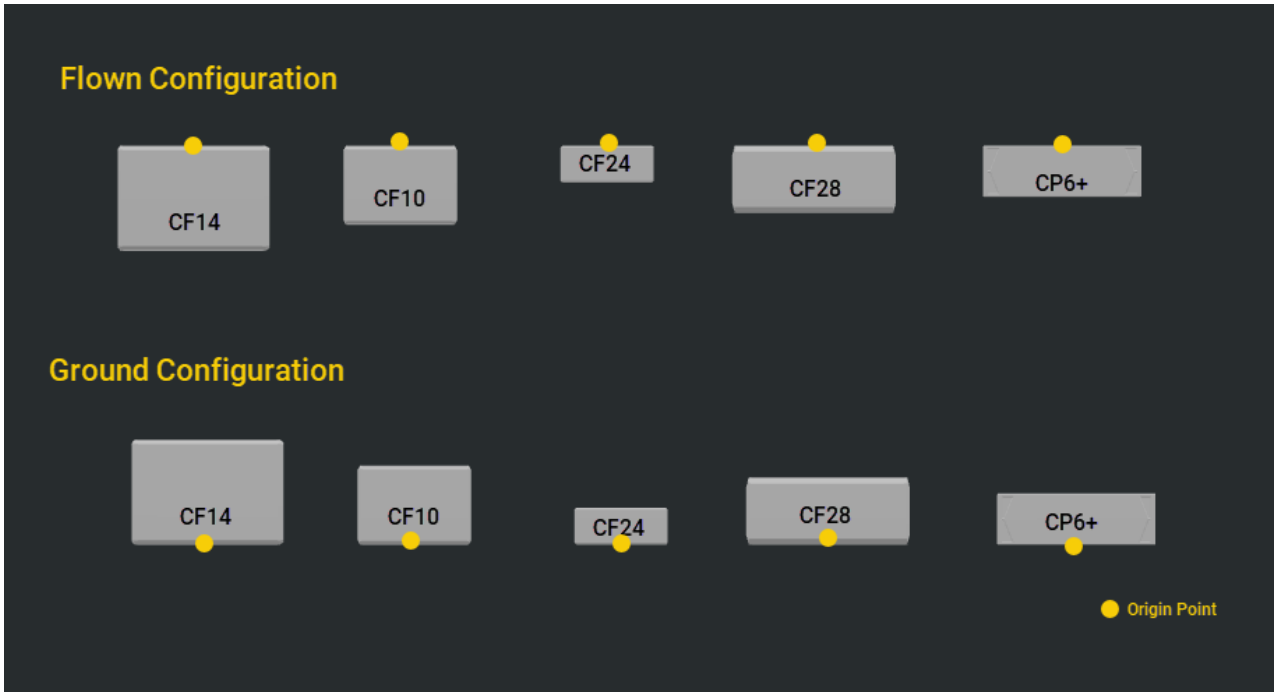
Loudspeaker Anchor Point | Point Sources

Point sources in Canvas do not include rigging hardware; however, their **Z-axis anchor point/origin** is correctly defined for both flown and ground configurations.

The point source anchor point always aligns with the **front edge** of the cabinet.

This ensures accurate acoustic positioning for both flown and ground-stacked setups.

Point Source Configuration	Anchor Point Position
Flown	Top-front of the loudspeaker
Ground	Bottom-front of the loudspeaker



Setup Tab Parameters | Point Sources

The **Setup** tab defines positioning, orientation, and cabinet configuration for the selected point source or mirrored pair.

Field	Description
X, Y, Z	Position of the source in the venue model
Cabinet Orientation	Horizontal or Vertical cabinet orientation
Horn Orientation	Standard or Rotated; determines the wide-angle coverage direction
Pair	Indicates whether the source is mirrored Deselect to unpair
Configuration	Ground or Flown
Horizontal Aiming	Horizontal aiming of the cabinet
Vertical Aiming	Vertical aiming of the cabinet

NOTE

- **Horizontal/Vertical** refers to the cabinet's orientation.
- **Standard/Rotated** refers to the horn insert orientation.
- Default configuration is **Horizontal (Landscape)** with standard horn coverage wide in the **horizontal plane**.

Enclosure and Horn Insert Rotation | Point Sources

Cohesion CF10, CF14, CF28, and CP6+ feature rotatable horn inserts, allowing the wide coverage angle to be oriented horizontally in either cabinet orientation.

To change point source horn orientation

1. Select the point source in the venue model.
2. Open the **Setup** tab.
3. Change **Horn Orientation → Standard** or **Rotated**.

This control updates the directional behavior of the horn while maintaining correct acoustic mapping.

Processing Tab Parameters

The **Processing** tab applies signal processing to the selected point source or mirrored pair.

Processing adjustments affect gain and delay.

Field	Description
Gain	Adjusts overall level for the source
Delay	Sets timing offset (ms) for time alignment with other sources
Total Gain / Total Delay	Displays combined effect of Group and System processing

Mapping Point Source Coverage

Use the **SPL Map View** to evaluate sound pressure level (SPL) coverage for point sources within the venue.

This view displays frequency-dependent SPL data across audience areas, allowing you to verify front-fill or distributed coverage performance.

Adjusting Simulation Settings

When evaluating point source coverage, adjust the **Simulation Settings** to focus on the frequency range of interest.

Setting	Recommended Value / Range
Input Spectrum	Program (IEC 268)
Bandwidth	1/3 Octave
Frequency	Select target range (e.g., 500 Hz – 4 kHz)
Weighting	dB-Z (full range)

To access and adjust simulation settings:

- Option 1: Click the **expand control (<)** below the SPL scale to expand **quick simulation settings**.
- Option 2: Click the **simulation summary area** above the SPL scale to open the **full Simulation Settings dialog**.

Once settings are confirmed, the **SPL Map View** updates automatically to display the simulated coverage for the active source or group of sources.

Viewing Results

The SPL map represents the predicted on-axis sound pressure level across all visible audience sections.

Use the color scale on the right edge of the view to interpret level distribution.

For comparative analysis:

- Solo a single point source or mirrored pair in the **Source List**.
- Re-run the simulation to isolate its coverage pattern.
- Adjust orientation or delay as needed in the **Setup** or **Processing** tabs.

TIP

For accurate visual analysis, ensure that:

- Audience areas are **visible and included in mapping** (eye and hex icons enabled).
- The frequency range corresponds to **the operating band of the selected point source model**.

Analyzing Point Source Coverage

For additional perspective, you can evaluate point source performance using the synchronized data views available in **System Activity**.

These views help you assess coverage, aiming, and interaction with audience areas.

View	Purpose
3D System View	Displays source location, aiming, and relative coverage in the full venue model.
Cross Section View	Shows the vertical aiming line and its intersection with audience sections.
SPL/Distance View	Plots on-axis SPL versus distance for the selected point source.

NOTE

When the **Cross Section View** is active, the **SPL/Distance View** shares a locked X-axis scale.

This linkage provides a clear relationship between aiming geometry and distance-based SPL performance.

TIP

To focus on a single point source, solo it in the **Source List** or **mute all other sources**.

The **SPL/Distance View** then reflects only that source's contribution to the simulation.

Printing Source Setup Data

You can generate a pinning sheet in PDF format for use during system setup or as a part of project documentation. Choose between exporting multiple clusters per page or a single cluster per page.

- **Multiple Clusters per Page** – Up to three clusters can be displayed on each page.
- **Single Cluster per Page** – Choose between two output formats: **Simple** and **Detail**.
  - The **Simple** format provides a compact table with key specifications, including Cabinet Number, Model, Splay, CKT (Circuit), NFC, Aim, Slider, Total Weight, and rigging values such as Trim and Angle (Top and Bottom) and Pick and Weight (Front and Rear).
  - The **Detail** format includes the same data table as the Simple version, with the addition of a diagram showing the source's mechanical section view.

IMPORTANT

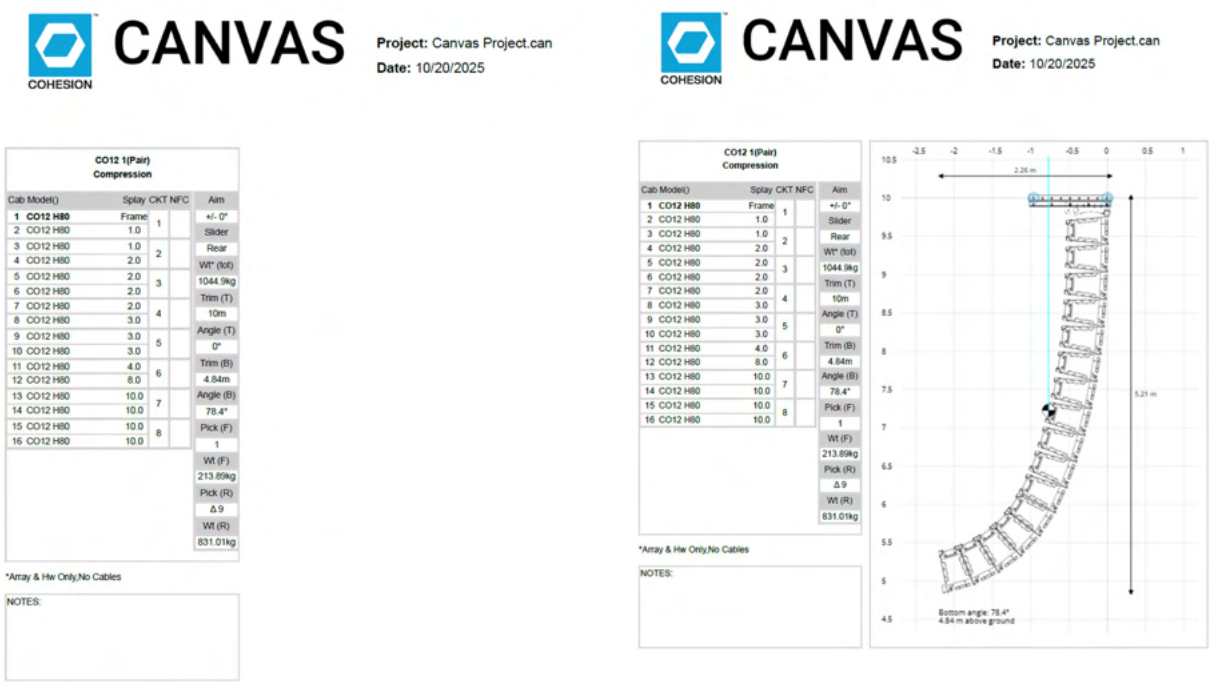
Total Weight reflects the array and rigging hardware only—it does not include cabling.

Exporting a Pinning Sheet (.pdf)

To export a pinning sheet:

1. Go to **Main Menu > Export > Pinning Sheet (.pdf)**

   The **Pinning Sheet Option** dialog opens.
2. Select clusters to include:
   - Use the **Cluster List** to select which sources to include
   - Check **All** to include all sources, or you can individually select specific sources.
3. Choose a page format:
   - **Multiple Clusters per page**
   - **Single Cluster per page** with one of the following layouts:
     - **Simple** – Table of key values only
     - **Detail** – Table plus an image of the source's mechanical side view
4. Export the file:
   - Click **Save** to open the Save As dialog and save the file.
   - Click **Save & Open** to save the file and immediately open it for viewing.



CANVAS
COHESION
Project: Canvas Project.can
Date: 10/20/2025

CO12 1(Pair)
Compression

Cab Model()	Splay	CKT	NFC	Aim
1 **CO12 H80**	Frame	1		+/- 0°
2 CO12 H80	1.0			Slider
3 CO12 H80	1.0	2		Rear
4 CO12 H80	2.0			Wt* (tot)
5 CO12 H80	2.0	3		1044.9kg
6 CO12 H80	2.0			Trim (T)
7 CO12 H80	2.0	4		10m
8 CO12 H80	3.0			Angle (T)
9 CO12 H80	3.0	5		0°
10 CO12 H80	3.0			Trim (B)
11 CO12 H80	4.0	6		4.84m
12 CO12 H80	8.0			Angle (B)
13 CO12 H80	10.0	7		78.4°
14 CO12 H80	10.0			Pick (F)
15 CO12 H80	10.0	8		1
16 CO12 H80	10.0			Wt (F)
				213.89kg
				Pick (R)
				Δ 9
				Wt (R)
				831.01kg

*Array & Hw Only,No Cables

NOTES:

CANVAS
COHESION
Project: Canvas Project.can
Date: 10/20/2025

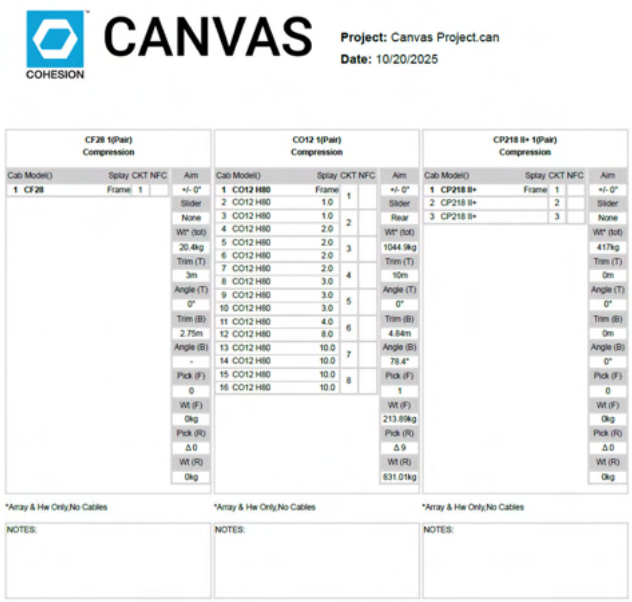
CO12 1(Pair)
Compression

Cab Model()	Splay	CKT	NFC	Aim
1 **CO12 H80**	Frame	1		+/- 0°
2 CO12 H80	1.0			Slider
3 CO12 H80	1.0	2		Rear
4 CO12 H80	2.0			Wt* (tot)
5 CO12 H80	2.0	3		1044.9kg
6 CO12 H80	2.0			Trim (T)
7 CO12 H80	2.0	4		10m
8 CO12 H80	3.0			Angle (T)
9 CO12 H80	3.0	5		0°
10 CO12 H80	3.0			Trim (B)
11 CO12 H80	4.0	6		4.84m
12 CO12 H80	8.0			Angle (B)
13 CO12 H80	10.0	7		78.4°
14 CO12 H80	10.0			Pick (F)
15 CO12 H80	10.0	8		1
16 CO12 H80	10.0			Wt (F)
				213.89kg
				Pick (R)
				Δ 9
				Wt (R)
				831.01kg

*Array & Hw Only,No Cables

NOTES:

*Exported pinning sheet: Left - **Single Cluster per page-Simple**. Right - **Single Cluster per page-Detail** (includes Source mechanical-section view).*



CANVAS
COHESION
Project: Canvas Project.can
Date: 10/20/2025

CF28 1(Pair)
Compression

Cab Model()	Splay	CKT	NFC	Aim
1 **CF28**	Frame	1		+/- 0°
				Slider
				None
				Wt* (tot)
				20.4kg
				Trim (T)
				3m
				Angle (T)
				0°
				Trim (B)
				2.75m
				Angle (B)
				-
				Pick (F)
				0
				Wt (F)
				0kg
				Pick (R)
				Δ 0
				Wt (R)
				0kg

*Array & Hw Only,No Cables

NOTES:

CO12 1(Pair)
Compression

Cab Model()	Splay	CKT	NFC	Aim
1 **CO12 H80**	Frame	1		+/- 0°
2 CO12 H80	1.0			Slider
3 CO12 H80	1.0	2		Rear
4 CO12 H80	2.0			Wt* (tot)
5 CO12 H80	2.0	3		1044.9kg
6 CO12 H80	2.0			Trim (T)
7 CO12 H80	2.0	4		10m
8 CO12 H80	3.0			Angle (T)
9 CO12 H80	3.0	5		0°
10 CO12 H80	3.0			Trim (B)
11 CO12 H80	4.0	6		4.84m
12 CO12 H80	8.0			Angle (B)
13 CO12 H80	10.0	7		78.4°
14 CO12 H80	10.0			Pick (F)
15 CO12 H80	10.0	8		1
16 CO12 H80	10.0			Wt (F)
				213.89kg
				Pick (R)
				Δ 9
				Wt (R)
				831.01kg

*Array & Hw Only,No Cables

NOTES:

CP218 II+ 1(Pair)
Compression

Cab Model()	Splay	CKT	NFC	Aim
1 **CP218 II+**	Frame	1		+/- 0°
2 CP218 II+		2		Slider
3 CP218 II+		3		None
				Wt* (tot)
				417kg
				Trim (T)
				0m
				Angle (T)
				0°
				Trim (B)
				0m
				Angle (B)
				0°
				Pick (F)
				0
				Wt (F)
				0kg
				Pick (R)
				Δ 0
				Wt (R)
				0kg

*Array & Hw Only,No Cables

NOTES:

*Exported pinning sheet: **Multiple Clusters per page** (3 clusters per page shown)*

References

This section gathers supporting resources for use with Canvas.

- Key Commands
- Reference List: Multipurpose Panel | Venue Data Fields
- Reference List: Multipurpose Panel | System Data Fields
- Appendix: Known Issues and Gotchas
- [*Coming soon: TECHNICAL REFERENCE | Importing 3D Models (Procedure for Sketchup to Collada DAE)*]

Key Commands

Keyboard shortcuts provide quick access to commonly used tools and functions throughout the application. The following sections list shortcuts by functional area.

Application

Action	Windows	Mac
New Project / Go to Project Home	CTRL + N	CMD + N
Save	CTRL + S	CMD + S
Save As	Shift + CTRL + S	Shift + CMD + S
Select All	CTRL + A	CMD + A
Exit	ALT + F4	CMD + Q
Delete	Delete	Delete
Undo	CTRL + Z	CMD + Z
Redo	CTRL + Y	Shift + CMD + Z
Info	F1	F1
Help	F2	F2
Application Settings	F4	F4
Minimize Application	WIN + Down Arrow	n/a
Maximize Application	WIN + Up Arrow	n/a

Activity

Action	Windows	Mac
Venue	1	1
Simulate	2	2
Configure	3	3
Deploy	4	4
Calibrate	5	5
Operate	6	6

Studio Configuration

Action	Windows	Mac
Single Studio Pane	CTRL + 1	CMD + 1
Double Studio Pane	CTRL + 2	CMD + 2
Triple Studio Pane	CTRL + 3	CMD + 3
Studio View 1	F5	F5
Studio View 2	F6	F6
Studio View 3	F7	F7
Studio View 4	F8	F8
Studio View 5	F9	F9
Open/Close Mechanical View	Shift + M	CMD + M
Show/Hide SPL Scale Controls	CTRL + L	CMD + L

View

Action	Windows	Mac
Camera Top	CTRL + F	CMD + F
Camera Front	CTRL + G	CMD + G
Camera Side	CTRL + H	CMD + H
Rotate 3D / Pan 2D	Click and Drag	Click and Drag
Pan 3D	Shift + Click and Drag CTRL + Click and Drag	Shift + Click and Drag
Zoom In	CTRL + Up Arrow	CMD + Up Arrow
Zoom Out	CTRL + Down Arrow	CMD + Down Arrow
Zoom to Fit	Home	FN + Left Arrow
Show/Hide Speaker Rays	ALT + A	OPTION + A

Simulation

Action	Windows	Mac
Dot Mapping	D	D
Full Mapping	F	F
Enable/Disable IsoContour	I	I
Show/Hide Map	M	M
Enable/Disable Auto Recalculate	A	A
Recalculate Map	V	V
Reset SPL Scale	R	R
Shift SPL Scale Up 1dB	+ (numeric keypad only)	n/a
Shift SPL Scale Down 1dB	– (numeric keypad only)	n/a
Simulation Settings	G	G

MPP Navigation

Action	Windows	Mac
Next Field	Tab	Tab
Previous Field	Shift + Tab	n/a
Next Tab	CTRL + Tab	Shift + Tab
Previous Tab	Shift + CTRL + Tab	n/a

Reference List: Multipurpose Panel | Venue Data Fields

A complete reference for the Venue Activity data fields that apply to venue components: **Surfaces**, **Audience Areas**, **Production Elements**, **Guide Layers**, and **Grouped venue components**.

Surface Data Fields

The lower MPP contains the following data fields that apply to Surfaces (imported from CAD:

> **NOTE**
> The data fields for Surfaces must be changed one at a time. There is no multi-selection or grouping.

FLOOR

- Surface Name text box
- Position (X, Y, Z)
- Rotation (Z°)

AUDIENCE

- Audience Height – Seated, Standing, Floor, Custom (user-defined)

Audience Area Data Fields

The lower MPP contains the following data fields that apply to **Audience Areas** (drawn in Canvas):

> **NOTE**
> The data fields for Audience Areas must be changed one at a time. There is no multi-selection or grouping.

AREA

- Area Name text box
- Geometry – Asymmetric, Symmetric, Circular
- The following fields apply to all area geometries:
  - Position (X, Y) [Z not available]
  - Rotation ° (Z only) [X and Y not available]
  - Depth
- Apply only with Asymmetric geometry:
  - Front Width – Right and Left
  - Rear Width – Right and Left
- Apply only with Symmetric geometry:
  - Front Width
  - Rear Width
- Apply only with Circular geometry:
  - Angle
  - Front Radius
  - Rear Radius

SECTIONS

- Section Name text box
- Audience Height – Seated, Standing, Floor, Custom (user-defined)
- Point Sections – 2 (or more) required per Section
  - X, Z – Define point coordinates for the Start/Front of a Section
  - X, Z – Define point coordinates for the End/Back of a Section

Production Element Data Fields

The lower MPP contains the following data fields that apply to Production Elements:

SETUP

- Production Element Name text box
- Color Swatch – Click box to use Color Picker tool.
  - Color may be specified in RGB, HSL, or Hex code
- Position (X, Y, Z)
- Rotation ° (X, Y, Z)
- Lock aspect ratio (Toggle on/off)
- Width
- Depth
- Height

Guide Layer Data Fields

The lower MPP contains the following data fields that apply to Guide Layers:

SETUP

- Guide Layer Name text box
- Position (X, Y, Z) – Available options depend on selected view.
- Rotation ° (X, Y, Z) – Available options depend on selected view.
- Lock aspect ratio (Toggle on/off)
- Width
- Depth
- Opacity (0.0-1.0)

Grouped Components Data Fields

Grouped Audience Areas and Production Elements

The lower MPP contains the following data fields that apply to grouped components (which may be audience areas or production elements):

SETUP | Group

- Name – Group name text
- Position – dX, dY, dZ
  - Enter value to apply an immediate offset change in X, Y, or Z to all group members.
  - The Position field immediately resets to "0" and the value that was entered is no longer visible.
  - The new position is shown in the 'absolute' data fields for the individual group members.
- Rotation – dX, dY, dZ (°)
  - Enter value to apply an immediate change in rotation for all group members.
  - The Rotation field resets to "0" and the value that was entered is no longer visible.
  - All options available for Production Elements; only Rotation Z is available for Audience Areas.

NOTE

Group behavior – For grouped components, all data field values sum:

Individual Component Setup value + Group Setup value = Final position (or rotation) value

ASSIGNMENT | Group

Use the **Assignment** tab to manage group membership.

- Select the check box next to each source you want to add to the group.
- Clear the check box to remove a source from the group.
- Click **Apply** to confirm your changes.

Reference List: Multipurpose Panel | System Data Fields

A complete reference for the System Activity data fields that apply to system components: **Sources**, **Source Groups**, **Measurement Points**, and **Measurement Lines**.

Source Data Fields

NOTE

The data fields for Sources must be changed one at a time. There is no multi-selection.

To edit multiple sources, first create meaningful groups of sources and then work with the groups. See Grouping Sources.

Data fields vary by source type and allow you to change the configuration and setup of **Sources**. The lower MPP contains the following data fields that apply to Sources:

SETUP | Line Array: CO8, CO10, CO12

- Name – Line Array name text
- Physical controls:
  - Position – X, Y, Z, Z Bottom
  - Horizontal Aiming – −180.00° to +180.00°
  - Vertical Aiming – −90.00° to +90.00°
- Pair – Mirror Pair (Toggle on/off)
  - Turn this function off to separate a paired array into 2 individual array instances. The 2 arrays become unpaired.
- Enclosure Qty – Quantity of line array enclosures
- Slider position:
  - For CO10 and CO12 = Front, Center, Rear
  - For CO8 = J10-J3, A1-A9
- Slider – (Toggle on/off) Slider in use or not
- Hard Pin – (Toggle on/off) Hard pin rigging mode deployed or not
- Pick Point Qty – Quantity of pick points
  - Pick point details:
    - # (Pick Point number ID) = 1, 2
    - Position = Front, Rear
    - Rail = Center, Pullback
    - Pick Point = Hole number ID on rigging top grid (where 1 = Front)

PROCESSING | Line Array: CO8, CO10, CO12

- LF Mode – Fullrange, LF60 [Available for CO10, CO12 only]
- Array Size – XS, S, M, L, XL, XXL

  Gain | Processing data entry field – −60.00 dB to +12.00 dB
  - Processing Gain [#.## Total] | [Header display] – −60.00 dB to +24.00 dB.
    - This bracketed display value is an auto-calculated total:
      - Total Processing Gain (dB) = Sum of source/cluster processing gain + all group processing gain

  Delay | Processing data entry field – 0.00 ms to 10,000.00 ms
  - Processing Delay [#.## Total] | [Header display] – 0.00 ms to 10,000.00 ms
    - This bracketed display value is an auto-calculated total:
      - Total Processing Delay (ms) = Sum of source/cluster processing delay + all group processing delay

ENCLOSURES | Line Array: CO8, CO10, CO12



- # – Enclosure number
  - 1 = Topmost enclosure
  - Number increases (+1) as you move down the array.

- Link icon – Toggle link color to split or join an enclosure group containing 2 adjacent enclosures.
  - Toggle blue link (solid) to white link (with slash):
    - Blue link indicates an active, joined enclosure group.
    - White link with slash indicates a split group. Each enclosure item is independent.
    - [Grayed out link indicates spliting/joining is not available. Enclosure is already in a group.]
- HR – Headroom indicator. Hover to display value.
  - Headroom value (dB) = Available RMS headroom for each enclosure
- Model and Horn Dispersion
  - Model may not be changed.
  - Horn dispersion may be selected from any available options for that model.

NOTE
Changing a single enclosure's horn dispersion **applies that change to all enclosures below it**.
Always **work from top to bottom** to avoid rework!

- NFC – Near field correction:
  - Single dash (-) = None
  - Or choice of: (−1) to (−10)
- Splay – Angle ° between adjacent line array enclosures.

Subwoofer Data Fields

The lower MPP contains the following data fields that apply to Subwoofers:

SETUP | Subwoofer: CP218 II+, CSB218i

- Name – Subwoofer name text
- Physical controls:
  - Position – X, Y, Z
  - Horizontal Aiming – −180.00° to +180.00°
  - Vertical Aiming – [Displays value for flown subs only]
- Pair – Mirror Pair (Toggle on/off)
  - Turn this function off to separate a subwoofer pair into individual subwoofer instances or unpaired subwoofer arrays.
- Configuration:
  - Ground
  - Flown
  - **NOTE**
    When Flown is selected, the appropriate Top Grid is automatically added to the subwoofer array.
- Model – CP218 II+ [Additional models will be available in future release.]
- Quantity – Quantity of enclosures

  Available options vary based on configuration and include:
  - Quantities for Ground Configurations:
    - Vertical (stacked) Orientation – Max Quantity = 3
    - Horizontal (on end) Orientation – Max Quantity = 36
  - Quantities for Flown Configurations:
    - Rail:
      - Up/Down Stage Rail (default) – Maximum Quantity = 3
      - On/Off Stage Rail
        - Position = Inner – Maximum Quantity = 10
        - Position = Outer – Maximum Quantity = 12
    - Pick – Standard, Cardioid
- Layout (For ground subs only) – Vertical, Horizontal
  - Layout Vertical or Horizontal is the direction the array will extend from its origin point when more enclosures are added to it.
    - When vertical is selected, enclosures are added in a +Z direction.
    - When horizontal is selected, enclosures are added symmetrically in the X axis.
- Preset – Standard, Cardioid

- **NOTE**
  When Cardioid is selected, the center subwoofer is rotated 180° and receives 4.0ms of delay and the polarity is inverted.
- See also Enclosures > Orientation – Forward, Backward

PROCESSING | Subwoofer: CP218 II+, CSB218i

The Processing tab includes signal processing, EQ, gain, and delay information that is applied to all subwoofers within the array.

- LF Mode – Standard, ULF
- Polarity – (Toggle on/off) Where On, flips the phase by 180°.
  - See also Enclosures > Polarity
- Gain | Processing data entry field – −60.00 dB to +12.00 dB
  - Processing Gain [#.## Total] | [Header display] – −60.00 dB to +24.00 dB.
    - This bracketed display value is an auto-calculated total:
      - Total Processing Gain (dB) = Sum of source/cluster processing gain + all group processing gain

NOTE
Total Processing Gain does not include the individual Enclosure Gain values found at Enclosures > Gain.

- Delay | Processing data entry field – 0.00 ms to 10,000.00 ms
  - Processing Delay [#.## Total] | [Header display] – 0.00 ms to 10,000.00 ms
    - This bracketed display value is an auto-calculated total:
      - Total Processing Delay (ms) = Sum of source/cluster processing delay + all group processing delay

NOTE
Total Processing Delay does not include the individual Enclosure Delay values found at Enclosures > Delay.

ENCLOSURES | Subwoofer: CP218 II+, CSB218i

The Enclosures tab can be used to create custom subwoofer configurations when the defined Setup > Preset is set to Standard.

NOTE

When the Setup > Preset is set to Cardioid, the Enclosures options are limited to Delay only (no editing of Orientation, Gain, or Enclosures>Polarity in the Cardioid Preset).

The manufacturer preset settings of polarity and delay settings, while not expressly shown, have been applied to the sources to achieve the desired cardioid pattern.

- # – Enclosure number
  - Flown sub configuration:
    - #1 = Topmost enclosure in a flown subwoofer array.
    - The number increases (+1) as you move down the sub array.
  - Ground stack sub configuration:
    - #1 = Bottom enclosure in subwoofer stack
    - The number increases (+1) as you move up the sub stack.
- Orientation – Forward, Backward
  - Applies to Setup > Preset > Standard only.

    NOTE

    When a Cardiod preset is applied, Enclosures > Orientation cannot be changed.
- Gain | Enclosures – Applies gain to an individual enclosure, −60.00 dB to +60.00 dB
  - **NOTE**

    When a Cardioid preset is applied, Enclosures > Gain cannot be changed.
- Delay | Enclosures – Applies fractional millisecond delay to an individual enclosure, – 0.00 ms to 10,000.00 ms
- Polarity – Toggle on/off
  - Inverts the signal polarity for the selected enclosure.

    NOTE

    When a Cardioid preset is applied, Enclosures > Polarity cannot be changed.

Point Source Data Fields

The lower MPP contains the following data fields that apply to Point Source Models (CF10, CF14, CF24, CF28, CP6+). Point sources do not have an Enclosures tab.

SETUP | Point Sources

- Name – Point Source name text
- Physical controls:
  - Position – X, Y, Z
  - Horizontal Aiming – −180.00° to +180.00°
  - Vertical Aiming – −90.00° to +90.00°
- Pair – Mirror Pair (Toggle on/off)
  - Turn this function off to separate a pair into individual point source instances.
- Model – Selected model (Not editable)
- Configuration:
  - Flown (default)
    - Position (X, Y, Z) reference point is top-front-center of enclosure.
    -
  - Ground
    - Position (X, Y, Z) reference point is bottom-front-center of enclosure.
  - **NOTE**
    When changing configuration from Flown to Ground, the position (X, Y, Z) reference point automatically updates from the top-front of the enclosure to the bottom-front.
- HF Dispersion – Auto-populated dispersion: horizontal (°H) x vertical (°V) [Not editable]
  - Dispersion updates according to the Cabinet Orientation and Horn Orientation selections.
- Cabinet Orientation – Horizontal, Vertical
- Horn Orientation – Standard, Rotated

PROCESSING | Point Sources

The Processing tab includes gain and delay that is applied to the selected point source.

- Preset – Fullrange (Not editable)
- Gain | Processing data entry field – −60.00 dB to +12.00 dB
  - Processing Gain [#.## Total] | [Header display] – −60.00 dB to +24.00 dB.
    - This bracketed display value is an auto-calculated total:
      - Total Processing Gain (dB) = Sum of source/cluster processing gain + all group processing gain
- Delay | Processing data entry field – 0.00 ms to 10,000.00 ms
  - Processing Delay [#.## Total] | [Header display] – 0.00 ms to 10,000.00 ms
    - This bracketed display value is an auto-calculated total:
      - Total Processing Delay (ms) = Sum of source/cluster processing delay + all group processing delay

Source Groups Data Fields

The lower MPP contains the following data fields that apply to manually Grouped Sources:

SETUP | Source Group

For grouped sources, all data field values sum:

Individual source Setup value + Group Setup value = Final position / rotation value

- Name – Source Group name text
- Position – dX, dY, dZ
  - Enter value to apply immediate change in X, Y, Z for all group members.
- Rotation – Horizontal (°)
  - Enter value to apply immediate change in horizontal angle for all group members.
- Rotation Y – Vertical (°)
  - Enter value to apply immediate change in vertical angle for all group members.
  - **NOTE**
    Groups containing subwoofers cannot be rotated vertically. (Rotation Y is unavailable.)

PROCESSING | Source Group

- Gain | Processing data entry field for Source Group – −60.00 dB to +12.00 dB
  - This is the amount of processing gain (dB) that is added to all group members.
    - The Source Group Gain Processing value is automatically added to individual source/cluster processing gain value. This yields Total Processing Gain (dB).
    - Total Processing Gain (dB) is displayed as Gain: [#.## Total] on the selected individual source Processing tab.
- Delay | Processing data entry field for Source Group – 0.00 ms to 10,000.00 ms
  - This is the amount of processing delay (ms) that is added to all group members.
    - The Source Group Delay Processing value is automatically added to individual source/cluster processing delay value. This yields Total Processing Delay (ms).
    - Total Processing Delay (ms) is displayed as Delay: [#.## Total] on the selected individual source Processing tab.

ASSIGNMENT | Source Group

Use the **Assignment** tab to manage group membership.

- Select the check box next to each source you want to add to the group.
- Clear the check box to remove a source from the group.
- Click **Apply** to confirm your changes.

Measurement Point Data Fields

The lower MPP contains the following data fields that apply to Measurement Points:

SETUP | Measurement Point

- Name – Measurement Point name text
- Color Picker – Specify exact color in RGB, HSL, or HEX code. Or use eyedropper/mouse to select a color by hover over > click selection.
- Position – X, Y, Z

NOTE

Group behavior: Measurement points are automatically grouped under a parent Measurement Points group. There is no manual grouping.

Measurement Line Data Fields

The lower MPP contains the following data fields that apply to Measurement Lines:

SETUP | Measurement Line

- Name – Measurement Line name text
- Color Picker – Specify exact color in RGB, HSL, or HEX code. Or use eyedropper/mouse to select a color by hover over > click selection.
- Position:
  - Start – Position X, Position Y
  - End – Position X, Position Y
- Length
- Angle (°)

NOTE

Group behavior: Measurement lines are automatically grouped under a parent Measurement Lines group. There is no manual grouping.

Appendix: Known Issues and Gotchas

This is a summary of known issues and gotchas; there may be more out there. If you find some, please let us know.

General / Application

1. Canvas should not be installed on a Windows PC that has a NVIDIA RTX Pro 500 Blackwell Generation GPU. There is a known issue with this particular GPU that will cause the workspace panes to display white and not be readable in either dark or light mode.
2. If your monitors are configured such that the “Ease cursor movement between displays” setting is enabled, when rotating the venue in System > Pane 1 > 3D Venue and the mouse leaves the active display with Canvas it causes unexpected rotation of the venue model.
3. Clicking a second mouse button, while a first is active will not end the operation that the first mouse button was performing.
4. User defined mouse actions that invoke web browser actions may yield unexpected results when used within the Canvas application.

Venue Import

1. Canvas does not support the import of 3D solids. Remove any 3D solids or convert them to a compatible format such as 3D faces or Poly-Face Meshes.
2. Use the following best practice when working with highly detailed imported geometries:
    a. During the import process split the geometry into Audience Areas and Production Elements as needed.
    b. Once the venue is imported Export each production element as a Canvas Production Element File (.cprd).
    c. Remove/Delete the Production Elements from the Canvas project file during system design and simulation.
    d. Disable auto save when working with complex geometries that take considerable time to save.
    e. Add the Production Elements back to the Canvas project file once the design is complete for presentation and documentation.
3. Selecting File > Import > Collada[...] does not confirm this action is desired if a venue already exists within the model. The result is that it is possible to import a second venue into the current project.
4. During Venue import, rotation of venue surfaces within Canvas may be required. Canvas assumes that venue is drawn in a +X, +Y orientation.
5. Venue models imported from .dae, .dxf and .glb are not editable within Canvas. If the venue model requires adjustment, it must be modified in another application (e.g. SketchUp) and reimported into Canvas.
6. Imported geometries are only visible in 3D Venue view within the Venue Activity.
7. When working with an imported venue geometry with an extremely high polygon count, disable auto calculation to improve application performance.

System Design

1. Possible to have paired arrays at different locations in the venue model if going through a sequence of steps where unpair, delete, repair, move, undo and redo.
2. Creating a pair from a single cluster that is currently within a Group that is partially muted results in an incorrect mute state for the new cluster pair. Muting and unmuting clears the error.
3. CSB218i offers an invalid rigging pick point option of Front/Back.
4. Vertical angle is not properly updated when the Model is changed for a line array enclosure that is suspended with a single pick point.
5. We have seen some cases of Pinning Sheet exports having gibberish characters on MAC.

Simulation and Analysis

1. If the mapping resolution is changed while a coverage map is being calculated it can trigger a broad error state requiring the application to be restarted. This only occurs when using the 'Apply' button within the Simulation Settings.
2. Rapidly soloing sources while Cross Section is active can cause the Cross Section map to be improperly displayed.
3. At certain camera angles in the 3D view, the surface transparency is not properly rendered. If a brightly colored guide layer is used this can impact the color rending for coverage maps - essentially blending the color of the map with the guide layer color.
4. It is possible to create a crash state when mapping coverage on the seating section of a circular audience area where the radius is set to zero, and the seating sections begin and end at zero, but are configured as a vertical plane.



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