STAGETOOLS

User Manual

A practical field reference for the lighting toolkit that fits in your pocket.

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iPhone and iPad

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StageTools is a lighting toolkit for iPhone and iPad. It keeps the tools a working lighting tech reaches for during prep, scouting, troubleshooting, and quick documentation in one place: Quick Plots, Scout Notes, Files, Fixture Library, Network Devices, DMX Viewer, Micro Console, Protocol Detector, LTC Timecode, Curve Builder, Color Science Calculator, DIP Switch Calculator, and NDI Monitor.

This manual is written for working lighting professionals. It assumes you already know the job. It focuses on where things are in StageTools, what each tool does, and the shortest reliable path through common workflows.

RDM is not covered in this v1.0 manual because it is not currently shown in the launch app.

CHAPTER 1

How to Use This Manual

Use this manual when you need a complete reference. Use the in-app Help screen when you need a quick answer while you are already working.

Each feature chapter follows the same structure:

1. What the tool is for.
2. Where to open it.
3. The main workflow.
4. Important controls.
5. Export, sharing, or sync behavior.
6. Common issues to check before blaming the app.

Screenshots are tracked separately in `Screenshot_Shot_List.md`.

CHAPTER 2

Quick Start

2.1 The Main Areas

StageTools has five main areas:

1. **ToolBox** ( ) — network, DMX, timecode, calibration, and utility tools.
2. **Quick Plots** ( ) — lighting plots and network/power topology layouts.
3. **Fixtures** ( ) — GDTF Share Library search, downloads, favorites, and offline fixture reference.
4. **Files** ( ) — saved links, PDFs, manuals, plots, documents, folders, QR/NFC sharing, and file previews.
5. **Scout Notes** ( ) — location scouts with photos, notes, voice memos, files, map snapshots, and PDF export.

On iPhone, these live in the bottom tab bar. On iPad, the same areas live in the sidebar when there is enough room.

2.2 Home

Home is the front door. It shows:

1. Shortcuts for common actions.
2. Recent plots, files, scouts, and showfiles.
3. Website and Instagram links.
4. Help and Settings. ( )
5. iCloud Sync status. ( )

Tap the StageTools logo from a root tab to return Home.

2.3 Settings

Open Settings from the gear on Home.

Settings includes:

1. Subscription and trial status.

2. GDTF Share sign-in.
3. iCloud Sync.
4. Haptics and appearance.
5. Plot defaults.
6. Ping monitor defaults.
7. PDF branding.
8. Diagnostics and support.

If something is not syncing, downloading, scanning, or exporting the way you expect, Settings is usually the first place to check.

2.4 iCloud Sync

iCloud Sync keeps supported StageTools data available across devices signed into the same iCloud account.

StageTools can sync Quick Plots, saved scans, Scout folders and metadata, Scout media references, Curve Builder profiles, ToolBox layout, Home shortcuts, and many preferences.

Large Scout media may appear on a second device as a cloud-backed item before the full file downloads. Open the Scout and pull the media down when you need it locally.

2.5 Offline Use

Many StageTools workflows work offline:

1. Quick Plots.
2. Files already saved on the device.
3. Scout Notes.
4. DIP Switch Calculator.
5. Color Science Calculator.
6. Curve Builder setup and export.
7. Downloaded fixtures.
8. Custom symbols.

Live network tools need a connection to the show network. That includes Network Devices scans, DMX Viewer, Micro Console transmit, Protocol Detector, NDI, LTC audio I/O, and ping monitoring.

CHAPTER 3

ToolBox Overview

ToolBox is the hub for the utility side of StageTools.

Current v1.0 ToolBox tools:

Tool	Use It For
Network Devices ( )	Scanning devices, saving scan profiles, mapping device layouts, and monitoring pings.
DMX Viewer ( )	Listening to sACN and ArtNet, inspecting universes, and finding channel changes.
Micro Console ( )	Patching fixtures, running faders/programmer controls, and transmitting sACN or ArtNet when needed.
DIP Switch Calculator ( )	Converting DMX addresses to switch positions and back.
Color Science Calculator ( )	Converting CCT/tint values, building measured fixture profiles, and solving CIE targets.
Protocol Detector ( )	Passively sniffing common show-network protocols and sources.
LTC Timecode ( )	Generating or receiving SMPTE LTC over audio.
Curve Builder ( )	Building fixture correction curves from meter readings and exporting references.
NDI Monitor ( )	Discovering and previewing NDI video sources on the network.

Micro Console can transmit. Read the transmit confirmation. It tells you what your output will do based on protocol and priority.

CHAPTER 4

Quick Plots

4.1 What Quick Plots Is For

Quick Plots is for fast lighting plots and network/power layouts. It is not trying to replace a full drafting package. Use it when you need a clean working reference: fixtures on a scout photo, a small rig sketch, a network topology, a cable plan, or a PDF/PNG you can send to the crew. (🗺)

A Quick Plot can hold multiple kinds of work on the same canvas:

1. Lighting symbols and labels.
2. Network and power symbols.
3. Cables.
4. Text and drawn notes.
5. Background images, PDFs, or map shots.
6. Layers.

Quick Plots is one canvas. Symbols and labels are separated by type inside their panels: Lighting, Network/Power, and Grip. That keeps the tool choices focused without splitting the plot into separate modes.

4.2 Open Quick Plots

Open the **Quick Plots** tab.

The list shows current plots. Archived plots stay out of the main list and Home Recents.

From the list you can:

1. Open an existing plot.
2. Create a new plot.
3. Search or browse saved plots.
4. Archive or manage older plots.

4.3 Create a New Quick Plot

1. Open **Quick Plots**.
2. Tap the new plot button.
3. Choose the starting plot setup.
4. Name the plot.
5. Set the paper/background options if needed.
6. Open the plot.

Use names you will recognize later. A venue, stage, room, or setup name is better than a generic title.

4.4 Canvas Navigation

Use these gestures in the editor:

Gesture	Action
Pinch	Zoom in or out.
Two-finger drag	Pan the canvas.
Single-finger drag on empty canvas	Depends on the active tool; Select can box-select.
Tap empty canvas	Deselects the current item in Select.
Tap an item	Selects it if it is editable on the active layer.

Quick Plots intentionally protects layers. Most objects can only be selected when their layer is active. Cables are the exception because network and power cable workflows need to stay reachable across their assigned layers.

4.5 Symbol and Label Types

Quick Plots uses type filters inside the Symbol and Label panels.

Type	Use It For
Lighting	Fixture symbols, fixture labels, DMX/address labels, lighting plot work.
Network/Power (🖳)	Switches, nodes, APs, distros, generators, power/network cables, labels from saved scans.
Grip	Reserved for a future expansion.

(💡) (📦)

Switch symbol or label type when you want to place different gear or adjust labels for that discipline.

4.6 Quick Plots Tools

The Quick Plots editor is built around a small set of tools. On iPhone, the tools live in the bottom toolbar with contextual controls above it. On iPad, the tools sit in the side/tool panels with more room for the active controls.

Tool	Use It For
Select	Select, move, box-select, duplicate, group, align, inspect, and edit existing items.
Symbols	Place lighting, Network/Power, Grip, built-in, GDTF-backed, and custom symbols.
Labels	Add fixture numbers, DMX/address labels, device labels, IP labels, notes, label positions, and label styling.
Cable	Draw cable runs between symbols or across the canvas. Use waypoints when the path needs bends.
Draw	Add freehand marks, lines, boxes, and circles directly on the plot.
Text	Add plain text notes that are not tied to a specific symbol.

Tool	Use It For
Nudge	Move selected items in small steps when dragging is too coarse. Use it for lining up symbols, labels, and tight layouts.
Eraser	Remove drawings or plot items when the erase tool is active.
Layers	Show, hide, grey, lock, reorder, and adjust opacity for layers.
Inspector	Edit the selected item: size, rotation, color, labels, layer, lock state, and item-specific settings.
File / Export	Import backgrounds, manage paper/background settings, export PDF/PNG, save to Photos, or add exports to Files.

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Use **Select** when you are editing what already exists. Use **Symbols**, **Labels**, **Cable**, **Draw**, or **Text** when you are adding new information to the plot. Use **Nudge** when the item is close, but dragging keeps overshooting the spot.

4.7 Add a Background

Backgrounds give a plot context. Use a floor plan, scout photo, PDF, saved Files item, or map image when you have one.

General workflow: ( )

1. Open the plot.
2. Open the file/background controls.
3. Choose the source.
4. Import the image or PDF.
5. Fit the paper to the background or keep the existing paper size.
6. Adjust opacity, scale, or rotation if needed.

Use background opacity when the image is useful but too visually loud. The drawing should stay easier to read than the reference image.

4.8 Place Lighting Symbols

1. Open **Symbols**.
2. Choose the **Lighting** type.
3. Choose a symbol category or fixture source.
4. Tap the canvas to place the symbol.
5. Drag to move it.
6. Use the inspector or handles to resize, rotate, recolor, duplicate, or relabel it.

Lighting symbols can come from built-in generic symbols, downloaded GDTF fixtures, or custom symbols you imported or drew in StageTools.

4.9 Use Custom Symbols

Custom Symbols lets you add your own reusable plot symbols when the built-in library does not cover the object you need.

You can create a custom symbol in two main ways:

1. Importing PNG, JPG, HEIC, or SVG artwork.
2. Drawing a symbol inside StageTools.

Use custom symbols for one-off fixtures, practicals, venue-specific gear, house equipment, network hardware, or any object you want available again on future plots.

Downloaded GDTF fixtures can also use custom or generic symbol overrides. When you change the symbol for a downloaded fixture, StageTools can use that symbol in Quick Plots instead of the default thumbnail-style artwork.

4.10 Create a Custom Symbol from an Image

Use image import when you already have artwork, a manufacturer icon, a cleaned-up fixture symbol, or a simple graphic you want to reuse.

1. Open **Quick Plots** ( ).

2. Open any plot.
3. Open **Symbols**.
4. Open the **Custom** section.
5. Tap the add/import control.
6. Choose the image source.
7. Select a PNG, JPG, HEIC, or SVG file.
8. Preview the symbol.
9. If the artwork has a white background, use the background removal option if it helps.
10. Choose the symbol category, such as Lighting, Network, Power, or Other.
11. Add a name that will make sense later.
12. Save the symbol.

After it is saved, the symbol appears in the Custom section and can be placed like any other plot symbol.

For SVG imports, use the preview modes to check whether the symbol should stay full color or behave like a tintable plot symbol. If the SVG looks wrong, fix the source artwork and import it again instead of fighting a bad file.

4.11 Draw a Custom Symbol in StageTools

Use the draw flow when the symbol is simple enough to build directly in the app.

1. Open **Quick Plots**.
2. Open any plot.
3. Open **Symbols**.
4. Open the **Custom** section.
5. Tap the draw/create control.
6. Draw the symbol on the square canvas.
7. Use the drawing tools for lines, boxes, circles, text, freehand strokes, or erasing.
8. Use undo/redo while building the symbol.
9. Name the symbol.
10. Choose the symbol category.
11. Save it.

Keep drawn symbols simple. A clean outline reads better on a plot than a detailed illustration, especially once it is scaled down. (⅄) (▭) (○) (⁄)

4.12 Manage Custom Symbols

Custom symbols are reusable across Quick Plots. You can edit a symbol if the name, category, or artwork needs cleanup. You can delete custom symbols you no longer need.

Do not delete a custom symbol unless you are done using it. If a symbol is still useful but belongs in a different group, edit its category instead.

4.13 Label Lighting Fixtures

Lighting labels are for fixture numbers, DMX addresses, and other plot-readable identifiers.

Typical workflow:

1. Open **Labels**.
2. Choose the **Lighting** type.
3. Set what you want to show: fixture number, address, or both.
4. Set the starting number/address and footprint.
5. Tap **Start Labeling**.
6. Tap fixtures in order.

StageTools increments labels as you tap. This is meant for quick numbering passes, not a spreadsheet replacement.

4.14 Adjust Label Position and Style

Labels are not locked to one spot. After labels are visible, use the label controls to make them readable for the plot you are building.

Common label adjustments:

1. Turn fixture number labels on or off.
2. Turn DMX/address labels on or off.
3. Change label color.

4. Change label size.
5. Move labels to a different position around the symbol.
6. Use separate positions for different label types when the drawing needs more room.

Label position matters on dense plots. Move labels away from cable runs, fixture clusters, and background text so the exported PDF or PNG stays readable.

For Network/Power labels, the same idea applies: keep IP addresses, device names, and notes close enough to the symbol to read, but not directly on top of the cable path.

4.15 Use Free-Move Label Position

Use **Free** label position when the preset Above, Below, Left, and Right positions do not give the label enough room.

Free labels are useful when:

1. A fixture is tight against another symbol.
2. A cable run crosses the normal label area.
3. A background drawing already has text in that spot.
4. A Network/Power label needs to sit away from a cable path.
5. You want several labels lined up cleanly by hand.

To free-move a label:

1. Select the symbol.
2. Open **Labels** or the label controls in the inspector.
3. Set **Position** to **Free**.
4. Turn **Connector** on if you want a dashed leader line from the symbol to the label.
5. Tap the symbol once if it is not already selected.
6. Tap the selected symbol again to engage the free label.
7. Drag the label badge to the position you want.
8. Release to save the position.
9. Drag it again if it needs another small adjustment.

The free position is stored with that symbol. You can switch back to Above, Below, Left, or Right later. StageTools remembers the free position, so if you return to Free, the label goes back to the last free-move spot.

Use the Connector option when the label has been moved far enough away that the relationship is not obvious. Leave it off when the label still reads clearly without a leader line.

4.16 Draw Cables

Use the Cable tool when a run matters enough to show on the plot.

1. Open the Cable tool.
2. Pick the cable type.
3. Tap or drag between points/symbols.
4. Add waypoints where the run bends.
5. Finish the cable.
6. Edit labels, color, or routing if needed.

Keep cable drawings readable. A simple path that shows start, finish, and direction usually beats a perfect trace through every corner of the room.

4.17 Build Network and Power Layouts

Choose **Network/Power** in the Symbols panel when you need to map switches, nodes, APs, distros, generators, or power/network paths.

1. Open **Symbols**.
2. Choose **Network/Power**.
3. Place the relevant gear.
4. Use Cable to connect items.
5. Add labels or link saved scan devices.

This is useful for planned topology, live troubleshooting notes, or a quick map of what the rack actually looks like after the third change of the morning.

4.18 Label Devices from Scan

If you have a saved Network Devices scan, Quick Plots can label topology symbols from that scan.

1. Open **Labels** (⇵).
2. Choose **Network/Power**.
3. Tap **Label Devices from Scan**.
4. Choose the saved scan if prompted.
5. Pick the device/IP.
6. Tap the topology symbol to label or bind it.

Use this when you want the plot to reflect real devices instead of manually typed labels.

4.19 Use Layers

Layers keep busy plots editable.

Use layers for: ( ) ( ) ( ) ( ) ( )

1. Background.
2. Truss or rigging reference.
3. Lighting.
4. Network.
5. Power.
6. Notes.

Layer controls can show, hide, grey, lock, reorder, and adjust opacity. Lock a layer when it should stay visible but should not move. Grey a layer when it is reference only.

The active layer matters. If an object will not select, check that you are on its layer before assuming the tap missed.

4.20 Export a Quick Plot

Export when the plot is ready to leave the app.

Common outputs: ()

1. **PDF** — best for paperwork, email, and printable references.

2. **PNG** — best for quick text messages or image-based sharing.
3. **Photos** — saves an image to the device photo library.
4. **Files tab** — keeps the exported reference inside StageTools.

PDF branding is controlled in Settings. Use it if you want your name, company, or logo on plot exports.

4.21 Quick Plot Workflow Example

Use this flow for a small location setup:

1. Create a new Quick Plot named after the location.
2. Import the scout photo or floor plan as a background.
3. Drop fixture symbols where they actually land.
4. Add fixture numbers and DMX addresses.
5. Draw only the cable runs that someone needs to understand.
6. Add Network/Power symbols if nodes, switches, or distros matter.
7. Add labels from a saved scan if the network has already been scanned.
8. Lock or grey the background layer.
9. Export a PDF for paperwork.
10. Export a PNG if you need to text it.

This keeps the plot useful without turning a field note into a drafting project.

CHAPTER 5

Scout Notes

5.1 What Scout Notes Is For

Scout Notes is for collecting location information before the job turns into scattered photos, texts, voice memos, and half-remembered measurements. (🔭)

A Scout can hold:

1. Location name, address, date, and notes.
2. Photos and marked-up photos.
3. Videos.
4. Block-based note tabs.
5. Voice memos and transcripts.
6. Attached files.
7. Map/location references.
8. PDF exports.
9. Full `.stscout` packages for backup or handoff.

Use Scout Notes when you want the location record, reference media, and paperwork in one place instead of split across Photos, Notes, Files, and text threads.

5.2 Open Scout Notes

Open the **Scout** tab.

The Scout list shows saved Scouts. Each card represents one location or scout folder. Archived or deleted Scouts stay out of the active list.

From the Scout list you can:

1. Start a new Scout.
2. Open an existing Scout.
3. Search saved Scouts.

4. Open recent or favorite Scouts.
5. Export or share Scouts when needed.

5.3 Create a New Scout

1. Open **Scout**.
2. Tap **Start Scout**.
3. Enter the location or venue name.
4. Add the address if you have it.
5. Set the scout date.
6. Add any first notes you already know.
7. Save the Scout.

Use a location name that will still make sense later. If a production has several spaces in the same venue, include the room, stage, or area in the Scout name.

5.4 Scout Detail Sections

Each Scout has four main sections:

Section	Use It For
Photos	Location photos, markup, visual references, and photo captions.
Notes	Multi-tab block notes, templates, lists, gear rows, and inline media references.
Voice	Voice memos, playback, rename, transcription, transcript search, and Make Scout Notes.
Files	PDFs, documents, map images, manuals, links, and other attached reference files.

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On iPad, the section bar stays at the bottom so the Notes editor gets the full width. On iPhone, the same sections are arranged for the smaller screen.

5.5 Photos

Use Photos for the visual record of the location.

Typical photo workflow:

1. Open a Scout.
2. Open **Photos**.
3. Take a new photo or import an existing one.
4. Add markup if the photo needs notes, arrows, circles, or measurements.
5. Add a caption if the photo needs context.
6. Keep only the useful photos selected for PDF export later.

Marked-up photos are useful for entrances, rigging points, cable paths, dimmer rooms, network racks, ceiling conditions, power locations, and anything that will save a phone call later.

5.6 Notes

Scout Notes uses a block editor. A Scout can have multiple note tabs, so you can split one location into useful pages instead of keeping one long note.

Use note tabs for:

1. General notes.
2. Gear list.
3. Power.
4. Network.
5. Rigging.
6. Parking/load-in.
7. Questions for production.

Common note actions:

1. Create a new note tab.
2. Rename a note tab.
3. Reorder note tabs.

4. Add text blocks.
5. Add list blocks.
6. Use templates.
7. Insert photos, files, videos, or voice memos from the Scout.
8. Multi-select note lines and delete them together.

Templates are editable. Use defaults when they fit, duplicate a template when you want a variation, or create a custom template for the way you scout.

5.7 Insert Scout Media into Notes

Notes can reference media already attached to the Scout. This keeps the write-up readable without making the user hunt through every section.

To insert media into a note:

1. Open the Scout.
2. Open **Notes**.
3. Open the note tab you want.
4. Tap **Insert**.
5. Choose the media type.
6. Pick an existing photo, file, video, or voice memo.
7. Insert it into the note.

If you capture or import new media while working in Notes, StageTools can add it to the Scout and place it into the current note.

5.8 Voice Memos

Use Voice when talking is faster than typing.

Typical voice workflow:

1. Open a Scout.
2. Open **Voice**.
3. Record the memo.

4. Stop recording.
5. Rename the memo so it is useful later.
6. Play it back or scrub through it when needed.
7. Transcribe it if the spoken notes should be searchable or included in the write-up.

Voice memos can be searched after transcription. Search results can open the matching memo and jump to the relevant transcript area.

5.9 Transcribe a Voice Memo

Transcription turns a voice memo into searchable text. Use it when the spoken notes need to become part of the Scout record instead of staying buried in audio.

1. Open the Scout.
2. Open **Voice**.
3. Find the memo.
4. Tap **Transcribe**.
5. Leave the Scout open or keep working; StageTools shows transcription progress while it runs.
6. Open the transcript when it is done.

If the memo already has a transcript, the Voice row shows transcript controls instead of the Transcribe button.

5.10 Work with a Transcript

After a memo has a transcript, you can:

1. Open the transcript.
2. Copy the full transcript.
3. Edit the transcript.
4. Delete the saved transcript without deleting the audio.
5. Search transcript text from the Scout list or Voice search.
6. Use timestamped lines to jump back into the audio when timing is available.

Editing a transcript clears the Apple-generated timing for that edited text. The transcript stays searchable, but timestamped playback only applies to timed transcript lines.

StageTools learns from transcript edits and corrected key moments. If the app hears a lighting term wrong and you fix it, future transcript cleanup can use that correction.

5.11 Send Transcript Content to Notes

Inside the transcript view, **Send to Notes** gives you several ways to turn the transcript into note blocks.

Option	What It Sends
Make Scout Notes	StageTools AI cleanup with summary, gear, locations, tasks, follow-up questions, uncertain items, and cleaned transcript text.
Full Transcript	The entire transcript, a memo reference, and metadata.
Key Moments	Detected gear, cable, power, rigging, task, and location lines.
Selected Key Moments	Only the key moments you selected before sending.
Clean Summary	A normalized review list grouped into gear, cable, power, rigging, tasks, and locations.

Before inserting, StageTools opens a preview. Pick the destination note tab, remove anything you do not want, edit rows if needed, then insert.

5.12 Use Make Scout Notes

Make Scout Notes uses StageTools AI to turn a transcript into structured Scout note blocks.

Use it first when you have a longer memo and want the app to draft a cleaner set of notes from it. (✨)

Make Scout Notes can return:

1. A short summary.
2. Gear items with quantities when available.
3. Location notes.

4. Tasks.
5. Follow-up questions.
6. Items that need review.
7. A cleaned transcript.

Typical workflow:

1. Open the transcript.
2. Tap **Make Scout Notes**.
3. Let StageTools process the transcript. You can leave the screen while it works.
4. When it finishes, review the generated notes.
5. Choose the destination note tab.
6. Remove anything that is not useful.
7. Edit the remaining blocks if needed.
8. Insert the notes.

If Make Scout Notes has already run for that memo, the button changes to **Review Scout Notes** so you can open the latest result again.

Make Scout Notes sends transcript text to the StageTools backend for cleanup. The iOS app does not store the OpenAI API key. Review AI-generated notes before using them in a report or sending them to production.

StageTools shows the remaining Scout AI assists for the current month in the Make Scout Notes card.

5.13 Use Key Moments

Key Moments are detected from the transcript and grouped by the kind of information they look like.

StageTools looks for: (💡) (🕯) (⚡) (🛠) (🎛) (🕹)

1. Gear.
2. Cable.
3. Power.
4. Rigging.
5. Tasks.
6. Locations.

Use Key Moments when you want a quick pass over the transcript without sending the whole thing to Notes.

Typical workflow:

1. Open the transcript.
2. Review the Key Moments section.
3. Delete any bad moment.
4. Edit a moment if the text or category is wrong.
5. Select only the moments you want, or leave none selected to use all detected moments.
6. Tap **Key Moments** or **Selected Key Moments** under Send to Notes.
7. Review the note preview.
8. Insert into the destination note tab.

5.14 Use Clean Summary

Clean Summary turns the transcript's useful moments into a tighter, more note-ready list.

It is useful for messy walk-and-talk notes where the same idea may be said several times.

Clean Summary can produce grouped sections for:

1. Gear.
2. Cable.
3. Power.
4. Rigging.
5. Tasks.
6. Locations.

When you open Clean Summary Review, you can:

1. Choose the destination note tab.
2. Edit item names.
3. Edit quantities.
4. Change categories.
5. Remove items.

6. Resolve duplicate gear mentions.
7. Merge quantities or use the latest quantity when the same gear shows up more than once.
8. Insert the reviewed summary into Notes.

Your edits help StageTools learn better cleanup for future transcripts.

5.15 Files

Use Files inside a Scout for reference material tied to that location.

Scout files can include:

1. PDFs.
2. Images.
3. Manuals.
4. Plots.
5. Riders.
6. Links or saved references.
7. Map/satellite images.

Use this section for anything that belongs with the Scout but is not a note, photo, video, or voice memo.

5.16 Export a Scout PDF

Use PDF export when you need a readable scout report.

1. Open the Scout. (⬆)
2. Open the export action.
3. Choose what to include: scout info, photos, notes, files, and voice transcripts.
4. Choose specific photos or files if you do not want everything included.
5. Export the PDF.
6. Share, save, or send the PDF.

Scout PDF branding is controlled in Settings under PDF Branding. If branding is enabled for Scouts, the export can include your name, company, logo, and accent color.

Keep the export tight. A report with the right 12 photos is usually better than every photo you took.

5.17 Share or Back Up a Scout with `.stscout`

Use `.stscout` export/import when you need to move the whole Scout, not just a report.

A `.stscout` package can include the Scout data and referenced media. Use it for:

1. Backing up an important Scout outside iCloud.
2. Sending a Scout to another StageTools user.
3. Moving a Scout when iCloud is slow.
4. Keeping a job archive with the media included.

PDF export is for reading. `.stscout` export is for transfer and backup.

5.18 Create a Quick Plot from a Scout

Use this when a location scout turns into a plot.

1. Open the Scout.
2. Choose the create/open Quick Plot action.
3. Pick the Scout reference you want to use, such as a location image or map shot if available.
4. Create the Quick Plot.
5. Add symbols, labels, cables, and notes in Quick Plots.

This keeps the scout record and the plot connected in the way you actually work: first the location, then the plan.

5.19 Scout Workflow Example

Use this flow for a location walk-through:

1. Create a new Scout with the venue name, address, and date.
2. Take wide photos first: exterior, load-in, main room, power, ceiling, control area.
3. Mark up the photos that need explanation.
4. Record a voice memo while walking the space.

5. Transcribe the memo when the walk is done.
6. Use Notes to turn the useful details into sections.
7. Attach any PDFs, plots, or venue paperwork.
8. Create a Quick Plot if the location needs a visual layout.
9. Export a PDF report for production or the crew.
10. Export `.stscout` if another StageTools user needs the full Scout.

The goal is not to document everything. The goal is to capture the things you will wish you had later.

CHAPTER 6

Files

6.1 What Files Is For

Files is the reference drawer inside StageTools. Use it for documents and links you need on a job: plots, patch sheets, manuals, network diagrams, riders, call sheets, venue docs, and saved web references. (🗃)

Files can store two kinds of items:

1. **Links** — web pages, cloud documents, manuals, fixture pages, shared drives, or other URLs.
2. **Local files** — imported PDFs, images, documents, and files from the iOS Files app.

Files can also organize items with folders, categories, favorites, search, previews, QR scanning, and folder sharing.

6.2 Open Files

Open the **Files** tab.

The Files list shows saved items. Use search, folders, categories, and favorites to narrow the list when it gets busy.

Each file row can show:

1. File name.
2. Category.
3. Notes.
4. Folder.
5. Favorite state.
6. Whether the item is a local file or a link.

6.3 File Categories

Files uses a short category list so references stay scannable.

Category	Use It For
Lighting Plot (🗺)	Plots, rig sketches, exported Quick Plots, room layouts.
Patch Sheet (▤)	Patch, address, universe, channel, or paperwork references.
User Manuals (🕮)	Fixture manuals, console manuals, node manuals, hardware docs.
Network Diagram (🌐)	Topology maps, rack diagrams, IP plans, switch layouts.
Other (🗋)	Anything useful that does not fit the other categories.

Categories are separate from folders. Use categories for what the file is. Use folders for where it belongs.

6.4 Save a Link

Use saved links for cloud docs, web manuals, fixture pages, venue pages, or shared references.

1. Open **Files** (☁).
2. Tap the add button.
3. Enter the name.
4. Paste the URL.
5. Choose a category.
6. Add notes if needed.
7. Choose a folder or create a new one.
8. Save.

If the link points to a Google Drive file or another shared cloud document, make sure the sharing permissions are set correctly outside StageTools. StageTools can save the link, but it cannot fix a private link that the other person cannot open.

6.5 Import a Local File

Use import when you want the file saved inside StageTools instead of just linking to it.

1. Open **Files** ( ).
2. Tap the add button.
3. Choose **Import File**.
4. Pick a file from the iOS Files app.
5. Confirm the name.
6. Choose a category.
7. Choose a folder if needed.
8. Save.

Imported files are stored locally in StageTools. Use this for PDFs or references you need even when the internet is bad.

6.6 Organize with Folders

Folders group files by show, venue, day, department, or whatever structure makes sense for the job.

Common folder uses:

1. One folder per show.
2. One folder per venue.
3. One folder per scout.
4. One folder for manuals.
5. One folder for current paperwork.

To create a folder:

1. Open **Files**.
2. Use the folder row or folder picker.
3. Choose **New Folder**.
4. Name the folder.
5. Save or move files into it.

Deleting a folder does not delete the files inside it. The files stay in the library and lose the folder tag.

6.7 Move Existing Files into a Folder

Use this when you already have saved files and want to clean up the library.

1. Open **Files**.
2. Select the target folder.
3. Open the folder actions.
4. Choose the move/add existing files option.
5. Select the files you want in that folder.
6. Save.

Files can be moved between folders later by editing the file.

6.8 Use Favorites

Favorites are for references you open constantly.

1. Swipe left on a file row.
2. Tap **Favorite**.
3. Use the favorites filter when you want to see only starred items.

Use favorites for the current plot, current patch, console manual, venue packet, or any document you know you will open more than once.

6.9 Preview Files

Tap a file row to open it.

StageTools opens links in an in-app browser. Local files use the system preview controller when possible.

Common preview types:

1. PDFs.
2. Images.
3. Documents supported by iOS preview.
4. Web links.

If a local file does not preview cleanly, open it through the iOS share sheet in another app that supports that file type.

6.10 Edit or Delete a File

Swipe left on a file row to manage it.

Available row actions:

1. Favorite or unfavorite.
2. Edit.
3. Delete.

Use **Edit** to change the name, URL, category, notes, or folder. Use **Delete** when the item should be removed from the Files library.

Deleting a local imported file removes the saved file record and the local imported copy from StageTools.

6.11 Scan a QR Code

Use QR scanning when another device or crew member is sharing a reference by QR code.

1. Open **Files**.
2. Tap the QR scanner.
3. Point the camera at the QR code.
4. Confirm the link or imported reference.
5. Save it to Files.

This is useful for fast handoffs when typing a URL is the slowest possible way to do the job.

6.12 Share a Folder

Use folder sharing when you want to hand off a group of saved Files items together.

1. Open **Files** (⬆).
2. Select the folder.
3. Open the folder actions.

4. Choose **Share Folder**.
5. StageTools creates a `.stagetools` bundle for that folder.
6. Share it through the iOS share sheet.

Another StageTools user can import that folder bundle into their Files tab.

Use folder sharing for a venue packet, a show folder, a collection of manuals, or a group of references that belong together.

6.13 Files in Other StageTools Workflows

Files connects to other parts of StageTools.

Use Files with Quick Plots when:

1. You want to import a saved Files item as a plot background.
2. You exported a Quick Plot and want to save it back into Files.

Use Files with Scout Notes when:

1. A Scout needs a PDF, image, map, or venue document attached.
2. A note needs an inline reference to a file.
3. A Scout PDF export should include attached files.

Files is not just storage. It is the place StageTools can pull from when another workflow needs a document.

6.14 Files Workflow Example

Use this flow for a venue packet:

1. Create a folder named for the venue or show.
2. Import the current plot PDF.
3. Save links to the venue page and shared production drive.
4. Import fixture manuals or node manuals you expect to need offline.
5. Set categories for each item.
6. Favorite the current plot and patch sheet.
7. Share the folder if another StageTools user needs the same packet.

Keep Files boring and organized. That is the whole point.

CHAPTER 7

Fixtures

Fixtures is the GDTF reference and download area in StageTools. Use it to search the GDTF Share Library, browse by manufacturer, favorite fixtures you use often, download `.gdtf` files for offline reference, and place fixture profiles into Quick Plots. ( )

Fixtures is not a replacement for checking the actual unit, show paperwork, or console patch. Treat it as the fixture reference library inside StageTools.

7.1 Open Fixtures

1. Open StageTools.
2. Tap **Fixtures**.
3. Choose the section you need: **Search**, **Browse**, **Favorites**, or **Downloads**.

Use **Search** when you know the fixture name. Use **Browse** when you know the manufacturer. Use **Favorites** for common fixtures. Use **Downloads** for files already saved on the device.

7.2 Sign In to GDTF Share

StageTools uses the GDTF Share Library for fixture data. A free GDTF Share account is used for downloading fixtures and viewing the latest online fixture details.

To sign in: ( ) ( )

1. Open **Fixtures**.
2. Tap the sign-in control in the header or open the GDTF Share sign-in prompt.
3. Enter your GDTF Share username and password.
4. Sign in.

You can create a free account at `gdtf-share.com`.

Search may still show cached or bundled index results without signing in, depending on what is stored on the device. Downloading current `.gdtf` files and loading full revision details requires an internet connection and a valid GDTF Share sign-in.

7.3 Search Fixtures

Use Search when you know the fixture name, model family, or manufacturer.

1. Open **Fixtures** ( ).
2. Choose **Search**.
3. Type part of the fixture or manufacturer name.
4. Review the results.
5. Tap a fixture to open its available revisions.

If the search returns too many results, add more of the model name or manufacturer name. StageTools limits very broad result sets so the list stays usable.

If the fixture index is not available yet, sign in and refresh or build the local fixture index when StageTools offers that option.

7.4 Browse by Manufacturer

Use Browse when you know the brand but do not know the exact fixture name.

1. Open **Fixtures**.
2. Choose **Browse**.
3. Select a manufacturer.
4. Select a fixture from that manufacturer.
5. Open the fixture revisions or detail page.

Browsing is useful when fixture names are listed differently than expected, or when a manufacturer has several related versions of the same unit.

7.5 Fixture Revisions

A fixture can have more than one GDTF revision. Revisions may differ by author, date, fixture mode coverage, or corrected metadata.

Use the revisions list to:

1. Confirm the fixture manufacturer and model.
2. Check available revisions.

3. Favorite the fixture with the star control. (☆)
4. Open a revision detail. (ⓘ)
5. Download the `.gdtf` file.

When in doubt, choose the newest useful revision and confirm the DMX modes against the production paperwork or fixture manual.

7.6 Fixture Detail

The fixture detail page shows the information StageTools can read from the selected GDTF file.

Depending on the file, you may see:

1. Fixture thumbnail.
2. Manufacturer and fixture name.
3. Fixture type or short name.
4. DMX mode count.
5. Maximum channel count.
6. Weight or power data.
7. Revision date and creator.
8. DMX modes and their channel counts.

GDTF files are created and maintained by their authors. Some files include complete thumbnails and physical data. Others may only include the information needed for console/profile use.

7.7 Download a Fixture

Download fixtures you expect to reference again or use when you may not have internet on-site.

1. Open the fixture detail page.
2. Tap **Download .gdtf**.
3. Wait for StageTools to finish saving the file.
4. Open **Downloads** to confirm it is saved.

Downloaded fixtures stay on the device and can be opened later from the Downloads section.

7.8 Use Favorites

Favorites keep common fixtures close without downloading every file immediately.

1. Open a fixture or revision list.
2. Tap the star control.
3. Open **Favorites** to see starred fixtures.

Use Favorites for fixtures you see often, house inventory, rental packages, or units you want to place into a Quick Plot quickly.

To remove a favorite, delete it from Favorites or unstar it from the fixture page.

7.9 Use Downloads Offline

Fixtures can browse and search online data only when the device has a network connection. Downloaded fixtures are different: they are saved locally and remain available offline.

When you are offline: ( ) ( )

1. Open **Fixtures**.
2. Go to **Downloads**.
3. Open a saved fixture.
4. Review the local fixture detail.
5. Share the downloaded `.gdtf` file if needed.

Use Downloads before a stage, location, or truck day where internet may be unreliable.

7.10 Share a Downloaded GDTF File

Use sharing when another device, console workflow, or crew member needs the downloaded `.gdtf` file.

1. Open **Fixtures** ( ).
2. Choose **Downloads**.
3. Find the downloaded fixture.
4. Tap the share control.
5. Send the `.gdtf` file through the iOS share sheet.

Sharing sends the downloaded fixture file. It does not share your GDTF Share sign-in.

7.11 Place a Fixture on a Quick Plot

Fixtures can send a fixture profile into Quick Plots.

1. Open a fixture detail page or use a fixture from Favorites. (🗺)
2. Choose **Place on Lighting Plot**.
3. Select the target Quick Plot.
4. If StageTools has a usable GDTF thumbnail, it uses that thumbnail as the fixture symbol.
5. If no usable thumbnail is available, choose the closest matching symbol.
6. Place and label the fixture in Quick Plots.

After the fixture is on the plot, use the normal Quick Plots tools to move it, label it, place cables, set layers, or change the symbol later.

7.12 Fixture Troubleshooting

If search does not find the fixture:

1. Search with fewer words.
2. Search by manufacturer.
3. Check spelling and model punctuation.
4. Refresh or build the local index when StageTools offers it.
5. Sign in to GDTF Share and try again.

If a download fails:

1. Confirm the device is online.
2. Confirm you are signed in to GDTF Share.
3. Try the download again.
4. Check Downloads before retrying repeatedly; the file may already be saved.

If a thumbnail is missing or does not look useful:

1. Open the fixture detail and confirm the rest of the data.

2. Place the fixture with a generic symbol.
3. Use Quick Plots custom symbols if you need a more accurate plot symbol.

If fixture data looks wrong:

1. Check the revision date and creator.
2. Compare the DMX modes against the fixture manual or show paperwork.
3. Try another available revision if one exists.

7.13 Fixture Workflow Example

Use this flow before a prep:

1. Search or browse for the fixtures in the package.
2. Favorite the fixtures you expect to use repeatedly.
3. Open each fixture detail and check the available DMX modes.
4. Download the `.gdtf` files you may need offline.
5. Place key fixtures into the Quick Plot.
6. Label the fixtures in Quick Plots with unit number, address, purpose, or notes.
7. Keep Downloads available for reference on stage.

CHAPTER 8

Network Devices

Network Devices scans the current show network, lists discovered devices, lets you tag and label them, saves scan profiles, builds topology maps, and monitors devices with live ping status. (📡)

Use it before troubleshooting DMX, ArtNet, sACN, media servers, nodes, consoles, wireless bridges, or any other device on the lighting network.

8.1 Open Network Devices

1. Open **ToolBox**.
2. Tap **Network Devices**.
3. Confirm the device is connected to the correct Wi-Fi or USB-C Ethernet network.
4. Choose **Quick** or **Deep**.
5. Tap **Scan**.

StageTools prefers USB-C Ethernet when it is available. Ethernet is usually the better choice on lighting networks. (🖧) (⚙)

8.2 Choose Quick or Deep Scan

Use **Quick** for normal work. Quick Scan checks the configured `/24` subnet for the selected interface and any extra subnets you added.

Use **Deep** when the network may be spread across a wider `/16` range or when the expected devices do not appear in a normal scan.

Quick Scan is the right first move for most jobs:

1. It is faster.
2. It covers the current interface subnet.
3. It includes extra subnets you manually added.
4. It is easier to interpret when you know the network plan.

Deep Scan is useful when:

1. The subnet plan is unclear or the network is organized across different subnets.
2. Devices are on nearby ranges.
3. A saved network packet or old paperwork may not match the live rig.
4. You need a broader search and can wait longer.

You can stop a scan after the devices you need have appeared. Devices found so far stay in the list.

8.3 Keep Scanning in Background

The **Keep Scanning in Background** toggle lets StageTools keep the scan running when you leave Network Devices.

Use it when:

1. You are waiting for devices to boot.
2. You are moving around a venue and want the scan to keep collecting.
3. You are checking whether devices appear after a switch, node, or console is powered up.

Turn it off when you want Network Devices to stop scanning as soon as you leave the page.

8.4 Network Settings

Open Network Settings from the Network Devices header when you need to control what StageTools scans.

Network Settings includes:

1. **Network Interface** ( ) — Auto prefers USB-C Ethernet, otherwise Wi-Fi.
2. **Extra Subnets to Scan** ( ) — add additional `/24` ranges such as `192.168.2` or `10.135.1`.
3. **Blocked IP Ranges** ( ) — skip IP ranges that should not be probed.

Extra subnets use the first three octets. StageTools accepts values like `192.168.1`, `192.168.1.0`, or `192.168.1.0/24` and normalizes them to the subnet prefix.

Use blocked ranges for DHCP pools, proxy-responding consumer gear, or IP ranges you do not want StageTools to scan.

8.5 Read Scan Results

After a scan, the Devices tab shows discovered devices with IP address, detected name or hostname, device type hints, response time, tags, favorite status, protocol badges, and saved labels when available.

The discovery summary shows how many devices were found and can reveal discovery details by source or subnet. Use the summary menu to export a scan report when you need to send the current network state to someone else.

Device rows can show:

1. IP address.
2. Hostname or device display name.
3. Detected type hint.
4. HTTP server banner when available.
5. Response time.
6. User tag.
7. Favorite star.
8. Protocol badges detected from the Protocol Detector.

8.6 Search, Filter, and Sort

Use the search field to narrow a scan result. (★) (◇) (🔍) (⊜)

You can search by:

1. Last IP octet.
2. Full or partial IP address.
3. Hostname.
4. Detected device type.

Use filter pills to show:

1. All devices.
2. Favorites.
3. Console.
4. Switch.
5. Node.

6. Wireless.
7. Computer/Tablet.
8. Media Server.
9. Other.

Use the sort menu to sort by **IP**, **Name**, or **Tag**.

8.7 Tag, Favorite, and Label Devices

Tags and labels make repeat scans easier to read.

Use tags for broad device type:

1. Console. ( )
2. Switch. ( )
3. Node. ( )
4. Wireless. ( )
5. Computer/Tablet. ( )
6. Media Server. ( )
7. Other. ( )

Use custom labels for names that matter on the job: `FOH Console`, `Dimmer Beach Node 1`, `Stage Left Switch`, or `Video Server`.

To edit one device:

1. Swipe the device row.
2. Choose **Edit**.
3. Set the custom label, tag, or favorite status.
4. Save.

To edit multiple devices:

1. Tap **Select**.
2. Select the devices.
3. Use the bottom action bar to tag, favorite, unfavorite, or label them.

4. Tap **Done**.

Deleting a device from the current scan hides it from the current results. It appears again on a later scan if StageTools finds it again.

8.8 Use Device Details

Tap a device to open **Device Details**.

Device Details can show:

1. Custom label or detected name.
2. Hostname.
3. Map icon size.
4. IP address with copy button. ( )
5. Response time.
6. Detected type.
7. Tag.
8. Favorite status.
9. Live ping status.

From Device Details you can start or stop ping monitoring for that device, copy the IP address, set the map icon size, or open `http://<device IP>` in the browser. ( ) ( ) ( )

Use **Open in Browser** for web-configurable nodes, switches, wireless devices, media servers, or other devices with a web interface.

8.9 Save and Share Scan Profiles

Save a scan when you want to revisit a known network later.

1. Run a scan.
2. Open **Scan Profiles**.
3. Review the current scan summary.
4. Tap **Save Scan** ( ).
5. Name the scan. ( )

6. Add notes if useful.
7. Save.

Saved scan profiles store the device IP list and extra subnet settings. Use them for venues, trucks, stages, recurring shows, or any network you expect to see again.

You can also share a saved scan profile through the iOS share sheet. Another StageTools user can import the shared scan.

8.10 Export a Scan Report

Use scan report export when you need a readable network summary for a crew member, vendor, or troubleshooting thread.

1. Run a scan. (⬆)
2. Open the discovery summary menu.
3. Choose **Export scan report...**
4. Share the generated report.

The report includes scan configuration, subnet/source summaries, devices found, tags, labels, and useful network notes.

8.11 Use the Ping Monitor

The Ping tab monitors selected devices and shows whether they stay online.

To monitor a device: (⏦)

1. Run a scan.
2. Open **Ping**.
3. Tap the plus control next to a device.
4. Watch the status, response time, uptime, and ping count.

A monitored device card shows:

1. Current status.
2. Latest response time.

3. Sparkline history.
4. Average response time.
5. Uptime percentage.
6. Total pings.

Use Ping Monitor when a device is dropping offline, a wireless bridge is unstable, a node is rebooting, or a switch path is suspect.

8.12 Use the Network Map

The Map tab turns scan results into a visual topology.

Use the map to: (🗺) (🔗)

1. Add scanned devices to a layout.
2. Move devices into a readable topology.
3. Change map icon sizes.
4. Draw connections between devices.
5. Label connection types.
6. Save and load map layouts.
7. Share a topology map.

The map can also import linked devices and cable connections from a Quick Plot. Use this when your Quick Plot already has Network/Power symbols linked to scanned devices.

8.13 Save and Load Network Maps

Save a map when the device layout matters beyond the current scan.

1. Open **Map**.
2. Arrange devices and connections.
3. Tap **Save**.
4. Name the map.
5. Save as a new map or update an existing map. (📥)

Saved maps can include device positions, topology connections, custom node sizes, background image data, and saved device information. (⬆)

Use saved maps for permanent venue networks, dimmer beach layouts, stage rack layouts, truck packages, or touring systems.

8.14 Import from Quick Plot

If a Quick Plot has linked network devices, Network Devices can import that layout into the Map tab. This is useful when you already built a premade network/power Quick Plot and want it to become the starting point for a live network map.

A Quick Plot is ready to import when it has:

1. Network/Power topology symbols.
2. Devices linked to those symbols by IP address.
3. Cable runs whose endpoints land near the linked symbols.
4. A background image or reference plan if you want the map to keep that visual context.

StageTools only imports symbols that have a linked IP. Plain text notes, unlinked symbols, drawings, and lighting-only symbols stay in the Quick Plot. If the same IP is linked to more than one symbol, StageTools uses one symbol for that IP in the Network Map.

1. Open **Network Devices**.
2. Open **Map**.
3. Choose the import option.
4. Select the Quick Plot. (🖳)
5. Check the preview count for linked devices and cables. (🏔)
6. Review the listed devices and IP addresses.
7. Tap **Import**.

The import keeps the device positions from the Quick Plot. It also builds map connections from Quick Plot cables when the cable endpoints are close enough to linked symbols. If the Quick Plot has a background image, StageTools uses the cropped plot background so the Network Map lines up with what you saw in Quick Plots.

After importing:

1. Move any devices that need a cleaner map layout.

2. Open device details to change map icon size if needed.
3. Edit imported connections if cable labels or cable types need cleanup.
4. Add any scanned devices that were not part of the premade Quick Plot.
5. Save the Network Map.

8.15 Network Devices Troubleshooting

If no devices appear:

1. Confirm the iPhone or iPad is on the correct lighting network.
2. Try USB-C Ethernet if available.
3. Check Network Settings and confirm the selected interface.
4. Add the expected subnet under Extra Subnets.
5. Try Deep Scan if the network range is unclear.
6. Confirm the devices are powered and connected.

If expected Art-Net devices are missing:

1. Close tools that may be using Art-Net port `6454`.
2. Scan again.
3. Check the scan warning if StageTools reports that the port is busy.

If the scan finds too much:

1. Use Search.
2. Filter by tag.
3. Hide devices from the current scan if they are not relevant.
4. Add blocked IP ranges for ranges that should be skipped.

If Ping Monitor shows a device offline:

1. Confirm the device still appears in the scan list.
2. Check the cable or wireless path.
3. Open the device web interface if available.
4. Compare with another device on the same switch or access point.

8.16 Network Devices Workflow Example

Use this flow on a new stage:

1. Connect to the lighting network, preferably by USB-C Ethernet.
2. Run a Quick Scan.
3. Add extra subnets if the paperwork lists more than one range.
4. Tag consoles, switches, nodes, media servers, and wireless devices.
5. Add custom labels for devices you need to recognize quickly.
6. Save the scan profile.
7. Open Map and arrange the main devices.
8. Add connections or import a linked Quick Plot.
9. Start Ping Monitor on the critical devices.
10. Export a scan report if another department or vendor needs the device list.

CHAPTER 9

DMX Viewer

DMX Viewer listens for live sACN or ArtNet data and shows what is arriving on the network. Use it to confirm that a console is outputting, inspect active universes, jump to specific channels, watch changing values, and capture a snapshot into the transmitter workflow. ( )

DMX Viewer is a listener. It does not transmit DMX by itself.

9.1 Open DMX Viewer

1. Open **ToolBox**.
2. Tap **DMX Viewer**.
3. Choose **sACN** or **ArtNet**.
4. Tap **Scan**.
5. Trigger output from the console or source.

StageTools shows a universe row when it receives data inside the selected range.

9.2 Choose sACN or ArtNet

DMX Viewer has a protocol picker for **sACN** and **ArtNet**.

Use **sACN** when the source is sending E1.31 data. sACN uses UDP port `5568` and multicast universe joins.

Use **ArtNet** when the source is sending Art-Net data. ArtNet uses UDP port `6454`.

The selected protocol controls the listener, the universe list, settings range, and snapshot source. If you switch protocols, the search field resets so you do not accidentally jump inside the wrong protocol view.

9.3 Keep Listening in Background

The **Keep Listening in Background** toggle controls whether DMX Viewer keeps listening when you leave the page. ( )

Use it when:

1. You are waiting for a console or node to start outputting.

2. You need to check another StageTools page without losing the listener.
3. You want to keep DMX Viewer available while moving through the app.

Turn it off when you want the listener to stop when you leave DMX Viewer.

9.4 DMX Settings

Open DMX Settings from the settings icon in the DMX Viewer header.

DMX Settings includes: ( )

1. **sACN Universe Range**.
2. **ArtNet Universe Range**.
3. **Network Interface**.
4. **Refresh Interfaces**.

For sACN, universe ranges start at `1` and can scan up to 100 universes at once. StageTools uses a socket pool for larger ranges, with 20 universes per socket.

For ArtNet, universes are `0`-indexed. StageTools accepts ArtNet universes from `0` through `32767`, with up to 100 universes retained at once. Packets outside the selected range are dropped by the listener.

Use **Auto** for the network interface unless you need to force a specific adapter. Auto prefers USB-C Ethernet when it is available because wired networks are more reliable for sACN multicast.

After changing a range, use **Apply & Restart Listener** so the listener uses the new range.

9.5 Read the Universe List

When DMX Viewer receives data, the main list shows active universes for the selected protocol. ( ) ( ) ( )

Each universe row shows:

1. Universe number.
2. Active channel count.
3. A small preview of the first 32 channel values.

Tap a universe to open its full 512-channel grid.

The status bar shows whether the listener is running, the port being used, and how recently the last packet arrived. For sACN, StageTools also shows diagnostic chips for socket count, multicast joins, and packets per second.

9.6 Search by Universe and Channel

Use search when you know the address you need to inspect.

1. Tap the search field. (🔍)
2. Enter the address as `Universe.Channel`.
3. Use a period between the universe and channel, such as `1.45`.
4. Submit the search.

If the universe has live data, StageTools opens that universe and highlights the channel. If the universe has not been received yet, the result banner shows that no data is available for that universe.

The same search format works inside a Universe detail page. Searching a different universe from inside the grid opens that universe and highlights the requested channel.

9.7 Inspect a Universe

The Universe page shows a 512-channel heatmap grid.

Each channel cell shows:

1. Channel number.
2. Current DMX value.
3. Color based on value and change direction.
4. Orange highlight when selected.
5. Red highlight when Flicker Finder flags it.

Tap any channel to pin its details at the top of the page. The detail panel shows channel number, DMX value, and percentage.

Channel color indicates recent direction:

1. Blue means the value increased.
2. Green means the value decreased.

3. Purple means the value is steady.
4. Grey means the value is `0`.

9.8 Use Flicker Finder

Flicker Finder helps find channels that changed when the output should have stayed still. ( )

To use it: ( ) ( )

1. Open a universe.
2. Make sure the output is in the static look you want to test.
3. Tap **Flicker**.
4. StageTools takes a snapshot of the current 512 channel values.
5. Leave the output still.
6. Watch for red flagged channels.

When a channel changes from the snapshot value, StageTools flags it and logs the original value, changed value, and delta.

Flicker Finder has two modes:

1. **Hold** — changed channels stay flagged until you reset or stop Flicker Finder.
2. **Fade** — changed channels stay visible for the selected fade time, then clear from the grid.

In Fade mode, available fade times are `2s`, `3s`, `5s`, and `10s`.

Use **Reset** to take a new snapshot without leaving Flicker Finder. Use the flagged count to open the Flicker Finder Results sheet.

9.9 Read Flicker Finder Results

The results sheet lists channels that changed since the snapshot.

Each result shows:

1. Channel number.
2. Snapshot value.
3. Changed value.

4. Delta.

If no channel changed, the results sheet shows **No Flicker Detected**.

Flicker Finder works best when the console output should be static. If a chase, effect, cue fade, or programmer movement is active, the tool will correctly flag those changing channels.

9.10 Send a Snapshot to the Transmitter

When DMX Viewer has received live universes, the header shows **Send to TX**.

Use this when you want to capture current values and load them into the transmitter workflow. ( )

1. Start DMX Viewer and receive live data.
2. Tap **Send to TX**.
3. Select up to 4 universes.
4. Choose **Load Into Transmitter** or **Save Snapshot as Preset**.

Selected universes are copied into the transmitter and marked active. If the transmitter is already running, the copied universes overwrite those values live. Other active transmitter universes remain untouched.

Saving a snapshot preset stores the selected universe values so they can be loaded later from the transmitter preset menu.

9.11 Clear DMX Data

Use **Clear** when you want to remove the received values for the selected protocol. ( )

1. Receive DMX data.
2. Tap **Clear**.
3. Confirm **Clear DMX Data**.

Clearing removes the received universe data. It does not stop the listener. New packets will populate the list again.

9.12 DMX Viewer Troubleshooting

If no universes appear:

1. Confirm the iPhone or iPad is on the same network as the DMX source.
2. Use USB-C Ethernet when possible.
3. Confirm the selected protocol is correct.
4. Check the universe range in DMX Settings.
5. Confirm the console or source is actually outputting.
6. For sACN, check whether the network is passing multicast.

If ArtNet does not start:

1. Check whether another app or StageTools tool is using UDP port `6454`.
2. Stop the other listener or transmitter.
3. Start DMX Viewer again.

If search does not work:

1. Use the `Universe.Channel` format.
2. Confirm the channel is between `1` and `512`.
3. Confirm the universe has been received inside the selected protocol.

If Flicker Finder flags too much:

1. Confirm the console output is static.
2. Stop running effects, cue fades, or programmer movement.
3. Tap Reset to take a new snapshot.

9.13 DMX Viewer Workflow Example

Use this flow when troubleshooting a console output:

1. Connect by USB-C Ethernet when possible.
2. Open **DMX Viewer**.
3. Choose **sACN** or **ArtNet**.
4. Set the expected universe range in DMX Settings.
5. Tap **Scan**.
6. Confirm the expected universes appear.

7. Search for a known address, such as `1.45`.
8. Open the universe and inspect the channel grid.
9. Use Flicker Finder if values are changing unexpectedly.
10. Use Send to TX only if you intentionally want to capture values into the transmitter workflow.

CHAPTER 10

Protocol Detector

Protocol Detector passively listens for common lighting, control, and show-network protocols. Use it when you need to know what is actually talking on the network before you start changing settings. ( )

Protocol Detector is receive-only. It listens for traffic and joins known multicast groups, but it does not send control packets to fixtures, consoles, or nodes.

10.1 Open Protocol Detector

1. Open **ToolBox**.
2. Tap **Protocol Detector**.
3. StageTools starts listening automatically.

Use a wired USB-C Ethernet adapter whenever possible. Multicast and broadcast traffic can be unreliable over Wi-Fi, especially on busy production networks.

10.2 Start or Stop Listening

The scan button in the header starts and stops the detector.

When the detector is running, StageTools listens across supported protocol ports and multicast groups. When it is stopped, the live source list clears. ( )

Use **Keep Listening in Background** when:

1. You want to leave Protocol Detector and check another part of StageTools.
2. You are waiting for a console, node, or media server to come online.
3. You want the detector to keep collecting sources while you troubleshoot elsewhere.

Turn it off when you only want Protocol Detector active while the page is open. ( )

10.3 Read the Diagnostics Row

The diagnostics row shows the listener state at a glance:

1. **IP**: the local interface address StageTools is using.

2. **Sockets**: how many UDP sockets are currently bound.
3. **Joins**: how many multicast groups StageTools joined.
4. **Sources**: how many protocol sources are currently active.

If **IP** shows `–`, the device may not be connected to a usable show network.

10.4 Protocols View

Protocols view groups traffic by protocol. The protocol pills show:

1. The protocol name.
2. The number of active sources.
3. The current packet rate in packets per second.

StageTools currently watches for:

1. **sACN**.
2. **ArtNet**.
3. **Pathport**.
4. **MA-Net2**.
5. **MA-Net3**.
6. **HogNet**.
7. **ETCNet**.
8. **OSC**.
9. **Dante**.

Tap a protocol pill to mute that protocol. Muting is useful when one protocol is filling the screen and you want to focus on the remaining traffic. Tap the pill again to unmute it. ( ) ( ) ( ) ( ) ( )

When a protocol is muted, StageTools restarts the listener sockets so the mute choice affects what is actually being tracked.

10.5 Read Source Sections

Below the protocol pills, StageTools shows active source sections. Each row represents one source IP for one protocol.

Source rows can show:

1. The source IP address.
2. The hostname, when one is available.
3. Active universes for sACN and ArtNet.
4. sACN priority, when detected.
5. A small packet-rate sparkline.
6. Current packets per second.

Tap a source row to open its detail sheet.

The source detail sheet is useful when you need to confirm whether a console, node, or media server is still actively sending. It shows packet rate, total packets, last seen time, universes, sACN priority, and a larger 60-second packet-rate graph.

10.6 Streams View

Streams view groups multicast traffic by destination group instead of by protocol source. This helps when the network problem is less about "which console is sending" and more about "what multicast groups are active."

Use Streams view to spot: ( )

1. sACN multicast universes.
2. MA-Net multicast groups.
3. Dante primary and secondary groups.
4. Unknown multicast groups that may not belong on the lighting network.

Each stream group shows:

1. A friendly label when StageTools recognizes the group.
2. The multicast group address.
3. One row per source sending to that group.
4. Current packets per second.
5. Estimated bandwidth.
6. A sparkline for recent packet activity.

10.7 Sort and Filter Streams

Streams view includes a sort menu and two filters.

Sort options: (↑↓)

1. **Packet Rate**: busiest groups first.
2. **Group Address**: multicast groups in address order.
3. **Last Seen**: most recently active groups first.

Filters:

1. **Active** shows only groups with current packet activity.
2. **Rogue** shows only groups StageTools does not recognize.

Use **Rogue** when something on the network feels noisy or wrong and you want to identify unknown multicast traffic quickly. (⚠)

10.8 Conflict Detection

If StageTools sees a likely universe conflict, a red conflict banner appears.

Tap the banner to see the conflict details. (⚠)

StageTools detects:

1. **sACN conflicts** when two or more sources send the same universe at the same priority.
2. **ArtNet conflicts** when two or more sources send the same ArtNet universe.

For sACN, the conflict sheet shows the universe, priority, source IPs, and a note that HTP collision behavior may apply. For ArtNet, the conflict sheet shows the universe and source IPs, with a note that there is no priority arbitration.

Protocol Detector does not decide which source is "right." It gives you enough evidence to choose what to shut off, repatch, reprioritize, or move to another universe.

10.9 Protocol Detector Settings

Open settings from the gear icon in the Protocol Detector header.

The current settings sheet includes **HogNet Port**. (⚙)

HogNet defaults to port `6600`. If a Hog 4 or Hog OS console uses a custom HogNet port, enter that port here. Saving rebinds the HogNet socket without restarting the other protocol listeners.

10.10 Export a Snapshot

Tap **Snapshot** at the bottom of Protocol Detector to export the current state.

StageTools creates: ( )

1. A `.json` snapshot for structured records.
2. A `.pdf` snapshot for a readable report.

The snapshot includes:

1. Capture time.
2. Interface address.
3. Socket count.
4. Multicast join count.
5. Per-protocol source and packet-rate summary.
6. Source list.
7. Conflicts.
8. Stream records, when available.

Use this before a show, before changing console output, or when you need to send a quick network evidence report to another tech.

10.11 Protocol Detector Troubleshooting

If no traffic appears:

1. Confirm the iPhone or iPad is connected to the show network.
2. Prefer wired Ethernet over Wi-Fi.
3. Check the **IP** diagnostic pill.
4. Confirm the source device is actually outputting.

5. Make sure the protocol is not muted.
6. Stop and start Protocol Detector again.

If sACN appears in DMX Viewer but not Protocol Detector:

1. Check whether sACN is muted.
2. Check whether the device changed networks.
3. Leave and reopen Protocol Detector so it rejoins multicast groups.

If Streams view shows unknown traffic:

1. Turn on the **Rogue** filter.
2. Note the multicast group and source IP.
3. Compare the source IP with Network Devices scan results.
4. Export a snapshot before making changes.

If HogNet is missing:

1. Confirm the Hog console is on the same network.
2. Check whether the console is using the default HogNet port.
3. If not, enter the custom port in Protocol Detector Settings.

10.12 Protocol Detector Workflow Example

1. Connect the iPad to the show network with Ethernet.
2. Open **Protocol Detector**.
3. Confirm the **IP**, **Sockets**, and **Joins** diagnostics look active.
4. Watch Protocols view for sACN, ArtNet, MA-Net, HogNet, OSC, Dante, or other sources.
5. Tap any source you need to inspect.
6. Switch to Streams view if multicast traffic looks suspicious.
7. Use **Rogue** to isolate unknown multicast groups.
8. Tap the conflict banner if one appears.
9. Export a snapshot before changing console or network settings.

CHAPTER 11

Micro Console

Micro Console is StageTools' pocket DMX output tool. Use it to patch fixtures, build fixture-level faders, inspect raw universe values, test fixtures, and transmit sACN or ArtNet when you need temporary control. (🎛)

Micro Console can send live DMX to a network. Read the transmit warnings carefully, especially on show networks where another console may already be outputting.

11.1 Open Micro Console

1. Open **ToolBox**.
2. Tap **Micro Console**.
3. Choose an existing showfile or create a new one.

11.2 Understand Showfiles

A showfile stores one Micro Console setup for one production, venue, bench test, or rig.

Each showfile can include:

1. Patched fixtures.
2. Saved patches.
3. Custom fader pages.
4. Fixture groups.
5. Looks and color palettes.
6. Raw grid universes.
7. Default transmit settings.
8. Notes and a showfile color.

Showfiles sync through iCloud with the rest of StageTools when iCloud Sync is enabled.

11.3 Create a Showfile

Tap **Create New** in the Micro Console header.

Enter: (+)

1. **Name**: the production, room, fixture test, or rig name.
2. **Color**: a swatch used on the showfile card.
3. **Notes**: optional context for the showfile.

Tap **Create** to save it.

11.4 Manage Showfiles

Showfiles appear as cards. A card shows the showfile name, fixture count, default protocol, universes in use, last opened time, and notes when present.

Swipe a showfile card to:

1. **Edit** the name, color, or notes.
2. **Duplicate** the showfile.
3. **Delete** the showfile.

If a different showfile is currently transmitting, StageTools asks before opening another one because switching showfiles stops the active transmission.

11.5 Use Quick Test

Tap **Quick Test** from the Micro Console showfile browser when you want to test one downloaded GDTF fixture without creating a showfile.

Quick Test opens the fixture tester flow. It is meant for bench checks, fixture profile checks, and quick GDTF verification. (ϟ)

Quick Test output stops when you leave the sheet. A showfile, by contrast, can keep transmitting until you stop it.

11.6 Micro Console Modes

Inside a showfile, Micro Console has four main modes:

1. **Patch**: add, organize, test, and manage fixtures.

2. **Faders**: control fixture attributes and custom fader pages.
3. **Grid**: view and edit raw 512-channel universe data.
4. **Programmer**: work fixture-first with groups, color, position, and beam controls.

Use the mode picker near the top of the showfile to switch modes.

11.7 Patch Mode

Patch mode is where you add fixtures to a showfile.

Tap the `+` button in Patch mode to add a fixture.

StageTools can patch from downloaded GDTF fixtures and generic fixtures. (+)

When adding fixtures, choose:

1. Fixture type or GDTF profile.
2. Fixture mode.
3. Fixture number or range.
4. Universe.
5. Start address.
6. Address method.

Address methods include:

1. **Auto-find**: StageTools finds the next open address range.
2. **Manual**: you choose the start address.
3. **Grid**: you choose a position visually from the DMX grid.

StageTools checks fixture numbers, address ranges, and overlaps before adding fixtures.

11.8 Patch List Controls

When fixtures are patched, Patch mode shows search, filter, sort, and view controls.

Use search to find fixtures by: (🔍) (↑↓)

1. Fixture number.

2. Manufacturer.
3. Model.
4. Mode.
5. Note.

Use filters for:

1. All fixtures.
2. Specific universes.
3. Fixtures with pan/tilt.
4. Fixtures with color.
5. Parked fixtures.

Sort options include universe/address, fixture number, manufacturer, mode, and recently added.

11.9 Patch Row Actions

Each patched fixture row shows its fixture number, fixture name, mode, address, and note.

Fixture rows can also show indicators for pan, tilt, parked state, and fixture status.

Use the row menu to:

1. **Edit** the fixture.
2. **Duplicate** the fixture.
3. **Test** the fixture.
4. **Park** or **Unpark** the fixture.
5. **Delete** the fixture.

Parked fixtures are outlined and do not behave like normal active fixtures. Use parking when you want to keep the fixture in the patch but avoid accidentally controlling it. (⋯) (⏸) (▶)

11.10 Save and Load Patches

Open the Patch mode menu to save or load patch layouts.

Use **Save Patch** when you want to preserve the current patch for later recall. (⋯) (⬇)

Use **Load Patch** when you want to bring back a saved patch layout.

The Patch menu also includes:

1. **Unpatch Range**.
2. **Label Range**.
3. **Clear Patch**.

Clearing the patch removes every patched fixture in the current showfile. Saved patches are not affected.

11.11 Patch Grid View

Patch mode can switch between **List** and **Grid**.

Grid view shows the DMX universe as a visual 512-channel map. Use it to see address spacing, overlaps, and fixture footprints faster than a list.

In Patch Grid view:

1. Tap an empty area to start adding a fixture at that universe/address.
2. Tap a fixture block to edit it.
3. Use row actions to test, park, unpark, or unpatch fixtures.
4. Change universes when the showfile has more than one active universe.

11.12 Faders Mode

Faders mode gives you direct fader control for patched fixtures and custom fader pages.

The default fader page shows patched fixtures automatically. Custom pages let you build your own controls.

Fader pages can include:

1. Fixture intensity faders.
2. Fixture attribute faders.
3. Raw channel faders.

Use custom fader pages when you want a focused control surface for a small rig, a test setup, or a repeated troubleshooting workflow.

11.13 Custom Fader Pages

In Faders mode, create a custom page when the default fixture list is too broad.

On a custom page, you can:

1. Add faders.
2. Generate intensity faders.
3. Rename the page.
4. Delete the page.
5. Rename individual faders.
6. Type an exact value.
7. Delete individual faders.

Custom fader pages are saved inside the showfile. (+) (✎) (#)

11.14 Fader Value Readouts

Faders can display values in different ways:

1. **0-255** for raw DMX values.
2. **0-100** for percentage values.
3. **Phys** for physical-style readouts when available.

Use the readout mode that matches the task. DMX values are useful for exact channel work; percentages are easier for fixture intensity and quick balancing.

11.15 Grid Mode

Grid mode shows raw DMX universe values.

Use Grid mode when:

1. You need to see or edit raw channel values.
2. You imported a snapshot from DMX Viewer.
3. You added a universe that does not yet have patched fixtures.
4. You want to confirm what Micro Console is preparing to send.

Tap **Add Universe** when you need a raw universe available in the grid even before fixtures are patched.

Remove a universe when it is no longer needed. (+)

11.16 Programmer Mode

Programmer mode is the fixture-level control surface. It is organized around selected fixtures and control tabs. (🗑)

Programmer tabs:

1. **Groups**.
2. **Color**.
3. **Position**.
4. **Beam**.

Patch fixtures first. Programmer controls appear when there are patched fixtures to work with. (⊞) (🎨) (⌖) (🐞)

11.17 Select Fixtures in Programmer

Programmer mode can work with all fixtures, active fixtures, or selected fixtures depending on the current view and filter.

Use fixture selection when:

1. You only want to adjust one fixture.
2. You want to control a group of fixtures together.
3. You want to make a color, position, or beam change without touching the whole patch.

The number pad supports fixture-style commands such as fixture numbers, `THRU`, `+`, `@`, `FULL`, `OUT`, `BACK`, and `NEXT`.

11.18 Groups Tab

Use Groups to organize fixtures you control together often.

Groups can be used for:

1. Fixtures in one area.
2. Fixtures of the same type.
3. Key lights, practicals, room lights, or set pieces.
4. Any temporary selection you need during troubleshooting.

Group actions include adding fixtures to selection, renaming, coloring, and deleting groups.

11.19 Color Tab

Use Color to set fixture color using the controls that best match the fixture or the job. (⊕)

Color modes include:

1. **Presets**.
2. **HSI**.
3. **CCT**.
4. **RGB**.
5. **CMY**.
6. **CIE**.

Color presets can be universal, fixture-type-specific, or selective. This keeps common colors available without forcing every fixture type to use the same channel interpretation.

For CCT work, use Kelvin and tint controls. For LED color mixing, use RGB, CMY, HSI, or CIE depending on what the fixture profile supports.

11.20 Position Tab

Use Position for pan and tilt control.

Position controls can include:

1. Pan slider.
2. Tilt slider.
3. Fine movement controls.
4. A 2D position pad.

5. Next and back selection movement.

Use Position with a small selection first, especially on live rigs. Pan and tilt changes are immediately visible when transmitting.

11.21 Beam Tab

Use Beam for common non-color attributes.

Beam controls can include:

1. Focus.
2. Zoom.
3. Iris.
4. Strobe.
5. Shutter.

Available controls depend on the patched fixture's GDTF profile and selected mode. ( )

11.22 Quick Test Buttons

Programmer mode includes quick test actions for fast fixture checks.

Use quick tests for:

1. Highlighting selected fixtures.
2. Running a color test.
3. Running a pixel test.
4. Checking dimmers.
5. Blacking out output.

Quick tests temporarily change output and then restore values when stopped where the tool supports restoration.

11.23 Snapshot from DMX Viewer

Use Snapshot when you want Micro Console to import live sACN or ArtNet values that DMX Viewer has already seen.

Common use: (📷)

1. A console is outputting a look.
2. You capture the active universes.
3. You import those values into Micro Console.
4. Micro Console can hold or inspect the values from the imported universes.

To import a snapshot:

1. Open **DMX Viewer** and start listening.
2. Return to Micro Console.
3. Tap **Snapshot**.
4. Choose **sACN** or **ArtNet**.
5. Select the universes to import.
6. Tap **Import into Micro Console**.

Imported universes are copied into the shared transmitter data and added to Grid mode. If Micro Console is already transmitting, StageTools asks before overwriting live output.

11.24 Transmit Settings

Tap **Transmit** to open transmit settings.

Transmit settings include: (📡) (⏺)

1. Protocol: **sACN** or **ArtNet**.
2. sACN priority.
3. Enabled universes.
4. Solo Control Mode.
5. Start/Stop Transmit.

Only enabled universes are sent on the wire.

11.25 sACN Priority

sACN priority affects how receivers choose between sources.

At priority `100`, Micro Console is at the normal console priority. If another source is also sending at `100`, receivers may merge values using HTP behavior.

Below `100`, a normal console at `100` can outrank Micro Console.

Above `100`, Micro Console can outrank a normal console. This can take over the rig if the receiver follows sACN priority.

Read the priority warning before starting transmit.

11.26 ArtNet Output

ArtNet has no priority or HTP arbitration. ( ) ( ) ( )

If another ArtNet source is sending the same universe, fixtures may jump between streams or respond unpredictably. Use Protocol Detector and DMX Viewer to confirm what else is on the network before transmitting ArtNet on a live rig.

11.27 Solo Control Mode

Solo Control Mode loads each fixture's GDTF default values on start.

Use Solo Control Mode only when Micro Console is intended to be the only console on the network. If another source is active, Solo Control Mode can affect output on those universes.

When Solo Control Mode is off, Start sends `0` on every channel. On sACN at priority `100` or below, another source with non-zero HTP values may still win.

11.28 Network Traffic Warnings

When the transmit sheet detects another source on the network, StageTools shows a warning with the affected universes.

Treat this warning as a pause point. Confirm whether Micro Console is supposed to take over before starting output. ( )

11.29 Start and Stop Transmitting

To start transmitting:

1. Open **Transmit**.
2. Choose sACN or ArtNet.
3. For sACN, set priority.
4. Enable the universes you want to send.
5. Check Solo Control Mode.
6. Tap **Start Transmit**.
7. Confirm the safety prompt.

While transmitting, StageTools shows a global transmitting banner so you can return to the active showfile from elsewhere in the app.

To stop transmitting:

1. Open **Transmit**.
2. Tap **Stop Transmit**.

You may also be asked to stop transmitting if you open a different showfile or Quick Test.

11.30 Showfile Settings

Use the showfile settings button to edit showfile-level defaults.

Settings can include showfile identity, transmit defaults, Solo Control Mode default, preferred interface, and the default tab. (⚙)

Use defaults to make repeat workflows faster, especially when a showfile always uses the same protocol, priority, or first-open mode.

11.31 Micro Console Troubleshooting

If fixtures do not respond:

1. Confirm the device is on the same network as the fixtures or nodes.
2. Confirm the protocol is correct.
3. Confirm the universe is enabled in Transmit Settings.

4. Confirm the fixture address and footprint.
5. Confirm the fixture is not parked.
6. Check whether another source is outranking or conflicting with Micro Console.

If a fixture patch fails:

1. Check whether the fixture number is already in use.
2. Check whether the address overlaps another fixture.
3. Confirm the universe and address are valid.
4. Confirm the GDTF fixture is downloaded.

If Snapshot shows no universes:

1. Open DMX Viewer.
2. Choose the correct protocol.
3. Tap Scan.
4. Wait for live universe data.
5. Return to Micro Console and open Snapshot again.

If transmitting feels risky:

1. Stop.
2. Open Protocol Detector.
3. Confirm what sources are active.
4. Open DMX Viewer to inspect live universes.
5. Return to Micro Console only when you know what output should happen.

11.32 Micro Console Workflow Example

1. Create a showfile for the job or fixture test.
2. Patch fixtures from downloaded GDTF profiles.
3. Use Patch Grid view to confirm universe spacing.
4. Build any custom fader pages you need.
5. Create groups for common selections.

6. Use Programmer to test color, position, and beam attributes.
7. Open Transmit Settings.
8. Choose protocol, priority, and enabled universes.
9. Confirm no unexpected network traffic is present.
10. Start transmitting.
11. Stop transmitting when the test or temporary control pass is finished.

CHAPTER 12

LTC Timecode

LTC Timecode lets StageTools generate or receive SMPTE LTC over audio. Use it when you need a quick timecode source, need to confirm incoming LTC, or need to check that an audio timecode feed is present. ( )

LTC uses audio input and output. For frame-accurate work, use wired audio. Bluetooth adds too much latency for dependable timecode.

12.1 Open LTC Timecode

1. Open **ToolBox**.
2. Tap **LTC Timecode**.
3. Choose **Generator** or **Receiver**.

12.2 Choose Generator or Receiver

LTC Timecode has two modes:

1. **Generator** sends LTC out through the device audio output.
2. **Receiver** listens for LTC through the device audio input.

Switching modes stops the current LTC engine first. This prevents StageTools from leaving an old input tap or output source running in the background. ( ) ( )

12.3 Start and Stop LTC

Use the header button to start or stop the selected mode.

When LTC is running, StageTools keeps the audio session active even if you leave the page. Tap **Stop** when you are done. (▶) (■)

12.4 Read the Diagnostics Strip

The diagnostics strip shows what the LTC engine is doing.

In Generator mode, it can show:

1. **TX** with the selected frame rate.
2. **Out** with the active output route.

In Receiver mode, it can show:

1. **RX Listening** when StageTools is waiting for valid LTC.
2. **RX Locked** when StageTools is receiving readable timecode.
3. **In** with the active input route.

12.5 Generator Mode

Generator mode sends LTC from the iPhone or iPad audio output.

Use Generator mode when:

1. You need a portable timecode source.
2. You want to feed a timecode distro.
3. You want to feed a sound mixer, media server, or camera input.
4. You need to bench-check that another device can read LTC.

To generate LTC:

1. Choose **Generator**.
2. Set the frame rate.
3. Set the start timecode if needed.
4. Connect wired audio output.
5. Tap **Start**.

The big timecode display shows **OUTGOING** while Generator mode is running.

12.6 Set Frame Rate

Use **Frame Rate** to choose the rate that matches the master system.

Available frame rates: (🎞)

1. **24** for film-style workflows.
2. **25** for PAL/EBU workflows.
3. **29.97 DF** for NTSC drop-frame workflows.
4. **30** for NTSC non-drop workflows.

When using `29.97 DF`, the display shows a **DF** badge and uses drop-frame formatting.

12.7 Set Start Timecode

In Generator mode, tap **Start TC** to set the starting timecode.

The start timecode editor uses four fields: (⟋)

1. **HH**: hours.
2. **MM**: minutes.
3. **SS**: seconds.
4. **FF**: frames.

Tap **Save** to store the value. The generator uses this value the next time you start Generator mode.

12.8 Receiver Mode

Receiver mode listens for incoming LTC through the audio input.

Use Receiver mode when:

1. You need to confirm that a timecode feed is present.
2. You want to check the incoming timecode value.
3. You want to verify frame rate and drop-frame behavior.
4. You are troubleshooting an audio timecode line.

To receive LTC:

1. Choose **Receiver**.
2. Set the expected frame rate.
3. Connect the LTC source to the device audio input.
4. Tap **Start**.

5. Watch for **RX Locked** and the incoming timecode display.

Recommended input path:

1. Use a wired USB-C or Lightning audio input adapter.
2. Adapt the audio input to a 1/4-inch jack when needed.
3. Use a 1/4-inch jack to 3-pin XLR adapter or cable when the LTC source is coming from a standard XLR timecode/audio output.

This is often the cleanest way to get LTC from a mixer, camera, timecode box, or playback rig into the iPhone or iPad without relying on Bluetooth or the built-in microphone.

Receiver mode requires microphone access. iOS asks for permission the first time StageTools starts receiving audio.

12.9 Use the Input Level Meter

Receiver mode shows an input level meter while running. ( )

Use the meter to confirm the LTC signal is reaching the device.

If the meter is too low, the source may be disconnected, muted, or too quiet.

If the meter is pinned, the source may be too hot and distorted.

For the cleanest result, feed the iPhone or iPad through a wired interface or adapter that can accept the LTC source cleanly.

12.10 Bluetooth Warning

If StageTools detects Bluetooth output while using Generator mode, it shows a warning.

Bluetooth audio can arrive 100-200 ms late. That is not usable for frame-accurate timecode. ( )

Use:

1. Wired headphones.
2. A USB-C audio adapter.
3. A proper audio interface.
4. A wired connection into the destination device.

12.11 Error Messages

If LTC fails to start, StageTools shows an error bar.

Errors usually come from audio route problems, permission problems, or another app holding the audio session. (⚠)

12.12 LTC Timecode Troubleshooting

If Generator mode does not output:

1. Confirm Generator mode is selected.
2. Confirm the output route is wired.
3. Avoid Bluetooth.
4. Confirm the receiving device is listening to the correct input.
5. Stop and start LTC again.

If Receiver mode does not lock:

1. Confirm Receiver mode is selected.
2. Confirm microphone permission is allowed.
3. Check the input cable or audio interface.
4. Watch the input level meter.
5. Match the frame rate to the source.
6. Lower the source if the input is distorted.

If the displayed timecode is wrong:

1. Confirm the frame rate.
2. Confirm whether the source is drop-frame or non-drop.
3. Check the source device's timecode settings.
4. Stop and restart Receiver mode after changing the expected rate.

If audio elsewhere on the device stops working:

1. Return to LTC Timecode.
2. Tap **Stop**.

3. Try the other audio app again.

12.13 LTC Workflow Example

1. Connect a wired audio adapter.
2. Open **LTC Timecode**.
3. Choose **Generator**.
4. Set the frame rate.
5. Set the start timecode.
6. Tap **Start**.
7. Confirm the destination device is receiving.
8. Tap **Stop** when finished.

CHAPTER 13

Curve Builder

Curve Builder helps you measure how a fixture actually responds and turn those measurements into correction curves. Use it for dimmer linearization, color-primary response, fixture reference PDFs, console curve files, and LED-wall color matrix data. (📈)

Curve Builder can transmit DMX directly to the fixture while you take readings. You still need a real meter for the measurement side.

13.1 Open Curve Builder

1. Open **ToolBox**.
2. Tap **Curve Builder**.
3. Create a new calibration profile or open an existing one.

13.2 What You Need

For best results, have:

1. A color meter or light meter.
2. A fixture addressed and connected to the network.
3. The fixture's correct DMX mode.
4. A wired show-network connection when using Curve Builder to transmit.
5. A dark or controlled measurement environment.

For intensity calibration, lux or foot-candle readings are enough.

For color calibration, lux readings build the correction curves. Optional CIE `x/y` readings unlock chromaticity stability reporting and 3x3 color matrix export.

13.3 Create a New Profile

Tap **Create New**.

Enter: (+)

1. **Profile Name**: usually the fixture, mode, and test condition.
2. **Fixture metadata**: manufacturer, model, and DMX mode when helpful.
3. **Mode**: how many measurement steps to create.
4. **Type**: Intensity or Color.
5. **Color Space** for color profiles.
6. **Target Curve** for intensity profiles.

The sheet shows how many readings the profile will require before you create it.

13.4 Choose Calibration Mode

Calibration mode controls how many DMX percentages you will measure.

Available modes:

1. **Quick**: 25%, 50%, 75%, and 100%.
2. **Quick Extended (20%)**: 20%, 40%, 60%, 80%, and 100%.
3. **Full (10%)**: every 10% from 10% to 100%.
4. **Full (5%)**: every 5% from 5% to 100%.

Use **Quick** when you need a fast reference.

Use **Full (10%)** or **Full (5%)** when you need a more accurate correction curve.

13.5 Use High-Res Endpoints

Turn on **High-Res Endpoints** when you want extra detail near the bottom and top of the curve.

High-Res Endpoints adds 1% steps from:

1. 1-10%.
2. 90-100%.

This is useful for LED fixtures that behave strangely near blackout, low glow, or full output.

13.6 Choose Intensity or Color

Intensity profiles measure one dimmer-style channel. Use this when the main problem is dimming response.

Color profiles measure RGB or RGBW primaries. Use this when the main problem is color-primary response, color drift, or LED-wall color matching.

For intensity profiles, choose a target curve:

1. **Linear**.
2. **Exponential**.
3. **Logarithmic**.
4. **S-Curve**.

For color profiles, Curve Builder always targets a linear response.

13.7 Open a Profile

Profile cards show:

1. Profile name.
2. Calibration mode.
3. Calibration type.
4. Target curve or color space.
5. Completion count.
6. A small curve preview when curves exist.

Tap a profile to open it. Swipe a profile to delete it.

13.8 Wizard and Quick Entry

Curve Builder has two reading entry styles:

1. **Wizard** walks you through one reading at a time.
2. **Quick Entry** shows the readings in a list for faster batch entry.

Use Wizard when you are driving the fixture from StageTools and measuring each step in order.

Use Quick Entry when you already have readings written down or want to fill many values quickly.

13.9 Set Up DMX Control

Tap **Transmit** in the profile header to open DMX Control.

DMX Control lets Curve Builder drive the fixture directly so you do not need a separate console. ( )

Set:

1. **Universe**.
2. **Start Address**.
3. **Channel Resolution**: 8-bit or 16-bit.
4. **Channel Map**.
5. **Protocol**: sACN or ArtNet.

Then tap **Start Transmit**.

The transmitter stays on until you tap **Stop Transmit**. ( ) ( )

13.10 Use 8-Bit or 16-Bit Channel Resolution

Choose **8-bit** when each calibrated channel uses one DMX address.

Choose **16-bit** when each calibrated channel uses a coarse/fine pair.

In 16-bit mode, Curve Builder sends the calibration value with full 16-bit precision:

1. Coarse byte at the mapped offset.
2. Fine byte at the next address.

Use 16-bit only when the fixture mode actually declares 16-bit color or intensity control.

13.11 Map Channels

Channel Map tells Curve Builder where each measured channel lives relative to the fixture start address.

For an RGB fixture in 8-bit mode, a common map is:

1. Red offset `0`.
2. Green offset `1`.
3. Blue offset `2`.

For an RGBW fixture in 16-bit mode, a common map is:

1. Red coarse offset `0`, fine offset `1`.
2. Green coarse offset `2`, fine offset `3`.
3. Blue coarse offset `4`, fine offset `5`.
4. White coarse offset `6`, fine offset `7`.

13.12 Auto-Fill from GDTF

Tap **Auto-Fill from GDTF** to use a downloaded fixture profile to fill channel offsets.

Use this when the fixture is already downloaded in Fixtures. If the fixture is not downloaded yet, download it from the Fixture Library first. (🏛)

After auto-fill, review the channel map before transmitting. Manufacturer profiles can vary by mode, firmware, and fixture family.

13.13 Collect Readings with Wizard

Wizard mode shows the current channel, DMX percentage, DMX value, and reading field.

To collect readings:

1. Start DMX transmit if you want StageTools to drive the fixture.
2. Let the fixture settle.
3. Measure the output with your meter.
4. Enter lux or foot-candles.
5. For color profiles, optionally enter CIE `x` and `y`.
6. Tap **Next**.

When DMX control is active, Curve Builder sends the current step value to the fixture and waits briefly so the fixture can stabilize before you enter the measurement.

13.14 Enter Color Readings

For color profiles, each primary has its own reading sequence.

For each step: (🎨)

1. Meter lux or foot-candles.
2. Enter the measured value.
3. Optionally enter CIE `x`.
4. Optionally enter CIE `y`.

Lux values are required for the correction curve.

CIE `x/y` values are optional, but they are important if you want chromaticity stability diagnostics or a 3x3 color matrix export.

13.15 Use Quick Entry

Quick Entry is a list view for entering many readings quickly.

For intensity profiles, Quick Entry shows one section.

For color profiles, Quick Entry groups readings by channel:

1. Red.
2. Green.
3. Blue.
4. White, when using RGBW.

Use Quick Entry when you are copying readings from a meter log, spreadsheet, or notebook.

13.16 Finish and Review Curves

When all required readings are complete, Curve Builder computes correction curves and opens the finished profile view.

The finished view includes:

1. Profile metadata.
2. Correction curves.
3. Data summary.
4. Chromaticity stability, for color profiles with CIE `x/y` data.
5. Raw readings.

6. Expand Data tools.

Tap a raw reading row to edit it.

13.17 Read the Curve Graph

The curve graph shows the correction curve over a reference grid.

The dashed diagonal is the uncorrected identity line.

A curve above or below that line means Curve Builder is compensating for how the fixture actually measured.

For intensity profiles, the curve is shown as one intensity curve.

For color profiles, each primary gets its own curve.

13.18 Chromaticity Stability

For color profiles, Curve Builder can compare measured CIE `x/y` values across output levels.

Chromaticity Stability can show:

1. Full-output `x/y`.
2. Maximum delta.
3. The DMX percentage where the largest drift occurred.
4. A verdict such as Excellent, Good, Noticeable, or Poor.

This section only appears with enough CIE `x/y` data.

13.19 Expand Data

Use **Expand Data** when a profile needs more precision after the first pass.

Expand Data options include:

1. **Double Resolution**: inserts midpoint readings between existing steps.
2. **Enable High-Res Endpoints**: adds 1% density at 1-10% and 90-100%.
3. **Add Custom Points**: lets you add your own DMX percentages.
4. **Upgrade Mode**: adds missing readings for a higher-resolution mode.

Existing readings are preserved. New readings start empty until you meter and enter them.

13.20 Export a Profile

Tap the export icon when the profile has computed curves.

Export formats: (⬆)

1. **grandMA3 XML**: one XML file per channel.
2. **ChamSys MagicQ CSV**: one CSV file per channel.
3. **PDF Reference Sheet**: readable curve and data reference.
4. **JSON Profile**: StageTools profile data for backup or reuse.
5. **3x3 Color Matrix**: color correction matrix for supported color profiles.

13.21 Export a 3x3 Color Matrix

The 3x3 Color Matrix export appears only when a color profile has the required full-output CIE `x/y` data for every primary. ( ) ( ) ( ) ({}) ( )

When exporting a matrix, choose a target gamut:

1. **sRGB / Rec.709**.
2. **DCI-P3**.
3. **Rec.2020**.

Use this for LED wall or color-processing workflows where you need to map measured fixture primaries into a target color space.

13.22 Import and Reuse Profiles

Curve Builder profiles are saved in StageTools and sync with iCloud when iCloud Sync is enabled.

Use JSON export when you want to:

1. Back up a calibration profile.
2. Move a profile to another device.
3. Keep calibration data with a fixture record.
4. Share a profile for review.

13.23 Curve Builder Troubleshooting

If the fixture does not respond to DMX:

1. Confirm the protocol is correct.
2. Confirm the device is on the show network.
3. Confirm universe and start address.
4. Confirm the channel map.
5. Confirm 8-bit vs 16-bit mode.
6. Check whether another source is controlling the same fixture.

If readings look wrong:

1. Let the fixture stabilize before measuring.
2. Confirm the meter is aimed consistently.
3. Use a controlled environment.
4. Confirm the fixture is not receiving extra values from another console.
5. Recheck the fixture mode and channel offsets.

If export does not include 3x3 Color Matrix:

1. Confirm the profile type is Color.
2. Enter CIE `x/y` values for the required primaries.
3. Make sure full-output readings include CIE `x/y`.

13.24 Curve Builder Workflow Example

1. Create a new profile.
2. Choose Quick, Quick Extended, Full (10%), or Full (5%).
3. Choose Intensity or Color.
4. Open DMX Control.
5. Set universe, address, protocol, resolution, and channel map.
6. Start transmit.
7. Use Wizard to step through the readings.

8. Enter meter values.
9. Finish the profile and review the curves.
10. Expand data if the first pass needs more precision.
11. Export the curve files or PDF reference.
12. Stop transmit when finished.

CHAPTER 14

Color Science Calculator

Color Science Calculator helps with two related jobs: quick CCT reference and measured fixture color solving.

The CCT tab is available for quick Kelvin, tint, and color value reference. Fixture Profiles and Solver are for measured fixture workflows, where you record how a real RGB, RGBW, RGBA, RGBWA, or RGBWWCW fixture behaves and then solve toward a target CIE `x/y` color.

14.1 Opening Color Science Calculator

1. Open ToolBox. (🧰)
2. Tap Color Science Calculator.
3. Choose CCT, Fixture Profiles, or Solver from the tab control.

Use CCT when you need a fast color reference. Use Fixture Profiles when you are measuring a specific fixture. Use Solver when you want StageTools to turn a measured CIE target into fixture channel values.

14.2 Tabs and Access

Color Science Calculator has three tabs. (🔒)

1. CCT: free Kelvin/tint conversion and reference values.
2. Fixture Profiles: measured fixture profiles for RGB-style fixtures.
3. Solver: CIE `x/y` target solving using completed fixture profiles.

If Fixture Profiles or Solver is locked, StageTools shows an unlock panel. The CCT tab stays available.

14.3 CCT Tab

The CCT tab converts a Kelvin value and optional tint into practical color references. (✨)

Use it when you need to:

1. Check a color temperature quickly.
2. Compare green or magenta tint offsets.

3. Convert a target into RGB, RGBW, CMY, Hue/Saturation, CIE `x/y`, or CIE `u'v'` values.
4. Save common looks as presets.

StageTools uses the ASC White Point Expanded v2 table for Kelvin and tint reference values.

14.4 Setting Kelvin

The Kelvin field accepts values from `1525K` to `20000K`.

1. Tap the CCT value field.
2. Enter the Kelvin value.
3. Or use the slider for faster adjustment.
4. Watch the CIE chart and output cards update live.

14.5 Tint

Tint shifts the target toward green or magenta using the ASC tint table.

1. Open the Tint menu.
2. Choose the tint level.
3. Review the updated output values.

Use tint when the target is not sitting directly on the Planckian locus. For example, this is useful when matching a camera white point, a gel-corrected fixture, or an existing practical source.

14.6 CIE Chart and Output Cards

The CIE chart gives a visual reference for where the selected color sits. The output cards give values that are easier to use at the console or in a fixture note. (⌃⌄)

Result cards include:

1. CIE 1931 `x/y`.
2. CIE 1976 `u'v'`.
3. RGB.
4. RGBW.
5. Hue and Saturation.

6. CMY.
7. Hybrid LED.

Treat these as reference values, not a guarantee that every fixture will match perfectly. Real fixtures vary by emitter set, calibration, lensing, dimmer curve, and manufacturer color engine.

14.7 Presets

Presets keep common CCT targets close at hand.

1. Set the CCT and tint.
2. Tap Save.
3. Use the saved preset chip later to return to that target.
4. Long-press a preset to delete it.

14.8 Hybrid LED

Hybrid LED estimates a warm-white and cool-white mix for two-channel white engines. (⊕)

1. Set the warm CCT reference for the fixture.
2. Set the cool CCT reference for the fixture.
3. Choose the target CCT.
4. Use the warm/cool percentages as a starting point.

If tint is selected, StageTools shows the CCT reference but cannot force a two-channel warm/cool system to reproduce a green or magenta tint shift by itself.

14.9 Fixture Profiles

Fixture Profiles are measured records of how a real fixture behaves. They are the bridge between a theoretical color target and the actual emitters inside a light.

Use Fixture Profiles when you want StageTools to solve for RGB-style channel values instead of relying on generic conversion math.

Supported layouts:

1. RGB.

2. RGBW.
3. RGBA.
4. RGBWA.
5. RGBWWCW.

14.10 Creating a Fixture Profile

1. Open Fixture Profiles. (◎)
2. Tap Create.
3. Choose the fixture layout.
4. Enter the profile name.
5. Add manufacturer, model, and mode/personality when helpful.
6. Measure each emitter at full output.
7. Enter the CIE `x/y` values for every emitter.
8. Save the profile.

The profile appears in Solver after every emitter has a valid direct CIE `x/y` measurement.

14.11 Profile Quality

StageTools labels profiles by how much measurement data they contain. (+)

1. Draft: one or more emitters still need valid CIE `x/y` values.
2. Quick: every emitter has direct full-output CIE `x/y` .
3. Enhanced: every emitter has direct CIE `x/y` and brightness data.
4. Precision: every emitter also has measured 25%, 50%, 75%, and 100% step response data.

Quick profiles are enough to start solving chromaticity. Enhanced profiles give the solver better brightness context. Precision profiles let the solver account for nonlinear emitter behavior.

14.12 Entering Measurements

For each emitter:

1. Set only that emitter to full output.

2. Measure the output with a meter.
3. Enter CIE `x`.
4. Enter CIE `y`.
5. Add brightness when you have it.
6. Repeat for every emitter in the selected layout.

Measure in a controlled setup whenever possible. Keep the meter position consistent, let the fixture stabilize, and confirm that no other console values are affecting the fixture.

14.13 Precision Measurements

Precision Measurements are optional step readings. ( ) ( )

1. Open the profile editor.
2. Expand Precision Measurements.
3. Measure each emitter at 25%, 50%, 75%, and 100%.
4. Enter CIE `x/y` and brightness for each step.
5. Save the profile.

Use this when a fixture does not track linearly through its dimming range, or when you need more confidence in a solve for camera-critical work.

14.14 Mixed Checkpoints

Mixed Checkpoints save measured blend samples. They are useful reference points when you want to compare a real fixture mix against the profile data you entered. ( )

1. Open the profile editor.
2. Expand Mixed Checkpoints.
3. Tap Add Checkpoint.
4. Enter the measured result CIE `x/y`.
5. Enter the channel percentages used to create that mix.
6. Add brightness if you measured it.
7. Save the profile.

Mixed Checkpoints are stored with the profile for validation and future reference. They are not a replacement for measuring the individual emitters first.

14.15 Profile Actions

Fixture Profiles can be reused and moved between devices. ( )

1. Import: bring in an exported StageTools color profile JSON file.
2. Edit: revise profile details or measurements.
3. Duplicate: make a copy before experimenting.
4. Export: share or archive the profile as JSON.
5. Delete: remove a profile you no longer need.

14.16 Solver

Solver turns a measured CIE `x/y` target into console-ready channel values for a completed Fixture Profile. ( ) ( ) ( ) ( ) ( )

Solver works best when:

1. The profile matches the exact fixture and mode.
2. Every emitter has valid CIE `x/y`.
3. Brightness data is included when available.
4. The fixture is measured in the same general setup where the values will be used.

14.17 Solving a Target

1. Open Solver.
2. Choose a complete profile.
3. Enter the target CIE `x`.
4. Enter the target CIE `y`.
5. Confirm the active emitters.
6. Review Best Match.
7. Tap Copy Values if you want to paste the result into notes or another app.

The recommended result shows predicted `x/y`, Delta `u'v'`, Delta `xy`, status, and channel values.

14.18 Active Emitters

Active Emitters lets you temporarily remove one or more emitters from a solve. ( )

Use it when:

1. You do not want to use a certain color engine.
2. An emitter is unavailable or patched differently.
3. You want to compare RGB-only against RGBW or RGBWA behavior.
4. You need to avoid an emitter that looks bad on camera.

Emitter exclusions apply to the current solve. They do not delete measurements from the profile.

14.19 Alternate Mixes

Best Match appears first. Alternate Mixes shows other useful ways to approach the same target. (✓)

Solver strategies include:

1. Best Match: closest chromaticity match.
2. Use Whites First: favors measured white emitters when available.
3. RGB Only: uses Red, Green, and Blue only.
4. Maximum Output: prefers brighter mixes when color error is similar.
5. Minimum Channels: uses fewer emitters when the match stays close.
6. Preserve Brightness: uses measured brightness as a stronger tie-breaker when the profile includes brightness data.

If several strategies land on the same usable recipe, StageTools hides the repeats so the list stays readable.

14.20 Reading Solver Values

Each solved channel row shows:

1. Percentage.
2. 8-bit DMX value.

3. 16-bit DMX value.

Use percentage as the main reference when programming by eye or entering fixture color controls. Use 8-bit or 16-bit values when you are matching a DMX table, console value, or exact channel output.

14.21 Color Science Troubleshooting

If a profile does not appear in Solver:

1. Open Fixture Profiles.
2. Confirm every emitter has a valid CIE `x/y`.
3. Check that no value is blank, zero, or outside valid chromaticity range.
4. Save the profile again.

If the solve says the target is outside the active emitter range:

1. Confirm the target `x/y` value is correct.
2. Turn any excluded emitters back on.
3. Try Alternate Mixes.
4. Remember that some colors cannot be produced by the selected fixture.

If the output does not match on set:

1. Confirm the profile matches the exact fixture mode.
2. Recheck emitter measurements.
3. Add brightness data if the profile is Quick only.
4. Add Precision Measurements for fixtures with nonlinear emitter response.
5. Confirm no other source is controlling the fixture.

14.22 Color Science Workflow Example

1. Open Color Science Calculator.
2. Use CCT for a quick reference if you only need Kelvin/tint values.
3. Open Fixture Profiles for a measured workflow.
4. Create a profile for the exact fixture layout.

5. Measure each emitter and enter CIE `x/y`.
6. Add brightness readings if available.
7. Add Precision Measurements when accuracy matters.
8. Open Solver.
9. Enter the target CIE `x/y`.
10. Review Best Match.
11. Compare Alternate Mixes if needed.
12. Copy the values into your notes, plot, or console paperwork.

CHAPTER 15

DIP Switch Calculator

DIP Switch Calculator converts a DMX start address into physical switch positions. It also works in reverse: tap switches on the screen and StageTools recalculates the address.

Use it when you are addressing older dimmers, LED fixtures, practical controllers, wireless receivers, or any device that still uses DIP switches for DMX addressing.

15.1 Opening DIP Switch Calculator

1. Open ToolBox. ( )
2. Tap DIP Switch Calculator.
3. Enter a DMX start address or tap switches directly.

The header includes Reset. Reset clears the address and turns all switches off.

15.2 Entering an Address

1. Tap DMX Start Address.
2. Enter a value from `1` to `512`.
3. StageTools turns on the required switches.
4. Review the Switches ON chips and binary breakdown.

If the value is outside the valid range, StageTools shows an error and does not calculate a switch pattern.

15.3 Copying the Address

When the calculated address is greater than zero, a copy button appears next to the address field.

1. Set the address.
2. Tap Copy.
3. Paste the address into a note, message, label, or other document.

15.4 Clearing the Address

Use the clear button beside the address field to empty the current value and turn all switches off. ( )

Use Reset in the header when you want the same result from the top of the screen.

15.5 9-Switch and 10-Switch Layouts

DIP Switch Calculator supports 9-switch and 10-switch layouts. ( )

1. 9 Switch uses switches 1 through 9.
2. 10 Switch uses switches 1 through 10.

Switch values are:

1. Switch 1 = 1.
2. Switch 2 = 2.
3. Switch 3 = 4.
4. Switch 4 = 8.
5. Switch 5 = 16.
6. Switch 6 = 32.
7. Switch 7 = 64.
8. Switch 8 = 128.
9. Switch 9 = 256.
10. Switch 10 = 512.

In 9-switch mode, switch 10 is not part of the active calculation.

15.6 Manual Switch Toggling

You can tap the switch package directly.

1. Tap a switch to turn it on.
2. Tap it again to turn it off.
3. StageTools updates the DMX Start Address field.
4. Review the Switches ON chips.
5. Use the binary breakdown to confirm the math.

StageTools prevents a switch from turning on if the result would exceed address `512`.

15.7 Invert Orientation

Some physical DIP packages label or mount the ON direction opposite of the default on-screen orientation. Invert Orientation flips the visual switch direction without changing the address math. (✓)

1. Tap the orientation button between the ON and OFF labels.
2. Confirm that the on-screen ON direction matches the physical device.
3. Enter or toggle the address normally.

The switch values do not change. Only the visual direction changes.

15.8 Quick Picks

Quick Picks generates a row of common start addresses based on a starting address and fixture footprint. (Ⓝ) (🅝)

Use it when you are addressing a run of fixtures with the same channel count.

1. Set Start to the first address in the run.
2. Set Footprint to the number of channels per fixture.
3. Tap a generated address.
4. StageTools applies that address to the switch package.

For example, a Start of `1` and Footprint of `8 ch` creates addresses `1`, `9`, `17`, `25`, and so on.

15.9 Setting Start and Footprint Directly

The Start and Footprint values can be adjusted one step at a time or entered directly. (−) (+)

1. Tap the minus or plus button to nudge the value.
2. Tap the Start number to type a starting address.
3. Tap the Footprint value to type a channel count.
4. Tap Set.

StageTools stores the Quick Picks start address, footprint, and orientation preference so the calculator opens the way you last used it.

15.10 Switch Value Reference

The Switch Value Reference lists every active switch and its value. Active switches are highlighted.

Use this section when you want to double-check a physical fixture against the calculated switch positions, especially if the fixture label is worn, sideways, or mounted in an awkward place.

15.11 DIP Switch Troubleshooting

If the fixture does not respond at the expected address:

1. Confirm the fixture is set to DMX mode.
2. Confirm the fixture personality or mode uses the footprint you expected.
3. Check whether the fixture uses 9 or 10 DIP switches for addressing.
4. Confirm whether the physical ON direction is inverted.
5. Verify that the universe and cable path are correct.
6. Power-cycle the fixture if its address only updates on boot.

If the physical switch pattern looks backwards:

1. Tap the orientation button.
2. Match the ON/OFF direction to the fixture label.
3. Recheck the Switches ON chips.

15.12 DIP Switch Workflow Example

1. Open DIP Switch Calculator.
2. Choose 9 Switch or 10 Switch.
3. Confirm the ON direction matches the physical fixture.
4. Enter the start address.
5. Set the physical switches shown on screen.
6. Use Switches ON and the binary breakdown to double-check the pattern.

7. For multiple fixtures, set Start and Footprint in Quick Picks.

8. Tap each generated address as you move down the fixture run.

CHAPTER 16

Troubleshooting

Use this chapter when something is not behaving the way you expect and you are not sure which feature chapter to start with.

Start with the simplest checks first: permissions, network connection, selected protocol, selected universe, and whether another source is already controlling the same device or fixture. Most field issues come from one of those five places.

16.1 First Checks

Before changing a setup, check these items. (⚙)

1. Confirm the iPhone or iPad is on the correct Wi-Fi or Ethernet adapter.
2. Confirm Local Network permission is enabled for StageTools.
3. Confirm the tool is using the expected protocol: sACN or ArtNet.
4. Confirm the universe number matches the console, node, or fixture.
5. Confirm the device IP range makes sense for the show network.
6. Confirm another console, transmitter, or app is not sending conflicting data.
7. Restart the specific tool before restarting the app.
8. If the device caches settings, power-cycle the device after changing address, mode, or network settings.

If the issue is isolated to one tool, use the tool-specific troubleshooting section first. If it affects multiple tools, start with network and permissions.

16.2 Permissions

StageTools needs iOS permissions for some workflows.

1. Local Network: required for network scanning, DMX monitoring, DMX transmit, protocol detection, fixture communication, and other LAN workflows.
2. Camera: required for QR scanning, Scout photos, and photo capture workflows.
3. Microphone: required for Scout voice memos, transcription source recording, and LTC receiver workflows that use audio input.

4. Photos or Files access: required when importing, exporting, saving, or sharing media and documents.
5. iCloud: required for iCloud-backed sync across devices.

If a permission was denied:

1. Open iOS Settings.
2. Find StageTools.
3. Enable the permission.
4. Return to StageTools and retry the workflow.

16.3 Network Connectivity Issues

If StageTools cannot see devices, receive DMX, or transmit correctly, check the network path. (🔒)

1. Confirm the device is on the show network, not a guest network or internet-only Wi-Fi.
2. If using Ethernet, confirm iOS is actually using the adapter.
3. Confirm the adapter, switch, and cable are active.
4. Confirm the iPad/iPhone IP address is in the same subnet as the devices you expect to reach, unless the network is intentionally organized across different subnets.
5. Confirm the show network is not blocking broadcast or multicast traffic.
6. Confirm VPN, private relay, or security software is not interfering.

For sACN, multicast behavior matters. If sACN data does not appear, check the multicast path and universe range. For ArtNet, check broadcast/unicast routing and subnet/net/universe settings on the console or node.

16.4 Network Devices Scan Issues

If Network Devices does not find the expected gear: (🖧)

1. Try Quick Scan first.
2. Use Deep Scan when the subnet plan is unclear or the network is organized across different subnets.
3. Confirm the scan profile matches the IP range you want to search.
4. Confirm the device responds to the kind of scan being used.
5. Check whether the device is asleep, booting, firewalled, or on a management VLAN.
6. Save known scan profiles for repeated show networks.

If the scan finds too many devices, use search, filters, tags, and favorites before changing the scan range.

16.5 DMX Viewer Issues

If DMX Viewer does not show incoming levels:

1. Confirm the console or source is actively sending.
2. Confirm sACN or ArtNet is selected correctly.
3. Confirm the universe range includes the universe you expect.
4. Confirm the iPad/iPhone is on the same network path as the source.
5. Confirm another network interface is not being preferred.
6. If using sACN, check multicast behavior.
7. If using ArtNet, check whether the source is broadcasting, unicasting, or sending to a different network range.

If levels appear but look wrong, inspect a single universe and channel range before assuming the whole feed is bad.

16.6 Micro Console Transmit Issues

If a fixture or node does not respond to Micro Console: ( )

1. Confirm Transmit is turned on.
2. Confirm the protocol is correct.
3. Confirm the universe is correct.
4. Confirm the patch address and fixture mode match the real fixture.
5. Confirm sACN priority is not lower than another active source.
6. Confirm Solo Control Mode is set the way you intend.
7. Watch for network traffic warnings.
8. Stop transmit when you are done testing.

If output appears doubled, stuck, or unexpected, check for another console, snapshot, or network source sending at the same time.

16.7 Protocol Detector Issues

If Protocol Detector does not show expected traffic: ( )

1. Confirm the listener is running.
2. Confirm the iPad/iPhone is on the same network path.
3. Confirm the source is actually transmitting.
4. Check whether the traffic is unicast to a different device.
5. Check whether multicast traffic is blocked.
6. Try a longer listening window.

If Protocol Detector shows conflicts, use the source list and streams view to identify which device is sending the duplicate or unexpected traffic.

16.8 Fixture Library and GDTF Issues

If fixture search, download, or GDTF Share sign-in is not working: ( )

1. Confirm the device has internet access.
2. Confirm GDTF Share credentials are correct.
3. Try search by manufacturer first, then model.
4. Check revisions if the expected fixture appears under a different version.
5. Use downloaded fixtures for offline work.
6. If a downloaded fixture behaves oddly in another tool, confirm the fixture mode/personality.

If a fixture is not in GDTF Share, use another available reference, request the file from the manufacturer, or create the needed notes manually until a proper profile exists.

16.9 Quick Plots Issues

If symbols, labels, or drawings are hard to select: ( )

1. Confirm the correct type is active: Lighting, Network/Power, or Grip.
2. Confirm the element is on the active layer.
3. Confirm the layer is visible and unlocked.
4. Zoom in before adjusting dense areas.

5. Use nudge for small adjustments.
6. Use Free-Move Label Position when the automatic label position is not clear enough.

If a background or export looks wrong:

1. Confirm the background image imported correctly.
2. Check layer visibility.
3. Check whether labels or symbols are hidden behind other items.
4. Export again after saving the plot.

16.10 Scout Notes Issues

If Scout media, transcripts, or notes are not appearing where expected: ( )

1. Confirm the Scout is saved.
2. Confirm Photos, Camera, Microphone, and Files permissions as needed.
3. Check the correct Scout section: Photos, Notes, Voice, Files, or PDF export.
4. If using transcription, confirm the recording has usable audio.
5. Review transcript cleanup before sending text into notes.
6. Use Make Scout Notes when you want the strongest AI-assisted note pass.

If Scout media is syncing slowly, open the Scout on the second device and let iCloud finish downloading the media before exporting or presenting it.

16.11 Files Issues

If a file, link, or folder is missing: ( )

1. Check the current category or filter.
2. Check whether the item is inside a folder.
3. Search by name.
4. Confirm the file was imported into StageTools, not only previewed from another app.
5. Check iCloud Sync if you expect it to appear on another device.

If a link does not open, confirm the URL is valid and the device has internet access.

16.12 iCloud Sync Issues

If data does not appear on another device: (🗂)

1. Confirm both devices are signed into the same Apple ID.
2. Confirm iCloud Drive is enabled.
3. Confirm StageTools iCloud Sync is enabled.
4. Open StageTools on both devices long enough for sync to run.
5. Keep large Scout media open long enough to download locally.
6. Avoid editing the same item on two devices at the same time.

If sync appears stuck, check iCloud status in Settings, confirm network access, and wait for large media to finish.

16.13 App Freezes or Unexpected Behavior

If StageTools freezes or behaves unexpectedly: (☁)

1. Leave the tool and reopen it.
2. If the issue continues, force quit and reopen StageTools.
3. Check whether the issue happens in one file, one Scout, one plot, or across the whole app.
4. If it happens in one item, duplicate or export the item before continuing.
5. If it happens across the app, restart the device.
6. Capture screenshots or screen recordings before changing too much.

When reporting the issue, include what you were doing, what you expected, what happened, the device model, iOS version, and whether the issue repeats.

16.14 When to Use Which Tool

Use this table when the symptom could belong to more than one feature.

Symptom	Start Here	Then Check
Cannot find devices	Network Devices	iOS Local Network permission, IP/subnet, scan profile
DMX levels are missing	DMX Viewer	Protocol, universe range, multicast/broadcast path
Fixture is not responding	Micro Console	Patch, universe, address, mode, transmit settings
Unknown traffic is on the network	Protocol Detector	Source list, streams view, conflict detection
Plot element will not select	Quick Plots	Active type, active layer, lock/visibility
Scout media is missing	Scout Notes	Permissions, iCloud media download, Files section
Fixture profile is unavailable offline	Fixtures	Downloads, sign-in, internet access
Color solve is not available	Color Science Calculator	Complete Fixture Profile measurements
DIP pattern looks backwards	DIP Switch Calculator	Invert Orientation

16.15 Support Checklist

Before sending a support report, gather:

1. Device model.
2. iOS version.
3. StageTools version.

4. Feature or tool where the issue happened.
5. Steps to reproduce the issue.
6. Screenshot or screen recording.
7. Exported file, plot, Scout, scan report, or profile if the issue is tied to a specific item.
8. Network protocol, universe, IP range, and fixture mode when relevant.

Keep the report specific. “DMX Viewer does not show sACN universe 12 from an ETC console on 10.101.1.x after Local Network permission is enabled” is much easier to fix than “networking is broken.”

CHAPTER 17

Next Chapters to Draft

Recommended order:

1. Appendix cleanup.
2. Screenshot and icon production pass.

CHAPTER 18

Change Log

1. **June 1, 2026** — Added first-pass Protocol Detector chapter.
2. **June 1, 2026** — Added first-pass DMX Viewer chapter.
3. **June 1, 2026** — Added first-pass Micro Console chapter.
4. **June 1, 2026** — Added first-pass LTC Timecode chapter.
5. **June 1, 2026** — Added first-pass Curve Builder chapter.
6. **June 1, 2026** — Added first-pass Network Devices chapter.
7. **June 1, 2026** — Added first-pass Fixtures chapter and expanded fixture screenshot targets.
8. **May 25, 2026** — Created first working draft with Quick Start, ToolBox overview, and Quick Plots chapter pattern. Added first-pass Scout Notes and Files chapters.